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THE IMPACT OF THE SAC MISSILE MANAGEMENT WORKING GROUP ON MISSILE COMBAT CREW MEMBER ATTITUDES

AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

SEPTEMBER 1976

THE IMPACT OF THE SAC MISSILE MANAGEMENT WORKING GROUP ON MISSILE COMBAT CREW MEMBER ATTITUDES

Dennis M. Ashbaugh, Captain, USAF
Larry J. Godfrey, Captain, USAF

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The missile career field has suffered from low morale, lack of job satisfaction, and low retention since the introduction of the ICBM into the SAC weapons arsenal in 1958. Over the years, many people have conducted research studies on various aspects of these problems. In 1971, SAC formed the Missile Management Working Group (MMWG) in an effort to enhance the missile combat crew member's (MCCM) job and to increase job satisfaction, thereby improving retention and volunteer rates. The purpose of this study was to determine if MCCM attitudes toward their job and the missile operations career field had improved since the formation of the MMWG, to measure the effectiveness of the MMWG as perceived by the MCCMs in meeting its stated objectives, and to determine if volunteer and retention rates have improved. The authors conclude that MCCM attitudes have not improved since the formation of the MMWG, MCCMs do not perceive that the MMWG has been effective in meeting its stated objectives, volunteer rates have improved, and although a larger number of MCCMs have requested crew duty extension, fewer express a desire to remain in the missile career field.

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SLSR 14-76B

THE IMPACT OF THE SAC MISSILE MANAGEMENT WORKING GROUP ON MISSILE COMBAT CREW MEMBER ATTITUDES

A Thesis

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Logistics Management

By

Dennis M. Ashbaugh, BA
Captain, USAF

Larry J. Godfrey, BS
Captain, USAF

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This thesis, written by

Captain Dennis M. Ashbaugh

and

Captain Larry J. Godfrey

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

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Michael B. McCormick
COMMITTEE CHAIRMAN

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Chapter 1

INTRODUCTION

Former Air Force Chief of Staff General John D. Ryan, in looking back over his career said:

> If I could pick the greatest individual achievement of the Air Force in my 35 years, I think it would probably be the development and fielding of the missile force . . . [33:iv].

However, the introduction of the intercontinental ballistic missile (ICBM) into the Strategic Air Command's (SAC) weapons arsenal in 1958 was accompanied by the problems of low morale and low job satisfaction and their corollary, low retention of officers in the missile operations field (2:1). The heart of the problem was summarized extremely well at the outset by the British writer, Robert Rodwell in 1958.

> But nobody has yet come forward with a palliative for what we feel will be a basic root of discontent with future service life, that is the sense of complete frustration that life in a missile force will engender among its personnel. Basically, inactivity will be the cause of this frustration--not inactivity in the sense that there will be little to occupy the serviceman's working day, but the inactivity of the force as a whole. It will be a static, sterile force, prevented by its very nature from ever being fully exercised. There will be no indication to officers or airmen what their combined efforts are achieving. They will be denied the satisfaction derived from a job well done [19:66].

The problem of retention in the missile career field was highlighted by the change in the composition of the

crew force. The original crew force was recruited from all segments of the Air Force and the people were "definitely career motivated [2:9]." The majority of the follow-on replacements, however, were new second lieutenants directly from the Reserve Officer Training Corps (ROTC) or Officer Training School (OTS) (2:9). Since the overall retention rate for officers from ROTC and OTS was historically the lowest of all commissioning sources, the outlook for retaining these officers in the missile crew force was decidedly bleak (2:9).

In an effort to enhance missile officer career motivation, the Missile Management Working Group was formed at Headquarters Strategic Air Command in May 1971 (32:1). This group was charged "to improve the effectiveness, welfare, and morale of the personnel assigned to the strategic missile force [32:1]."

Problem Statement

The missile career field has suffered from low morale, lack of job satisfaction, and low retention from the outset, largely due to the inherent nature of the job (2:12-13). Many people have studied various aspects of these problems, primarily within the theoretical framework of Herzberg's theory of motivation and job satisfaction (1; 2; 3; 8; 11; 13; 16; 35). In an effort to enhance the missile combat crew member's job and to increase job satisfaction, thereby improving retention and volunteer

rates, SAC formed a Missile Management Working Group. However, the effectiveness of this group in changing attitudes and perceptions of missile combat crew members (MCCMs), and the resulting effect on morale, job satisfaction, and retention, has not been evaluated.

Literature Review

The review of the literature encompasses three major areas: (1) motivation theory, (2) previous studies of the missile career field, and (3) the Missile Management Working Group.

Motivation Theory

The studies conducted in the missile career field are largely based on the theoretical framework of Maslow, McGregor, and Herzberg (1; 2; 3; 8; 13; 35). Accordingly, the review of the literature pertaining to motivation theory will be confined to the ideas of these three individuals along with some criticisms of their ideas advanced by Dubin, Lokiec, and Strauss.

Maslow. The work of A. H. Maslow has provided much of the basis for motivational research. Maslow defined five sets of basic needs in an ordered hierarchy which he contends provide an inner drive toward an individual's goals. Once the lowest needs are satisfied, they are no longer motivators of behavior. However, the needs at the bottom of the hierarchy must be satisfied to some degree before

higher level needs begin to serve as motivators (15:7). The need hierarchy is illustrated in Figure 1.

Physiological needs are lowest in the need hierarchy. This is based on the concept that man's most basic instinct is to survive. A person who has not satisfied any of the five sets of basic needs first attempts to survive before being motivated by any of the higher needs (15:7-10).

Once physiological needs are satisfied the need for safety emerges as the dominant motivator. The safety needs are dominated by the instinct to avoid physical injury and the preference for a world of order and consistency (15:10). Although the safety need refers basically to protection from harm or danger, it is more commonly seen in our society as a desire for job security, or a savings account or insurance (14:82-90).

If the physiological and safety needs are both fulfilled, then the psychological need for love and affection becomes the dominant motivator. Accordingly, an individual will now feel a strong need for affectionate social relationships and for belonging. He will be motivated to achieve these goals and will forget the indifference he felt toward love and affection when he was at a lower level in the hierarchy (15:14).

The next higher level of needs encompasses the desire for self-respect or esteem. Fulfillment of these

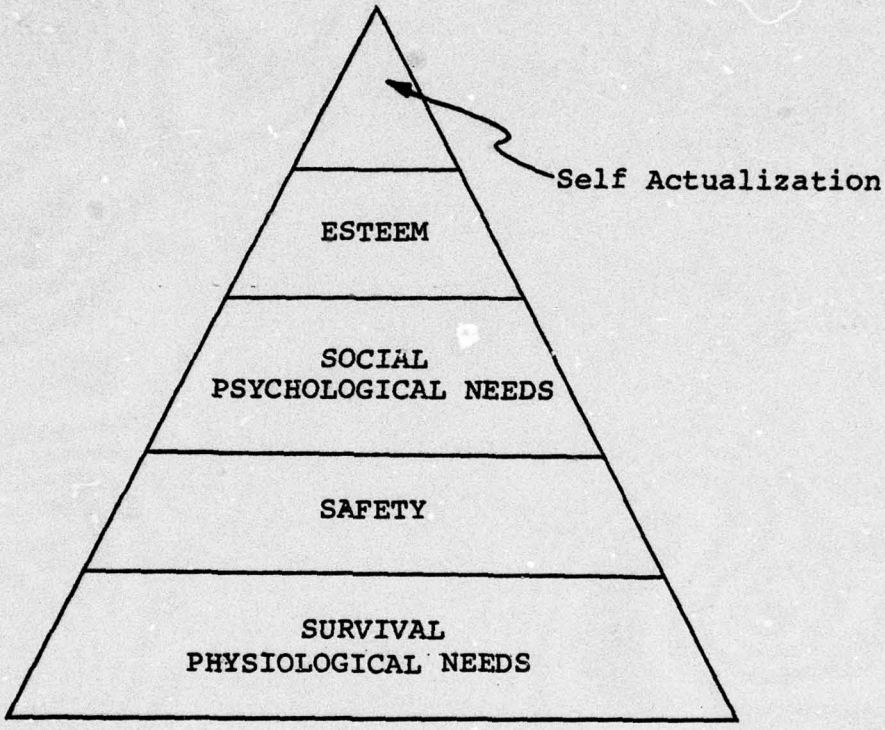


Figure 1

Maslow's Need Hierarchy (16:20)

needs leads to feelings of confidence, worth, strength, capability, adequacy, and of being useful and necessary. To satisfy these needs a person must be capable, and also must receive recognition from others for his accomplishments (15:15).

The highest level of needs in the hierarchy is the need for self-actualization. Intrinsic happiness is not achieved by a person just because he has satisfied the lower level needs (15:16). On the contrary, he will search to find success in what he is best suited to do. "This tendency might be phrased as the desire to become more and more what one is, to become everything that one is capable of becoming [15:16]."

Maslow's theory requires several assumptions. First, the hierarchy of needs is based on the behavior of normal people living in a well-developed society. Second, the theory is centered on what has motivated past behavior and not on what will motivate future behavior. Last, due to the structure of our society, the psychological and safety needs are not normally motivators and therefore, it is normally only the higher needs in the hierarchy that serve as a source of motivation for the normal adult (27: 79).

McGregor. Douglas McGregor drew heavily on the work of Maslow in discussing the conventional approach of management to motivation of workers (12:33-35). This traditional

approach, Theory X, views work as an unnatural activity for most people and views intelligent cooperation as being contrary to man's natural instincts. The Theory X means of motivating employees to work and cooperate is to manipulate the economic dependence of the worker on his employer (12: 32). McGregor saw this approach as an outdated point of view (12:35-37).

McGregor advocated Theory Y based on his examination of organizational realities and assumptions about human nature and motivation. The basic concept of Theory Y is that the essential task of management is to arrange organizational conditions and methods of operation so that people can best achieve their own goals by directing their individual efforts toward organizational objectives (12:37).

McGregor compared Theory Y to Peter Drucker's management by objectives concept since it provides guidance for growth and creation of opportunities (12:37). Although McGregor did advocate that management apply Theory Y to their organizations, he contended that Theory X might still be applicable if the goal of management was to maximize the utility of resources (26:264).

Herzberg. One of the most frequently referenced motivational models is that of Frederick Herzberg. Herzberg rejected McGregor's ideas on integration of individual and organizational goals and advanced a completely new theory by proposing that job satisfaction is not the opposite of

job dissatisfaction. Herzberg used an interview technique where he asked respondents to recall events experienced at work which resulted in a marked improvement or a marked reduction in their job satisfaction. Respondents were also asked how their feelings of satisfaction or dissatisfaction affected their work performance, personal relationships, and well-being (9:13). Analysis of the research results suggest that certain job characteristics lead to job satisfaction, while different job characteristics lead to job dissatisfaction (7:56).

According to Herzberg, motivators, the job characteristics which produce satisfaction, fulfill the individual's need for self-actualization at work. Contrarily, hygienes, the job characteristics which lead to job dissatisfaction, are work-supporting and act only as preventive measures to dissatisfaction (9:18-21). Figure 2 lists the factors of the motivation-hygiene theory and a brief explanation or example of the factors.

According to the motivation-hygiene theory, an individual with a neutral attitude toward his job increases his job satisfaction with the fulfillment of his motivators. However, absence of satisfaction of the motivators would not make him dissatisfied, but only return him to his original neutral state. Conversely, an individual with a neutral attitude toward his job would not be satisfied when all his hygiene factors were fulfilled, but the failure to

MOTIVATORS

1. Task Achievement--successful completion of a job, solutions to problems, vindication and seeing the result of one's work.
2. Recognition for Achievement--an act of notice, praise or blame by almost anyone including the general public.
3. Intrinsic interest in the task--work itself.
4. Increased task responsibility--satisfaction from being given responsibility.
5. Advancement of occupational growth--actual advancement within the company.

HYGIENES

1. Company policy and administration--communication, personnel policies, company goals.
2. Supervision--technical competence of supervisor.
3. Working conditions--physical conditions of facilities and amount of work.
4. Salary--wages and increases.
5. Personal life--some aspect of a job that affects personal life to the degree that it changes attitudes toward the job.
6. Status--symbols or titles.
7. Interpersonal relations--interactions with subordinates, peers, and supervisors.
8. Job security--tenure and company stability.
9. Possibility of occupational growth--objective evidence of increased possibility for growth.

Figure 2

Herzberg's Motivation-Hygiene Theory (9:15-6; 6:7-8)

satisfy these hygiene factors creates dissatisfaction (4:14).

No other motivational theory has received as much attention or criticism as the model proposed by Herzberg (6:3). Although a large number of replication studies of the Herzberg model tend to support the motivation-hygiene theory, several studies utilizing a different methodology did not, at least in part, support the theory (4:109-10).

Dubin. Robert Dubin has questioned Herzberg's popular notion of employee motivation by proposing that certain workers do not consider work to be their central life interest. This results in workers having a general attitude of apathy and indifference toward their jobs. When management makes demands on these employees, their response is to provide the minimum amount of effort required to meet management's requirements and nothing more. This apathetic attitude is important because the concepts of individual freedom, self-realization, satisfaction, and gratification are of no significance to indifferent employees. They look for satisfaction outside their work environment in other areas that they feel are more important to them. Dubin contends that work is not a central life interest for a majority of citizens in our society. However, the resulting apathy and indifference does not prohibit their effective performance as employees as long as they know what behavior is expected of them by management (5:92).

Lokiec. Mitchell Lokiec denies that a happy employee is a productive one and that satisfaction with management motivates the worker to produce more effectively. He disagrees with Maslow's need hierarchy and denies that all individuals strive to climb to the top of the pyramid. He argues that this is only characteristic of some individuals and since an individual may not desire to satisfy his higher level needs, management is faced with the dilemma of deciding whether to reward an employee with some type of recognition or with an increase in wages (10:989).

Strauss. George Strauss criticizes the views of Maslow, McGregor and Herzberg on the grounds that their theories are based on strong value judgements. Strauss views this as a characteristic weakness of the academic community, which places a high value on autonomy, inner direction, and the quest for maximum self-development. Since a large portion of the population is situated in an environment more functional than academic, many people find their values inconsistent with the hypotheses of academia (28:95). Accordingly, Strauss contends that the hypotheses of Maslow and Herzberg overemphasize the job as a source of need satisfaction (28:99).

Missile Career Field Studies

Overview. The attitudes and motivation of the missile crew force have been the subject of numerous studies and surveys

over the years since the advent of the ICBM (1; 2; 3; 8; 11; 13; 16; 35). The bulk of the study has been done by students at the Air Command and Staff College (ACSC) at Air University, Maxwell AFB, Alabama; the National War College, Washington, D.C.; and the School of Systems and Logistics, Air Force Institute of Technology, Wright-Patterson AFB, Ohio (2:1; 3:1). A review of the academic studies of the missile career field from 1965 to 1973 was done by Bickerstaff (1:9-10); hence, no attempt will be made here to review all of the material on the subject. However, sixteen separate studies were reviewed as part of the current research and some generalizations about these studies are in order.

The theoretical framework for the sixteen studies reviewed centers on the work of three men: A. H. Maslow, Douglas McGregor, and Frederick Herzberg, with Herzberg's dual-factor theory of motivation serving as the primary basis for the majority of the recommendations for change. Some justification for this preeminance of Herzberg's theory can be found in the results of a 1966 Air Force-wide survey of junior officers in a wide range of career specialties. The survey, entitled "New View," was conducted under the auspices of the Assistant Chief of Staff, Studies and Analysis and was undertaken to study Air Force junior officer motivation in order to identify important job and career factors. The Herzberg theory and techniques were

used in the survey (3:21-22). The "New View" study, in turn, purports to confirm the Herzberg theory in the military environment and concluded that the factors that led to job satisfaction were different from those contributing to job dissatisfaction and that the factors affecting attitudes of satisfaction and dissatisfaction were essentially the same for both job and career (35:34).

However, all surveys of missile officers have not confirmed Herzberg's theory. In a 1969 survey of 83 missile combat crew officers with less than four years of active duty service, Colonel Bowe concluded that while the dissatisfiers closely followed the "New View" profile, the motivators did not. He concluded that pay was the overriding motivator in the officer's career determination and that achievement, the job, and growth opportunities did not rate as prime motivators (2:21-36).

Conclusions. Although not all researchers agree in their evaluation of missile crew duty against the theoretical framework of Herzberg's model, they have in general reached compatible conclusions concerning the availability and impact of the motivation factors. In general, missile duty is considered to provide little in the way of motivation or job satisfaction. The conclusions reached in terms of Herzberg's motivators are as follows:

Achievement. Missile duty provides little opportunity for an individual sense of achievement for the average crew member (2:44-45; 3:98-110; 13:57-58).

Recognition. Missile alert duty provides little opportunity for recognition aside from the periodic standardization evaluations which tend to be a form of negative recognition in that the punishment for failure is high compared to the reward for excellence (1:37; 3:101-102; 13:66).

Job itself. The rigidity and standardization of missile duty does not permit creativity and provides little intrinsic satisfaction (1:38-39; 2:32; 13:58-59). Bickerstaff reported that the average alert tour was characterized as boring and monotonous in every reference on crew duty that he reviewed (1:33).

Responsibility. Bowe contended that, "missile crew members, without exception, realize the overwhelming responsibility placed in their hands, but derive little job satisfaction from that responsibility [2:40]." This lack of job satisfaction arises from the fact that there is little opportunity for the individual crew member to exercise responsibility in the day-to-day execution of his job (1:46; 3:105-106; 13:59).

Advancement. There is opportunity for advancement in the missile career field but this opportunity is seen as somewhat limited by the number of staff and command

level positions available (2:45-48; 3:102-104; 35:39-40). However, missile crew members have done relatively well in competition for promotions, regular appointments, and selection for professional military education compared to other officers not on flying status (8:45-46).

While missile duty is considered to provide little motivation or job satisfaction, there are conditions that give impetus to job dissatisfaction according to the Herzberg model. Those dissatisfiers most frequently cited are policy and administration, supervision, working conditions, and status. Maes and Brookshire both concluded that the crew member's perceptions of policy and administration at all levels in the Air Force organizational structure were the greatest source of job dissatisfaction (3:108; 13:62). Dissatisfaction with supervision from the standpoint of technical competence and with respect to the degree of interest shown in the welfare of the crew members was also reported as a major dissatisfier (1:57; 2:34; 3:112; 13-63-64). The working conditions in terms of the physical environment of the Launch Control Center, the geographic location of the missile site, and the scheduling of alert tours likewise contribute to job dissatisfaction (1:61-62); 3:110; 13:64). Meanwhile, the missile crew member's status, particularly vis-a-vis their rated combat aircrew counterparts, contributes further to the missileer's job dissatisfaction (1:64-65; 3:125-128).

Recommendations. As part of his review of the literature on missile duty, Bickerstaff compiled a list of 71 recommendations for improving the job satisfaction of missile crew members. The recommendations were made by 19 different writers who had studied the missile career field and they deal with a variety of aspects concerning missile duty. In matching the recommendations to Herzberg's model of motivators and dissatisfiers, it is found that the majority of the recommendations (approximately 60 percent) are concerned with decreasing job dissatisfaction and over half of the recommendations for increasing motivation deal with increasing the individual crew member's responsibility in the day-to-day job (1:84-87).

The Missile Management Working Group

Beginnings. As a result of a meeting with missile commanders, General Holloway, former Commander in Chief Strategic Air Command, requested that something decisive be done to "improve the effectiveness, welfare, and morale of the personnel assigned to the strategic missile force [32:1]." Accordingly, in May, 1971, the Missile Management Working Group (MMWG) was formed at Headquarters SAC. The MMWG is composed of some forty-odd volunteer members, most of whom are career missile officers, who represent all staff agencies of Headquarters SAC (32:1).

Goal and objectives. The goal of the MMWG is "to develop a better qualified, more experienced, and professional missile force [32:1]." To accomplish this goal, the group formulated the following objectives (32:1):

1. Open the lines of communication between the headquarters and the missileman in the field.
2. Increase the volunteer rate into the missile career field.
3. Increase the retention of the most qualified missile personnel.
4. Improve the working environment.
5. Enhance the image of missile duty.

MMWG interest items. In response to its stated objectives, the MMWG has investigated numerous subjects. The following list identifies four general areas of interest and some of the specific items addressed:

Organization/Management Communications:

1. Unit reorganization oriented to the missile environment.
2. Formulation of a SAC Missile Directorate.
3. Unit and individual inspection/evaluation.
4. Unit manning.
5. Crew member scheduling.
6. Rated supplement in the missile career field.
7. Upward communication from units to SAC.
8. Briefing for wives of missilemen.
9. General Holloway video tape to crew members.

Education/Training:

1. Increased opportunities for participation in the Minuteman Education Program.
2. Realism in Emergency War Order Training.
3. Additional training for crews in the Missile Procedures Trainer.
4. Seminars for Professional Military Education.

Headquarters Policy Changes

1. Reduction in four-year tour.
2. Requirements for Missile Badge.
3. Redesign of Missile Badge.
4. Requirements for Combat Readiness Medal.
5. Authorizations from SAC to man the Air Force Military Personnel Center (AFMPC) Palace Missile Program.

Incentives/Prestige:

1. Special Pay/Bonus.
2. Missile combat crew competition.
3. Working/living conditions in launch control centers.
4. Food service at launch control facilities.
5. Crew Member Excellence Award for outstanding achievement (32:9-15).

Travel team. One aspect of the MMWG is the travel team. The purpose of the travel team is to communicate directly with the men on the job without allowing the message to be distorted by passing through the established communication channels. The team is composed of from five to seven

officers and NCOs from SAC and is scheduled to visit each missile wing once per year (32:1-2). From October 1971 to March 1975, the travel team briefed over 3,000 missile personnel and provided personnel counseling for over 5,000 individuals (20:2).

Missile Career Development Handbook. A major accomplishment of the MMWG was the publication of the Missile Career Development Handbook (MCDH) to be used as a career guide for missile personnel (3:48). The handbook contains a description of all missile staff positions above wing level along with the name, background, experience, and tour completion date, if known, for each position (33:vii). By utilizing this handbook, an individual can select the specific jobs that fit his career goals and prepare himself to qualify for the type of jobs he desires. The handbook "promises to be an extremely valuable aid in assisting missile officers with their personal career planning [3:49]."

Justification and Delimitation

The very existence of the Missile Management Working Group is a reflection of SAC's deep concern and commitment to resolving problems within the missile career field and making missile duty more attractive (32:1). However, there has not been an objective evaluation of MCCM perceptions relative to morale and job satisfaction since the formation of the MMWG. The Chairman of the MMWG at

HQ SAC expressed a desire for such an objective evaluation (21).

Although the MMWG has been expanded to serve the strategic missile force in general, this evaluation addressed only officers in the missile operations career field so that the previous surveys conducted by Brookshire and Scott, and McDaniel and Dodd could be used as a basis for comparison (32:4). Furthermore, since none of the previous studies reviewed questioned the effectiveness of job performance, the evaluation was limited to the attitudes of missile operations officers toward their job and the missile career field and did not address job performance.

The MMWG is composed of volunteers representing all staff agencies at Headquarters SAC. Since the members serve the group on a part-time basis, it is virtually impossible to accurately calculate the direct personnel costs attributable to their efforts (22). Accordingly, no attempt was made to assess the cost effectiveness of the MMWG.

Objectives

The objectives of this research effort were:

1. To sample current attitudes of missile combat crew members (MCCMs) toward their career field and their job.

2. To compare the sample of current attitudes with the results of previous studies that were conducted shortly

after the formation of the MMWG[1] and determine if attitudes have changed.

3. To measure the effectiveness of the MMWG, as perceived by MCCMs, in:

a. opening lines of communication between HQ SAC and MCCMs;

b. improving the working/living conditions for MCCMs; and

c. improving the missile career field and the image of MCCMs.

4. To compare current retention rates of MCCMs with past rates to determine if a difference exists.

5. To compare current volunteer rates of MCCMs with past rates to determine if a difference exists.

Research Propositions and Hypotheses

Research propositions and hypotheses were derived from research objectives 2 through 5. Support or non-support of the propositions and hypotheses was determined through use of statistical and criteria tests. The

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[1]The MMWG was actually chartered in May 1971 and held its first meeting in June 1971. But, the traveling team made its first visit to a missile wing in October 1971 and did not complete one visit to each wing until July 1972. The first edition of the MCDH was not published until June 1972 (32:12-13). And, the attitude surveys by Brookshire and Scott, and McDaniel and Dodd were conducted in October 1971 and January 1972 respectively (3; 11). However, it is assumed that the attitudes reflected in these surveys were not significantly affected by the efforts of the MMWG.

direction and nature of the results were anticipated in each case on the basis of the review of literature and interviews with members of the MMWG.[2] Specific propositions and hypotheses tested were:

Proposition 1 (Hypotheses 1 through 16)

Attitudes of MCCMs toward their job and toward the missile operations career field have improved since the formation of the MMWG.

Hypothesis 1

MCCMs have a more favorable attitude toward their job since the formation of the MMWG.

Hypothesis 2

MCCMs have a more favorable attitude toward the manner in which they are supervised by their immediate supervisor since the formation of the MMWG.

Hypothesis 3

MCCMs have a more favorable attitude toward the sense of personal accomplishment achieved in performing their job since the formation of the MMWG.

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[2]See Figure 3 for an explanation of the relationship between the research propositions and hypotheses and their relationship to the research objectives.

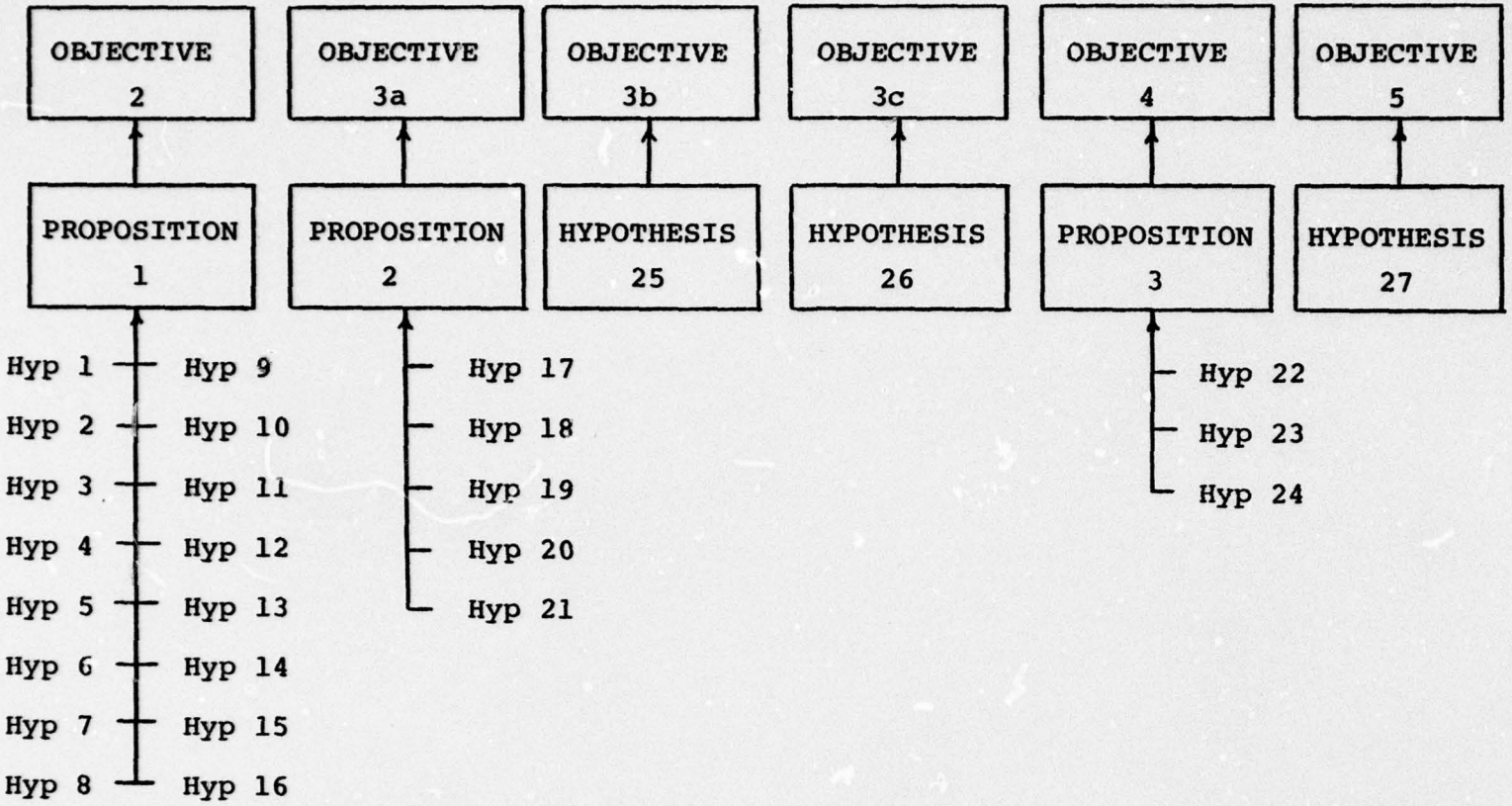


Figure 3

Relationship of Objectives, Propositions, and Hypotheses

Hypothesis 4

MCCMs have a more favorable attitude toward the opportunity for individual recognition provided by their job since the formation of the MMWG.

Hypothesis 5

MCCMs have a more favorable attitude toward the actual work involved in accomplishing their job since the formation of the MMWG.

Hypothesis 6

MCCMs have a more favorable attitude toward the feeling of individual responsibility allowed by their job since the formation of the MMWG.

Hypothesis 7

MCCMs have a more favorable attitude toward their work schedule since the formation of the MMWG.

Hypothesis 8

MCCMs have a more favorable attitude toward the opportunity to develop personal friendships provided by their job since the formation of the MMWG.

Hypothesis 9

MCCMs have a more favorable attitude toward the physical working environment of the Launch Control Center since the formation of the MMWG.

Hypothesis 10

MCCMs have a more favorable attitude toward the adequacy of their salary since the formation of the MMWG.

Hypothesis 11

MCCMs have a more favorable attitude toward their job's effect on their personal life since the formation of the MMWG.

Hypothesis 12

MCCMs have a more favorable attitude toward the opportunity for advancement provided by the missile operations career field since the formation of the MMWG.

Hypothesis 13

MCCMs have a more favorable attitude toward the future offered by the missile operations career field since the formation of the MMWG.

Hypothesis 14

MCCMs have a more favorable attitude toward the adequacy of efforts made to improve missile crew duty and to resolve problems generally encountered by MCCMs since the formation of the MMWG.

Hypothesis 15

MCCMs have a more favorable attitude toward the understanding of missile crew duty displayed by command

and staff personnel at higher headquarters since the formation of the MMWG.

Hypothesis 16

MCCMs have a more favorable attitude toward the understanding of missile crew duty displayed by command and staff personnel in their unit since the formation of the MMWG.

Proposition 2 (Hypotheses 17 through 21)

MCCMs believe that the MMWG has been effective in opening the lines of communication between HQ SAC and the missileman in the field.

Hypothesis 17

The majority of MCCMs believe that the MMWG has been effective in opening the lines of communication between HQ SAC and the missileman in the field.

Hypothesis 18

The majority of MCCMs who intend to remain in the missile career field have used the Missile Career Development Handbook in career planning and in preparing their Officer Career Objective Statement, AF Form 90.

Hypothesis 19

The majority of MCCMs feel that the Missile Career Development Handbook is an aid to career planning.

Hypothesis 20

The majority of MCCMs have received individual career counseling by the MMWG traveling team.

Hypothesis 21

The majority of MCCMs feel that the information and guidance provided by HQ SAC and the Air Force Military Personnel Center's Palace Missile Program actually provides realistic guidance to plan and influence their career.

Proposition 3 (Hypotheses 22 through 24)

Retention of MCCMs in the missile career field has improved since the formation of the MMWG.

Hypothesis 22

The proportion of MCCMs desiring to remain in the missile career field has increased since the formation of the MMWG.

Hypothesis 23

A larger number of MCCMs have requested crew duty extensions since the formation of the MMWG.

Hypothesis 24

The proportion of MCCMs leaving the crew force and staying in the missile career field has increased since the formation of the MMWG.

Hypothesis 25

The majority of MCCMs feel that the MMWG has been effective in improving the working/living conditions for the MCCM.

Hypothesis 26

The majority of MCCMs believe that the MMWG has been effective in improving the missile career field and the image of the missileman.

Hypothesis 27

The proportion of new MCCMs that have been volunteers for missile duty has increased since the formation of the MMWG.

Chapter 2

METHODOLOGY

The Survey Questionnaire

The method used to gather data on attitudes and perceptions of MCCMs was a survey questionnaire. (A sample questionnaire is contained in Appendix A.) In identifying factors that determine job attitude, Herzberg stated that:

> . . . questionnaires may be administered. These make it possible to apply statistical techniques to analysis. From such an analysis it is possible to derive factors whose content can be deducted from a study of interrelationships among the items [11:16].

This questionnaire approach was chosen to provide a systematic method of gathering data from a geographically dispersed population. Additionally, it provided a data base suitable to techniques of appropriate statistical analysis (11:16).

The survey questionnaire was designed to gather data in five general areas:

1. Demographic
2. Job/career field attitudes
3. MCCMs perceptions of the MMWG
4. Items of interest to SAC
5. Other factors

The demographic data was used to identify differences that existed between various categories of respondents; i.e.,

between MCCMs in different weapon systems, of different ranks, etc. The job/career field attitude questions were used to acquire information primarily in terms of the factors identified in the Herzberg Motivation theory discussed in the Literature Review. The questions pertaining to the MMWG were constructed to determine the MCCM's perception of the MMWG in terms of the MMWG's achievement of its stated goals. SAC interest item questions were included to provide data for the MMWG on specific topics and also to provide additional insight on those topics for data analysis. Questions related to other factors were included in an attempt to isolate and identify any other alternatives besides the MMWG that might explain a change in MCCM attitudes. A synopsis of the first fifty questions of the survey questionnaire is found in Appendix B. An additional twenty-seven questions were added to the survey questionnaire at the request of AFMPC. Although these questions are related to the subject of the research, at the time of their inclusion in the survey questionnaire, the hypotheses and research methodology had already been formulated. Therefore, the responses to these questions have not been analyzed as a part of this research effort. The results of these questions are found in Appendix A. These results will be provided to HQ SAC and AFMPC for possible future analysis.

Questions 10 through 50 were randomized using a random number table with replacement. This was done in the interest of internal validity to encourage honest responses to individual questions, to minimize comparison of answers, and to minimize the effect of similar questions leading a respondent to answer a question based on his response to a previous question.

The survey questionnaire was based primarily on the theoretical work of Herzberg. Several questions were taken from two previous MCCM questionnaires designed by McDaniel and Dodd (11:46-48) and Brookshire and Scott (3:10-13). Specific questions taken from these previous surveys are identified in Appendix B.

Additional validity was achieved by circulating the survey questionnaire for critical review. These reviews were conducted by the thesis chairman; the AFIT Research and Communicative Studies Department, School of Systems and Logistics; several former MCCMs currently assigned to AFIT, School of Systems and Logistics; the Missile Assignments Branch, HQ SAC; the Missile and Subsystems Branch, HQ SAC; and the Palace Missile Branch, AFMPC. These reviews were required in an attempt to eliminate bias and to assure appropriateness. Some of the questions were restructured using suggestions from these reviews. Additional critical reviews were conducted by HQ AFIT, HQ Air University and HQ, United States Air

Force during the approval sequence for the final questionnaire.

The Survey Subjects

The individual missile combat crew member (MCCM) was the subject of this research. Each individual survey questionnaire representing the attitudes and opinions of an individual MCCM was numbered to facilitate the collection and summarization of data.

Variables for Testing[1]

1. Job Attitude. Job attitude is the attitude of the MCCM toward his particular job and was sampled at the ordinal level based on the responses to eleven attitude questions on the survey questionnaire. Each question has five possible responses, so the data is classified as discrete limited. Although all eleven questions sample job attitude and are therefore related, each question deals with a distinct aspect of job attitude and was treated separately. The distribution of responses to each question on the current survey was compared to the distribution of responses on a previous survey to determine if a statistically significant difference existed. The aspects of job attitude examined were:

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[1]See Appendix C for a clarification of the relationship of the variables for testing, the hypotheses, the survey questions, the level and classification of data for each variable, and the appropriate statistical test.

a. General attitude toward job

b. Satisfaction with supervision

c. Sense of personal accomplishment

d. Opportunity for recognition

e. Enjoyment from the work itself

f. Adequacy of responsibility

g. Work scheduling

h. Opportunity for social interaction

i. Physical work environment

j. Adequacy of salary

k. Effect on personal life

2. Career Field Attitude. Career field attitude is the attitude of the MCCM toward the missile career field and was sampled by responses to five attitude questions on the survey questionnaire. Two of the questions sampled at the ordinal level and were classified as discrete limited, while the remaining three questions sampled at the nominal level and were classified as discrete dichotomous. Each question deals with a distinct aspect of career field attitude and was treated separately in the same manner described for job attitude. The aspects of career field attitude examined were:

a. Opportunity for advancement

b. Future offered by missile career field

c. Efforts to improve duty/solve problems

d. Higher HQ staff understanding of crew duty

e. Unit staff understanding of crew duty

3. Communication. Communication is the MCCM's perception of the usefulness and effectiveness of the means of passing necessary information concerning career planning between HQ SAC and the missileman in the field. Communication was sampled by the responses to five questions on the survey questionnaire. One of the questions sampled at the ordinal level and is classified as discrete limited. The remaining four questions sampled at the nominal level; one is classified as discrete dichotomous and three are classified as discrete limited.[2] Again, each question deals with a distinct aspect of communication and was treated separately. However, since the questions dealing with communication have not been asked on a previous survey, the distribution of responses to each question were merely tested to determine if the number of favorable responses exceeded the number of unfavorable responses by a statistically significant amount. The aspects of communication examined were:

a. MMWG effectiveness in opening lines of communication

b. Use of the MCDH in career planning

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[2]The sample data for all five questions was combined to produce a nominal discrete dichotomous classification in order to conduct statistical tests. The reasoning for this change in data classification is explained fully in Chapter 3.

c. Value of the MCDH

d. Career counseling by MMWG traveling team

e. Career guidance by HQ SAC and AFMPC

4. Volunteer Rate. Volunteer rate is the proportion of MCCMs that have volunteered for missile duty via their Air Force Form 90, Officer Career Objective Statement, or made formal application for the Minuteman Education Program (MMEP). Volunteer rate was sampled at the nominal level by responses to a question on the survey questionnaire classified as discrete limited. The distribution of responses was compared to the distribution of responses on two previous surveys to determine if a statistically significant difference existed.

5. Retention. Retention is the proportion of MCCMs that desire to remain in the missile career field as opposed to seeking duty in another career field. Retention was sampled at the nominal level by responses to a question on the survey questionnaire classified as discrete dichotomous. The distribution of responses was compared to the distribution of responses on a previous survey to determine if a statistically significant difference existed. Retention was also measured at the ratio level according to a discrete infinite classification using census data from historical records maintained at HQ SAC that reflect the

number of MCCMs that have requested extended duty on a missile crew beyond the required four-year tour.

6. Living/Working Conditions. Living/working conditions is the MCCM's perception of their work environment and was sampled at the nominal level by discrete dichotomous responses to a question on the survey questionnaire. The distribution of responses was tested to determine if the number of favorable responses exceeded the number of unfavorable responses by a statistically significant amount.

7. Missileman's Image. The missileman's image is the perception of the MCCMs concerning the image of the missile career field and the individual missileman, and was sampled at the nominal level by the responses to a question on the survey questionnaire classified as discrete dichotomous. The distribution of responses was tested to determine if the number of favorable responses exceeded the number of unfavorable responses by a statistically significant amount.

The Population

The population consisted of all commissioned MCCMs assigned to the nine operational strategic missile wings in either the Titan or Minuteman weapons system. The term commissioned is used to identify those crew members who are commissioned Air Force Officers. This excludes the non-commissioned, enlisted crew members serving in the Titan

weapons system. The nine operational strategic missile wings are:

1. Davis Monthan--(Titan)
2. Little Rock--(Titan)
3. McConnell--(Titan)
4. Malmstrom--(Minuteman)
5. Ellsworth--(Minuteman)
6. Minot--(Minuteman)
7. Whiteman--(Minuteman)
8. F. E. Warren--(Minuteman)
9. Grand Forks--(Minuteman)

Sampling Plan

As of 6 February 1976, HQ SAC records showed a total of 2370 crew members in the population (17). A sample of 540 crew members was drawn from this population. The large sample size of 540 was used in order to establish a sound basis for statistical inference in generalizing the sample data to the population. In "A Guide for the Development of the Attitude and Opinion Survey," Headquarters USAF advises that for the survey statistician to be

> . . . 95% confident that the true population statistics lie somewhere within the interval $\pm$ 5 percentage points from his achieved sample statistics . . . the following is the general formula for computing maximum sample size. . . .

$$n = \frac{N(z^2) \times p(1-p)}{(N-1)(d^2) + (z^2) \times p(1-p)}$$

where:

n = sample size,
N = population size,
p = maximum sample size factor (.50),
d = desired tolerance (.05), and
z = factor of assurance (1.96) for 95% confidence level [31:117-118].

Computation of this formula for a population of 2370 yields a sample size of 331. However, since McDaniel and Dodd, and Brookshire and Scott solicited samples of 500 and 550 respectively (3:65; 11:44), a sample size of 540 was considered appropriate for the current research.

The possibility of biased data exists due to nonrespondents. The bias could have been introduced if the attitudes and opinions of nonrespondents were different than those of the people who chose to respond to the survey questionnaire. However, because of the desire to maintain complete respondent anonymity and the time constraints placed on the research efforts, it was not possible to send follow-up questionnaires to nonrespondents. Therefore, generalization of the results of the survey questionnaire to the population may be limited. But for purposes of determining if there was a shift in the distribution of responses between the current survey and the previous surveys, it was assumed that there was no difference in the reasons for nonresponse. Accordingly, any bias in the current sample data due to nonrespondents is assumed to be the same as the bias in the previous sample data and

therefore, it is assumed that the two data bases can be compared without limitation in terms of the distribution of responses to individual questions. Furthermore, it is assumed that the responses to both the prior surveys and the current survey represent the honest opinions of the MCCM respondents.

Originally, a simple random sample was planned because it "is conceptually and computationally the most straightforward method of sampling a population [36:525]." However, the sample provided by HQ SAC identified sixty individuals from each of the nine operational strategic missile wings regardless of the relative proportion of the population assigned at each wing. Thus, the sampling plan actually used for the research was a disproportionate stratified random sample. This deviation from the planned methodology was not considered to be a limiting factor in the research since the earlier survey by Brookshire and Scott was also conducted on a disproportionate stratified random sample (3:65). However, a limitation does exist in that Brookshire and Scott's survey results were not summarized by weapons system (e.g., Titan or Minuteman) (3:II-1). Furthermore, the survey by McDaniel and Dodd, the second survey used as a basis for determining if a change in attitudes had occurred since the formation of the Missile Management Working Group (MMWG), was conducted

on a random sample of Minuteman crew members and thus excluded all Titan crew members (11:17).

Although the review of the literature did not reveal any difference in attitudes between Titan and Minuteman MCCMs, the current attitudes were tested for dependency at the .05 significance level using the Chi Square Test for Independence. In those cases where attitudes were found to show a statistically significant dependence on assignment to a particular weapons system (e.g., Titan or Minuteman) only the responses to the current survey by Minuteman MCCMs were compared to the McDaniel and Dodd survey data and the results are applicable only to Minuteman MCCMs. Likewise, where statistically significant dependence was found with respect to those questions taken from the Brookshire and Scott survey, comparison of responses is not meaningful since their survey results were not summarized by weapons system (3:II-1). Consequently, those questions were deleted from consideration.

Data Collection

The 540 individual members of the sample were identified by HQ SAC based on a computerized selection of social security numbers of MCCMs. The survey questionnaires were distributed to a project officer designated by HQ SAC at each of the missile wing bases. The project officers then distributed a copy of the questionnaire to

each individual member of the sample. When completed, the questionnaires were returned for data analysis via the project officers (22).

Upon receipt of the questionnaires, individual question responses were input to a computer data base to facilitate computerized analysis. The data was grouped by respondent and summarized by question.

In addition to the data obtained from the survey questionnaire, other information was needed to test hypotheses 23, 24, and 27. Specific information requested from HQ SAC to test these hypotheses was:

1. The proportion of new MCCMs that have been volunteers in each of the calendar years 1971 through 1975.

2. The number of MCCM extensions in each of the calendar years 1971 through 1975.

3. The proportion of MCCMs leaving the crew force and staying in the missile career field in each of the calendar years 1971 through 1975.

Statistical Tests

The initial step in data analysis was to total the individual responses to each question of the survey. This produced the distribution of the sample MCCM responses to specific questions. Statistical inferences were then required to provide explanations for particular responses and justification for generalization to the population

(11:27). Nonparametric tests were used to make these inferences since nonparametric tests require no assumptions about the population distribution (30:129). Statistical tests were not designed to test Hypotheses 23, 24, and 27 since the information requested from HQ SAC was census data (31:122).

Chi Square Test: Two Independent Samples

One statistical test used to test the hypotheses based on questions providing nominal data was the chi square (χ^2) test for two independent samples. This test was used to determine if there was a significant difference between the responses to the current questionnaire and the responses to previous surveys. The alternate hypotheses generally state

> . . . that the two groups differ with respect to some characteristic and therefore with respect to the relative frequency with which group members fall in several categories [26:104].

The nominal data used in these hypothesis tests was grouped in accordance with the arrangement shown in the 2 x 2 contingency table (Figure 4).

	Yes	No	
Previous Responses	A	B	A + B
Current Responses	C	D	C + D
Total	A+C	B+D	N

Figure 4

2 X 2 Contingency Table (26:96)

χ_o^2 was calculated using the following formula:

$$\chi_o^2 = \frac{N(|AD-BC|-\frac{N}{2})^2}{(A+B)(C+D)(A+C)(B+D)} \qquad (26:107)$$

The hypotheses were tested at a .05 level of significance. For a one-tailed test for a change in the predicted direction with one degree of freedom, $\chi_c^2 = 3.84$. Therefore, H_0 was rejected when $\chi_o^2 > 3.84$. When the change was not in the predicted direction, a two-tailed test was used to test for statistical significance, with one degree of freedom, $\chi_c^2 = 5.02$. Therefore, H_0 was rejected when $\chi_o^2 > 5.02$.

Chi Square Test: One Sample

The χ^2 one-sample test was used to test the hypotheses that were based on questions that were not taken from other questionnaire. The test was used to test whether a significant difference existed between an observed number of responses that fell in each category and an expected number based on the null hypothesis (26: 43). χ_o^2 was calculated using the following formula:

$$\chi_o^2 = \Sigma \frac{(O_i-E_i)^2}{E_1}$$

where O_i = number of observed cases in the ith category, and

E_i = number of expected cases in the ith category under H_0.

The hypotheses were tested at a .05 level of significance. For a one-tailed test for significance in the predicted direction with one degree of freedom, $\chi_c^2 = 3.84$. Therefore, H_0 was rejected when $\chi_o^2 > 3.84$. When the results were not in the predicted direction, a two tailed test was used to test for statistical significance. With one degree of freedom, $\chi_c^2 = 5.02$. Therefore, H_0 was rejected when $\chi_o^2 > 5.02$.

Mann-Whitney Rank Sum Test

When at least ordinal measurement has been achieved, the Mann-Whitney Rank Sum Test may be used to test for differences in central tendency between two populations (30:1). "This is one of the most powerful of the nonparametric tests [26:116]." The Mann-Whitney test can be used as an alternative to the parametric t test when the measurements fail to achieve interval scaling (26:116).

> If the Mann-Whitney test is applied to data which might properly be analyzed by the most powerful parametric test, the t test, its power-efficiency approaches $3/\pi = 95.5$ percent as N increases . . . , and is close to 95 even for moderate-sized samples [26:126].

The Mann-Whitney Rank Sum Test was used to test the hypotheses based on questions providing ordinal data. This test was used to determine if there was a statistically significant difference between the distribution of responses to the current questionnaire and the distribution of responses obtained from previous questionnaires (26:116). In comparing responses from the two questionnaires, the null

hypothesis, H_0, was that the two populations had the same distribution. The alternative directional hypothesis, H_1, was that one population was stochastically larger than the other. If "a" was one observation from population A, and "b" was one observation from population B, H_0: $P(a>b)= 1/2$ and H_1: $P(a>b) > 1/2$. If H_0 was rejected, this implied that the distribution of population A has shifted in the predicted direction. If the shift in the distribution was not in the predicted direction a two-tailed test was used to test for significance. A two-tailed test was used in this case because there was no longer a priori knowledge to serve as a basis for a directional hypothesis. In this instance H_1: $P(a>b) \neq 1/2$ (26:116).

When applying the Mann-Whitney test, n_1 equaled the number of observations for one group and n_2 equaled the observations from the other group and $n_1 \geq n_2$. The observations from both groups were combined and ranked in order of increasing size and W was the sum of the ranks of the smaller sample (30:1).

In cases of large sample size ($n_1>20$), the sampling distribution employed in the Mann-Whitney test approaches the normal distribution (26:120-1),

where: the computed z value = $\frac{[W-E(W)]}{SD_W}$

and: $E(W) = (1/2)n_2(n_1+n_2+1)$

and: $Var_W = (\frac{1}{12})\ n_1n_2(n_1+n_2+1)$ (30:1).

The Mann-Whitney test assumes that the measured observations are independent and represent a distribution which has underlying continuity. With exact measurement of a variable having underlying continuity, the probability of a tie is zero. Therefore, in order to use the Mann-Whitney test when tied scores occur, it was assumed that the observations which obtained tied scores were really different, but that this difference was too minute for detection. Therefore, all observations were given the average of the tied ranks (26:123-4).

In order to simplify the calculations involved in resolving the hypotheses via the Mann-Whitney Rank Sum Test, a FORTRAN computer program was constructed to process the summarized survey data (see Appendix E).

Criteria Tests

In addition to the statistical tests applied to the applicable hypotheses, practical decision rules were required. These decision rules, or criteria tests, were used to determine if the results of the data analysis were of practical importance in meeting the research objectives.

Support or non-support of Proposition 1, that the attitudes of MCCMs toward their job and toward the missile operations career field have improved since the formation of the MMWG, was provided by sixteen hypotheses (Hypotheses 1 through 16). However, a specific decision rule

was not formulated until the data was analyzed, at which time a decision was made as to whether or not the proposition was supported according to the following guidelines:

1. No one of the hypotheses was inherently more important than the others in relation to the proposition.

2. A statistically significant result as predicted in the hypothesis test was considered as being important in a practical sense as an indication of support for the proposition.

The results of the data analysis were discussed with members of the faculty of the School of Systems and Logistics with backgrounds in behavioral science related areas and familiarity with the missile career field. These discussions resulted in the decision as to whether or not the results of the hypothesis tests supported the proposition.

Proposition 2, that MCCMs believe the MMWG has been effective in opening the lines of communication between HQ SAC and the missileman in the field, is similar to Proposition 1 in that support or non-support was provided by five hypotheses (Hypotheses 17 through 21). The determination as to whether or not the results of the hypotheses tests supported Proposition 2 was made in the same manner as described for Proposition 1.

Support or non-support of Proposition 3, that the retention of MCCMs in the missile career field has increased

since the formation of the MMWG, was provided by three hypotheses (Hypotheses 22 through 24). Hypothesis 22 was tested using data obtained from the survey questionnaire. A finding of statistical significance in the predicted direction was considered to be of practical importance in support of the proposition. Hypotheses 23 and 24 were evaluated using census data. A change in the number of requested extensions addressed in Hypothesis 23 was considered to support the proposition if an increasing trend was found and the number of extensions requested in each of the calendar years 1972 through 1975 exceeded the number in the base year 1971. Similarly a change in the proportion of MCCMs leaving the crew force and staying in the missile career field addressed in Hypothesis 24 was considered to support the proposition if an increasing trend was found and the proportions in each of the years 1972 through 1975 exceeded the proportion in the base year 1971. The decision rule for Proposition 3 was, that if any two of the three hypotheses were supportive, the proposition was supported.

Hypothesis 25, that a majority of crew members feel that the MMWG has been effective in improving the working/living conditions for the MCCM, was tested using data on responses to a question on the survey questionnaire. Statistical significance noted in the predicted direction

was considered to be of practical importance in support of the hypothesis.

Hypothesis 26, that a majority of crew members believe the MMWG has been effective in improving the missile career field and the image of the missileman, was tested using data on responses to a question on the survey questionnaire. Statistical significance noted in the predicted direction was considered to be of practical importance in support of the hypothesis.

Hypothesis 27, that the proportion of new MCCMs that have been volunteers for missile duty has increased since the formation of the MMWG, was tested using data on responses to a question on a survey questionnaire.[3] Statistical significance noted in the predicted direction was considered to be of practical importance in support of the hypothesis.

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[3]This hypothesis was intended to be evaluated using census data from HQ SAC, but the data proved to be unavailable and questionnaire data was used instead. The details of this change in methodology are explained in Chapter 3.

Chapter 3

DATA ANALYSIS

Introduction

This chapter describes the analysis of the data collected in this research and answers the research propositions and hypotheses formulated to satisfy the research objectives listed in Chapter 1.

Questionnaire Data

There were 540 questionnaires sent to project officers at the 9 strategic missile wings during May, 1976, and 372 completed questionnaires returned for a response rate of 68.89 percent. There were 142 Titan MCCM respondents and 230 Minuteman MCCM respondents. The response rate of individual missile wings varied greatly. There were 60 questionnaires sent to each of the 9 wings and the response rate by wing varied from a high of 96.67 percent for Davis-Monthan to a low of 53.33 percent for Grand Forks. A complete summary of the questionnaire responses is shown in Appendix A.

In recording the data from individual questionnaires, the responses to 4 questions were edited. Questions 19, 34, and 44 all deal with the Minuteman Education Program (MMEP), and are therefore not meaningful for Titan

crew members. Accordingly, since the questionnaire design inadvertently did not provide an appropriate response for Titan crew members, all Titan responses to these questions were recorded as "x", "Not Applicable--Titan." Similarly, question 75 was applicable to Titan crew members only, and no responses were recorded for Minuteman crew member responses to this question. Two additional edits were performed in recording questionnaire responses. First, in these cases where a page of questions was missing from the individual's questionnaire package, the responses to the missing questions were recorded as "y", "Missing Question." Second, in those cases where a respondent failed to mark a response to a question or marked more than one response, a "z", "No Response" was recorded.

A summary of the proportions of current survey respondents by demographic variable compared to the proportions obtained in the Brookshire and Scott, and McDaniel and Dodd surveys is shown in Appendix D. Unfortunately, data was not available for all of the demographic variables for the McDaniel and Dodd respondent population and the individual question response sets were not identical for all three surveys, but general comparisons can be made. In general, the current survey population had more combat ready experience, included more missile crew volunteers, included fewer MCCMs who intended to leave the Air Force than the two previous survey populations, and included

fewer Officer Training School graduates and more Air Force Academy graduates than the Brookshire and Scott respondent population.

Dependency

As previously stated in Chapter 2, the MCCM respondent's current attitudes were tested for significance of dependency on assignment to a particular weapons system (e.g., Titan or Minuteman) at the .05 level. A summary of the computed test statistics is shown in Appendix F. In those cases where statistically significant weapons system dependency was found to exist for a particular variable, only the applicable crew member responses to the current survey were used to test the hypothesis. Specifically, the following variables were found to show significant weapons system dependency and therefore only the Minuteman MCCM responses to the current survey were compared to the McDaniel and Dodd survey data to test the applicable hypotheses:

1. Hypothesis 3: Sense of personal accomplishment.
2. Hypothesis 6: Feeling of individual responsibility.
3. Hypothesis 7: Attitude toward work schedule.
4. Hypothesis 9: Attitude toward physical working environment.
5. Hypothesis 12: Attitude toward opportunity for advancement.

Furthermore, MCCM attitudes toward the future offered by the missile operations career field was also found to show significant weapons system dependency. Consequently, hypothesis 13 was not tested since the comparison data base for this hypothesis came from the Brookshire and Scott survey and their survey population contained 25.7 percent Titan MCCM respondents while our survey population contained 38.2 percent Titan MCCM respondents (3:II-14). And, as previously stated, their survey results were not summarized by weapons system (3:II-1).

In addition to testing current MCCM attitudes for dependency on weapons system, 33 selected attitudes were also tested for dependency on 10 other variables. The results of this testing are shown in Appendix I. A statistically significant dependency was found in 35 percent of the 330 tests. The variables on which the 33 selected attitudes were found to show the largest numbers of dependencies were missile career intent, type of crew, and Air Force career intent with 23, 16, and 15 dependent relationships respectively. Obviously these dependent relationships have an impact on the profile of current crew member attitudes as measured by the survey questionnaire. And, in turn, affect the confidence that can be applied to the testing of the research hypotheses which were resolved without consideration of any dependent relationships except weapons system dependencies. An adequate treatment of the

dependency relationships found to exist simply exceeded the scope and time limitations of this research effort.

Presentation Format

The presentation of the data analysis will be by Proposition and by Hypothesis in the same order as they were presented in Chapter 1. Each Proposition and Hypothesis will be restated along with the survey question, when applicable, and the analysis of each Hypothesis will be presented in five parts according to the following format.

(a) Each Hypothesis will be identified as to whether or not the data results were found to show a statistically significant dependence on the weapon system to which the crew members were assigned (e.g., Titan or Minuteman).

(b) If a dependency existed, the weapon system to which the hypothesis is applicable will be identified. If no dependency existed, the Hypothesis will be identified as being applicable to all missile combat crew members.

(c) Since all the hypotheses predict direction, the results of this prediction will be presented to indicate if the data results were actually in the direction predicted.

(d) The results of the statistical test will be presented to show if the Hypothesis test was statistically significant.

(e) The result of the Hypothesis test will be related to a Proposition, where applicable, to show if the Hypothesis does in fact lend support to the proposition.

A table will be presented to show the data collected for each Hypothesis test and the computed test statistic. (The tables are numbered to correspond to the hypothesis numbers.) Where the hypothesis test involves a comparison of current responses with responses of previous questionnaires, the previous data source will be identified as M&D for McDaniel and Dodd or B&S for Brookshire and Scott.

Finally, a comment will be made concerning various relationships that exist between the variable tested in the hypothesis and other selected variables. In several instances responses were grouped in order to simplify the presentation of the data. Where this was done, "definite" and "qualified" yes answers were referred to as positive, favorable, or yes responses and "definite" and "qualified" no answers were referred to as negative, unfavorable, or no responses.

Analysis

Proposition 1 (Hypotheses 1 through 16)

Attitudes of MCCMs toward their job and toward the missile operations career field have improved since the formation of the MMWG.

Hypothesis 1

MCCMs have a more favorable attitude toward their job since the formation of the MMWG.

1. Survey Question 36. Do you like your job?
   a. A definite yes
   b. A qualified yes
   c. Neutral
   d. A qualified no
   e. A definite no

2. Findings
   (a) Dependency: Not dependent
   (b) Applicability: All crew members
   (c) Movement: In predicted direction
   (d) Significance: Not statistically significant
   (e) Support: Does not offer practical support

TABLE 1

JOB ATTITUDE
(MANN-WHITNEY RANK SUM TEST)

Date Source	Favorable a	b	c	Unfavorable d	e
M&D responses (N=387)	49	150	44	68	76
All current responses (N=371)	51	136	53	59	72

Computed Z statistic[a] = 0.163; $.4325 \leq p \leq .4364$.

[a]The critical z value for a one-tailed test in the predicted direction is 1.645. The critical value for a two-tailed test not in the predicted direction is 1.96.

3. Comments

Job attitude showed a definite relationship to type of crew. While only 45 percent of the line crew members answered the question with a definite or qualified yes, 66 percent and 65 percent of the instructor and standboard crew members respectively answered with an affirmative response.

Additionally, job attitude showed a relationship to missile combat ready experience. The percentage of crew members answering the question affirmatively in terms of combat ready experience is shown in Figure 5.

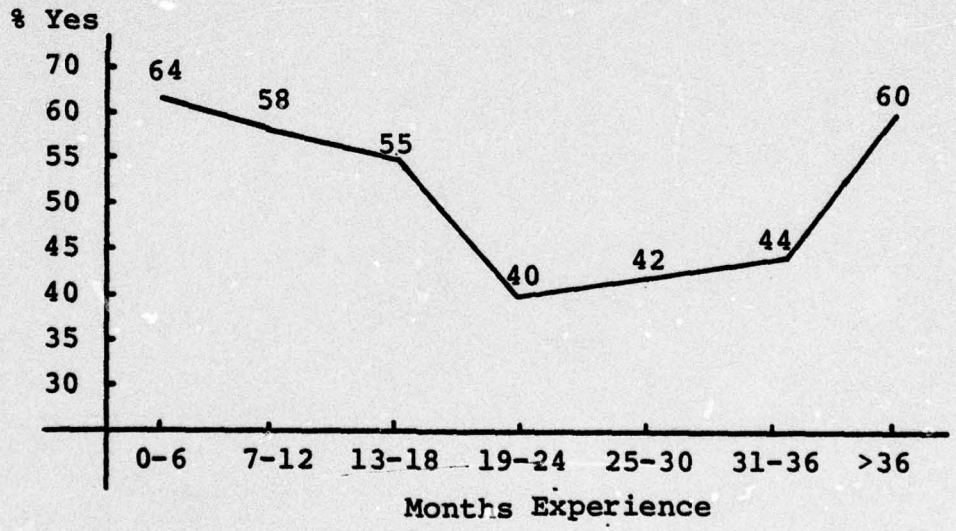


Figure 5

Job Attitude versus Combat Ready Experience

Job attitude also showed a definite relationship to volunteer status. Of the 265 crew members who indicated that they were volunteers, 159 or 60 percent of them,

answered that they liked their job. However, of the 105 non-volunteers, only 28 crew members or 4 percent indicated that they liked their job.

Hypothesis 2

MCCMs have a more favorable attitude toward the manner in which they are supervised by their immediate supervisor since the formation of the MMWG.

1. Survey Question 10. Are you supervised by your immediate supervisor in a manner which is satisfactory to you?

a. A definite yes
b. A qualified yes
c. Neutral
d. A qualified no
e. A definite no

2. Findings

(a) Dependency: Not dependent
(b) Applicability: All crew members
(c) Movement: In predicted direction
(d) Significance: Is statistically significant
(e) Support: Does offer practical support

3. Comments

MCCCs and DMCCs differed in their attitude toward their immediate supervisor. Seventy-one percent

of the MCCCs answered that they were satisfied with their immediate supervisor, while 85 percent of the DMCCCs answered in the same manner.

A difference in satisfaction with supervision also existed based on rank. Eighty-four percent of the Second Lieutenants and 87 percent of the First Lieutenants were satisfied with their immediate supervisor, while only 69 percent of the Captains and 57.2 percent of the Majors indicated satisfaction with supervision.

TABLE 2

SUPERVISION
(MANN-WHITNEY RANK SUM TEST)

Data Source	Favorable a	b	c	Unfavorable d	e
M&D responses (N=387)	122	131	52	52	30
All current responses (N=372)	164	122	37	32	17

Computed Z statistic = 3.929; $.00003 \leq p \leq .00005$.

Hypothesis 3

MCCMs have a more favorable attitude toward the sense of personal accomplishment achieved in performing their job since the formation of the MMWG.

1. Survey Question 27. Do you feel a sense of personal accomplishment when performing your job?

   a. A definite yes

   b. A qualified yes

c. Neutral

d. A qualified no

e. A definite no

2. Findings

(a) Dependency: Is dependent

(b) Applicability: Minuteman only

(c) Movement: In predicted direction

(d) Significance: Not statistically significant

(e) Support: Does not offer practical support

TABLE 3

PERSONAL ACCOMPLISHMENT
(MANN-WHITNEY RANK SUM TEST)

Data Source	Favorable a	b	c	Unfavorable d	e
M&D responses (N=387)	47	129	42	86	83
Current Minuteman responses (N=230)	29	77	29	48	46

Computed Z statistic = 0.335; $.3669 \leq p \leq .3707$.

3. Comments

MCCMs attitude toward their own sense of personal accomplishment varied by weapon system. Fifty percent of the Titan crew members answered affirmatively that they felt a sense of personal accomplishment in performing their job, while 46 percent of the Minuteman crew members answered in the same manner.

Answers to this question also varied by type of crew. Seventy-three percent of the instructors and 62 percent of the standboard crew members answered affirmatively, while only 41 percent of the line crew members indicated that they felt a sense of personal accomplishment when performing their job.

Volunteer status also appeared to affect the sense of personal accomplishment. Fifty-two percent of the volunteers answered with a definite or qualified yes, while only 36 percent of the non-volunteers answered that they felt a sense of personal accomplishment when performing their job.

Hypothesis 4

MCCMs have a more favorable attitude toward the opportunity for individual recognition provided by their job since the formation of the MMWG.

1. Survey Question 48. Does your job offer you a reasonable opportunity for individual recognition?

a. A definite yes
b. A qualified yes
c. Neutral
d. A qualified no
e. A definite no

2. Findings

(a) Dependency: Not dependent

(b) Applicability: All crew members

(c) Movement: In predicted direction

(d) Significance: Not statistically significant

(e) Support: Does not offer practical support

TABLE 4

INDIVIDUAL RECOGNITION
(MANN-WHITNEY RANK SUM TEST)

Data Source	Favorable a	b	c	Unfavorable d	e
M&D responses (N=387)	50	127	56	95	59
All current responses (N=372)	46	144	47	89	46

Computed Z statistic = 1.140; p = .1271.

3. Comments

MCCM attitudes toward the opportunity for individual recognition provided by their job differed with respect to type of crew assignment. Forty-five percent of the line crew members, 68 percent of the instructor crew members, and 74 percent of the standboard crew members answered the question with a definite or a qualified yes.

Hypothesis 5

MCCMs have a more favorable attitude toward the actual work involved in accomplishing their job since the formation of the MMWG.

1. Survey Question 13. Do you enjoy doing the actual work involved in accomplishing your job?

   a. A definite yes

   b. A qualified yes

   c. Neutral

   d. A qualified no

   e. A definite no

2. Findings

   (a) Dependency: Not dependent

   (b) Applicability: All crew members

   (c) Movement: In predicted direction

   (d) Significance: Is statistically significant

   (e) Support: Does offer practical support

TABLE 5

WORK ATTITUDE
(MANN-WHITNEY RANK SUM TEST)

Data Source	Favorable a	b	c	Unfavorable d	e
M&D responses (N=387)	48	108	71	70	90
All current responses (N=372)	76	121	48	64	63

Computed Z statistic = 3.414; $.00023 \leq p \leq .0003$.

3. Comments

MCCM attitudes toward their actual work enjoyment varied relative to type of crew assignment. While only 45 percent of the line crew members answered that they

enjoyed their work, 78 percent of the instructors and 74 percent of the standboard crew members answered the question positively.

Work enjoyment also varied with respect to volunteer status. Sixty-one percent of the volunteers indicated that they enjoyed their work, while only 34 percent of the non-volunteers answered the question with a qualified or a definite yes.

Hypothesis 6

MCCMs have a more favorable attitude toward the feeling of individual responsibility allowed by their job since the formation of the MMWG.

1. Survey Question 17. Do you feel that you are given adequate individual responsibility in your job?

   a. A definite yes
   b. A qualified yes
   c. Neutral
   d. A qualified no
   e. A definite no

2. Findings

   (a) Dependency: Is dependent
   (b) Applicability: Minuteman only
   (c) Movement: In predicted direction
   (d) Significance: Not statistically significant
   (e) Support: Does not offer practical support

TABLE 6

INDIVIDUAL RESPONSIBILITY
(MANN-WHITNEY RANK SUM TEST)

Data Source	Favorable a	b	c	Unfavorable d	e
M&D responses (N=387)	80	121	54	75	57
Current Minuteman responses (N=230)	59	67	20	42	42

Computed Z statistic = 0.387; $.3483 \leq p \leq .3520$.

3. Comments

MCCMs attitudes toward individual responsibility showed some difference with respect to weapon system. Sixty-eight percent of the Titan crew members answered affirmatively that they felt a sense of individual responsibility in their job and 55 percent of the Minuteman crew members answered with a definite or a qualified yes.

Attitude toward responsibility also showed a relationship to type of crew assignment. Fifty-three percent of the line crew members, 78 percent of the instructor crew members, and 83 percent of the standboard crew members indicated an adequate sense of personal responsibility.

Additionally, volunteer status appeared to have a relationship with attitudes toward responsibility. Sixty-five percent of the volunteers, but only 45 percent of the non-volunteers indicated a favorable attitude toward individual responsibility.

Hypothesis 7

MCCMs have a more favorable attitude toward their work schedule since the formation of the MMWG.

1. Survey Question 41. Are you satisfied with your work schedule?

   a. A definite yes

   b. A qualified yes

   c. Neutral

   d. A qualified no

   e. A definite no

2. Findings

   (a) Dependency: Is dependent

   (b) Applicability: Minuteman only

   (c) Movement: Not in predicted direction

   (d) Significance: Not statistically significant

   (e) Support: Does not offer practical support

TABLE 7

WORK SCHEDULE
(MANN-WHITNEY RANK SUM TEST)

Data Source	Favorable a	b	c	Unfavorable d	e
M&D responses (N=387)	41	153	64	71	58
Current Minuteman responses (N=230)	23	89	29	58	31

Computed Z statistic = 0.513; $.603 \leq p \leq .61$.

3. Comments

MCCM attitudes toward their work schedule varied with respect to weapon system assignment. Where only 39 percent of the Titan crew members expressed a favorable attitude toward their work schedule, 49 percent of the Minuteman crew members answered with a positive response.

Hypothesis 8

MCCMs have a more favorable attitude toward the opportunity to develop personal friendships provided by their job since the formation of the MMWG.

1. Survey Question 30. Does your job provide you ample opportunity to develop personal friendships with other officers in your unit?

a. A definite yes
b. A qualified yes
c. Neutral
d. A qualified nc
e. A definite no

2. Findings

(a) Dependency: Not dependent
(b) Applicability: All crew members
(c) Movement: In predicted direction
(d) Significance: Not statistically significant
(e) Support: Does not offer practical support

TABLE 8

PERSONAL FRIENDSHIPS
(MANN-WHITNEY RANK SUM TEST)

Data Source	Favorable a	b	c	Unfavorable d	e
M&D responses (N=387)	121	134	43	67	22
All current responses (N=372)	125	143	38	45	21

Computed Z statistic = 1.396; $.0808 \leq p \leq .0823$.

3. Comments

No meaningful relationships were found among other variables with respect to MCCM attitudes toward the opportunity to develop personal friendships provided by their job.

Hypothesis 9

MCCMs have a more favorable attitude toward the physical working environment of the Launch Control Center since the formation of the MMWG.

1. Survey Question 33. Do you consider the physical working environment of the capsule (LCC) to be satisfactory?

a. A definite yes

b. A qualified yes

c. Neutral

d. A qualified no

e. A definite yes

2. Findings

(a) Dependency: Is dependent

(b) Applicability: Minuteman only

(c) Movement: In predicted direction

(d) Significance: Is statistically significant

(e) Support: Does offer practical support

TABLE 9

PHYSICAL WORKING ENVIRONMENT
(MANN-WHITNEY RANK SUM TEST)

Data Source	Favorable a	b	c	Unfavorable d	e
M&D responses (N=387)	15	113	46	104	109
Current Minuteman responses (N=230)	14	77	37	52	50

Computed Z statistic = 2.303; $.0104 \leq p \leq .0107$.

3. Comments

MCCM attitudes toward the physical working environment of the Launch Control Center varied with respect to weapon system. While only 20 percent of the Titan crew members found the working environment to be satisfactory, 40 percent of the Minuteman crew members answered the question with a definite or a qualified yes.

Attitudes toward the working environment also varied relative to the individual's combat ready time. (See Figure 6.)

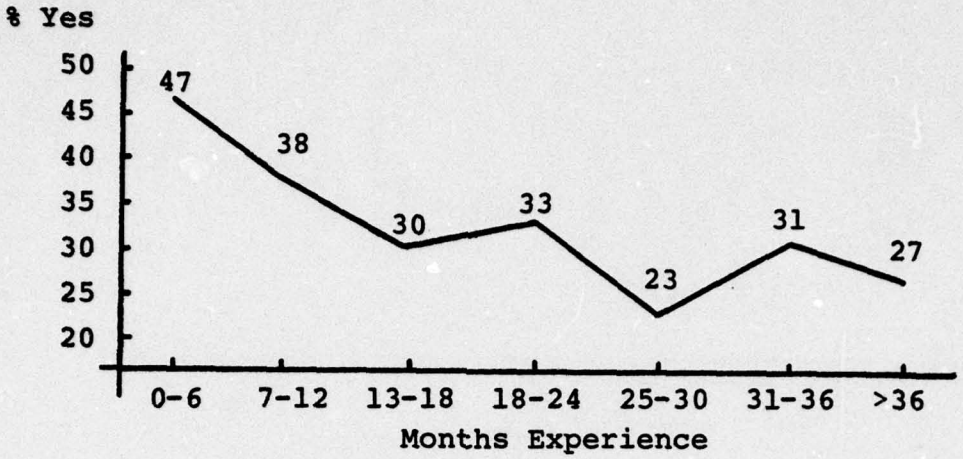


Figure 6

Attitude Toward Working Environment
versus Combat Ready Experience

Hypothesis 10

MCCMs have a more favorable attitude toward the adequacy of their salary since the formation of the MMWG.

1. Survey Question 26. Are you paid a reasonable salary?

   a. A definite yes
   b. A qualified yes
   c. Neutral
   d. A qualified no
   e. A definite no

2. Findings

   (a) Dependency: Not dependent
   (b) Applicability: All crew members
   (c) Movement: In predicted direction
   (d) Significance: Not statistically significant
   (e) Support: Does not offer practical support

TABLE 10

SALARY
(MANN-WHITNEY RANK SUM TEST)

Data Source	Favorable a	b	c	Unfavorable d	e
M&D respones (N=387)	120	183	36	34	14
All current responses (N=372)	122	171	32	33	14

Computed Z statistic = .383; $.3483 \leq p \leq .352$.

3. Comments

MCCM attitudes toward the adequacy of their salary differed based on crew position. Eighty-six percent of the MCCCs, but only 60 percent of the DMCCCs, felt that their salaries were adequate.

Attitudes toward salary also varied based on rank. Percentages that felt that the salary was adequate are as follows: Second Lieutenant, 62 percent; First Lieutenant, 83 percent; Captain, 86 percent; and Major, 93 percent.

Hypothesis 11

MCCMs have a more favorable attitude toward their job's effect on their personal life since the formation of the MMWG.

1. Survey Question 37. Does your job have a favorable effect on your personal life?

a. A definite yes

b. A qualified yes

c. Neutral

d. A qualified no

e. A definite no

2. Findings

(a) Dependency: Not dependent

(b) Applicability: All crew members

(c) Movement: In predicted direction

(d) Significance: Not statistically significant

(e) Support: Does not offer practical support

TABLE 11

JOB EFFECT ON PERSONAL LIFE
(MANN-WHITNEY RANK SUM TEST)

Data Source	Favorable a	b	c	Unfavorable d	e
M&D responses (N=387)	18	78	87	115	89
All current responses (N=371)	21	84	71	106	89

Computed Z statistic = 0.309; $.3783 \leq p \leq .3821$.

3. Comments

No meaningful relationships were found among other variables with respect to MCCM attitudes toward their job's effect on their personal life.

Hypothesis 12

MCCMs have a more favorable attitude toward the opportunity for advancement provided by the missile operations career field since the formation of the MMWG.

1. Survey Question 50. Do you think the opportunity for advancement in the missile operations career field is at least as good as other Air Force career fields?

a. A definite yes

b. A qualified yes

c. Neutral

d. A qualified no

e. A definite no

2. Findings

(a) Dependency: Is dependent

(b) Applicability: Minuteman only

(c) Movement: Not in predicted direction

(d) Significance: Is statistically significant

(e) Support: Is contradictory to the proposition

3. Comments

MCCM attitudes toward the opportunity for advancement in the missile operations career field differed relative to weapon system. Sixty-two percent of the Titan crew members answered the question with a favorable response, while only 46 percent of the Minuteman crew members answered a definite or a qualified yes.

Attitudes toward the opportunity for advancement also varied with respect to type of crew. Percentages of crew members in each type of crew who answered the question with a favorable response are as follows: Line, 47 percent; Instructor, 59 percent; and Standboard, 77 percent.

TABLE 12

ADVANCEMENT
(MANN-WHITNEY RANK SUM TEST)

Data Source	Favorable a	b	c	Unfavorable d	e
M&D responses (N=387)	126	134	74	29	24
Current Minuteman responses (N=230)	34	72	36	46	42

Computed Z statistic = 6.542; $p < .00006$.

Hypothesis 13

MCCMs have a more favorable attitude toward the future offered by the missile operations career field since the formation of the MMWG.

1. Survey Question 21. Which of the following best describes your feelings about the missile operations career field?

   a. It's a dead end.

   b. It's a career field with some future.

   c. It's a career field with a very promising future.

2. Findings

(a) Dependency: Is dependent

(b) Applicability: None, since a comparison to B&S data is not meaningful, this hypothesis was not tested

TABLE 13

CAREER FUTURE

Data Source	Unfavorable a	b	Favorable c
All current responses (N=371)	76	232	63

3. Comments

MCCM attitudes toward the missile operations career field differed with respect to weapon system. Only 13 percent of the Minuteman crew members felt that the career field has a promising future, while 22 percent of the Titan crew members felt that there is a promising future in missile operations.

Attitudes also differed based on volunteer status. Twenty percent of the volunteers, but only 10 percent of the non-volunteers, felt that missile operations offers a very promising future as a career field.

Hypothesis 14

MCCMs have a more favorable attitude toward the adequacy of efforts made to improve missile crew duty and

to resolve problems generally encountered by MCCMs since the formation of the MMWG.

1. Survey Question 46. Do you feel that adequate efforts have been made to improve missile crew duty and to resolve problems generally encountered by missile crew members?

a. Yes

b. No

2. Findings

(a) Dependency: Not dependent

(b) Applicability: All crew members

(c) Movement: Not in predicted direction

(d) Significance: Is statistically significant

(e) Support: Is contradictory to the proposition

TABLE 14

IMPROVE DUTY/SOLVE PROBLEMS
(χ^2 TWO SAMPLE TEST)

Data Source	Yes a	No b
B&S responses (N=392)	148	244
All current responses (N=371)	105	266

Computed χ^2 statistic[a] = 7.27; $.001 \leq p \leq .01$.

[a]The critical χ^2 value for a one-tailed test in the predicted direction is 3.84. The critical χ^2 value for a two-tailed test not in the predicted direction is 5.02.

3. Comments

MCCM attitudes toward the adequacy of efforts made to improve duty and to resolve problems showed a relationship to combat ready experience. The percentage of crew members answering the question affirmatively in terms of combat ready experience is shown in Figure 7.

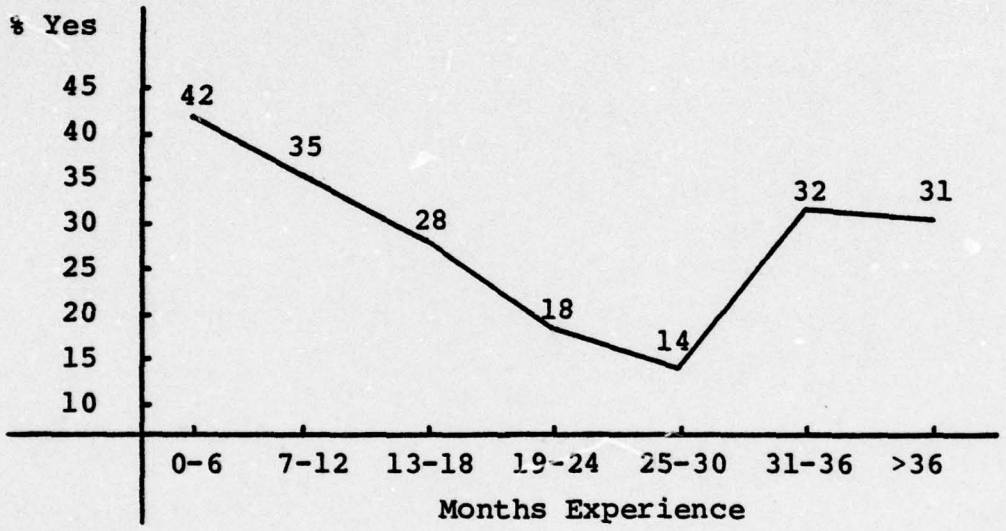


Figure 7

Efforts to Improve Duty versus
Combat Ready Experience

The attitude of MCCMs toward the adequacy of efforts made to improve duty and to resolve problems did not vary greatly between those MCCMs who had been briefed by the MMWG travel team and those who had not. Twenty-five percent of those who had been briefed felt that adequate efforts had been made versus 28 percent for those who had not been briefed.

Hypothesis 15

MCCMs have a more favorable attitude toward the understanding of missile crew duty displayed by command and staff personnel at higher headquarters since the formation of the MMWG.

1. Survey Question 31. Do you feel that missile crew duty is fully understood and appreciated by command and staff personnel at higher headquarters?

   a. Yes

   b. No

2. Findings

   (a) Dependency: Not dependent

   (b) Applicability: All crew members

   (c) Movement: Not in predicted direction

   (d) Significance: Is statistically significant

   (e) Support: Is contradictory to the proposition

TABLE 15

HHQ UNDERSTANDING
(χ^2 TWO SAMPLE TEST)

Data Source	Yes a	No b
B&S responses (N=392)	117	275
All current responses (N=372)	50	322

Computed χ^2 statistic = 29.12; $p < .001$.

3. Comments

MCCM attitudes toward the understanding of missile crew duty by higher headquarters personnel varied with respect to combat ready experience. Thirty-three percent of the crew members with six months or less combat ready experience answered the question with a yes. As combat ready experience increased the percentage of crew members answering yes decreased to only 6 percent for experience over 36 months.

Attitudes toward the understanding by higher headquarters personnel also differed by rank. Percentages answering the question with a yes answer by rank are as follows: Second Lieutenant, 22 percent; First Lieutenant, 10 percent; Captain, 12 percent; and Major, 7 percent.

Hypothesis 16

MCCMs have a more favorable attitude toward the understanding of missile crew duty displayed by command and staff personnel in their unit since the formation of the MMWG.

1. Survey Question 20. Do you feel that missile crew duty is fully understood and appreciated by senior command and staff personnel in your unit?

a. Yes

b. No

2. Findings

(a) Dependency: Not dependent

(b) Applicability: All crew members

(c) Movement: Not in predicted direction

(d) Significance: Is statistically significant

(e) Support: Is contradictory to the proposition

TABLE 16

UNIT UNDERSTANDING
(χ^2 TWO SAMPLE TEST)

Data Source	Yes a	No b
B&S responses (N=392)	226	166
All current responses (N=372)	145	227

Computed χ^2 statistic = 25.91; $p < .001$.

3. Comments

MCCM attitudes toward the understanding of missile crew duty displayed by local command and staff personnel differed with respect to rank. Percentages of crew members by rank who answered yes to the question are as follows: Second Lieutenant, 51 percent; First Lieutenant, 33 percent; Captain, 37 percent; and Major, 36 percent.

Conclusion

The results of testing hypotheses 1 through 16, which are summarized in Figure 8, do not provide adequate support to conclude that the attitudes of MCCMs toward

Hypothesis Number	Question Number	Dependency	Applicability	Movement[1]	Significance[2]	Support
1	36	No	All	+	0	No
2	10	No	All	+	+	Yes
3	27	Yes	MM	+	0	No
4	48	No	All	+	0	No
5	13	No	All	+	+	Yes
6	17	Yes	MM	+	0	No
7	41	Yes	MM	-	0	No
8	30	No	All	+	0	No
9	33	Yes	MM	+	+	Yes
10	26	No	All	+	0	No
11	37	No	All	-	0	No
12	50	Yes	MM	-	+	No
13	21	Yes	None		Not Tested	
14	46	No	All	-	+	No
15	31	No	All	-	+	No
16	20	No	All	-	+	No

Figure 8

Proposition 1: Hypothesis Test Results

1. + means movement in the predicted direction, and - means movement not in the predicted direction.

2. + means statistically significant, and 0 means not statistically significant.

their job and toward the missile operations career field have improved since the formation of the MMWG. The only 3 of the 16 attitudes measured that were found to have improved with 95 percent statistical confidence were satisfaction with supervision, attitude toward the actual work itself, and attitude toward the physical working environment. And, because of its dependence on weapons system assignment (e.g., Titan or Minuteman) the improved attitude toward the physical working environment was confirmed only for Minuteman crew members.

On the other hand, 4 of the 16 attitudes measured were found to be less favorable with 95 percent statistical confidence. Three of these 4 (the attitudes toward the efforts made to improve missile crew duty, higher headquarters staff understanding of missile duty, and unit staff understanding of missile crew duty) were applicable to all MCCMs while the less favorable attitude toward the opportunity for advancement provided by the missile operations career field was applicable to Minuteman MCCMs only.

The attitudes of MCCMs toward their job as opposed their attitudes toward the missile operations career field showed essentially opposite results. Hypotheses 1 through 11 dealt with the crew member's attitudes toward his job. Although only 3 of these attitudes were found to be more favorable with a statistical confidence of 95 percent, another 6 showed a shift in the favorable direction. On

the other hand, all 4 of the hypotheses tested that dealt with the crew members' attitudes toward the missile operations career field showed an unfavorable shift that was statistically significant.

In addition to the previously discussed individual relationships between the demographic variables and the variables for testing, two other variables, Air Force and missile career intentions, showed consistent relationships with the variables to be tested under Proposition 1 (see Appendix I). In general, both those individuals who intend to stay in the Air Force and those who intend to stay in the missile career field had more positive attitudes toward their job and toward the missile career field. There was no attempt made to identify any cause and effect relationship between these variables, but only to point out that they do appear to move together.

Proposition 2 (Hypotheses 17 through 21)

MCCMs believe that the MMWG has been effective in opening lines of communication between HQ SAC and the missileman in the field.

The original research methodology for testing the five hypotheses in support of proposition 2 proposed a simple yes or no response to the five survey questions that dealt with communication between HQ SAC and the missileman in the field. However, in the process of gaining approval to administer the questionnaire through the various levels

of review mentioned in Chapter 2, it became necessary to expand the response set for four of the five questions. Consequently, in order to test these four hypotheses as they were originally formulated it was necessary to combine the responses into two categories, "yes" and "other." This procedure does not distort the intent of the hypothesis tests, except as is noted in the case of hypothesis 17.

Hypothesis 17

The majority of MCCMs believe that the MMWG has been effective in opening the lines of communication between HQ SAC and the missileman in the field.

1. Survey Question 15. Do you believe that the MMWG has been effective in opening the lines of communication between HQ SAC and the missileman in the field?

a. A definite yes
b. A qualified yes
c. Undecided
d. A qualified no
e. A definite no

2. Findings

(a) Dependency: Not dependent
(b) Applicability: All crew members
(c) Majority: Not favorable
(d) Significance: Is statistically significant
(d) Support: Is contradictory to the proposition

TABLE 17A

COMMUNICATION
(χ^2 ONE SAMPLE TEST)

Data Source	Yes	Other
All current responses (N=372)	107	265

Computed χ^2 statistic[a] = 67.11; $p < .001$.

[a]The critical χ^2 value for a one-tailed test, in the predicted direction, is 3.84. The critical χ^2 value for a two-tailed test, not in the predicted direction, is 5.02.

TABLE 17B

COMMUNICATION
(QUESTIONNAIRE DATA)

Response	Number of Respondents
A definite yes	31
A qualified yes	76
Undecided	158
A qualified no	56
A definite no	39
No response	12

Combining the responses into "yes" and "other" to test hypothesis 17 distorts the true implications of the data. The "yes" responses total 107 while the "no" responses total 95 (see Table 17B above). When, in the interest of conservatism, the nonrespondents are added to

the "no" responses, the total is 107. This is exactly the same total as for the "yes" responses. Although the proportion of "yes" responses is insufficient to infer practical support, the data does not contradict proposition 2.

3. Comments

The proportions of MCCMs who felt that the MMWG had been effective in opening the lines of communication between HQ SAC and the missileman in the field vary greatly by base of assignment. The proportion of "yes" responses ranged from a low of 7 percent at Ellsworth and 12 percent at McConnell to a high of 53 percent at Grand Forks and 41 percent at Minot. The "no" responses ranged between 22 percent and 36 percent for all bases except Minot which had only 16 percent "no" responses. The majority of respondents at all bases were "undecided" except at Grand Forks where there were only 17 percent "undecided."

The proportion of "yes" responses showed an increasing trend relative to combat ready experience. (See Figure 9.) Similarly, the proportion of "yes" responses also increased relative to rank of the respondents as follows: Second Lieutenant, 21 percent; First Lieutenant, 30 percent; Captain, 34 percent; and Major, 36 percent.

The attitudes of MCCMs toward the effectiveness of the MMWG in opening the lines of communication between HQ SAC and the missileman in the field also varied

consistently with the type of crew assignment. Twenty-four percent of the line crew members responded "yes" and 30 percent responded "no" while 38 percent and 18 percent of the instructor crew members, and 61 percent and 15 percent of the standboard crew members responded "yes" and "no" respectively.

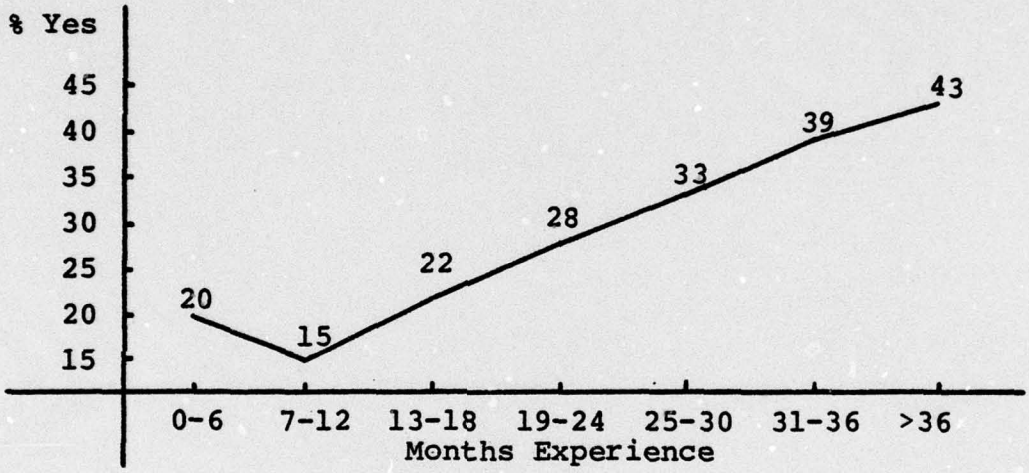


Figure 9

Communication Between SAC and MCCM versus Combat Ready Experience

Hypothesis 18

The majority of MCCMs who intend to remain in the missile career field have used the Missile Career Development Handbook in career planning and in preparing their Officer Career Objective Statement, AF Form 90.

1. Survey Question 25. Have you used the Missile Career Development Handbook in planning your career and in preparing your Form 90?

a. Yes

b. No

c. No. I am not familiar with the Missile Career Development Handbook.

d. No. I do not plan to remain in the missile career field.

2. Findings

(a) Dependency: Dependent

(b) Applicability: Minuteman and Titan crew members separately

(c) Majority: (Minuteman) Favorable
(Titan) Unfavorable

(d) Significance:
(Minuteman) Is statistically significant
(Titan) Is not statistically significant

(e) Support:
(Minuteman) Does offer practical support
(Titan) Does not offer practical support

TABLE 18A

MCDH USE

(χ^2 ONE SAMPLE TEST)

Data Source	Yes	Other
Current Minuteman responses (N=151)	106	45
Current Titan responses (N=106)	56	50

Computed χ^2 statistic = (Minuteman) 26.64; $p < .0005$.
(Titan) .34; $.25 \leq p \leq .35$.

TABLE 18B

MCDH USE
(QUESTIONNAIRE DATA)

Response	# Titan Respondents	# MM Respondents
Yes	56	106
No	31	37
Unaware of MCDH	19	8
Leaving missile career field	36	78

3. Comments

Use of the Missile Career Development Handbook (MCDA) varied most dramatically with the type of crew assignment. While only 38 percent of the line crew members answered that they had used the MCDH, 56 percent of the instructors and 68 percent of the standboard respondents reported having used it. Likewise, a larger proportion of crew commanders (51 percent) than deputies (34 percent) reported having used the MCDH. However, those crew members who had heard the MMWG travel team briefing, versus those who had not showed a smaller divergence. Sixty-eight percent of those who reported having heard the briefing also reported having used the MCDH while 53 percent of those who had not heard the briefing or were unaware of the MMWG travel team also had used the handbook.

Hypothesis 19

The majority of MCCMs feel that the Missile Career Development Handbook is an aid to career planning.

1. Survey Question 28. Do you feel that the Missile Career Development Handbook is an aid to missile crew members in career planning?

   a. Yes

   b. No

   c. Don't know. I am not familiar with the Missile Career Development Handbook.

2. Findings

   (a) Dependency: Dependent

   (b) Applicability: Minuteman and Titan crew members separately

   (c) Majority: (Minuteman) Favorable
   (Titan) Favorable

   (d) Significance:
   (Minuteman) Is statistically significant
   (Titan) Is statistically significant

   (e) Support):
   (Minuteman) Does offer practical support
   (Titan) Does offer practical support

3. Comments

The majority of those MCCMs who did not feel that the MCDH was an aid to career planning in both the Titan and Minuteman weapons systems were unaware that the MCDH existed. In both weapons systems a preponderance of those who were unaware of the MCDH were located at an

individual base. Twenty-two of the 43 Titan MCCMs who were unaware of the MCDH were assigned at McConnell and represented 52 percent of the McConnell respondents. Similarly, 10 of the 34 Minuteman crew members who were unaware of the MCDH were assigned at Ellsworth and represented 21 percent of the Ellsworth respondents.

Familiarity with the MCDH was also related to the length of combat ready experience. Seventy-four percent of those who were unaware of the MCDH in both weapons systems combined had two years or less combat ready experience.

Knowledge of the MMWG travel team was also a factor. Fifty percent of those who were unaware of the MMWG travel team were also unaware of the MCDH.

TABLE 19A

MCDH VALUE
(χ^2 ONE SAMPLE TEST)

Data Source	Yes	Other
Current Minuteman crew members	161	65
Current Titan crew members	84	58

Computed χ^2 statistic = (Minuteman) 40.78; $p < .0005$.
(Titan) 4.76; $.01 \leq p \leq .025$.

TABLE 19B

MCDH VALUE
(QUESTIONNAIRE DATA)

Response	# Titan Respondents	# MM Respondents
Yes	84	161
No	15	31
Unaware of MCDH	43	34

Hypothesis 20

The majority of MCCMs have received individual career counseling by the MMWG traveling team.

1. Survey Question 14. Have you received individual career counseling by a member of the Missile Management Working Group (MMWG) Traveling Team?

   a. Yes

   b. No

   c. No. I did not know they provided individual counseling.

   d. No, I am not aware of the MMWG Traveling Team.

2. Findings

   (a) Dependency: Dependent

   (b) Applicability: Minuteman and Titan crew members separately

   (c) Majority: (Minuteman) Not favorable
   (Titan) Favorable

(d) Significance:
(Minuteman) Is statistically significant
(Titan) Is not statistically significant

(e) Support:
(Minuteman) Contradictory to the proposition
(Titan) Does not offer practical support

TABLE 20A

CAREER COUNSELING
(χ^2 ONE SAMPLE TEST)

Date Source	Yes	Other
Current Minuteman crew members (N=230)	99	131
Current Titan crew members (N=142)	72	70

Computed χ^2 statistic = (Minuteman) 4.45; $.02 \leq p \leq .05$.
(Titan) .03; $.4 \leq p \leq .45$.

TABLE 20B

CAREER COUNSELING
(QUESTIONNAIRE DATA)

Response	# Titan Respondents	# MM Respondents
Yes	72	99
No	37	92
Unaware of counseling	7	11
Unaware of MMWG	26	28

3. Comments

In both the Titan and Minuteman weapons systems, the majority of those MCCMs who were aware that the MMWG travel team provided individual career counseling

had been counseled. And, the proportion of MCCMS who had received counseling at each base varied most widely with the length of time since the MMWG travel team had visited the base.[1] At the 4 bases that had been visited by the MMWG travel team within 6 months of the time the survey questionnaire was administered, 53 to 78 percent of the respondents had received counseling. At 4 of the remaining 5 bases, only 24 to 30 percent had received counseling. A notable exception to this trend was Little Rock where 52 percent of the respondents had received counseling although Little Rock had not been visited by the MMWG travel team since January, 1975 (e.g., 16 months prior to the time the survey questionnaire was administered).

Hypothesis 21

The majority of MCCMs feel that the information and guidance provided by HQ SAC and the Air Force Military Personnel Center's Palace Missile Program actually provides realistic guidance to plan and influence their career.

1. Survey Question 29. Do you feel that the information and assistance provided by HQ SAC and the AFMPC

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[1]The month and year of the last MMWG travel team briefing at each base prior to the time the survey questionnaire was administered are: Malmstrom, May 76; Grand Forks, March 76; Davis Monthan, January 76; Minot, November 75; Ellsworth, September 75; McConnell, May 75; Whiteman, April 75; F. E. Warren, March 75; and Little Rock, January 75 (25).

Palace Missile Program actually provides realistic guidance for you to plan and influence your career?

a. Yes

b. No

2. Findings

(a) Dependency: Not dependent

(b) Applicability: All crew members

(c) Majority: Not favorable

(d) Significance: Is statistically significant

(e) Support: Contradictory to the propcsition

TABLE 21A

CAREER GUIDANCE
(χ^2 ONE SAMPLE TEST)

Data Source	Yes	Other
All current responses (N=372)	160	212

Computed χ^2 statistic = 7.26; $.001 \leq p \leq .01$.

TABLE 21B

CAREER GUIDANCE
(QUESTIONNAIRE DATA)

Response	Number of Respondents
Yes	160
No	186
No response	26

3. Comments

The attitude of MCCMs toward the value of the career information and guidance provided by HQ SAC and the AFMPC Palace Missile Program did not vary greatly between those MCCMs who had been briefed by the MMWG travel team and those who had not. Fifty-one percent of those who had been briefed felt that the information and guidance was valuable versus 46 percent for those who had not been briefed. The major difference in attitude was between those who intended to remain in the missile career field (66 percent "yes") versus those who did not (38 percent "yes").

Conclusion

The results of testing hypotheses 17 through 21, which are summarized in Figure 10, are inconclusive in determining if MCCMs believe that the MMWG has been effective in opening the lines of communication between HQ SAC and the missileman in the field. In response to a direct question as to whether or not they felt the MMWG had been effective, the number of MCCMs who responded in the "yes" categories was exactly equal to the number who responded in the "no" categories plus those who failed to respond.

The majority of MCCMs felt that the MCDH was an aid to career planning and the majority of MCCMs who intended to remain in the missile career field had in fact used the MCDH. However, a larger proportion of Minuteman MCCMs than Titan MCCMs saw the MCDH as valuable, 70 percent

Hypothesis Number	Question Number	Dependency	Applicability	Majority Favorable	Significance[1]	Support
17	15	No	All	No	0[2]	No
18	25	Yes	MM	Yes	+	Yes
			Titan	Yes	0	No
19	28	Yes	MM	Yes	+	Yes
			Titan	Yes	+	Yes
20	14	Yes	MM	No	+	No
			Titan	Yes	0	No
21	29	No	All	No	+	No

Figure 10

Proposition 2: Hypothesis Test Results

1. + means statistically significant, and 0 means not statistically significant.

2. This test is coded as nonsignificant per the discussion following the statistical test of hypothesis 17.

versus 59 percent respectively, and a larger proportion of Minuteman MCCMs had used the MCDH, 70 percent versus 52 percent respectively.

Although the proportion of MCCMs who had received individual counseling at each base varied widely with the length of time since the MMWG travel team had visited the base, there was considerable variation between Titan and Minuteman MCCMs. Sixty-six percent of the Titan MCCMs who were aware that counseling by the MMWG travel team was available did receive the counseling, versus fifty-two percent for Minuteman MCCMs.

In general, MCCMs did not feel that the information and guidance provided by HQ SAC and the AFMPC Palace Missile Program was valuable in planning and influencing their careers. However, sixty-six percent of those who intended to remain in the missile career field did see it as valuable.

Proposition 3 (Hypotheses 22 through 24)

Retention of MCCMs in the missile career field has improved since the formation of the MMWG.

Hypothesis 22

The proportion of MCCMs desiring to remain in the missile career field has increased since the formation of the MMWG.

1. Survey Question 39. Do you desire to remain in the missile career field?

a. Yes

b. No

2. Findings

(a) Dependency: Not dependent

(b) Applicability: All crew members

(c) Movement: Not in predicted direction

(d) Significance: Is statistically significant

(e) Support: Is contradictory to the proposition

TABLE 22

MISSILE CAREER INTENT
(χ^2 TWO SAMPLE TEST)

Data Source	Yes	No
B&S responses (N=392)	211	181
All current responses (N=372)	103	269

Computed χ^2 statistic = 52.79; $p < .001$.

3. Comments

The proportion of MCCMs who expressed an intent to remain in the missile career field declined sharply from that recorded by Brookshire and Scott (B&S) in 1971. The current survey respondents who volunteered for missile duty were three times as likely to express an intent to remain in the missile career field (27 percent versus 11 percent)

and the current survey contained 15 percent more total volunteers and 20 percent more first choice volunteers than the B&S survey. Yet, the proportion of MCCMs who intended to remain in the missile career field dropped from 58 percent to 28 percent for the B&S and the current survey respectively.

Briefing by the MMWG travel team did not have a great impact on missile career intent. Thirty-two percent of those who had heard the travel team briefing intended to remain in the missile career field versus 26 percent for those who had not heard the briefing or were unaware of the MMWG travel team.

Combat ready time compared to career intent showed a relationship similar to that previously described for MCCM attitudes toward their job and toward the adequacy of efforts made to improve missile duty. This relationship is shown in Figure 11.

Missile career intent also varied greatly with respect to the source of commission of the MCCM. Those who received their commission through the Airman Education and Commissioning Program (ECP) and Air Force Academy graduates showed the lowest inclination toward a missile career (6 percent each) followed by OTS with 29 percent and ROTC with 33 percent.

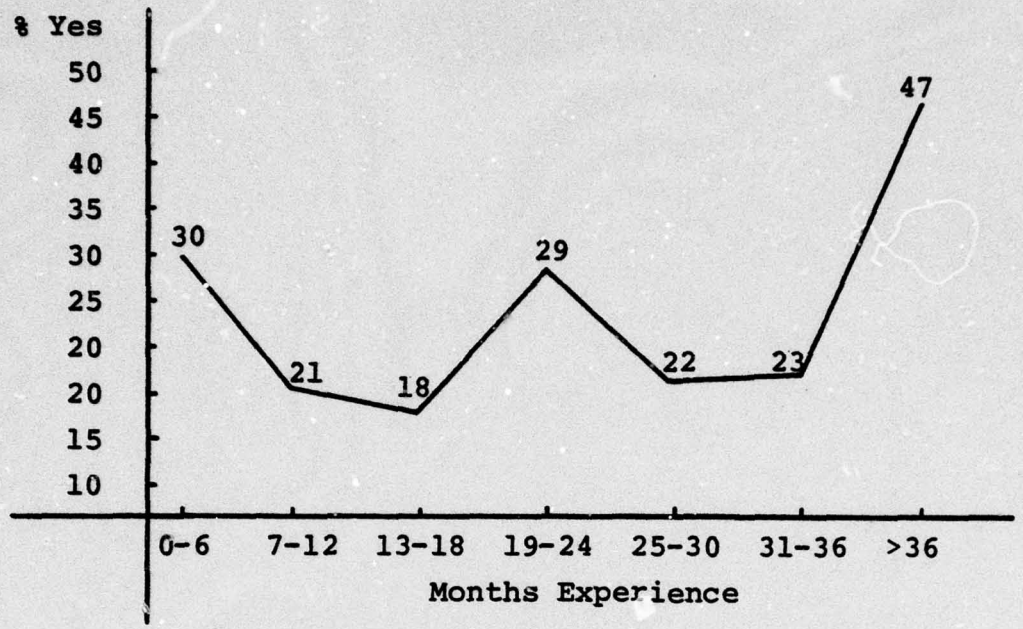


Figure 11

Missile Career Intent versus
Combat Ready Experience

Hypothesis 23

A larger number of MMCMs have requested crew duty extensions since the formation of the MMWG.

1. Findings

(a) Dependency: Not applicable (census data)

(b) Applicability: All crew members

(c) Movement: In predicted direction

(d) Significance: Not applicable (census data)

(d) Support: Does offer practical support

TABLE 23

CREW DUTY EXTENSIONS

(34:25)

Data Source	CY 1971	1972	1973	1974	1975
HQ SAC	75	129	152	169	204

2. Comments

The data showed that for each successive calendar year since 1971 there has been an increasing number of crew members requesting crew duty extensions.

Hypothesis 24

The proportion of MCCMs leaving the crew force and staying in the missile career field has increased since the formation of the MMWG.

Originally, the research design called for this hypothesis to be tested using census data from historical records at HQ SAC (see Appendix G). However, it was later learned that the only data available was for FY 75 MMEP graduates (18). (See Table 24.) Since this data was not sufficient to test the hypothesis and no other data source was available, hypothesis 24 could not be tested as a part of this research effort.

TABLE 24

MISSILE CAREER RETENTION (34:30)

Data Source	Stayed in Missiles	To Procurement	To Systems Management
HQ SAC (N=141)	39%	12%	6%

Conclusion

The results of hypotheses 22 and 23 are inconclusive in establishing that retention of MCCMs in the missile career field has improved since the formation of the MMWG. While the proportion of MCCMs who expressed an intention to remain in the missile career field decreased dramatically from 58 percent in 1971 to 28 percent in 1976, the number of MCCMs who requested crew duty extensions increased dramatically from 75 in 1971 to 204 in 1976.

Hypothesis 25

The majority of MCCMs feel that the MMWG has been effective in improving the working/living conditions for the MCCM.

1. Survey Question 43. Do you believe that the MMWG has been effective in improving the working/living conditions for the MCCM?

   a. A definite yes
   b. A qualified yes
   c. Undecided
   d. A qualified no
   e. A definite no
   f. I am not familiar with the MMWG.

2. Findings

   (a) Dependency: Not dependent

   (b) Applicability: All crew members

(c) Majority: Not favorable

(d) Significance: Is statistically significant

(e) Conclusion: Hypothesis not supported

TABLE 25A

WORKING/LIVING CONDITIONS
(χ^2 ONE SAMPLE TEST)

Data Source	Yes	Other
All current responses (N=371)	39	332

Computed χ^2 statistic = 231.40; $p < .001$.

TABLE 25B

WORKING/LIVING CONDITIONS
(QUESTIONNAIRE DATA)

Response	Number of Respondents
A definite yes	4
A qualified yes	35
Undecided	127
A qualified no	67
A definite no	52
Unaware of MMWG	86

As was described in the data analysis for Proposition 2, the response set for the question related to this hypothesis originally called for a "yes" or "no" answer, but was modified during the questionnaire approval process. Therefore in order to maintain the intent of the original

hypothesis test, the actual questionnaire responses, shown on the previous page in Table 25B were changed to "yes" or "other."

3. Comments

The expanded response set provides additional insight into the MCCM's perception of the MMWG. Twenty-three percent of the respondents indicated that they were unaware of the MMWG and an additional 34 percent were undecided as to the MMWG's effectiveness in improving working/living conditions. Of the 158 crew members who did express a "yes" or "no" opinion 75 percent of those were a definite or qualified no. So, in addition to the lack of support for this hypothesis, there is additional information to indicate that in fact most MCCMs do not feel that the MMWG has been effective in improving the working/living conditions for the MCCM.

Hypothesis 26

The majority of MCCMs believe that the MMWG has been effective in improving the missile career field and the image of the missileman.

1. Survey Question 42. Do you believe the Headquarters, SAC Missile Management Working Group has been effective in its efforts to improve the missile career field and the image of the missileman?

a. A definite yes

b. A qualified yes

c. Undecided

d. A qualified no

e. A definite no

f. I am not familiar with the Missile Management Working Group.

2. Findings

(a) Dependency: Not dependent

(b) Applicability: All crew members

(c) Majority: Not favorable

(d) Significance: Is statistically significant

(e) Conclusion: Hypothesis not supported

TABLE 26A

IMPROVING MISSILE CAREER FIELD
(χ^2 ONE SAMPLE TEST)

Data Source	Yes	Other
All current responses (N=372)	81	291

Computed χ^2 statistic = 118.54; $p < .001$.

Again, as with Hypothesis 25, the response set for the question related to this hypothesis originally called for a "yes" or "no" answer, but was modified during the questionnaire approval process. Therefore, in order to maintain the intent of the original hypothesis test, the

actual questionnaire responses, shown in Table 26B, were changed to "yes" or "other."

TABLE 26B

IMPROVING MISSILE CAREER FIELD
(QUESTIONNAIRE DATA)

Response	Number of Respondents
A definite yes	16
A qualified yes	65
Undecided	111
A qualified no	66
A definite no	36
Unaware of MMWG	78

3. Comments

The expanded response set provides additional information concerning the MCCMs perception of the MMWG. Twenty-one percent of the respondents to this question indicated that they were unaware of the MMWG and an additional 30 percent were undecided as to the MMWG's effectiveness in improving the missile career field and the image of the missileman. Of the 183 crew members who did express a "yes" or "no" opinion, only 44 percent of those were a definite or a qualified yes. So in addition to the lack of support for this hypothesis, there is additional information to indicate that in fact most MCCMs do not feel that

the MMWG has been effective in improving the missile career field and the image of the missileman.

Hypothesis 27

The proportion of new MCCMs that have been volunteers for missile duty has increased since the formation of the MMWG.

Originally, the research design called for this hypothesis to be tested using census data from historical records at HQ SAC (see Appendix G). However, it was later learned that this data was only available for FY 74 and 75 (18). Since this data was not sufficient to test the hypothesis as was originally planned, an alternate approach was developed to use data gathered in the three missile crew member questionnaires. The χ^2 two sample test was used to compare the McDaniel and Dodd responses with current responses and the Mann Whitney Rank Sum Test was used to compare the Brookshire and Scott responses with current responses.

1. Survey Question 16. Were you a volunteer for missile crew duty?

   a. Yes, first choice
   b. Yes, second choice
   c. Yes, third choice
   d. No

2. Findings

(a) Dependency: Not dependent

(b) Applicability: All crew members

(c) Movement: In predicted direction

(d) Significance: Is statistically significant

(e) Conclusion: Hypothesis is supported

TABLE 27A

VOLUNTEER STATUS
(χ^2 TWO SAMPLE TEST)

Data Source	Yes	No
M&D responses (N=387)	196	191
All current responses (N=372)	266	106

Computed χ^2 statistic = 33.78; $p < .0005$.

TABLE 27B

VOLUNTEER STATUS
(MANN-WHITNEY RANK SUM TEST)

Data Source	Yes/choice 1st	2nd	3rd	No
B&S responses (N=387)	130	43	46	168
All current responses (N=372)	199	33	34	106

Computed Z statistic = 5.056; $p < .00003$.

3. Comments

While volunteer status has been discussed in several instances based on its relationship to other

variables tested, little data is available to provide meaningful insight as to what caused an individual to volunteer for missile crew duty. Only 55 percent of the Minuteman volunteers were participating in MMEP, but 77 percent indicated that MMEP did have at least some influence on their decision to volunteer for missile duty.

As was previously noted in the analysis of Hypothesis 22, only 37 percent of the respondents who were volunteers indicated that they wished to remain in the missile career field. However, 78 percent of the volunteers intend to remain in the Air Force.

Although the original research design for the data analysis of this hypothesis had to be changed due to a lack of data, the comparison of current responses to the responses of the two previous surveys provides a meaningful comparison of volunteer rates. And, since two completely different comparisons offer practical support, it can be concluded that the proportion of volunteers has increased.

Chapter 4

DISCUSSION AND CONCLUSIONS

Introduction

This chapter presents the significant findings of this research effort. First, we present a summary of our findings as related to the five research objectives. Second, we present a summary of job/career satisfiers and dissatisfiers identified by our survey questionnaire compared to the general conclusions of previous missile studies as discussed in Chapter 1. Last, we offer some general recommendations for further research concerning the missile operations career field.

Objectives and Findings

Objective 1

Objective 1 was to sample current attitudes of missile combat crew members (MCCMs) toward their career field and their job.

This objective was satisfied by administering a survey questionnaire to 540 MCCMs. The response rate of only 69 percent would indicate that the attitudes reflected by the survey respondents may not in fact be a reasonably accurate reflection of the attitudes of the total MCCM force due to nonrespondent bias. However, the lack of

response is more likely attributable to the manner in which the survey was administered by the project officers at the individual missile bases than to a difference in attitude between respondents and nonrespondents. Although HQ SAC identified a responsible project officer at each base, we learned in the course of monitoring the progress of the survey project that the actual task of administering the survey was typically delegated to less informed and less responsible individuals. At one base the young airman who was delegated the responsibility for administering the survey was in the process of separating from the Air Force and actually did separate mid-way through the survey period.

In general, we found that MCCMs do not have a favorable attitude toward their job or the missile operations career field and they do not perceive that the MMWG has been effective in improving missile duty and removing irritants. Although, as previously mentioned, we did not analyze the responses to questions 51 through 77 on the survey questionnaire as a part of our research, a cursory examination of these responses shows that the majority of MCCMs simply do not know what the MMWG is doing.

Objective 2

Objective 2 was to compare the sample of current attitudes with the results of previous studies that were conducted shortly after the formation of the MMWG to determine if attitudes have changed.

The testing of the numerous hypotheses that comprise the bulk of Chapter 3 satisfies this objective. And, in general we found that the attitudes of MCCMs have not changed significantly in the past five years since the formation of the MMWG. This does not establish that the MMWG has been ineffective since there is no way of determining how attitudes may have changed in the absence of the MMWG, but it does indicate that the basic underlying causes of dissatisfaction among MCCMs have still not been identified and/or resolved. Furthermore, we speculate that as long as the duty performance of MCCMs continues to meet the established performance standards, it is unlikely that they will be.

Objective 3

Objective 3 was to measure the effectiveness of the MMWG as perceived by MCCMs in:

a. Opening the lines of communication between HQ SAC and MCCMS;

b. Improving the working/living conditions for MCCMS; and

c. Improving the missile career field and the image of MCCMs.

This objective was satisfied by evaluating MCCMs responses to seven questions on the survey questionnaire. We found that although the MCDH is well received and valued by MCCMs, the majority of MCCMs do not receive individual

career counseling by the MMWG travel team and do not feel that the information and guidance provided by HQ SAC and the AFMPC Palce Missile Program is useful to them in planning and influencing their careers.

We also found that an overwhelming majority of MCCMs are either unaware of the MMWG's existence or do not feel that the MMWG has been effective in improving their living/working conditions, the missile career field, or the image of the missileman.

Objective 4

Objective 4 was to compare current retention rates of MCCMs with past rates to determine if a difference exists.

This objective was satisfied by asking MCCMs if they intended to remain in the missile career field and by evaluating the number of requests for crew duty extensions over the past five years. We found that although the number of requests for crew extension has almost tripled over the past five years, the proportion of MCCMs who say they intend to remain in the missile career field is less than half of what it was five years ago.

Our survey did not provide sufficient data to determine the reasons for the increase in crew extension requests in the face of a declining interest in a missile career. However, the civilian economic situation and the Minuteman Education Program (MMEP) are possible explanations. We

found that nearly forty percent of the MCCMs were influenced to some extent by the civilian economic situation in making their decision to enter the Air Force. We also found that fifty percent of the Minuteman MCCMs with more than three years combat ready experience were participating in the MMEP. The data suggests that the increase in crew extension requests is motivated by factors other than a desire to remain in the missile career field and that education and/or a lack of other economically feasible alternatives may be two of the factors.

Objective 5

Objective 5 was to compare current volunteer rates of MCCMs with past rates to determine if a difference exists.

This objective was satisfied by comparing the current proportion of survey respondents who were volunteers for missile duty with the proportion of respondents who were volunteers in two previous studies. We found that the proportion of volunteers has increased substantially and that volunteers in general have a more favorable outlook on their job and the missile career field. In fact, volunteers are four times as likely to remain in the missile career field. Still, less than forty percent of the MCCMs who volunteered for missile duty want to remain in the missile career field but eighty percent want to make a career in the Air Force.

Comparisons of Satisfiers and Dissatisfiers

Additional insight into crew member attitudes can be gained from the data gathered from the questions on most positive and most negative influence on missiles as a career field. The results of these questions can be found in Appendix H.

Most of the factors listed as possible responses are closely related to Herzberg's motivators or hygienes. No attempt was made to prove or disprove Herzberg's theory; however, the responses to the current questions compared to the generalizations of previous findings discussed in the Literature Review provide another means of observing changes in MCCM attitudes.

In general, the results of the question on the most positive influence agree with previous findings in terms of the availability and impact of achievement, recognition, the job itself and responsibility as motivators. Missile duty is still considered to provide little in the way of motivation or job satisfaction. One notable change appears to be in terms of career opportunity. While previous studies have indicated that there is only limited opportunity for advancement in the missile career field, crew members currently rate career opportunity as the second most positive influence on the missile career field, ranking only behind educational opportunity. Although the results of Hypothesis 12 would indicate that attitudes

have not improved in terms of opportunity for advancement, it appears that crew members feel that it is one of the few factors in the missile career field that is positive. This observation is substantiated by the large number of individuals who did not choose positive factors, thereby making "no response" the fourth most frequent total response.

In terms of the results of the question on the most negative influence on missiles as a career field, the current results again agree with previous findings that missile duty has certain specific job dissatisfiers. Still frequently cited as dissatisfiers are policy, procedures and administration, geographic location, and the working environment. In previous studies supervision has been listed as a highly negative factor, however currently, it ranks only sixth as a negative factor. This further supports the results of Hypothesis 2.

Recommendations for Future Research

One major limitation that was encountered during our research was the inability to gain access to a data base of sufficient detail to make an in-depth comparative analysis. In anticipation of future research in this area, the data base that was created from the questionnaire responses has been permanently saved on a computer card file and is available to individuals interested in future research in this area by contacting Major Micheal B. McCormick, AFIT/SLG.

One major area of interest that is recommended for future research is a study of the interrelationships and possible cause and effect relationships between the dependent variables that were identified in Appendix I. Although these variables were identified as showing dependent relationships, a much deeper analysis is necessary in order to be able to come to any meaningful conclusions.

A cursory examination of MCCM attitudes by base appears to indicate that there are differences dependent on location or unit assignment. If this is true, and poor attitudes are a result of local policies, procedures, and administration, the approach of trying to effect a change in MCCM attitudes from the higher headquarters level may in fact be futile.

An additional area for possible future research would be to evaluate attitudes of crew members relative to individual and unit performance. No references to any study of this type were discovered during the search of the literature.

Epilog

Clearly, a palliative for the discontent of the missile combat crew member that Robert Rodwell spoke of at the advent of the missile weapons systems has not yet been found.

APPENDIX A

MISSILE COMBAT CREW MEMBER SURVEY

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DEPARTMENT OF THE AIR FORCE
AIR FORCE INSTITUTE OF TECHNOLOGY (AU)
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433

REPLY TO ATTN OF: SLGR (SLSR 14-76B/Capt Ashbaugh/Capt Godfrey/ AUTOVON 78-74240)

22 April 1976

SUBJECT: Missile Combat Crew Member Survey

TO:

1. The attached survey was prepared by a research team at the Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio. The purpose of the survey is to measure the current attitudes of missile combat crew members toward missile combat crew duty and toward the missile career field.

2. You are requested to provide an answer or comment for each question. Headquarters USAF Survey Control Number 76-121 has been assigned to this survey. Your participation in his research is voluntary.

3. Your responses to the questions will be confidential since the completed surveys are not identified to individuals. Please remove this cover sheet before returning the completed survey to your wing project officer. Your cooperation in providing this data will be appreciated and will be beneficial in evaluating the impact of the SAC Missile Management Working Group (MMWG) on missile combat crew member attitudes.

Henry W. Parlett

HENRY W. PARLETT, Colonel, USAF
Associate Dean for Graduate Education
School of Systems and Logistics

1 Atch
Questionnaire

MISSILE COMBAT CREW MEMBER SURVEY

This survey is designed to obtain your perceptions of your job and the missile operations career field. There are no "trick" questions and there are no "right" answers. Please answer each question as honestly and frankly as possible from the choices available. Select only one answer for each question.

Thank you for your cooperation and willingness to contribute your time and effort to this study.

PRIVACY STATEMENT

In accordance with paragraph 30, AFR 12-35, the following information is provided as required by the Privacy Act of 1974:

a. Authority:

(1) 10 U.S.C., 80-12, Secretary of the Air Force, Powers, Duties, Delegation by Compensation; and/or

(2) EO 93-97, 22 Nov 43, Numbering System for Federal Accounts Relating to Individual Persons; and/or

(3) DOD Instruction 1100.13, 17 Apr 68, Surveys of Department of Defense Personnel; and/or

(4) AFR 178-9, 9 Oct 75, Air Force Military Survey Program.

b. Principal purposes. The survey is being conducted to collect information to be used in research aimed at illuminating and providing inputs to the solution of problems of interest to the Air Force and/or DOD.

c. Routine Uses. The survey data will be converted to information for use in research of management related problems. Results of the research, based on the data provided, will be included in written master's theses and may also be included in published articles, reports, or texts. Distribution of the results of the research, based on the survey data, whether in written form or presented orally, will be unlimited.

d. Participation in this survey is entirely voluntary.

e. No adverse action of any kind may be taken against any individual who elects not to participate in any or all of this survey.

MISSILE COMBAT CREW MEMBER SURVEY

PART I.

Please circle the appropriate response for each of the following questions.

1. What is your base of assignment:

   a. Davis Monthan (58)
   b. Little Rock (42)
   c. McConnell (42)
   d. Malmstrom (34)
   e. Ellsworth (47)
   f. Minot (38)
   g. Whiteman (45)
   h. F. E. Warren (34)
   i. Grand Forks (32)

2. To what type of crew are you assigned?

   a. Line (100, 178)[1]
   b. Instructor (30, 30)
   c. Standboard (12, 22)

3. What is your crew position?

   a. MCCC (75, 134)
   b. DMCCC (67, 96)

4. How many months of missile combat ready experience do you have?

   a. 0 - 6 months (17, 19)
   b. 7 - 12 months (22, 47)
   c. 13 - 18 months (15, 31)
   d. 19 - 24 months (13, 33)
   e. 25 - 30 months (15, 28)
   f. 31 - 36 months (16, 25)
   g. More than 36 months (44, 47)

---

[1]Number of responses to applicable questions are listed in parenthesis indicating the number of Titan crew members who selected each response, followed by the number of Minuteman crew members who selected each response.

5. What is your grade?

   a. Second Lieutenant (31, 63)
   b. First Lieutenant (42, 56)
   c. Captain (66, 100)
   d. Major (3, 11)
   e. Lieutenant Colonel (0, 0)

6. What is your source of commission?

   a. Air Force Academy (4, 12)
   b. ROTC (94, 125)
   c. OTS (SMSO) (38, 72)
   d. AECP (3, 15)
   e. Other (3, 6)

7. Are you a regular officer?

   a. Yes (35, 58)
   b. No (107, 171)
   z. No response (0, 1)

8. What is your aeronautical rating?

   a. Pilot (8, 17)
   b. Navigator (1, 4)
   c. Not rated (133, 209)

9. Do you intend to make the Air Force a career?

   a. A definite yes (69, 120)
   b. A qualified yes (38, 60)
   c. Undecided (15, 26)
   d. A qualified no (8, 13)
   e. A definite no (12, 10)
   z. No response (0, 1)

PART II.

Please circle the response which is most representative of your opinion about each item.

10. Are you supervised by your immediate supervisor in a manner which is satisfactory to you?

a. A definite yes (63, 101)
b. A qualified yes (53, 69)
c. Neutral (13, 24)
d. A qualified no (7, 25)
e. A definite no (6, 10)
z. No response (0, 1)

11. How much has the civilian economic situation influenced your decision to stay in (or leave) the Air Force?

a. Large influence (21, 39)
b. Some influence (71, 95)
c. No influence (50, 96)

12. If your missile duty is a career broadening assignment, do you believe it enhances your career opportunities?

a. A definite yes (12, 24)
b. A qualified yes (26, 32)
c. Undecided (11, 20)
d. A qualified no (4, 17)
e. A definite no (12, 22)
f. Not applicable (76, 112)
z. No response (1, 3)

13. Do you enjoy doing the actual work involved in accomplishing your job?

a. A definite yes (37, 39)
b. A qualified yes (45, 76)
c. Neutral (19, 29)
d. A qualified no (24, 40)
e. A definite no (16, 45)
z. No response (1, 1)

14. Have you received individual career counseling by a member of the Missile Management Working Group (MMWG) Traveling Team?

    a. Yes (72, 99)

    b. No (37, 92)

    c. No, I did not know they provided individual counseling. (7, 11)

    d. No, I am not aware of the MMWG Traveling Team. (26, 28)

15. Do you believe that the MMWG has been effective in opening the lines of communication between HQ SAC and the missileman in the field?

    a. A definite yes (16, 15)

    b. A qualified yes (26, 50)

    c. Undecided (62, 96)

    d. A qualified no (22, 34)

    e. A definite no (15, 24)

    z. No response (1, 11)

16. Were you a volunteer for missile crew duty?

    a. Yes, first choice (74, 125)

    b. Yes, second choice (17, 16)

    c. Yes, third choice (17, 17)

    d. No (34, 72)

17. Do you feel that you are given adequate individual responsibility in your job?

    a. A definite yes (53, 59)

    b. A qualified yes (43, 67)

    c. Neutral (5, 20)

    d. A qualified no (27, 42)

    e. A definite no (14, 42)

18. If not participating in the Minuteman Education Program, what influenced you not to enroll or to drop out after enrollment?

a. Conflict with duty (7)

b. Not interested in the degree offered (45)

c. Had established a date of separation (1)

d. Already had a master's degree (13)

e. Not available (I am in Titan) (142)

f. Other reason. Specify: (38) _____

g. N/A; I am participating (124)

z. No response (2)

19. Do you consider the Minuteman Education Program to be a significant career benefit of missile duty?

a. Yes, large benefit (144)

b. Yes, some benefit (69)

c. No benefit (17)

x. N/A--Titan (142)

20. Do you feel that missile crew duty is fully understood and appreciated by senior command and staff personnel in your unit?

a. Yes (56, 89)

b. No (86, 137)

z. No response (0, 4)

21. Which of the following best describes your feelings about the missile operations career field?

a. It's a dead end. (25, 51)

b. It's a career field with some future. (84, 148)

c. It's a career field with a very promising future. (33, 30)

z. No response (0, 1)

22. How often do you see members of the wing staff in the field?

a. Never (18, 55)
b. Seldom (66, 103)
c. Occasionally (42, 69)
d. Frequently (15, 2)
z. No response (1, 1)

23.[2] From the factors listed below, select the three that are most significant to you as to their positive influence on missiles as a career field.

_____ Most significant

_____ Second most significant

_____ Third most significant

a. Prestige of the military officer
b. Job satisfaction
c. Opportunity for achievement
d. Career opportunity
e. Personal attitude toward the military
f. Pay and allowances
g. Geographic location of missile bases
h. Quality of supervision
i. Job security
j. Prestige of crew members
k. Wife's attitude toward the military
l. Policy, procedures and administration
m. Individual recognition for achievement
n. Job responsibility
o. Working environment
p. Educational opportunity
q. Personal relationships with subordinates, peers, and supervisors

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[2]See Appendix H for responses to questions 23 and 24.

24. From the factors listed in 23, select the three that are most significant to you as to their negative influence on missiles as a career field.

_____ Most significant

_____ Second most significant

_____ Third most significant

25. Have you used the Missile Career Development Handbook in planning your career and in preparing your Form 90?

a. Yes (56, 106)

b. No (31, 37)

c. No. I am not familiar with the Missile Career Development Handbook. (19, 8)

d. No. I do not plan to remain in the missile career field. (36, 78).

z. No response (0, 1)

26. Are you paid a reasonable salary?

a. A definite yes (39, 83)

b. A qualified yes (71, 100)

c. Neutral (13, 19)

d. A qualified no (12, 21)

e. A definite no (7, 6)

z. No response (0, 1)

27. Do you feel a sense of personal accomplishment when performing your job?

a. A definite yes (31, 29)

b. A qualified yes (40, 77)

c. Neutral (22, 29)

d. A qualified no (34, 48)

e. A definite no (15, 46)

z. No response (0, 1)

28. Do you feel that the Missile Career Development Handbook is an aid to missile crew members in career planning?

a. Yes (84, 161)

b. No (15, 31)

c. Don't know. I am not familiar with the Missile Career Development Handbook. (43, 34)

z. No response (0, 4)

29. Do you feel that the information and assistance provided by HQ SAC and the AFMPC Palace Missile Program actually provides realistic guidance for you to plan and influence your career?

a. Yes (57, 103)

b. No (79, 107)

z. No response (6, 20)

30. Does your job provide you ample opportunity to develop personal friendships with other officers in your unit?

a. A definite yes (43, 82)

b. A qualified yes (50, 93)

c. Neutral (14, 24)

d. A qualified no (25, 20)

e. A definite no (9, 11)

z. No response (1, 0)

31. Do you feel that missile crew duty is fully understood and appreciated by command and staff personnel at higher headquarters?

a. Yes (24, 26)

b. No (116, 197)

z. No response (2, 7)

32. Are you participating in the Minuteman Education Program?

a. Yes (129)

b. No (101)

c. Not applicable (I am in Titan) (142)

33. Do you consider the physical working environment of the capsule (LCC) to be satisfactory?

a. A definite yes (5, 14)

b. A qualified yes (23, 77)

c. Neutral (9, 37)

d. A qualified no (48, 52)

e. A definite no (55, 50)

z. No response (2, 0)

34. How much influence did the opportunity to earn a master's degree through the Minuteman Education Program have on your decision to volunteer for missile duty?

a. Large influence (74)

b. Some influence (47)

c. No influence (40)

d. I did not volunteer for missile duty. (68)

x. N/A--Titan (142)

y. Missing question (1)

35. Have you been briefed by the Missile Management Working Group Traveling Team?

a. Yes (95, 133)

b. No (16, 65)

c. No. I did not know there was a traveling team. (30, 31)

y. Missing question (0, 1)

z. No response (1, 0)

36. Do you like your job?

a. A definite yes (24, 27)
b. A qualified yes (57, 79)
c. Neutral (17, 36)
d. A qualified no (18, 41)
e. A definite no (25, 46)
y. Missing question (0, 1)
z. No response (1, 0)

37. Does your job have a favorable effect on your personal life?

a. A definite yes (13, 8)
b. A qualified yes (36, 48)
c. Neutral (21, 50)
d. A qualified no (35, 71)
e. A definite no (36, 52)
y. Missing question (0, 1)
z. No response (1, 0)

38. How do you feel about the current four year tour?

a. It is too short. (2, 3)
b. It is about right. (77, 90)
c. It is too long. (61, 135)
y. Missing question (0, 1)
z. No response (1, 2)

39. Do you desire to remain in the missile career field?

a. Yes (47, 56)
b. No (87, 163)
z. No response (8, 11)

40. How much influence did the civilian economic situation have on your decision to enter the Air Force?

    a. Large influence (16, 25)
    b. Some influence (46, 58)
    c. No influence (80, 147)

41. Are you satisfied with your work schedule?

    a. A definite yes (5, 23)
    b. A qualified yes (50, 89)
    c. Neutral (24, 29)
    d. A qualified no (31, 58)
    e. A definite no (32, 31)

42. Do you believe the Headquarters, SAC Missile Management Working Group has been effective in its efforts to improve the missile career field and the image of the missileman?

    a. A definite yes (9, 7)
    b. A qualified yes (28, 37)
    c. Undecided (46, 65)
    d. A qualified no (17, 49)
    e. A definite no (13, 23)
    f. I am not familiar with the Missile Management Working Group. (29, 49)

43. Do you believe that the MMWG has been effective in improving the working/living conditions for the MCCM?

    a. A definite yes (3, 1)
    b. A qualified yes (12, 23)
    c. Undecided (43, 84)
    d. A qualified no (26, 41)
    e. A definite no (24, 28)
    f. I am not familiar with the MMWG. (34, 52)
    y. Missing question (0, 1)

44. If you are participating in the Minuteman Education Program, is it because you feel an advanced degree is necessary for career progression?

a. Yes (108)
b. No (28)
c. Not applicable, I am not participating. (92)
x. N/A--Titan (142)
y. Missing question (0, 1)
z. No response (0, 1)

45. Do you believe development of a program, such as the rated supplement, for missile officers to permit career broadening assignments with certain return to missile duty to be desirable?

a. Yes (92, 130)
b. No (46, 96)
y. Missing question (0, 1)
z. No response (5, 3)

46. Do you feel that adequate efforts have been made to improve missile crew duty and to resolve problems generally encountered by missile crew members?

a. Yes (42, 63)
b. No (98, 160)
y. Missing question (0, 1)
z. No response (2, 6)

47. How did ORT affect your motivation toward the missile career field?

a. Demotivated me (3, 9)
b. Tended to demotivate me (13, 28)
c. No effect (51, 76)
d. Tended to motivate me (43, 83)
e. Motivated me (30, 33)
y. Missing question (0, 1)
z. No response (2, 0)

48. Does your job offer you a reasonable opportunity for individual recognition?

a. A definite yes (16, 30)

b. A qualified yes (53, 91)

c. Neutral (24, 23)

d. A qualified no (27, 62)

e. A definite no (22, 24)

49. <u>If you don't like your job</u> in the missile operations career field, is it because?

a. You don't like the military career in general. (3, 0)

b. You don't like the missile operations career field. (28, 66)

c. Both a and b. (2, 7)

d. Not applicable. (62, 93)

e. Other reasons: <u>(43, 57)</u>

z. No response (4, 7)

50. Do you think the opportunity for advancement in the missile operations career field is <u>at least</u> as good as other Air Force career fields?

a. A definite yes (24, 34)

b. A qualified yes (63, 72)

c. Neutral (21, 36)

d. A qualified no (17, 46)

e. A definite no (16, 41)

z. No response (1, 1)

51. Do you feel that the availability and use of electrical entertainment devices in the Launch Control Centers (LCC) has a negative effect on job performance?

a. A definite yes (2, 4)[3]
b. A qualified yes (4, 14)
c. Neutral (8, 19)
d. A qualified no (29, 47)
e. A definite no (99, 145)
z. No response (0, 1)

52. Do you think the work of the MMWG has influenced the best qualified personnel to remain in the missile career field to fill the missile staff positions?

a. A definite yes (2, 1)
b. A qualified yes (16, 10)
c. Don't know (75, 139)
d. A qualified no (22, 44)
e. A definite no (27, 34)
y. Missing question (0, 1)
z. No response (0, 1)

53. Do you believe the best qualified MCCMs stay in the missile career field to fill the missile staff positions?

a. A definite yes (2, 5)
b. A qualified yes (18, 21)
c. Undecided (37, 55)
d. A qualified no (49, 101)
e. A definite no (36, 47)
y. Missing question (0, 1)

---

[3]Responses to this question as well as questions 76 and 77 may not be meaningful since electrical entertainment devices were not available in all LCCs at the time the survey was administered.

54. Do you feel that having AM radios in MCCM crew vehicles is desirable and worthwhile?

a. A definite yes (92, 163)[4]
b. A qualified yes (23, 39)
c. Undecided (11, 10)
d. A qualified no (10, 7)
e. A definite no (5, 7)
y. Missing question (0, 1)
z. No response (4, 0)

55. Do you believe the MMWG played any part in obtaining permission to install AM radios in MCCM crew vehicles?

a. A definite yes (0, 1)
b. A qualified yes (3, 10)
c. Don't know (118, 193)
d. A qualified no (3, 4)
e. A definite no (13, 16)
y. Missing question (0, 1)
z. No response (6, 4)

56. Do you feel that the authorization to wear the Lightweight Blue Jacket with the crew uniform was a worthwhile change?

a. A definite yes (32, 66)[5]
b. A qualified yes (22, 35)
c. Neutral (56, 77)
d. A qualified no (13, 9)
e. A definite no (8, 16)

---

[4]Responses to questions 54 and 55 may not be meaningful since AM radios were not installed in all vehicles and/or at all missile wings at the time the survey was administered.

[5]Responses to questions 56 and 57 are not meaningful because the authority to wear the Lightweight Blue Jacket with the crew uniform had not been granted at the time the survey was administered.

57. Do you think the MMWG was instrumental in obtaining the authorization to wear the Lightweight Blue Jacket with the crew uniform?

a. A definite yes (1, 2)

b. A qualified yes (2, 6)

c. Don't know (128, 198)

d. A qualified no (2, 2)

e. A definite no (3, 3)

58. Do you feel that the information in the MMWG Travel Team Briefing on the missile maintenance career field was informative and worthwhile?

a. A definite yes (16, 21)

b. A qualified yes (36, 47)

c. Undecided (25, 38)

d. A qualified no (9, 6)

e. A definite no (2, 5)

f. I have not heard the briefing (54, 112)

59. Do you feel that the information in the MMWG Travel Team Briefing on the importance of education to officer promotions and the availability of educational opportunities was important?

a. A definite yes (31, 55)

b. A qualified yes (39, 62)

c. Undecided (17, 14)

d. A qualified no (7, 5)

e. A definite no (4, 0)

f. I have not heard the briefing. (44, 92)

y. Missing question (0, 2)

60. Do you feel that the senior command and staff personnel in your unit fully understand and appreciate missile crew duty?

a. A definite yes (10, 31)
b. A qualified yes (46, 63)
c. Undecided (16, 27)
d. A qualified no (40, 76)
e. A definite no (30, 29)
y. Missing question (0, 2)
z. No response (0, 2)

61. Do you feel that command and staff personnel at higher headquarters fully understand and appreciate missile crew duty?

a. A definite yes (4, 5)
b. A qualified yes (23, 26)
c. Undecided (16, 30)
d. A qualified no (60, 103)
e. A definite no (39, 63)
y. Missing question (0, 2)
z. No response (0, 2)

62. Do you feel that the information included in the MMWG Travel Team Briefing on the Form 90 was worthwhile?

a. A definite yes (9, 25)
b. A qualified yes (45, 68)
c. Undecided (26, 25)
d. A qualified no (7, 5)
e. A definite no (3, 5)
f. I have not heard the briefing. (51, 100)
y. Missing question (0, 1)
z. No response (1, 1)

63. Do you feel that the information included in the MMWG Travel Team Briefing on the AF Reduction in Force (RIF) program was worthwhile?

a. A definite yes (10, 25)
b. A qualified yes (46, 55)
c. Undecided (22, 32)
d. A qualified no (5, 8)
e. A definite no (3, 4)
f. I have not heard the briefing. (56, 104)
y. Missing question (0, 1)
z. No response (0, 1)

64. Do you feel that the award of the Missileman Badge should be limited to MCCMs and maintenance personnel?

a. A definite yes (92, 133)
b. A qualified yes (28, 34)
c. Neutral (14, 38)
d. A qualified no (4, 10)
e. A definite no (4, 13)
y. Missing question (0, 1)
z. No response (0, 1)

65. Did you think the MMWG was instrumental in changing AFR 35-42 to tighten the criteria for awarding the Missileman Badge?

a. A definite yes (1, 4)
b. A qualified yes (4, 11)
c. Don't know (132, 208)
d. A qualified no (2, 0)
e. A definite no (3, 5)
y. Missing question (0, 1)
z. No response (0, 1)

66. Do you think the MMWG Travel Team Briefing on missile assignments was beneficial to you in career planning?

a. A definite yes (11, 19)
b. A qualified yes (33, 52)
c. Undecided (22, 20)
d. A qualified no (15, 26)
e. A definite no (13, 13)
f. I have not heard the briefing. (47, 99)
y. Missing question (0, 1)
z. No response (1, 0)

67. Do you think the MMWG Travel Team Briefing on officer promotions was informative and worthwhile?

a. A definite yes (16, 33)
b. A qualified yes (51, 62)
c. Undecided (16, 20)
d. A qualified no (9, 9)
e. A definite no (2, 6)
f. I have not heard the briefing. (48, 99)
y. Missing question (0, 1)

68. Do you desire to permanently leave the missile career field?

a. A definite yes (35, 88)
b. A qualified yes (31, 35)
c. Undecided (22, 41)
d. A qualified no (25, 25)
e. A definite no (18, 26)
f. I do not intend to remain in the Air Force. (11, 14)
y. Missing question (0, 1)

69. Do you feel that adequate efforts have been made to resolve problems generally encountered by missile crew members and to improve missile crew duty?

a. A definite yes (3, 5)
b. A qualified yes (39, 72)
c. Undecided (19, 32)
d. A qualified no (37, 75)
e. A definite no (44, 45)
z. No response (0, 1)

70. Do you think the MMWG Travel Team Briefing on the new OER system was informative and worthwhile?

a. A definite yes (10, 20)
b. A qualified yes (48, 60)
c. Undecided (22, 25)
d. A qualified no (11, 12)
e. A definite no (3, 3)
f. I have not heard the briefing. (48, 109)
z. No response (0, 1)

71. Do you think the MMWG Travel Team Briefing on the Defense Officer Personnel Management Act (DOPMA) was beneficial?

a. A definite yes (9, 16)
b. A qualified yes (30, 49)
c. Undecided (33, 34)
d. A qualified no (15, 7)
e. A definite no (6, 3)
f. I have not heard the briefing. (49, 119)
z. No response (0, 2)

72. Do you feel that the reduction in the crew time required for award of the Combat Readiness Medal from four years to three years was appropriate?

a. A definite yes (51, 100)

b. A qualified yes (41, 48)

c. Neutral (43, 71)

d. A qualified no (3, 3)

e. A definite no (4, 7)

z. No response (0, 1)

73. Do you think the MMWG was instrumental in obtaining a reduction in the crew time required to receive the Combat Readiness Medal for MCCMs.

a. A definite yes (1, 3)

b. A qualified yes (2, 7)

c. Don't know (135, 214)

d. A qualified no (1, 2)

e. A definite no (1, 3)

y. Missing question (0, 1)

z. No response (2, 0)

74. Do you feel that the use of the MAJCOM Career Brief by the MMWG Travel Team was beneficial in your individual career counseling?

a. A definite yes (13, 30)

b. A qualified yes (32, 36)

c. Undecided (28, 34)

d. A qualified no (5, 11)

e. A definite no (6, 12)

f. I did not receive career counseling using the MAJCOM Career Brief. (55, 103)

y. Missing question (0, 1)

z. No response (3, 3)

75. (For Titan MCCMs Only) Do you feel that the MMWG has been effective in obtaining increased educational opportunities for Titan MCCMs?

a. A definite yes (1)
b. A qualified yes (16)
c. Don't know (76)
d. A qualified no (21)
e. A definite no (26)
x. N/A--Minuteman (229)
y. Missing question (1)
z. No response (2)

76. Do you feel that the working/living conditions in the LCC are improved by the availability of electrical entertainment devices?

a. A definite yes (107, 150)
b. A qualified yes (21, 53)
c. Neutral (5, 16)
d. A qualified no (5, 3)
e. A definite no (2, 5)
z. No response (2, 3)

77. Do you think the MMWG played an important role in obtaining the approval for MCCMs to use electrical entertainment devices in the Launch Control Centers?

a. A definite yes (1, 6)
b. A qualified yes (5, 9)
c. Don't know (125, 192)
d. A qualified no (3, 6)
e. A definite no (6, 12)
z. No response (2, 5)

APPENDIX B

QUESTIONNAIRE SYNOPSIS

QUESTIONNAIRE SYNOPSIS

Question	Question* Source	Question Topic	Question Category
1.		Base Identification	Demographic
2.		Type of Crew	"
3.	+	Crew Position	"
4.	+	Combat Ready Experience	"
5.	+	Grade	"
6.	+	Source of Commission	"
7.	+	Regular/Reserve	"
8.	+	Aeronautical Rating	"
9.	+	Career Intentions	"
36.	-	General Attitude Toward Job	Job Attitude
27.	-	Sense of Personal Accomplishment	"
48.	-	Opportunity for Recognition	"
13.	-	Enjoyment from the Work Itself	"
17.	-	Adequacy of Responsibility	"
41.	-	Attitude Toward Work Schedule	"
30.	-	Opportunity for Social Interaction	"
33.	-	Physical Work Environment	"
26	-	Adequacy of Salary	"
37.	-	Effect on Personal Life	"
10.	-	Satisfaction with Supervision	"
21.	+	General Attitude Toward Career Field	Career Field Attitude
46.	+	Efforts to Improve Duty/Solve Problems	"
20.	+	Unit Staff Understanding of Crew Duty	"
31.	+	HHQ Staff Understanding of Crew Duty	"
50.	-	Opportunity for Advancement	"

*+ = Questions taken from Brookshire and Scott Survey.
- = Questions taken from McDaniel and Dodd Survey.

QUESTIONNAIRE SYNOPSIS--Continued

Question	Question Source	Question Topic	Question Category
15.		Communication between SAC and MCCM	MCCM Perception of MMWG
25.		Use of Handbook	"
28.		Handbook as an Aid to Career Planning	"
14.		Individual Counseling by Traveling Team	"
35.		Briefed by Traveling Team	"
29.		Guidance by HHQ in Career Planning	"
43.		Improvement in Working/Living Conditions	"
42.	+	Image of MCCM	"
23.		Positive Influence on Career Field	SAC Interest Items
24.		Negative Influences on Career Field	"
38.	+	Tour Length	"
45.	+	MCCM Career Broadening	"
12.		Missile Crew Duty as Career Broadening	"
49.		Reasons for Job Dissatisfaction	"
47.	+	Effect of ORT	"
22.	+	Frequency of Wing Staff Visits	"
18.	+	Reasons for MMEP Non-participation	"
32.	+	MMEP Participation	Other Influencing Alternatives
34.		MMEP Influence on Volunteer Decisions	"
19.		MMEP as Career Benefit	"
44.		Necessity of Advanced Degree	"
40.		Economy Influence Decision to Enter Air Force	"
11.		Economy Influence Decision to Stay in Air Force	"
16.	+	Volunteer Status	"
39.	+	Career Intention	"

APPENDIX C

TABLE OF VARIABLES AND STATISTICAL TESTS

TABLE 28

TABLE OF VARIABLES AND STATISTICAL TESTS

Hyp. # (Ques.#)	Variable for Testing	Nature of Variable	Level of Data	Classification of Data for Testing	Mathematical Expression[1] Statistical Test
1 (36)	The attitude of MCCMs toward their job as measured by the survey questionnaire.	Job Attitude	Ordinal	Discrete Limited	P(a>b) > 1/2 Mann-Whitney
2 (10)	The attitude of MCCMs toward their supervisor as measured by the survey questionnaire.	Job Attitude	Ordinal	Discrete Limited	P(a>b) > 1/2 Mann-Whitney
3 (27)	The MCCMs feeling of a sense of personal accomplishment in their job as measured by the survey questionnaire.	Job Attitude	Ordinal	Discrete Limited	P(a>b) > 1/2 Mann-Whitney
4 (48)	The MCCMs feeling that their job offers a reasonable opportunity for individual recognition as measured by the survey questionnaire.	Job Attitude	Ordinal	Discrete Limited	P(a>b) > 1/2 Mann-Whitney
5 (13)	The attitude of MCCMs toward the actual work involved in accomplishing the job as measured by the survey questionnaire.	Job Attitude	Ordinal	Discrete Limited	P(a>b) > 1/2 Mann-Whitney

[1]The notation for the mathematical expressions of the hypotheses (H_1) is: P = probability, a = an observation from population A (the current population), b = an observation from population B (the previous population) and y = a yes response.

TABLE 28--Continued

Hyp.# (Ques.#)	Variable for Testing	Nature of Variable	Level of Data	Classification of Data for Testing	Mathematical Expression Statistical Test
6 (17)	The feeling of MCCMs that they are given adequate individual responsibility in their job as measured by the survey questionnaire.	Job Attitude	Ordinal	Discrete Limited	P(a>b) > 1/2 Mann-Whitney
7 (41)	The attitude of MCCMs toward their work schedule as measured by the survey questionnaire.	Job Attitude	Ordinal	Discrete Limited	P(a>b) > 1/2 Mann-Whitney
8 (30)	The feeling of MCCMs that their job provides ample opportunity to develop personal friendships with coworkers as measured by the survey questionnaire.	Job Attitude	Ordinal	Discrete Limited	P(a>b) > 1/2 Mann-Whitney
9 (33)	The attitude of MCCMs toward the physical working environment of the LCC to be satisfactory as measured by the survey questionnaire.	Job Attitude	Ordinal	Discrete Limited	P(a>b) > 1/2 Mann-Whitney
10 (26)	The attitude of MCCMs toward their salary as measured by the survey questionnaire.	Job Attitude	Ordinal	Discrete Limited	P(a>b) > 1/2 Mann-Whitney

TABLE 28--Continued

Hyp.# (Ques.#)	Variable for Testing	Nature of Variable	Level of Data	Classification of Data for Testing	Mathematical Expression Statistical Test
11 (37)	The feeling of MCCMs that their job has a favorable effect on their personal life as measured by the survey questionnaire.	Job Attitude	Ordinal	Discrete Limited	$P(a>b) > 1/2$ Mann-Whitney
12 (50)	The feeling of MCCMs that the opportunity for advancement in missile operations is at least as good as other career fields as measured by the survey questionnaire.	Career Field Attitude	Ordinal	Discrete Limited	$P(a>b) > 1/2$ Mann-Whitney
13 (21)	The feeling of MCCMs that the missile operations career field offers a promising future as measured by the survey questionnaire.	Career Field Attitude	Ordinal	Discrete Limited	$P(a>b) > 1/2$ Mann-Whitney
14 (46)	The feeling of MCCMs that adequate efforts have been made to improve missile duty and resolve problems as measured by the survey questionnaire.	Career Field Attitude	Nominal	Discrete Dichotomous	$P(y\|a) > P(y\|b)$ χ^2 - Two Sample
15 (31)	The feeling of MCCMs that missile duty is fully understood and appreciated by command and staff personnel at higher headquarters as measured by the survey questionnaire.	Career Field Attitude	Nominal	Discrete Dichotomous	$P(y\|a) > P(y\|b)$ χ^2 - Two Sample

TABLE 28--Continued

Hyp.# (Ques.#)	Variable for Testing	Nature of Variable	Level of Data	Classification of Data for Testing	Mathematical Expression Statistical Test
16 (20)	The feeling of MCCMs that missile duty is fully understood and appreciated by local senior command and staff personnel as measured by the survey questionnaire.	Career Field Attitude	Nominal	Discrete Dichotomous	$P(y\|a) > P(y\|b)$ χ^2 - Two Sample
17 (15)	The belief of MCCMs that the MMWG has been effective in opening the lines of communication between HQ SAC and the field as measured by the survey questionnaire.	Communication	Nominal	Discrete Dichotomous	$P(y) > 1/2$ χ^2 - One Sample
18 (25)	The use of the MCDH by MCCMs in career planning as measured by the survey questionnaire.	Communication	Nominal	Discrete Dichotomous	$P(y) > 1/2$ χ^2 - One Sample
19 (28)	The feeling of MCCMs that the MCDH is an aid in career planning as measured by the survey questionnaire.	Communication	Nominal	Discrete Dichotomous	$P(y) > 1/2$ χ^2 - One Sample
20 (14)	The individual career counseling of MCCMs by the MMWG traveling team as measured by the survey questionnaire.	Communication	Nominal	Discrete Dichotomous	$P(y) > 1/2$ χ^2 - One Sample

TABLE 28--Continued

Hyp.# (Ques.#)	Variable for Testing	Nature of Variable	Level of Data	Classification of Data for Testing	Mathematical Expression Statistical Test
21 (29)	The feeling of MCCMs that HQ SAC and AFMPC provide adequate and realistic guidance to plan and influence their careers as measured by the survey questionnaire.	Communication	Nominal	Discrete Dichotomous	P(y) > 1/2 χ^2 - One Sample
22 (39)	The desire of MCCMs to remain in the missile career field as measured by the survey questionnaire.	Retention	Nominal	Discrete Dichotomous	P(a>b) > 1/2 χ^2 - Two Sample
23 (NA)	Crew duty extensions of MCCMs as reflected in HQ SAC records.	Retention	Ratio	Discrete Infinite	Not Applicable (Census Data)
24 (NA)	The MCCMs leaving the crew force and staying in the missile career field as reflected in HQ SAC records.	Retention	Ratio	Discrete Infinite	Not Applicable (Census Data)
25 (43)	The feeling of MCCMs that the MMWG has been effective in improving their living/working conditions as measured by the survey questionnaire.	Living/ Working Conditions	Nominal	Discrete Dichotomous	P(y) > 1/2 χ^2 - One Sample

TABLE 28--Continued

Hyp.# (Ques.#)	Variable for Testing	Nature of Variable	Level of Data	Classification of Data for Testing	Mathematical Expression / Statistical Test
26 (42)	The feeling of MCCMs that the MMWG has been effective in improving the missile career field and the image of the missileman as measured by the survey questionnaire.	Missileman's Image	Nominal	Discrete Dichotomous	$P(y) > 1/2$ χ^2 - One Sample
27 (16)	The MCCMs that volunteered for missile duty via their AF Form 90, Officer Career Objective Statement, or made formal application for MMEP as measured by the survey questionnaire.	Volunteer Rate	Ordinal	Discrete Limited	$P(a>b) > 1/2$ χ^2 - Two Sample and Mann-Whitney

APPENDIX D

DEMOGRAPHIC COMPARISONS

DEMOGRAPHIC COMPARISONS

Demographic Variable / Category	Survey* B&S	M&D	CS
Crew Position			
MCCC	58.0%	48.8%	56.6%
DMCC	41.6	51.2	43.8
Volunteer Status			
First Choice	33.2		53.5
Second Choice	11.0	50.6	8.9
Third Choice	12.8	(yes)	9.1
No	42.7	49.4	28.5
Combat Ready Experience			
0 - 6 months	16.0	20.2	9.7
7 - 12 months	17.1	14.7	18.5
13 - 18 months	13.1	29.7	12.4
19 - 24 months	12.6	(13-24)	12.4
25 - 30 months	17.1	20.7	11.6
31 - 36 months	11.6	(25-36)	11.0
More than 36 months	12.1	14.7	24.5
A.F. Career Intent			
Definite Yes	70.7	37.2	50.8
Qualified Yes	(yes)	20.7	26.3
Undecided	10.7	14.0	11.0
Qualified No	18.4	4.9	5.6
Definite No	(no)	23.2	5.9
Type of Crew			
Standboard	9.2	11.1	9.1
Instructor	19.5	17.6	16.1
Line	68.3	71.6	74.7
Unknown	2.8		

*B&S is the Brookshire and Scott survey, M&D is the McDaniel and Dodd survey, and CS is the current research survey.

DEMOGRAPHIC COMPARISONS--Continued

Demographic Variable / Category	Survey B&S	Survey M&D	Survey CS
Source of Commission			
A.F. Academy	0.5	NA*	4.3
ROTC	59.1	NA	58.9
OTS	36.9	NA	29.6
AECP	2.3	NA	4.8
Other	1.0	NA	2.4
Regular Commission			
Yes	24.0	NA	25.0
No	75.9	NA	75.0
Grade			
Second Lieutenant	19.0	NA	25.3
First Lieutenant	25.8	NA	26.3
Captain	53.5	NA	44.6
Major	1.5	NA	3.8
Base			
Davis Monthan	8.08	NA	15.6
Ellsworth	12.25	NA	12.6
F. E. Warren	10.41	NA	9.1
Grand Forks	12.01	NA	8.6
Little Rock	12.25	NA	11.3
Malmstrom	11.76	NA	9.1
McConnell	11.15	NA	11.3
Minot	12.99	NA	10.2
Whiteman	9.43	NA	12.1

Reference: 3:II-1 to II-14; 11:45-46.

*Data not available.

APPENDIX E

MANN-WHITNEY RANK SUM TEST COMPUTER PROGRAM

MANN-WHITNEY RANK SUM TEST COMPUTER PROGRAM

```
1Ø DIMENSION OLD(5),NEW(5),RANGE(5),W(5),RANK(5),
2Ø&ARANK(5),PRANK(5)
3Ø PRINT,"ENTER THE OLD SAMPLE SIZE"
4Ø READ,N2
5Ø PRINT,"ENTER THE NEW SAMPLE SIZE"
6Ø READ,N1
7Ø EW=(.5*N2)*(N1+N2+1)
8Ø SD=(((1.Ø/12)*(N1*N2))*(N1+N2+1))**.5
9Ø CVR=1.645
1ØØ CVT=-1.96
11ØC
12Ø 5Ø PRINT,"ENTER THE OLD VALUES"
13Ø READ, OLD(1), OLD(2), OLD(3), OLD(4), OLD(5)
14Ø IF(OLD(1).GE.999) GO TO 2ØØ
15Ø PRINT,"ENTER THE NEW VALUES"
16Ø READ, NEW(1), NEW(2), NEW(3), NEW(4), NEW(5)
17ØC
18Ø RANGE(Ø)=Ø
19Ø PRANK(Ø)=Ø
2ØØ RANK(Ø)=Ø
21ØC
22Ø DO 1Ø I=1,5
23Ø RANGE(I)=OLD(I)+NEW(I)+RANGE(I-1)
24Ø PRANK(I)=(RANGE(I)*(RANGE(I)+1))/2
25Ø RANK(I)=PRANK(I)-PRANK(I-1)
26Ø ARANK(I)=RANK(I)/(OLD(I)+NEW(I))
27Ø 1Ø CONTINUE
28ØC
29Ø SW=Ø
3ØØ DO 2Ø I=1,5
31Ø W(I)=ARANK(I)*OLD(I)
32Ø SW=SW+W(I)
33Ø 2Ø CONTINUE
34ØC
35Ø ZW=(SW-EW)/SD
36Ø IF(ZW.GE.Ø) GO TO 98
37Ø PRINT,"  "
38Ø PRINT,"MOVEMENT IS NOT"
39Ø PRINT,"IN THE PREDICTED DIRECTION"
4ØØ PRINT,"WITH A TWO TAILED TEST"
41Ø PRINT,"AT THE .Ø5 ALPHA LEVEL"
42Ø IF (ZW.LT.CVT) GO TO 96
43Ø PRINT,"THE MOVEMENT IS NOT"
44Ø PRINT,"STATISTICALLY SIGNIFICANT"
45Ø GO TO 55
46Ø 96 PRINT,"THE MOVEMENT IS"
47Ø PRINT,"STATISTICALLY SIGNIFICANT"
48Ø GO TO 55
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49ØC
5ØØ 98 PRINT,"  "
51Ø PRINT,"MOVEMENT IS IN THE PREDICTED DIRECTION"
52Ø IF(ZW.GT.CVR) GO TO 99
53Ø PRINT,"MOVEMENT IS NOT STATISTICALLY SIGNIFICANT"
54Ø PRINT,"AT THE .Ø5 ALPHA LEVEL"
55Ø GO TO 55
56Ø 99 PRINT,"MOVEMENT IS STATISTICALLY SIGNIFICANT"
57Ø PRINT,"AT THE .Ø5 ALPHA LEVEL"
58ØC
59Ø 55 IF(ZW.GE.Ø) GO TO 1Ø5
6ØØ PRINT 1Ø1,CVT
61Ø GO TO 11Ø
62Ø 1Ø5 PRINT 1Ø1,CVR
63Ø 11Ø PRINT 1ØØ,ZW
64Ø GO TO 5Ø
65Ø 2ØØ STOP
66ØC
67Ø 1ØØ FORMAT (1X,"THE COMPUTED Z VALUE IS       ",
68Ø&F7.3,////)
69Ø 1Ø1 FORMAT (/,1X,"THE CRITICAL Z VALUE IS      ",
7ØØ&F7.3,/)
71Ø END
```

APPENDIX F

WEAPONS SYSTEM DEPENDENT RELATIONSHIPS

WEAPONS SYSTEM DEPENDENT RELATIONSHIPS

Hypothesis Number	Question Number	Variable	Computed χ^2	Critical χ^2	Dependency
1	36	General job attitude	5.08	9.49	No
2	10	Satisfaction with supervision	5.18	9.49	No
3	27	Sense of accomplishment	11.08	9.49	Yes
4	48	Opportunity for recognition	7.77	9.49	No
5	13	Attitude toward work	7.35	9.49	No
6	17	Individual responsibility	11.65	9.49	Yes
7	41	Work schedule	10.99	9.49	Yes
8	30	Personal friendships	7.57	9.49	No
9	33	Physical work environment	30.79	9.49	Yes
10	26	Adequacy of salary	4.28	9.49	No
11	37	Effect on personal life	9.49	9.49	No*
12	50	Opportunity for advancement	10.23	9.49	Yes
13	21	Career field future	6.65	5.99	Yes
14	46	Efforts to improve duty	0.05	3.84	No
15	31	Higher HQ understanding	1.74	2.71	No
16	20	Unit staff understanding	0.01	3.84	No
17	15	Lines of communication	2.81	9.49	No

*Too close to conclude dependency at the .05 alpha level.

WEAPONS SYSTEM DEPENDENT RELATIONSHIPS--Continued

Hypothesis Number	Question Number	Variable	Computed χ^2	Critical χ^2	Dependency
18	25	Use of MCDH	16.42	7.81	Yes
19	28	Value of MCDH	12.28	5.99	Yes
20	14	Career counseling	8.32	7.81	Yes
21	29	Career guidance	1.42	3.84	No
22	39	Missile career intent	3.18	3.84	No
25	43	Living/working conditions	5.00	11.1	No
26	42	Improve career field	7.79	11.1	No

APPENDIX G

HQ SAC LETTER OF APPROVAL

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS STRATEGIC AIR COMMAND
OFFUTT AIR FORCE BASE, NEBRASKA, 68113

REPLY TO ATTN OF: DP

22 APR 1976

SUBJECT: Thesis Maxi-Proposal (SLSR 14-76B)

TO: Air Force Institute of Technology
School of Systems and Logistics
(Capt Dennis M. Ashbaugh/Capt Larry J. Godfrey)

1. Your Thesis Maxi-Proposal on The Impact of the SAC Missile Management Working Group on Missile Combat Crew Member Attitudes (SLSR 14-76B) has been reviewed and is approved.

2. Appendix A, Missile Combat Crew Member Survey, is approved for distribution to our missile bases. HQ SAC/DPX message 162220Z April 1976 (atch 1) requested a project officer be appointed from each missile base to act as a single point of contact. This information will be sent to you after all replies are received.

3. Request the following changes in the basic proposal be accomplished:

a. Page 40. Data Collection. The survey questionnaire should be distributed by the researchers to the unit project officers. The project officers will return the completed questionnaires directly to the researchers for data analysis. In addition, we would like SAC/DPXPM be kept advised of the survey progress and the completed analysis.

b. Page 85. Selected Bibliography. Reference number 31. Current edition of the Missile Career Development Handbook is dated 1 Jan 75.

4. Additional data to test hypotheses 23, 24, and 27 will be forwarded as soon as the data can be collected. Also, the listings of crew members selected for the survey will be forwarded under separate cover.

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

5. Our project officer is Capt Larry Twining, DPXPM, ext 3900. Please contact him if you need any additional information or assistance.

FOR THE COMMANDER IN CHIEF

EARL G. PECK, Brig Gen, USAF
Deputy Chief of Staff, Personnel

1 Atch
CINCSAC/DPX Msg
162220Z Apr 76

Cy to: AFMPC/DPMYPS
(Capt Phame)
AU/EDV (LTC Baker)

01 02 RR RR UUUU 162220 167 Z APR 76
NO

CINCSAC OFFUTT AFB NE/DPX

AIG 667/DP

INFO: AIG 667/CC/DO

UNCLAS

SUBJECT: MISSILE COMBAT CREW MEMBER (MCCM) SURVEY

1. A RESEARCH TEAM FROM AIR FORCE INSTITUTE OF TECHNOLOGY (AFIT), WRIGHT-PATTERSON AFB, OHIO, HAS BEEN GRANTED APPROVAL TO ADMINISTER A SURVEY QUESTIONNAIRE TO SELECTED MEMBERS OF THE MISSILE CREW FORCE. MCCMS WILL BE SELECTED BASED ON A HQ SAC COMPUTERIZED RANDOM SELECTION, BY SOCIAL SECURITY NUMBERS. HOWEVER, PARTICIPATION IN COMPLETING THE SURVEY QUESTIONNAIRE IS VOLUNTARY. SINCE THE PURPOSE OF THE SURVEY IS TO MEASURE THE CURRENT ATTITUDES OF MCCMS TOWARD MISSILE COMBAT CREW DUTY AND TOWARD THE MISSILE CAREER FIELD, WE ARE HOPING THE MCCMS WILL GIVE THEIR COMPLETE COOPERATION. THE QUESTIONNAIRES WILL BE MAILED TO THE BASE BY THE RESEARCH TEAM AT AFIT AND SHOULD ARRIVE SOMETIME BETWEEN 3 AND 15 MAY 76. SPECIFIC DIRECTIONS FOR COMPLETING AND RETURNING THE QUESTIONNAIRES TO AFIT WILL BE FURNISHED BY COVER LETTER WITH THE PACKAGE.

DPXP READ FILE

DPXP
DPXPM

CAPT TWINING/DPXPM/3280
16 APR 76

JOHN E. [illegible], Colonel, USAF
Director of [illegible] Plans
DCS/Personnel

signed

UNCLASSIFIED

DPXPM CAPT TWINING 3280 lr 16 Apr 76

02 02

2. IN ORDER TO FACILITATE EXPEDITIOUS DISTRIBUTION AND RETURN OF THE QUESTIONNAIRES, REQUEST A PROJECT OFFICER BE APPOINTED TO ACT AS A SINGLE POINT OF CONTACT. REQUEST NAME, MAILING ADDRESS AND TELEPHONE EXTENSION OF THE PROJECT OFFICER BE PROVIDED TO CAPT LARRY TWINING, HQ SAC PROJECT OFFICER, DPXPM, AUTOVON 271-4169/ 3839. TO ALLOW PROPER PLANNING, REQUEST ABOVE INFO BE FURNISHED NLT 22 APR 76.

APPENDIX H

MOST POSITIVE/NEGATIVE INFLUENCE ON MISSILE CAREER FIELD

MOST POSITIVE INFLUENCE ON MISSILE CAREER

1st*	2nd	3rd	Total	
137	58	44	239	Educational opportunity
45	48	36	129	Career opportunity
34	44	36	114	Job responsibility
16	32	47	95	No response
13	40	31	84	Personal relationships with subordinates, peers, and supervisors
23	23	28	74	Pay and allowances
17	29	28	74	Opportunity for achievement
29	16	16	61	Personal attitude toward the military
17	16	14	47	Job security
8	11	25	44	Geographic location of missile bases
13	14	15	42	Job satisfaction
6	16	11	33	Individual recognition for achievement
7	8	15	30	Prestige of the military officer
3	5	9	17	Working environment
1	3	10	14	Prestige of crew members
1	4	5	10	Quality of supervision
1	5	2	8	Wife's attitude toward the military
1	0	0	1	Policy, procedures and administration

*The numbers in the table indicate the number of respondents who selected each factor as the first, second, and third most positive influence on missiles as a career field and the total number of times each factor was selected.

MOST NEGATIVE INFLUENCE ON MISSILE CAREER

1st*	2nd	3rd	Total	
91	66	43	200	Policy, procedures and administration
55	53	65	173	Working environment
75	44	30	149	Job satisfaction
47	28	49	124	Geographic location of missile bases
18	37	36	91	Prestige of crew members
14	18	26	58	Individual recognition for achievement
11	22	17	50	Quality of supervision
11	17	14	42	Job security
7	18	8	33	Opportunity for achievement
7	10	15	32	No response
10	13	7	30	Wife's attitude toward the military
6	9	15	30	Career opportunity
7	11	11	29	Job responsibility
5	5	15	25	Personal relationships with subordinates, peers, and supervisors
3	9	8	20	Pay and allowances
3	5	9	17	Prestige of the military officer
1	4	3	8	Educational opportunity
1	3	1	5	Personal attitude toward the military

*The numbers in the table indicate the number of respondents who selected each factor as the first, second, or third most negative influence on missiles as a career field and the total number of times each factor was selected.

APPENDIX I

TABLE OF DEPENDENT RELATIONSHIPS

TABLE OF DEPENDENT RELATIONSHIPS--EXPLANATION

Testing for Dependency

The variables represented by the question numbers shown in the extreme left column of the table were tested for a statistically significant dependence on the variables shown horizontally across the table. The test used was the Chi Square Test for Independence with an alpha level of .05. In general, this test requires that the expected number of observations in each cell of the Chi Square Contingency table be greater than or equal to 5 for at least eighty percent of the cells (26:178). In order to meet this requirement, some of the categories had to be combined for six of the eleven variables shown horizontally across the table. These six variables are identified with an asterisk and the original categories along with the categories used to conduct the statistical tests are as follows:

Variable	Original Categories	Categories used for Testing
Type Crew	Line Instructor Standboard	Line Staff
Combat Ready Time	0 - 6 months 7 - 12 months 13 - 18 months 19 - 24 months 25 - 30 months 31 - 36 months More than 36 months	0 - 18 months 19 - 30 months More than 30 months

Variable	Original Categories	Categories Used for Testing
Grade	Second Lieutenant First Lieutenant Captain Major Lieutenant Colonel	Second Lieutenant First Lieutenant Captain and above
Source of Commission	Air Force Academy ROTC OTS (SMSO) AECP Other	ROTC OTS (SMSO) All other
Air Force Career Intent	A definite yes A qualified yes Undecided A qualified no A definite no	Yes Undecided No
Volunteer Status	Yes, first choice Yes, second choice Yes, third choice No	Yes No

Interpreting the Table

Unfortunately, the physical limitation of page size precluded a verbal representation of all variables within the table. Accordingly, the extreme left column of the table shows only a question number. This question number represents the variable addressed by that question on the survey questionnaire. Throughout the research paper, individual variables, survey question numbers and individual hypotheses are linked together and Appendix C clearly shows these relationships. The serious reader will be able to cross-reference the question numbers to the applicable variable.

The entries in the table have the following meaning:

Yes = A statistically significant dependency between the two variables was found.

No = A statistically significant dependency between the two variables was not found.

1 = A test for dependency between the two variables is not meaningful. For example, the variable addressed by question 19 and Weapons System. Question 19 deals with the Minuteman Education Program and was not applicable to Titan MCCMs, therefore a test for dependency on weapons system is not meaningful.

2 = The results of the statistical test were inconclusive. An alpha level of .05 was used in conducting the statistical test for dependence. In those cases where the test resulted in a computed prob value between .045 and .055, the results were considered to be inconclusive in establishing dependence or independence between the the variables.

TABLE 29

TABLE OF DEPENDENT RELATIONSHIPS

Ques. #	Wpns. Sys.	Type* Crew	Crew Pos.	Cmbt.* Ready Time	Grade*	Source* of Comsn.	Reg. Comsn.	A.F. Career Intent	Vol.* Status	Brief by TT	Msl. Career Intent
10	No	No	Yes	No	Yes	No	No	2	No	No	No
11	No	No	No	No	No	Yes	Yes	No	No	No	No
13	No	Yes	No	No	No	No	No	Yes	Yes	No	Yes
14	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes
15	No	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes
16	No	No	No	Yes	Yes	No	No	No	1	No	Yes
17	Yes	Yes	No	No	No	No	No	Yes	Yes	No	Yes
19	1	No	No	No	2	No	No	No	No	No	No
20	No	No	No	No	Yes	No	No	2	No	No	Yes
21	Yes	Yes	No	No	2	No	No	Yes	Yes	No	Yes
25	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
26	No	No	Yes	No	Yes	No	No	Yes	No	No	Yes
27	Yes	Yes	No	No	No	No	No	Yes	Yes	No	Yes
28	Yes	Yes	Yes	Yes	No	No	No	Yes	No	Yes	Yes
29	No	No	No	No	No	No	No	2	No	Yes	Yes
30	No	No	No	No	No	Yes	No	No	No	No	Yes
31	No	No	No	Yes	Yes	No	No	No	No	No	No
32	1	No	No	No	No	No	No	No	No	Yes	No
33	Yes	No	No	Yes	No	No	No	2	No	No	No
34	1	No	Yes	No	Yes	Yes	No	No	1	No	Yes

TABLE 29--Continued

Ques. #	Wpns. Sys.	Type* Crew	Crew Pos.	Cmbt.* Ready Time	Grade*	Source* of Comsn.	Reg. Comsn.	A.F. Career Intent	Vol.* Status	Brief by TT	Msl. Career Intent
35	Yes	Yes	Yes	Yes	Yes	No	No	No	No	1	No
36	No	Yes	No	No	No	No	No	Yes	Yes	No	Yes
37	2	No	No	No	No	No	No	Yes	Yes	No	Yes
39	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	1
40	No	No	Yes	No	Yes	No	Yes	No	No	No	No
41	Yes	No	Yes	No	No	No	No	Yes	No	No	Yes
42	No	No	Yes	Yes	Yes	No	No	No	No	Yes	Yes
43	No	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes
44	1	Yes	No	No	No	No	No	No	No	No	No
45	No	Yes	No	No	No	No	No	No	No	No	Yes
46	No	No	No	Yes	No	No	No	Yes	No	Yes	Yes
48	No	Yes	No	No	No	No	2	Yes	No	No	Yes
50	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes

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BIOGRAPHICAL SKETCH OF THE AUTHORS

Captain Dennis M. Ashbaugh was commissioned in 1967 after graduating with a Bachelor of Arts degree from the University of Missouri. He has served in SAC as a Minuteman combat crew member, an airborne missile crew member and as a member of the SAC Airborne Command Post Battle Staff. He came to AFIT following an assignment as a SAC Command Post Warning Systems Controller. His next assignment after graduation is to Little Rock AFB, Arkansas as a Titan maintenance officer.

Captain Larry J. Godfrey was commissioned in 1967 after receiving a Bachelor of Science degree in Business from the University of Idaho. He has served in MAC in a variety of aircraft maintenance positions and he came to AFIT following a career broadening assignment as a supply operations officer at Little Rock AFB, Arkansas. After graduation, his next assignment is to AFLC at Wright-Patterson AFB, Ohio in the International Logistics Directorate.

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