



**FACTORS AFFECTING EXCHANGE
RELATIONSHIPS AMONG SUBORDINATES
AND SUPERVISORS: A STUDY OF
MILITARY OFFICERS**

THESIS

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AFIT/GEE/ENV/01M-16

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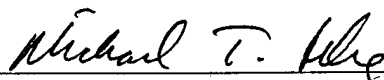
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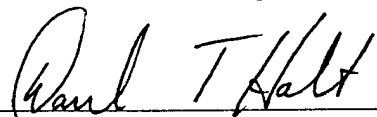
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Abstract

This research examined the effect of organizational structure on the relationships between subordinates and their supervisors using measures of leader-member exchange (LMX), mentoring effectiveness, perceived organizational support (POS), perceived opportunities for promotion, job satisfaction, affective commitment, and intent to remain. The sample obtained included 147 subordinate Air Force traditional Civil Engineer officers, Explosive Ordnance Disposal (EOD) officers, Bioenvironmental Engineer officers, and 27 squadron commanders at 19 Air Force bases. The methods of multiple analysis of variance and structural equation modeling were used to evaluate five research questions and nineteen hypotheses.

Overall, no differences were found between the types of subordinate officer surveyed for the constructs of interest. However, it was found that subordinates and their commanders view their relationships differently. Commanders reported higher responses for LMX and mentoring effectiveness that did not correlate with their subordinate's responses, suggesting that the relationship between commanders and their subordinates needs to be strengthened. The research also revealed that subordinate officers felt average to slightly positive about the LMX, POS, perceived opportunities for promotion, job satisfaction, affective commitment, and intent to remain in the Air Force. The research concluded with providing tentative support for suggesting that organizational structure may play a role in the perceptions and intentions of subordinate officers.

FACTORS AFFECTING EXCHANGE RELATIONSHIPS AMONG SUBORDINATES
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I. Introduction

Background

In light of current military outsourcing and privatization initiatives and a low unemployment rate in the United States, retention of skilled workers is extremely important to today's Department of Defense organizations. Retention is especially important for the United States Air Force, which has been forced to reduce the number of personnel by 40 percent since 1986, from over 600,000 active duty members to just over 350,000 in 1999. During this time, the Air Force did not worry about retention. Now that its drawdown goals have been met, the Air Force must deal with the retention issue and work hard to retain its remaining employees and also recruit new members to maintain its role in the modern military. According to a recent statement made by the Air Force Chief of Staff General Michael E. Ryan, retention is what the Air Force is all about these days (Fidler, 2000). For fiscal year 2001, the Air Force alone has allotted \$809M for recruiting and retention purposes.

A better understanding of the factors in the workplace that make a difference as to whether an airman stays or leaves can be very important to senior military leadership. Besides larger issues such as pay and family separation, past research has shown that supervisors are one of the most important links to employee well-being and satisfaction, which have been shown to be related to retention (Spector, 1997). A 1999 study prepared by the Air Force Personnel Center indicates that career intent and factors impacting

career intent have changed over time. For example, in 1986, 78% of company grade officers indicated that they intended to stay in the Air Force. By 1999, this number dropped significantly to 45% of company grade officers who indicated they intended to remain in the Air Force (Hamilton & Datko, 1999). One of the top five factors that influenced company grade officer's intent to remain in the Air Force was overall job satisfaction.

Job satisfaction traditionally reflects specific attitudes an individual has toward corresponding aspects of his or her particular job. These include satisfaction with pay, promotion, supervision, benefits, contingent rewards, operating procedures, coworkers, nature of work, and communication (Spector, 1997). Another factor contributing to job satisfaction may be perceived organizational support. In general, perceived organizational support is the extent to which employees believe that their organization values their contributions and cares for them individually (Eisenberger, Huntington, Hutchinson, & Sowa, 1986).

The purpose of this research is to study employees who may or may not feel like they are connected to their organization because of physical separation, less effective mentoring, lower perceived support, lower leader-member exchange relationships, and/or a lack of perceived opportunities for promotion. The employees who do not feel connected will be less satisfied than those employees who do feel connected, and therefore will be more likely to leave their organization. Furthermore, the retention of quality personnel is essential to any organization. The loss of job specific knowledge and the costs of training replacement personnel can severely impact an organization. This thesis looks at Explosive Ordnance Disposal (EOD) and Bioenvironmental Engineer

(BEE) officers because at first glance both of these officer types appear to be physically separated from their organizations and have the potential to feel unconnected to their parent organizations. The EOD career field in particular has experienced some of these adverse impacts due to turnover. In fact, the Air Force is the only service that does not have an active duty position for an EOD trained general officer to represent the EOD community at the national level, making policy decisions. This research on EOD and BEE officers may reveal how each of the factors studied may affect the satisfaction and intent to remain in the Air Force of these employees.

The specific focus of this research is on the intention of Air Force EOD officers within the Civil Engineer (CE) career field and BEE officers within the Biomedical Sciences Corps (BSC) to remain in the Air Force. The topic is appropriate by virtue of the current state of the CE and BSC career fields in general and the EOD and BEE career fields specifically. The Air Force CE community is currently experiencing low manning levels in its junior officer ranks. After fulfilling special taskings, career broadening taskings, and educational quotas, the Civil Engineer career field is at a low 69% manning level for captains (AFPC, 2000). Additionally, EOD flight commander and staff officer jobs are left unfilled due to a shortage of available EOD officers (AFPC, 2000). As the manning and duty opportunities of civil engineer officers continue to decrease due to military downsizing, outsourcing, and privatization initiatives, the manning for EOD positions also decreases because EOD officers must come from the CE career field. Thus, a decrease in the available CE officers leads to a decrease, and possibly a shortage of, qualified EOD officers. With a smaller pool of officers to choose from, management

and retention of qualified EOD officers becomes crucial to the success of the EOD career field.

Similarly, certain career fields of the BSC are understaffed to include Optometrists, Physician Assistant Specialists, Bioenvironmental Engineers, Public Health, Pharmacy, and Medical Health Physicists. Specific to this thesis, the BEE career field is short staffed. In fact, there are currently 331 BEE officers in the Air Force with 354 authorized BEE positions. The recruiting goals for the BEE career field were recently set to gain 11 BEE officers in FY99, 26 BEE officers in FY00, and 39 BEE officers in FY01 to help meet these needs (Dawson, 2000).

Both EOD and BEE flights are important to every Air Force installation. The EOD flight provides explosive ordnance disposal support and training in peace and wartime. This includes the detection, identification, rendering-safe, recovery, and final disposal of conventional, nuclear, chemical, and biological unexploded ordnance, both foreign and domestic. The EOD training program is an inter-service program in which all students attend a 27-week training program and receive the same basic, standardized EOD training regardless of their rank or service affiliation. The only distinction between the basic EOD training between the services is the additional underwater training that naval personnel receive.

The BEE flight anticipates, recognizes, evaluates, and controls chemical, physical, radiological, and biological threats to human health. They also ensure regulatory compliance in occupational and community environments. This includes providing commanders critical risk management information, and ensuring compliance with environment, safety and occupational health (ESOH) regulations. BEE personnel are

required to monitor Air Force operations for their health effects on personnel and impacts to the environment. All BEE officers attend a 16-week training program at Brooks Air Force Base that covers practical knowledge in industrial hygiene, environmental protection, health physics, management, and related wartime topics.

EOD Program History. Over the past few decades, the EOD career field has experienced several organizational changes. In the late 1970's, EOD was organized under equipment maintenance squadrons within the logistics community. The late 1980's found the career field in a state of flux. Management of the EOD program was not standardized throughout the Air Force, and in fact varied from command to command. At the same time, the role and function of EOD during wartime was moving towards recovering airfields after ground or air attacks. Because CE played such a major role in recovering a base after an attack, the EOD mission seemed to complement and strengthen the CE mission and their capabilities. In 1988, the United States Air Forces in Europe program moved EOD from the Logistics Munitions Directorate to the Civil Engineer Directorate (Brown, undated) but at the Air Force level, the EOD program was still under the Air Staff Munitions Directorate. In April 1991 the logistics community at the Air Staff agreed to pass functional control and management of the EOD program to the Air Force Civil Engineer. This integration into the CE program and management seems to have improved the operational capability of both EOD and CE (Brown, undated).

BEE Program History. The original group of Bioenvironmental Engineers (BEEs) came to the Air Force from the U.S. Army in 1947 when the Air Force was formed. They were an outgrowth of the U.S. Sanitation Corps and until 1964, Air Force BEEs were called Sanitation and Industrial Hygiene Engineers. In 1965, the BEE

community joined the newly created BSC (Capell, 1999). Beginning in 1970 with the formation of the Occupational Safety and Health Administration (OSHA), the U.S. Environmental Protection Agency (EPA), and the Nuclear Regulatory Commission, the number of federal regulations that Air Force installations and other organizations had to comply with increased considerably. This caused an increase in the responsibility and requirements for BEE flights across the Air Force. In the early 1980s, a major shift in functions occurred. The clinical and sanitary aspects of the BEE program (communicable disease, sanitary surveys, vector control, and occupational medicine) were turned over to the newly forming public health officers (Capell, 1999). This allowed the BEE force to concentrate its efforts on the industrial work place and the environment, its current Air Force mission.

EOD & BEE Officers. Transferring the EOD function from the logistics community to civil engineering (CE) in 1991 resulted in a need for fully trained EOD officers in the CE career field. The EOD program was then opened up to qualified engineers with a civil engineer Air Force Specialty Code (AFSC) and limited waivers were granted to maintenance EOD officers to bring them under the CE umbrella. Currently, there are over 55 active duty officers within the Air Force CE career field that are EOD qualified, and there are 1,421 traditional CE officers in the Air Force, but only 1,362 currently serving in CE billets. Due to its relative infancy within the CE career field, the specialized training required, and the small number of positions available, EOD is not a traditional career path for civil engineers. The traditional CE career includes experience in engineering, environmental, operations, readiness, and resources. The CE-

EOD officers volunteer for and receive specialized explosive ordnance disposal training at a 27-week EOD training school that traditional CE officers do not receive.

The Air Force has provided career guidance to CE officers in the form of a career pyramid. The CE Career Field Education and Training Plan (CFETP) states:

The idea behind a successful career is to begin by building your *primary job proficiency* through a strong technical foundation. Follow that up by *building depth* through increased leadership opportunities. Finally, after building depth you should focus on *building breadth* by expanding your possibilities at different levels (Department of the Air Force, 1998).

This means that for progression, CE officers are recommended to gain breadth and depth in the entire CE career field, and not spend extended periods of time in any one specialty of the CE career field. For example, it is thought that a CE officer who spent the majority of his or her career focusing in one specialty, such as EOD, would not be as qualified and able to handle the Base Civil Engineer (BCE) position.

Similar to the career guidance that the Air Force provides to its CE officers, the Air Force provides two primary career tracks to BSC officers, an industrial hygiene or environmental specialty. The career pyramid for BSC officers, and the BEE officers in particular, is very similar to the career pyramid of CE officers. Officers are encouraged to gain primary job proficiency, then build depth and breadth in their specialty. After certain time-in-service requirements within the BSC career pyramid, however, there are two specific pathways that an officer can follow: a clinical/environmental/scientific pathway or an administrative/management pathway. The administrative/management pathway starts when the BSC officer reaches approximately 11-15 years of service, or at the rank of Major. The main difference between the career guidance provided to BSC officers and CE officers is that BSC officers are encouraged to gain board certification as

they further their education and they are not able to gain experience in other functions of the BSC. For example, while a traditional CE officer would be able to gain experience in both the engineering and operations functions, a BEE officer would not be able to gain experience as an Optometrist.

The additional specialized training that CE-EOD officers receive, coupled with their career experiences, separates them from traditional CE officers. Once traditional CE officers volunteer for and begin the 27-week EOD training course, they are removed from the traditional CE career field for up to four years, to include training time and a duty assignment in the CE-EOD career field. For example, this CE-EOD assignment could be as an EOD flight commander or as an EOD representative to the Force Protection Battle Lab. When they are assigned a position as an EOD flight commander in the CE Squadron/Group, they are very often physically separated from the main CE Squadron/Group. Because of the differences in the careers, the factors that lead to job satisfaction and intent to remain in the Air Force of CE-EOD officers may be unique from those of traditional CE officers. In turn, the career guidance provided to CE officers does not include any special consideration for the CE-EOD officer.

EOD & BEE organizational structure. Organizational structure includes the physical location of an organization in relation to its parent (higher command) organization. Due to the fact that some distance physically separates the majority of EOD flights and BEE flights from their parent organization (i.e., the Civil Engineer Squadron/Group, or the Aeromedical Squadron/Group), this organizational structure characteristic may play a role in the job satisfaction of EOD and BEE officers. The proximity of the BCE to the CE-EOD officer (and Squadron Commander to the BEE

officer) may have an impact on the type and effectiveness of the communication and mentoring received by the CE-EOD officer (and BEE officer). For example, if a CE-EOD officer's office was not located in the same building as their BCE, they may have less access to mentoring from their BCE than a traditional CE officer whose office is in the same building as their BCE. Mentoring includes all of the career guidance that commanders and other officers are providing to the subordinate (Gibson, 1998). Among other things, mentoring is intended to assist in professional development and career guidance. However, the majority of CE commanders do not have any EOD training or experience, which may affect the quality and effectiveness of mentoring that the EOD officer is receiving and may also affect their intent to remain in the CE-EOD career field. Similarly, the Squadron Commanders (SQ/CCs) who supervise BEE officers do not necessarily have any BEE training or experience and are generally physically separated from BEE flights, which may affect the quality and effectiveness of mentoring that the BEE officer receives.

EOD & BEE career guidance. Following the Air Force guidance, many EOD officers feel that they are only able to spend one assignment within the EOD arena before they must return to traditional civil engineer assignments to remain competitive for promotion within the CE career field. In addition, as the CE-EOD officer is promoted, they find that their rank precludes them from further EOD assignments due to the limited number of field grade billets available. Traditional CE officers, however, can still find jobs that would enhance their promotion opportunities. While the career path for traditional CE officers and CE-EOD officers is through the same CE channels, CE-EOD officers may perceive fewer promotion opportunities because the promotions available

are not for EOD specific jobs. Currently, there are only 19 company grade officer assignments, and 10 field grade assignments in the CE-EOD career field. The field grade assignments are typically found at the headquarters staff, air staff, joint command, and liaison staff, providing EOD guidance and planning for the Air Force. On the other hand, while in an EOD assignment, the CE-EOD officer has many opportunities to interact with federal agencies such as the United States Secret Service (USSS), the Bureau of Alcohol, Tobacco, and Firearms (ATF), and the Federal Bureau of Investigations (FBI). Additionally, several ordnance clean-up companies are interested in the EOD training and experience these officers have. Therefore, in addition to CE-EOD assignments and traditional CE assignments in the Air Force, an EOD trained officer has exposure to additional job opportunities outside of the Air Force that could affect the retention and organizational commitment of these officers. If CE-EOD officers wish to continue doing EOD work, but are forced into traditional CE jobs, they may feel less satisfied with their Air Force job, and thus separate to pursue more satisfying work.

Promotion opportunities for BEE officers, on the other hand, seem to follow the career pyramid guidance provided by the Air Force. The BEE officer can choose to remain within the BEE career field their entire career, with flight commander positions increasing with rank. There are currently 73 BEE flight commander positions available, and 56 of these are field grade positions. On the other hand, the BEE officer is not able to hold other specialty positions within the BSC because of their qualifications. For example, a BEE officer would not hold a position as a Pharmacist. They do have the possibility of being an Aeromedical Squadron/Group Commander, but they have to compete with other officers from the BSC for these positions. Unlike the CE-EOD

officer, the BEE officer may feel that they have good promotion opportunities within their career field.

Another factor that may affect CE-EOD and BEE officer's intent to remain in the Air Force is leader-member exchange (LMX). The LMX model of leadership stresses that leaders have different kinds of relationships with different subordinates (Yukl, 1998). It further suggests that leaders categorize subordinates into an "in-group" and an "out-group" and devote their time and attention to the "in-group". Because of their physical separation and difference in training from their commanders, CE-EOD and BEE officers may perceive themselves to be in the "out-group." This thesis will explore the quality of the relationship between subordinates and their commanders, and determine if BCE commanders (and SQ/CC's) do in fact have different relationships with subordinates based on their role in the organization.

Other theories such as social exchange theory and the theory of reasoned action will be examined to determine if they offer any insight into the satisfaction and intentions of EOD and BEE officers to remain in the Air Force. The basic premise of social exchange theory is that relationships providing more rewards than costs will yield enduring mutual trust and attraction (Blau, 1964). The major focus in the social exchange literature has been on perceived organizational support (POS), leader-member exchange (LMX), and organizational commitment. The basic premise of the theory of reasoned action is that behavior can be predicted by intentions. Job satisfaction, organizational structure, and mentoring effectiveness, in addition to social exchange theory and reasoned action theory, may play a role in explaining why CE-EOD officers, traditional CE officers, and BEE officers may not be staying in the Air Force.

Research Questions

The objective of this research is to evaluate factors affecting the satisfaction and intent to remain of Air Force officers, specifically EOD and traditional CE officers within the CE career field and BEE officers within the BSC career field as a predictor of retention. The following research questions were posed:

1. How do junior officers feel about the support they receive from their commanders and their parent organization? How do they feel about their promotion opportunities?
2. How does mentoring effectiveness and perceived opportunities for promotion relate to the intent to remain of traditional CE, CE-EOD, EOD, and BEE officers to remain in the Air Force?
3. Are officer's perceptions of the support they receive affected by the way the organization is structured?
4. What are the career intentions of traditional CE officers, EOD officers, and BEE officers? Do these career intentions differ?
5. Do commanders view their subordinates the same way? Do commanders and subordinates view their relationship the same way?

Scope of Research

The scope of this research does not include all Air Force officers. However, it is hoped that the information learned here can be applied to other groups of officers within the Air Force. The data for this thesis will come from surveys of current EOD officers, traditional CE (non-EOD) officers, Base Civil Engineer (BCE) commanders, BEE officers, and Aeromedical Squadron Commanders (SQ/CCs). Due to the similar

characteristics of the BEE officers and CE-EOD officers, with respect to physical separation from their commander, these two groups should be useful for testing the theories identified in the literature review. While the BEE officers and their commanders are included, specific reference to these officers will be limited, since the focus is on CE-EOD and traditional CE officers. Due to the fact that enlisted EOD personnel are not required to perform traditional CE jobs and have career progression within this single career field, they are not included in the scope of this research.

II. Literature Review

The purpose of this chapter is to examine literature relevant to this field of study, apply organizational behavior theories to the situation currently faced by the Air Force EOD and BEE career fields, and develop the research hypotheses for this research effort. This review will provide a theoretical framework to help examine the current situation of CE-EOD, traditional CE, and BEE officers. It will explore the theory that job satisfaction and organizational commitment influence intentions to remain, which ultimately is related to employee turnover. It will also outline research that has been done to establish the theorized relationship between organizational structure, perceived organizational support, leader-member exchange, and mentoring to organizational commitment, job satisfaction, and intent to remain as a predictor of retention.

There is a concern among senior leaders in the civil engineer career field that CE-EOD officers are leaving the Air Force at a rate that is harmful to the EOD career field and the Air Force as a whole. These CE-EOD officers that leave the Air Force also leave the civil engineer career field that is currently manned at the 73% level for Captains and 75% for Majors (AFPC, 2000). With required positions in the civil engineer career field, including EOD positions, going unfilled, strategies to improve the retention of these officers need to be developed and implemented to halt this trend.

Social exchange theory and the theory of reasoned action provide a framework to explore why CE-EOD, EOD, traditional CE, and BEE officers are not staying in the Air Force. The basic premise of social exchange theory is that relationships providing more rewards than costs will yield enduring mutual trust and attraction (Blau, 1964). It further suggests that as one party acts in ways that benefit another party, an implicit obligation

for future reciprocity is created. Over time, this implicit obligation results in certain behaviors designed to benefit the initiating party (Hofmann & Morgeson, 1999).

What social exchange theory suggests for this thesis is that if the CE or BSC squadron provides its subordinate officers with benefits (e.g., satisfying jobs, organizational support, and promotion opportunities), then the CE or BSC squadron can expect the subordinate officer to reciprocate with something that the organization desires (e.g., productivity). If CE-EOD and traditional CE officers do not feel that the benefits they are receiving from the organization that they belong to, namely the Civil Engineer Squadron, they may feel less inclined to remain committed to the Air Force. Similarly, BEE officers may feel that the benefits they are receiving are not commiserate with the work and effort they are producing for their Aeromedical Squadron and may also feel less inclined to remain committed to the Air Force. When these officers see their opportunities for promotion and challenging jobs decrease, while at the same time their chances for remote or deployed assignments increase, they need to have some reason for remaining in the Air Force.

The basic premise of the theory of reasoned action, developed by Fishbein and Ajzen (1975), is that "...the proximal cause of behavior is one's *intention* to engage in the behavior" (Eagly & Chaiken, 1993:148). Intentions to remain are a reasonable prediction of retention, the outcome that the Air Force really cares about but can't measure until the behavior occurs. In Fishbein and Ajzen's model, attitudes influence behaviors through intentions, which are decisions to act in a particular way. Additionally, subjective norms, or a person's belief about whether significant others think that he or she should engage in the behavior, is another determinant of a person's

intentions (Eagly & Chaiken, 1993). For this thesis, the focus of Fishbein and Ajzen's theory of reasoned action was on the perceptions, affective components of attitudes, and intentions of the CE-EOD, BEE, and traditional CE officers. The affective component of an attitude reflects the feelings and emotions that an individual has toward a situation (Griffin, 1999). For this research, two facets of leader influence were considered: leader-member exchange and mentoring. The organizational leaders (BCE's and SQ/CC's) create an environment of perceived organizational support (POS) and perceived opportunities for promotion (POP) based on their supervision and leadership. POS and POP then impact the job satisfaction and organizational commitment of the subordinate CE-EOD, BEE, and traditional CE officers. The affects of POS, POP, job satisfaction, and organizational commitment then create the intention of these officers to remain in the Air Force. In general terms, leaders influence the environment, the environment influences satisfaction and commitment, and satisfaction and commitment influence intent to remain. Mediating the entire model is the construct of organizational structure, the physical distance and communication barriers between leaders and subordinates and also the number of organizational layers between subordinate and commander. Figure 1 shows the predicted relationships among the constructs of interest for this thesis.

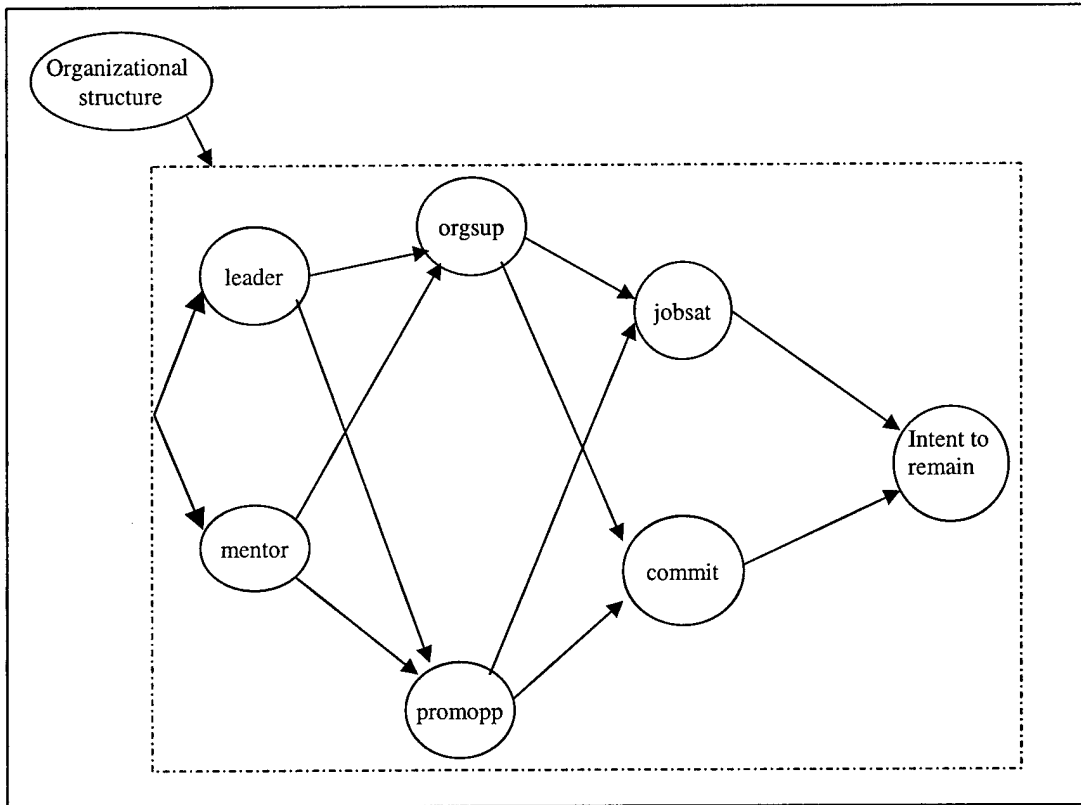


Figure 1. Predicted Thesis Relationships of the Factors That Affect Officers' Intention to Remain in the Air Force

Leader-Member Exchange

Two levels of exchange relationships that have been consistently conceptualized in the management literature are a global exchange relationship between employees and the organization (perceived organizational support) and a more focused, dyadic relationship between subordinates and their superiors, defined here as LMX (Settoon et al., 1996). Settoon et al.'s (1996) study found that LMX was highly related to citizenship behavior and that a high correlation between POS and organization commitment existed. One clear definition of the LMX construct emerged in research done by Scandura, Graen, and Novak (1986). They defined leader-member exchange as "a system of components

and their relationships involving both members of a dyad in interdependent patterns of behavior and sharing mutual outcome instrumentality and producing conceptions of environments, cause maps, and value” (Scandura, Graen, & Novak, 1986). High leader-member exchange has been associated with increased subordinate satisfaction and productivity (e.g., Graen, Novak, & Sommerkamp 1982) and with decreased rates of employee turnover (e.g., Ferris, 1985, Wayne et al., 1997). In the case of CE-EOD officers and traditional CE officers, it is believed that high, positive leader-member exchange will lead to an increased intent to remain with the Air Force. Wayne et al.’s (1997) research found that LMX and POS have unique antecedents and are differently related to outcome variables, and provide further support for the distinctness of the two constructs in social exchange theory.

The leader-member exchange (LMX) model of leadership stresses that leaders have different kinds of relationships with different subordinates. It further suggests that leaders categorize subordinates into an “in-group” and an “out-group” and devote their time and attention to the “in-group.” This belief is a departure from the traditional approach to leadership, which assumes that leaders display consistent behavior towards all of their subordinates. Graen and Cashman (1975) suggested that in-group selection is made early in the leader-subordinate relationship on the basis of personal compatibility and subordinate competence and dependability. Since the BCE is the leader of both CE-EOD officers and traditional officers, the possibility for both “in-group” and “out-group” members in the same squadron is likely. Additionally, BCE’s may feel less compatible with CE-EOD officers that have different training and job experiences than they do, and

thus the CE-EOD officer may find him or herself in the "out-group." The same situation could also exist between SQ/CC's and BEE officers in the BSC career field.

In the exchange relationship with "out-group" subordinates, there is typically a low level of mutual influence. The primary source of leader influence is legitimate authority in combination with coercive power and a limited degree of reward power (Yukl, 1998). To satisfy the terms of the exchange relationship, "out-group" subordinates need only comply with formal role requirements such as duties, rules, and legitimate orders from the leader. As long as they comply with these basic terms, the subordinate receives the standard benefits of their employment, such as a paycheck. On the other hand, in the deeper exchange relationship with "in-group" subordinates, the focus is on the leader's control over outcomes that are desirable to the subordinate. These outcomes could be greater authority and responsibility, high visibility job assignments, and even participation in decision making. In return for this deeper exchange relationship and outcomes, the "in-group" subordinates have certain obligations beyond those of the "out-group." The "in-group" subordinates are expected to work harder and to be loyal to the leader (Yukl, 1998). While one of the benefits of "in-group" relationships to the leader is subordinate commitment, the leader must also spend more time and provide more attention to the "in-group" subordinates.

As the supervisor of the CE-EOD officer, the BCE has a great deal of influence over the CE-EOD officer. As the BCE develops a separate exchange relationship with each of his or her individual subordinates, the CE-EOD officers may feel that they are part of the "out-group" and that they have different relationships with their commander than the traditional CE officers in the same squadron. At the same time, the BCE may

feel that it is easier to bond with and provide attention to the traditional CE officers who are physically and organizationally closer to them.

H1: Leader-member exchange (LMX) will be positively related to perceived organizational support (POS).

H1a: CE-EOD officers will report lower leader-member exchange relationships than traditional CE officers.

H2: Leader-member exchange (LMX) will be positively related to intent to remain in the Air Force.

Mentoring

Mentoring has received substantial attention from behavioral researchers in the past decade due to its positive effect on organizational functions and members (Gibson, 1998). Many organizations, including the Air Force, have attempted to formalize mentoring relationships in order to capitalize on the developmental aspects of these relationships. In 1996, the USAF released Air Force Policy Directive (AFPD) 36-34, Air Force Mentoring Program. The intent of then Air Force Chief of Staff, General Ronald R. Fogleman, was to "infuse all levels of leadership with mentoring to effect a culture change - one where senior officers can pass on principals, traditions, shared values, and lessons of our profession," (AFPD 36-34:1). Therefore, Air Force supervisors are responsible for ensuring their subordinates' professional development, offering their subordinates' career guidance, and teaching their subordinates' Air Force history and heritage.

There are many aspects to the mentoring construct that have been examined in the literature. These include how mentor- protégé relationships develop (Kram, 1985),

factors that detract from a mentor's willingness to engage in a mentoring relationship (Ragins & Scandura, 1994), and barriers to obtaining a mentoring relationship (Ragins & Cotton, 1991). In an effort to measure the advantages and disadvantages of engaging in mentoring relationships, an instrument to evaluate the effectiveness of mentoring was developed by Tepper, Shaffer, and Tepper (1996). For this thesis, the scope of the mentoring construct was limited to mentoring effectiveness, as perceived from both the subordinate's and the supervisor's point of view. It is believed that the quality of the mentoring relationship, and not the reasons why the mentoring was begun, has a stronger effect on the perceived organizational support, perceived opportunities for promotion of the subordinate, and the leader-member exchange relationships that are formed between the mentor (commander) and the protégé (subordinate). The mentoring effectiveness construct examines the extent to which the commander offers support and encouragement to their subordinate, and not the reasons that the relationship was formed, to help determine the quality of the mentoring relationship from both the commander's and the subordinate's view.

While various definitions for the mentoring construct are available in the literature, a common agreement can be found in describing the mentor. The mentor is usually a senior, experienced employee who serves as a role model, provides support, direction, and feedback to the younger employee regarding career plans and interpersonal development (Noe, 1988). Additionally, the mentor may increase the visibility of the junior employee to decision-makers in the organization who may influence career opportunities. Often these mentoring relationships develop because of shared interests or admiration.

In formal mentoring programs, individuals are assigned to a mentor. By the very nature of their position, the BCE is responsible for the professional development and mentoring of junior officers within their command. Kram (1985) warned that assigned mentoring relationships may not be as beneficial as mentoring relationships that develop informally, due to personality conflicts between parties and the lack of true personal commitment of either the mentor or the protégé to the relationship because it was not formed on their initiative. The importance here is that supervisors and commanders who most likely do not have any EOD (or BEE) experience are mentoring EOD (and BEE) officers. The information and advice that these mentors are providing may or may not take into account the unique challenges and desires of CE-EOD officers and BEE officers.

Additionally, some of the literature has focused on the convergence of mentoring relationships with the construct of leader-member exchange (LMX). Thibodeaux and Lowe (1996) found that “in-group” members, or those with high quality exchange relationships, possess protégé-like relationships with their supervisors, whereas “out-group” members’ relationships with their supervisors do not have the qualities of good mentoring relationships. For example, if the CE-EOD officer or BEE officer feels that they are a part of the “out-group” they may feel that their mentoring relationship with their BCE or SQ/CC is less effective than the mentoring relationship between the commander and other subordinate officers. For this research, the measures of mentoring effectiveness and LMX were both considered to be perceptions that the subordinate (and the leader) held about their commander (subordinate). It is expected that a high correlation will be found between the LMX and mentoring effectiveness constructs.

H3: Mentoring effectiveness will be positively related to perceived organizational support.

H3a: CE-EOD officers will report lower mentoring effectiveness than traditional CE officers.

Perceived Organizational Support

Perceived organizational support (POS) is the employee's perception of being valued and cared about by the organization. The findings of Eisenberger, Huntington, Hutchison, and Sowa (1986), proposed that employees' commitment to an organization is strongly influenced by their perception of the organization's commitment to them. They suggest that, to meet their needs for approval, affiliation, and self esteem, employees form a general perception concerning the extent to which the organization values their contributions and cares about their well-being. Based on their hypotheses, the authors developed a 36-item Survey of Perceived Organizational Support. The findings of Eisenberger et al.'s (1986) results indicated that employees develop global beliefs concerning the degree to which the organization values their contributions and cares about their well being. This measure was reduced to a nine-item POS measure and validated by Wayne, Shore, & Liden (1997) in their research of a large corporation with over 20,000 employees throughout the United States. They found that employees did develop exchange relationships with both their organization and their immediate supervisors, and that these relationships were in fact different and represented different constructs.

Shore and Tetrick (1991) performed a confirmatory factor analysis of the Survey of Perceived Organizational Support scale by surveying 330 employees holding a variety

of job positions (e.g. mechanics, secretaries, and supervisors) in a large multinational firm headquartered in the southeastern United States. Their results provide evidence for the distinctiveness of the Survey of Perceived Organizational Support with affective and continuance commitment, but showed less support for a lack of redundancy with the satisfaction construct. The study raises the question as to whether individuals perceive that the organization is supportive because they are satisfied with their situation or whether perceived organizational support may be antecedent to satisfaction (Shore & Tetrick, 1991) and the authors suggest further research to address this question. Later work by Wayne et al. (1997) and Eisenberger, Cummings, Armeli, and Lynch (1997) found that POS and job satisfaction are indeed two related-but-distinct constructs. Eisenberger et al.'s (1997) study found that an employee may believe that the organization strongly values his or her contributions and cares about their well-being (POS) yet have low overall job satisfaction because their employer does not have the resources to prevent unfavorable treatment (e.g. little promotion opportunity, lack of physical resources). It has been shown that POS is a general belief concerning the benevolent or malevolent intent of the organization toward the employee, whereas overall job satisfaction represents a summary tabulation of the favorableness of various aspects of the job (Shore and Tetrick, 1991). If the CE-EOD officer does not feel that the CE organization supports them, or that the Air Force does not provide them with promotion opportunities, their job satisfaction may be lower than traditional CE officers.

H4: Perceived organizational support will be positively related to job satisfaction.

H4a: CE-EOD officers will report lower perceived organizational support than traditional CE officers.

It has also been suggested that perceived organizational support is associated with organizational commitment (Settoon, Bennett, and Liden, 1996). A sample of 254 nonsupervisory employees employed by a regional hospital and 26 supervisors who completed separate questionnaires for each of their subordinates participated in the survey (Settoon et al., 1996). Structural equation modeling results indicated that perceived organizational support was a stronger correlate of organizational commitment than leader-member exchange. If the employee feels that the organization cares for them, then they may be more willing to remain committed to the organization, even when their job satisfaction may be lower. For the CE-EOD officers, a lack of perceived organizational support may result in a lack of organizational commitment to the Air Force.

H5: Perceived organizational support will be positively related to affective commitment.

Opportunities for Promotion

Perceived opportunities for promotion is the degree to which the employee feels that there is a potential for vertical occupational mobility. In the case of traditional CE officers, as job opportunities are decreased due to military downsizing, outsourcing, and privatization initiatives, the perceived decrease in opportunities for promotion can play a large role in the intent of CE officers to remain with the Air Force. In the case of the CE-EOD officer, the lack of field grade or higher positions in the EOD career field can play a large role in their intent to remain in the Air Force. Currently, there are only eight field grade officer positions in the EOD career field. These include positions at the command headquarters level, the EOD training school, the Force Protection Battle Lab, and the

Defense Nuclear Weapons Agency. If these officers retain the perception that there are no longer any opportunities for promotion within the civil engineer career field, they will be more likely to leave the Air Force and pursue job opportunities outside of the military.

Perceived opportunities for promotion have been linked in the literature to job satisfaction. Spector (1997), and Smith, Kendall, & Hulin (1969) have found that perceived opportunities for promotion is one factor that affects overall job satisfaction. If an Air Force officer feels that their opportunities for promotion are good within their career field, they may feel more satisfied with their current job and career field. This higher job satisfaction may in turn lead to an increased intent to remain in the Air Force. On the other hand, if an officer perceives that their opportunities for promotion are capped in their career field, their job satisfaction and intent to remain in the Air Force may not be as high. While job satisfaction has been linked to turnover (Basset, 1994) in the literature, perceived opportunities for promotion, as a specific facet of job satisfaction alone, has not been established in the turnover literature.

H6: Perceived opportunities for promotion will be positively related to job satisfaction.

H6a: CE-EOD officers will perceive fewer opportunities for promotion than traditional CE officers.

Affective Commitment

Like many constructs in organizational psychology, commitment has been conceptualized and measured differently among researchers. According to Porter, Steers, Mowday, and Boulian (1974: 604), commitment is “the strength of an individual’s identification with and involvement in a particular organization.” Common to all of the

conceptualizations of commitment is a link to turnover such that employees who are strongly committed are those who are least likely to leave the organization (Allen & Meyer, 1990). While this link to turnover is common, the nature of the link to the organization is different depending upon the conceptualization. Meyer and Allen (1984) developed the Affective Commitment Scale and the Continuance Commitment Scale to measure two aspects of the commitment construct (Meyer & Allen, 1984).

Affective commitment refers to the employee's emotional attachment to, identification with, and involvement in, the organization. Continuance commitment is based on the costs that employees associate with leaving the organization (Allen & Meyer, 1990). Both affective and continuance commitment represent psychological states that influence whether an employee will remain with an organization. However, Meyer, Allen, and Gellatly (1990) argued that employees with a strong affective commitment remain with the organization because they *want* to, whereas those with a strong continuance commitment remain with an organization because they *need* to (emphasis in the original) (Meyer, Allen, & Gellatly, 1990). Because the focus of this thesis is not on whether traditional CE officers and CE-EOD officers *need* to remain in the Air Force, the focus will be placed on the affective commitment of these officers to their organizations. For example, does the CE-EOD officer have a sense of belonging to the Civil Engineer Squadron he or she belongs to? Whether these traditional CE and CE-EOD officers feel committed to their organizations may have an impact on their intent to remain in their career field specifically and remain in the Air Force in general.

On the other hand, researchers have studied the link between job satisfaction and organizational commitment. Cramer (1996), Anderson and Williams (1992), and Curry,

Wakefield, Price, and Mueller (1986) found no temporal relationship between job satisfaction and organizational commitment. Practically, this means that even if an organization could increase job satisfaction among its employees, it is unlikely to result in greater organizational commitment, but it may still affect the employee's decision to remain with the organization. Research done by Ben-Bakr and al-Shammari (1994) also found that both job satisfaction and commitment significantly correlates with turnover in a study of 442 employees in Saudi Arabian organizations, with commitment being more significant than job satisfaction (Ben-Bakr & al-Shammari, 1994). This thesis will attempt to confirm the unique roles that both job satisfaction and affective commitment play in the CE-EOD and traditional CE officer's decision to remain or leave the Air Force.

H7: Affective commitment will be positively related to intent to remain in the Air Force.

H7a: CE-EOD officers will report lower affective commitment with their Civil Engineer Squadron/Group than traditional CE officers.

Job Satisfaction

The roots of job satisfaction research can be traced back to the Hawthorne studies conducted in the 1920s, which proposed that workers respond primarily to the social context of the workplace (Roethlisberger, 1941). These studies led to the development of the human relations movement in management that believed that the manager's concern for workers would lead to increased satisfaction, which would in turn result in improved performance. One issue that has been consistently researched and related to employee's satisfaction is employee turnover and retention (Basset, 1994). Studies in the area of

satisfaction and turnover have consistently shown that dissatisfied workers are more likely than satisfied workers to terminate employment are; thus, satisfaction scores can predict turnover (Lawler, 1973).

Job satisfaction is usually considered an attitudinal variable. It can be considered as “a global feeling about the job or as a related constellation of attitudes about various aspects or facets of the job” (Spector, 1997): 2). Spector (1997) has proposed nine facets of job satisfaction that represent distinct feelings about the various facets of the employee’s job. Researchers use the facet approach to find out which parts of the job produce satisfaction and dissatisfaction. Generally, the facets of satisfaction typically measured assess peoples perceptions regarding rewards such as pay or fringe benefits, other people such as coworkers or supervisors, the nature of the work itself, and the organization itself. This research focuses on areas of job satisfaction that supervisors and the Air Force can change to increase the job satisfaction of traditional CE officers, CE-EOD officers, and BEE officers. To that end, job satisfaction was measured using only four of Spector’s Job Satisfaction Survey (JSS) facets. Those were promotion and supervision (perceptions of job satisfaction) and the nature of the work and communication (affectives of job satisfaction).

If CE-EOD officers felt that they had a better chance for promotion opportunities in the EOD career field, they might be more willing to remain in the Air Force. At the same time, traditional CE officers might feel that their current promotion opportunities are being decreased due to outsourcing and privatization efforts, and are thus not willing to stay in the Air Force (Kennedy, 2000). One issue that is related to the communication facet of job satisfaction is the proximity of the CE-EOD officer to the Base Civil

Engineer (BCE). In traditional CE squadrons, a significant distance very often physically separates the CE-EOD officer from the BCE and the rest of the Civil Engineer Squadron. This lack of proximity could have a negative affect on the communication and visibility of CE-EOD officers, ultimately leading to lower job satisfaction. More physical separation between officers and their commanders may cause less communication, which may lead to lower job satisfaction. One additional facet of job satisfaction that Air Force leaders may be able to change is the supervision satisfaction that CE-EOD officers feel. A simple understanding of what the CE-EOD officer does on a daily basis and the unique challenges they may face different from traditional CE officers could change the supervisor job satisfaction of the CE-EOD officer. To ensure that no cross correlation between the constructs of job satisfaction and perceived opportunities for promotion existed in the analysis of the data, overall job satisfaction will be analyzed using the affective components only.

H8a: Job satisfaction of EOD officers will be lower than the job satisfaction of traditional CE officers.

H8b: CE- EOD officers will report a lower intent to remain in the Air Force than traditional CE officers will.

Organizational Structure

Organizational structure may be considered the anatomy of the organization, providing a foundation within which the organization functions (Dalton, Todor, Spendolen, Fielding, & Porter, 1980). Behavior in organizations can be influenced by the organizing structure. Physical proximity is one characteristic of organizational structure that can play an important role in coordination between employees. When employees are

physically located near each other, the frequency of communication increases, the amount of informal contact is greater, and the potential for chance meeting in the hall increases (Kraut, Galegher, & Egidio, 1998). Furthermore, a lack of physical proximity poses some potential problems for employees which may include less frequent interaction, more costly interactions, fewer unplanned or chance interactions, and greater formality in communication (Citera, 1998).

Proximity may also play a role in the effectiveness of a mentoring relationship. A study of first-year teachers found that a critical ingredient in the mentoring match-up is the proximity of the pair during the day (Pennington, 1998). If the mentor and protégé are in the same building, more informal mentoring and contact will occur. If officers are not located near their commanders, junior officers may experience the problems described above, which could lead to a lack of effective mentoring, lower perceived organizational support, and even a lower intent to remain with the organization.

A leader's ability to influence the environment, satisfaction, and commitment of their subordinates may be affected by their physical proximity to their subordinates. Changes in the proximity of the subordinate officer to their commander may enhance the relationships between the leader and their subordinates. Due to various mission requirements, most EOD flights and BEE flights are geographically separated from their parent organization and their commanders. This physical separation can have an effect on the relationships that develop between the CE-EOD officer or BEE officer and their commander's, as well as with their organizations.

Another structural characteristic of an organization is its physical characteristics, such as a flat/tall hierarchy (Dalton et al., 1980). A flat/tall hierarchy refers to the

number of hierarchical levels of organization, such as the number of layers between a subordinate and their commander. Research has indicated that flatter structures, or those with fewer hierarchical levels, tend to create a potential for more effective supervision (Worthy, 1950). Research on vertical span relationships has been problematic because it is difficult to generalize across findings with professionals, laboratory studies, and white collar employees with both positive and negative associations reported (Dalton et al., 1980). Because organizational structure has been defined and researched in many different ways, specific outcomes of organizational hierarchy are hard to generalize.

A leader's ability to influence the environment, satisfaction, and commitment of subordinates may also be affected by the number of organizational layers between them. The fewer the number of layers, the greater potential there is for the commander to directly influence their subordinate. Due to the organizational hierarchy of a traditional CE squadron, CE-EOD officers tend to report directly to the BCE because they are the flight commander, whereas other traditional CE and BEE officers may have numerous layers between themselves and their commander depending upon their specific job in the organization. Figures 2 and 3 depict the typical organizational structure of a Civil Engineer squadron and an Aeromedical squadron based on Air Force guidance (Department of the Air Force, 1 July, 1998).

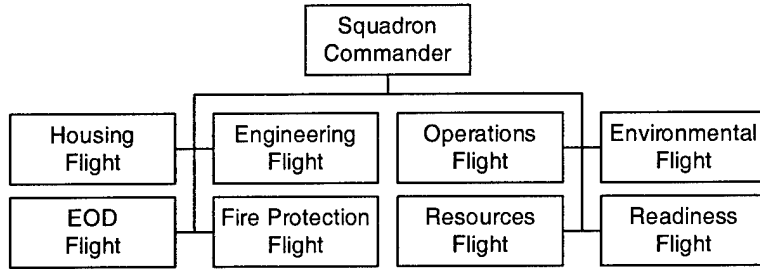


Figure 2. Civil Engineer Squadron Structure

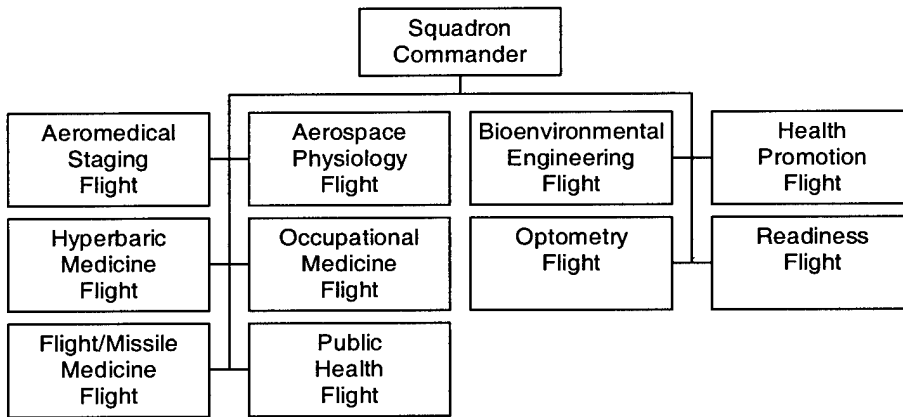


Figure 3. Aerospace Medicine Squadron Structure

H9: Organizational structure will be negatively related to mentoring effectiveness.

H10: Organizational structure will be negatively related to perceived organizational support.

H11: Organizational structure will be negatively related leader-member exchange.

H12: Organizational structure will be negatively related to job satisfaction.

H13: Organizational structure will be negatively related intent to remain.

The major hypotheses of this thesis are that social exchanges (mentoring, leader-member exchange, perceived organizational support, and perceived opportunities for promotion), job satisfaction, and affective commitment directly influence the intent to

remain of traditional CE officers, CE-EOD officers, and BEE officers. Organizational structure may have a moderating effect on the social exchanges, perceptions, affective components of attitudes, and intentions of these subordinate officers. All of these hypotheses fit the general propositions of the social exchange framework, which can help predict which perceptions and affective components of attitudes will cause officers to remain in the Air Force.

III. Methodology

This chapter will describe the procedures used to test the theory and hypotheses developed in the previous chapter. In order to evaluate the research hypotheses, a survey was used to measure job satisfaction, perceived organizational support, affective commitment, leader-member exchange, mentoring, perceived opportunity for promotion, and career intentions among Air Force Explosive Ordnance Disposal (EOD) officers, traditional Civil Engineer (CE) officers, and Bioenvironmental Engineer (BEE) officers. A second survey was used to measure mentoring and perception of EOD officers compared to traditional CE officers among Base Civil Engineer (BCE) commanders and to measure mentoring and perception of BEE officers among Aeromedical/Dental Squadron Commanders (SQ/CCs). The demographics of the survey respondents are reviewed in order to identify response trends based on the participant's time in service, duty experience, and duty station. Finally, the chapter concludes with a brief introduction to the method of structural equation modeling, the primary statistical procedure used to analyze the data.

Sample

Group 1. The first group consisted of Lieutenant Colonel and Colonel BCE commanders who had both CE-EOD and traditional CE officers in their group or squadron. A second part of the Group 1 sample consisted of Lieutenant Colonel and Colonel Aeromedical or Dental Squadron commanders. A list of all CE groups or squadrons, including the base location, that have CE-EOD and traditional CE flights was acquired from the AFPC website at <http://afas.afpc.randolph.af.mil/Civ->

[Engr/Restricted/eod.htm](#) and from the USAF EOD Worldwide Roster, found at <http://www.afcesa.af.mil/Directorate/CEX/EOD/rosters>. Table 1 lists all 19 bases that have both traditional CE and CE-EOD flights. For this research, the commander (the BCE or SQ/CC) was considered to be the same person that mentors the CE-EOD officer, the traditional CE officer, and also the BEE officer. Survey questions were asked to help determine if the organizational structure had any affect on the CE-EOD or BEE officer's perceived organizational support, leader-member exchange, and mentoring effectiveness.

Table 1. Air Force Bases with Both Traditional CE and CE-EOD Flights

Aviano AB	Eglin AFB	McConnell AFB	Seymour Johnson AFB
Barksdale AFB	Hill AFB	Moody AFB	Spangdahlem AB
Cannon AFB	Holloman AFB	Nellis AFB	Travis AFB
Charleston AFB	Luke AFB	RAF Lakenheath	Whiteman AFB
Dover AFB	McChord AFB	Ramstein AB	

These two lists were then matched and it was determined that 19 Lieutenant Colonel and Colonel BCE commanders have both CE-EOD and traditional CE officers in their group or squadron. It was these 19 Lieutenant Colonel and Colonel BCE commanders that comprised the first part of Group 1 of the sampling frame.

The second part of the Group 1 sampling frame came from a list of Lieutenant Colonel and Colonel Aeromedical or Dental Squadron commanders at the same 19 bases that the BCE's were from. The Aeromedical or Dental Squadron commanders were found using the Worldwide Locator at <http://wwwsam.brooks.af.mil/web/eh/html>. These 19 officers, in addition to the 19 officers identified above, formed Group 1 of the sampling frame for a total of 38 members.

Group 2. The second group consisted of 154 company grade and 22 field grade traditional CE officers, as well as 34 company grade and 16 field grade Bioenvironmental Engineer (BEE) officers, in the Air Force who were stationed at the 19 bases identified above in Table 1. A list of all the company grade and field grade traditional CE officers, EOD officers, and BEE officers at the 19 bases identified in Table 1 was obtained from the Air Force Personnel Center's database via AFIT/RRD. This group of 226 officers comprised Group 2 of the sampling frame.

Group 3. The third group consists of all EOD trained officers, with the exception of the thesis sponsor and the researcher, who are still on active duty in the Air Force. Since this study compares the intentions of EOD trained officers to other officers, all EOD trained officers who are still on active duty in the Air Force, regardless of their present Air Force Specialty Code, were included in the sampling frame. A list of all EOD trained officers was acquired from AFCESA and confirmed by AFIT/RRD. This list produced 48 EOD trained officers who are still on active duty in the Air Force and comprised Group 3 of the sampling frame.

Survey Development

Pilot Survey. A pilot survey was conducted on 27 Jul 00. The pilot survey was administered to 47 company grade civil engineer officers who were attending the Civil Engineer and Services School's Management 101 course at the Air Force Institute of Technology. Analyses of the survey responses allowed the researcher to test the survey reliability, and determine if survey questions should be reworded, added, or deleted from the final survey before it was mailed out to the target audience. Based on input from the

pilot survey respondents, and the thesis sponsor, a question was added that asked whether the officer had ever graduated from the Explosive Ordnance Disposal (EOD) training school and whether they would like to attend in the future. Questions on current rank, duty location, and current AFSC were deleted and replaced with questions that asked how long the respondent has been in the Air Force and how long they have been stationed with their commander.

The reliabilities of the major survey constructs were also analyzed based on the responses of the pilot study. Table 2 provides the descriptive statistics for the major survey constructs.

Table 2. Pilot Study Survey Descriptive Statistics

Scale	No. of items	M	SD	alpha	skewness	kurtosis
Mentoring Effectiveness	16	2.63	0.77	0.91	0.73	1.06
Perceived Organizational Support (POS)	9	4.42	1.01	0.87	0.06	-0.01
Leader-Member Exchange (LMX)	7	4.47	1.20	0.89	-0.25	0.09
Affective Commitment	8	4.01	4.01	0.74	-0.29	-0.83
Facets of Job Satisfaction						
Promotion	4	4.41	1.20	0.67	-0.19	-0.31
Nature of Work	4	4.39	1.50	0.90	-0.61	0.09
Communication	4	4.11	1.21	0.63	-0.07	0.08
Supervision	4	5.77	1.08	0.76	-1.15	1.33
Intent to Remain	5	3.73	1.71	0.90	0.39	-0.71
Sample size (N=47)						

The pilot survey revealed that the overall mean intent to remain (mean = 3.73) of this officer group put them in a “Slightly Disagree” category. The lowest mean score (mean = 2.63) was for mentoring effectiveness, which corresponds to a “Moderately Disagree” response. All other scales corresponded to a “Neither Disagree nor Agree” response for the officers surveyed.

The skewness and kurtosis values, indicators of normality, were found to be within the acceptable range. Even though the reliabilities for the promotion and communication facets of job satisfaction were below .70, past uses of these measures were more successful, and it was decided that the poor alphas could be due to the sample and not the measures themselves. The sample itself was small (N=47), and 45 of the respondents were 2nd Lieutenants in the Air Force with less than two years of active duty service. Because they were so new to the Air Force, they were still learning about the organization that they belonged to, and their answers were thought to reflect this learning stage. Therefore, no additional questions in these categories were added to the final survey.

Final Survey. The first survey (Survey #1) developed was an 87-item survey used to measure job satisfaction, perceived organizational support, affective commitment, leader-member exchange, mentoring, and career intentions among Air Force EOD officers, traditional CE officers, and BEE officers. The second survey (Survey #2) developed was a 57-item survey used to measure mentoring and perception of EOD officers compared to traditional CE officers among BCE commanders. Participants responded to job satisfaction, perceived organizational support, affective commitment, leader-member exchange, and career intentions using a 7-point Likert scale that included seven response categories: (1) Strongly disagree, (2) Moderately disagree, (3) Slightly disagree, (4) Neither disagree nor agree, (5) Slightly agree, (6) Moderately agree, and (7) Strongly agree. Participants responded to mentoring effectiveness items using a 5-point Likert scale that included five response categories: (1) Not at all, (2) To a slight extent, (3) To some extent, (4) To a large extent, and (5) To a very large extent.

A copy of the complete traditional CE and CE-EOD (acting as an EOD flight commander) officer survey is provided in Appendix A. A copy of the complete BCE Survey, Part 1 is provided in Appendix B. A copy of the complete BCE Survey, Part 2 is provided in Appendix C. A copy of the complete Bioenvironmental Engineer (BEE) officer survey is provided in Appendix D. A copy of the complete Aeromedical or Dental Commander (SQ/CC) Survey, Part 1 is provided in Appendix E. A copy of the complete Aeromedical or Dental Commander (SQ/CC) Survey, Part 2 is provided in Appendix F. A copy of the complete EOD (those not acting as an EOD flight commander) officer survey is provided in Appendix G. Detailed descriptive statistics for each item of this thesis are provided in Table 2.

Survey Distribution. The surveys were distributed in two ways. First, EOD officers who were not currently serving as an EOD flight commander in a CE squadron were mailed an EOD officer survey to their work address. Second, a complete survey package was assembled and mailed to the commander (BCE or SQ/CC). This package included a survey cover letter, survey instructions, a BCE (or SQ/CC) Survey, Part 1, BCE (or SQ/CC) Survey, Part 2 for each of their subordinates, and subordinate CE (or BEE) officer surveys for each of the subordinates at that base. Self-addressed return envelopes were provided with all of the surveys. To solicit the support of the commanders and to encourage the return of the surveys, advance notice was given to the commanders via email on the same day that the packages were mailed out. A copy of the advance notices email is provided in Appendix H.

Permission and Privacy. A brief synopsis of the research proposal and the two surveys were submitted to HQ AFPC/DPSAS. USAF Survey Control Number 00-79A

was issued for Survey 1 and USAF Survey Control Number 00-79B was issued for Survey 2. Information about the study was provided to all the survey participants. This information detailed the purpose, confidentiality, disposition, time required, and researcher contact information. Strictly voluntary participation in the surveys was emphasized.

Constructs Measured.

Leader-Member Exchange (LMX). The LMX survey questions used in this survey were based on those reported by Scandura and Graen (1984), but they were not the “LMX-7” items some researchers refer to. Rather, the seven items chosen for this research were validated by Wayne, Shore, and Liden (1997) in their research with 252 leader-member dyads ($\alpha = 0.90$) and allowed respondents to answer all questions using a seven-point Likert scale.

Superior Leader-Member Exchange (SLMX). To test LMX and its affects on the dyadic relationship between the BCE commander and the CE-EOD officers and traditional CE officers, questions from a superior leader-member exchange (SLMX) scale were asked of the BCE commanders (and SQ/CCs) (Survey #2). This SLMX scale contains questions that parallel those asked of the members (the seven-item LMX scale) about the relationship between the supervisor and subordinate. As in the LMX scale, the central question asks about the relative effectiveness of the dyadic working relationship. The main difficulty with this and other measures of the dyad taken from the superior’s point of view is the tendency for superiors to respond somewhat defensively and to give “socially desirable” answers (Graen & Scandura, 1987). For example, there may be a natural tendency for BCE commanders to say that they treat all of their officers the same,

whether they are EOD trained officers or traditional CE officers. The items used in this thesis are similar to those used by Scandura, Graen, and Novak (1986) ($\alpha = 0.73$) and Scandura and Schriesheim (1994) ($\alpha = .72$).

Mentoring. For this study, the mentor for both CE-EOD officers and traditional CE officers was assumed to be the officer's Base Civil Engineer (BCE), and the mentor of the BEE officer was their Aeromedical or Dental Squadron Commander (SQ/CC). This person is the senior employee in the junior employee's direct reporting chain. Survey instructions directed subordinates to base their mentoring effectiveness answers on their current BCE or SQ/CC, which ever was appropriate. Additionally, BCE's and SQ/CC's were directed to answer mentoring effectiveness questions based on the officer identified by name on the survey. This assumption, that BCE and SQ/CC's were mentors to the junior officers of interest, allowed the researcher to gather survey data from both the BCE (SQ/CC) and the junior officer to compare perceptions of the effectiveness of the mentoring relationship.

Sixteen items from The Mentoring Effectiveness Scale (adapted from Tepper, Shaffer, and Tepper, 1996) were used to measure the CE-EOD and traditional CE (and BEE) officer's perceptions of the BCE commander's (and SQ/CC's) effectiveness in teaching, counseling, support, and coaching roles. For this question, respondents used a five-point scale with anchors of "Not at all" (1) and "To a very large extent" (5) to indicate their responses ($\alpha = 0.92$).

Superior Mentoring. The same sixteen items were used to measure the BCE commander's (SQ/CC's) general tendencies to serve in counseling, advising, support, and teaching roles with both the CE-EOD officer and the traditional CE officer.

Perceived Organizational Support. Perceived organizational support (POS) is the employee's perception of being valued and cared about by the organization. To measure the extent to which employees perceive that the organization valued their contribution and cared about their well-being, a short form of the 36-item Survey of Perceived Organizational Support (SPOS) (Eisenberger et al., 1986) was used. In Eisenberger, Fasolo, and Davis-LaMastro's most recent research (1990), they refined the initial 36-item measurement of perceived organizational support to nine items. A factor-analytic approach resulted in the emergence of the top nine items with the highest factor loading. This shortened version of the SPOS was also used in research by (Wayne, Shore, & Liden, 1997) and validated with a reliability of .93. These items were used to measure the POS of traditional CE, CE-EOD, and BEE officers in this thesis.

Perceived Opportunity for Promotion. Four items were used to measure the perceived opportunities for promotion of the CE-EOD, traditional CE, and BEE officers. The intent of these survey questions was to determine if CE-EOD officers perceive different opportunities for promotion within the CE career field as EOD trained officers than traditional CE officers perceive. The survey items were based on a survey developed by Price and Mueller (1986), with a reliability of 0.92. For example, one question asks the survey respondent, "There is a good chance to get ahead in my current duty section."

Affective commitment. An eight-item measure developed by Allen and Meyer (1984) was used to measure affective commitment with the Civil Engineer Squadron/Group or Aeromedical/Dental Squadron that the respondent was currently

assigned to. This scale, the Affective Commitment Scale (ACS), had a reported reliability of 0.87.

Job Satisfaction. Job satisfaction is usually considered an attitudinal variable. It can be considered as “a global feeling about the job or as a related constellation of attitudes about various aspects or facets of the job” (Spector, 1997: 2). The facets of job satisfaction considered in this thesis are promotion opportunities (4 items, $\alpha = 0.73$), supervision (4 items, $\alpha = 0.82$), the nature of the work itself (4 items, $\alpha = 0.78$), and communication (4 items, $\alpha = 0.71$). The facets, and their respective reliabilities, are based on the Job Satisfaction Survey (JSS) developed by Spector (1997). The 16-item scale used here measures only four facets of job satisfaction; those that the researcher felt applied to the job satisfaction of traditional CE officers and CE-EOD officers and is derived from the 36-item scale JSS that measures nine facets of job satisfaction.

Organizational Structure. For this thesis, the organizational structure includes the physical distance that separates officers from their organization and commander, the number of layers of organization or management that separate the officer and commander, and the frequency of contact with the commander. Seven survey items were written by the researcher to measure the influence of the respondents' perception of the organizational structure on their perceived organizational support, mentoring effectiveness, and leader-member exchange. Because the majority of CE-EOD officers are geographically separated from their BCE's but usually report directly to the BCE (i.e., the BCE is their direct supervisor) these questions are meant to determine if there are differences between CE-EOD officers and traditional CE officers with regards to the organizational structure. Similarly, because the majority of BEE officers are

geographically separated from their SQ/CC's, these questions were meant to evaluate if organizational structure plays a role in the their perceived organizational support, mentoring effectiveness, and leader-member exchange of BEE officers.

Specific questions were: How would you best describe the *proximity* of your office to your BCE's office? (In the same building, Not in the same building, but within close walking distance, Not in the same building, but within 5 minutes drive time, or Not in the same building, but greater than 5 minutes drive time); Which statement best describes how often you see your BCE? (Rarely – no more than once a month, Occasionally – about once a week, Frequently – about two times per week, or Often – on a daily basis); To what extent does the *proximity* of your office to your BCE's office affect communication? (It is not a barrier to communication, It creates a slight barrier to communication, It creates a moderate barrier to communication, or It creates a significant barrier to communication); Including your BCE, how many organizational/management layers (number of people) are between you and your BCE? (1 (my BCE is my immediate supervisor), 2, 3 or more; and Estimate the amount of contact you have with your BCE during an average week (Gibson, 1998). Lastly, two items were added to the survey and respondents used a 7-point Likert scale to answer the following: I am satisfied with the type of contact I have with my BCE and I am satisfied with how often I have contact with my BCE.

Career Intentions. Seven items were used to measure the career intentions of CE-EOD officers and traditional CE officers to determine if there is in fact a difference between the two groups. Respondents were asked five questions to assess their intentions to leave the Air Force. The first three questions were used by Landau and Hammer

(1986), the fourth item is from the Michigan Organizational Assessment Questionnaire (Nadler, Jenkins, Cammann, and Lawler, 1975) and the fifth question is from Wayne, Shore, and Liden (1997). (Wayne et al., 1997) found a reliability of 0.89 for these first five items in their research. Overall career intentions were measured using two items adapted from Hunt, Osborn, and Martin (1981) ($\alpha = 0.92$). For example, survey respondents were asked "What best describes your Air Force career plans?"

Survey Response

All EOD officer surveys and BCE packages were mailed out using the United States Air Force's base mail distribution system on 23 October 2000 and all SQ/CC packages were mailed out, using the same method, on 26 October 2000. Advanced notice was provided to the BCE's and SQ/CC's via an email message on the same date the survey packages were mailed out. A follow-up email message was sent to all BCE's, SQ/CC's, and EOD officers four weeks after the survey packages were mailed out. All responses were received by 3 January 2001.

Of the 19 Part 1 Commander surveys that were mailed out to BCE's, 11 were completed and returned, which represents 58% of those people successfully contacted. (Of the 161 Part 2 Commander surveys that were mailed out to BCE's, 82 were completed and returned, which represents a 51% return rate.) The BCE at one of the bases, Cannon AFB, did not complete any of the surveys because he had just PCS'd a month prior to the survey package arriving. Two other bases also did not return any of their surveys, commander or subordinate. Of the 19 Part 1 Commander surveys that were mailed out to SQ/CC's, 16 were completed and returned, which represents 84% of those people successfully contacted. (Of the 45 Part 2 Commander surveys that were mailed

out to SQ/CC's, 36 were completed and returned, which represents an 80% return rate.) Of the 142 surveys that were mailed out to traditional CE officers via the BCE, 89 completed and returned them, which represents 63% of those people successfully contacted. Of the 44 surveys that were mailed out to EOD trained officers, including those who were EOD flight commanders, 27 completed and returned them, which represents 61% of those people successfully contacted. Of the 45 surveys that were mailed to BEE officers via their SQ/CC, 36 returned them, which represents 80% of those people successfully contacted. Table 3 details the survey response rate.

Table 3. Type & Number of Survey Respondents, Response Rates, and Average Time in Service

Type of Officer	Number Sent	Number Returned	Response Rate	Time in Service (yrs)
Group 1				
BCE - Part 1	19	11	58%	20.22
BCE - Part 2	161	82	51%	
SQ/CC - Part 1	19	16	84%	16.19
SQ/CC - Part 2	45	36	80%	
Overall Gp 1			59%	
Group 2				
CE Officer	142	89	63%	5.83
BEE Officer	45	36	80%	8.15
Overall Gp 2			67%	
Group 3				
EOD Officer	25	14	56%	12.79
CE-EOD Officer	19	13	68%	7.91
Overall Gp 3			61%	
OVERALL RATE			63%	

Statistical Methods

Path analysis, invented by Sewell Wright (1918), is a methodology for analyzing systems of structural equations. Three aspects of path analysis are the path diagram, the equations relating correlations or covariances to parameters, and the decomposition of effects (Bollen, 1989). An important characteristic of structural equation modeling is that

it allows for the simultaneous estimation of both a measurement model, which specifies relationships between the observed (manifest) variables and unobserved latent variables (factors) and a structural model, which specifies relationships between the latent exogenous and endogenous variables and among the latent endogenous variables (Medsker, Williams, & Hoahan, 1994). Latent variables can also be thought of as unobserved or unmeasured variables and factors. The latent variables correspond to concepts, and represent hypothesized variables in the research model that can only be indirectly measured. Exogenous variables are directly measured variables whose variation is assumed to be independent of the model. Endogenous variables are variables whose variance is explained by exogenous or other endogenous variables in the model. Figure 4 is the hypothesized path diagram for this research, which includes all subordinate respondents, regardless of their proximity to their commander.

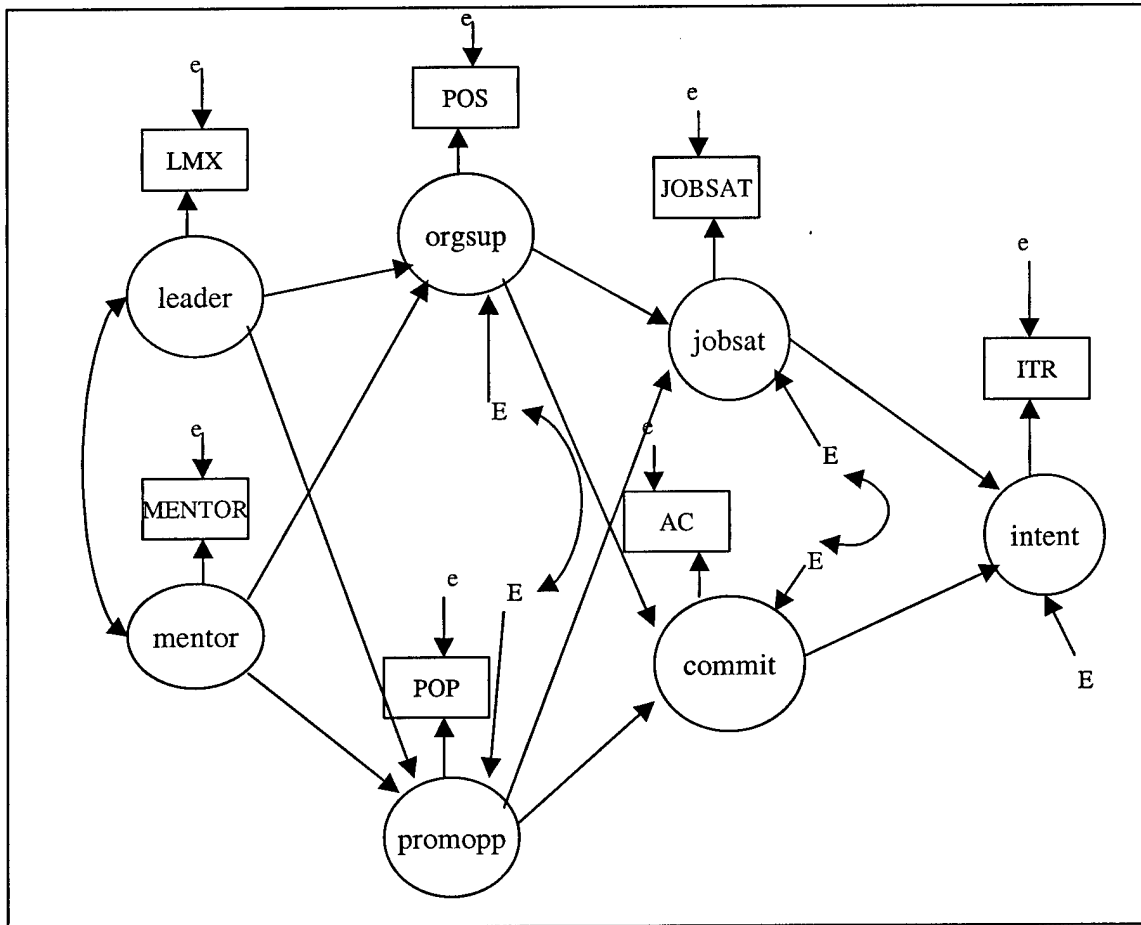


Figure 4. Hypothesized Path Diagram for Air Force Officer's Intent to Remain in the Air Force

In Figure 4, leader and mentor are exogenous variables, while orgsup, promopp, jobsat, commit, and intent are all endogenous variables. The e's and E's are residual variables that represent effects of variables not included in the model because it is not possible to statistically account for the total variance of a variable (Hair, Anderson, Tatham, & Black, 1998). Every one-way (unidirectional) arrow in the path diagram represents a parameter or coefficient. Every two-way arrow in the path diagram represents a correlation, or relationship, among the latent exogenous (or the errors of the endogenous) variables.

Within the field of Organizational Behavior and Human Resources Management there has been an increase in the use of structural equation modeling. According to Medsker, Williams, and Holahan (1994:452), "three times as many structural, latent variable studies with multiple indicators were published in a little more than half as much time (4.7 studies per year, 1988-1993, compared with 0.9 studies per year, 1978-1987)." There are three main differences between structural equation modeling (SEM) and other approaches. First, SEM requires formal specification of a model to be estimated and tested (Hoyle, 1995). It requires the researcher to think carefully about their data and to venture hypotheses regarding each variable. Second, SEM has the capacity to estimate and test relationships between latent variables. Third, SEM is a more comprehensive and flexible approach to research design and data analysis than any other single statistical model in standard use by social and behavioral scientists. Therefore, this thesis used path analysis, a method of structural equation modeling, to validate its proposed models.

The statistical packages used in this thesis were LISREL 8 and SPSS version 10.0. There are five basic steps in the structural equation modeling process. They are (1) model specification, (2) estimation of parameters, (3) evaluation of fit, (4) model modification, and (5) interpretation (Hoyle, 1995). LISREL 8 is a good tool to use if the researcher wants to use structural equation modeling but does not have much background knowledge of statistical programming language. Once again, the purpose of path analysis is to determine if the causal inferences of a researcher are consistent with the data collected, but does not prove causation. For more information on the specifics of LISREL 8, please refer to LISREL 8: Structural Equation Modeling with the SIMPLIS

Command Language, written by Karl Joreskog and Dag Sorbom (1993), the creators of the LISREL program.

To test the difference between officer types, Multiple Analysis of Variance (MANOVA) and Analysis of Variance (ANOVA) was conducted using SPSS 10.0. MANOVA was used to test the null hypothesis that several group means are equal in the population. The ANOVA test was specifically used to test for significant differences among the survey respondents across the different career fields (CE-EOD, EOD, traditional CE, and BEE). Bonferonni post-hoc tests were conducted to control Type 1 errors and determine where significant differences occurred.

Summary

This chapter described the theory being tested and the procedures used in the study. The two surveys developed for this thesis effort (Survey #1 and Survey #2) were described and the demographics of the survey respondents were reviewed in order to identify response trends based on the participant's time in service, duty experience, and duty station. Finally, the chapter concluded with a brief introduction to the method of structural equation modeling, the primary statistical procedure used to analyze the data.

IV. Analysis

This chapter evaluates the five research questions and nineteen hypotheses using the survey data. First, the descriptive statistics for the variables included in the model are presented. Second, the research questions and associated hypotheses are evaluated using MANOVA, ANOVA, and structural equation modeling as appropriate. Finally, the chapter concludes by reporting the results in answer to the research hypotheses.

Descriptive Statistics

The descriptive statistics include the number of items used for each construct, sample size, mean, standard deviation, skewness and kurtosis for each of the variables used in this research. The descriptive statistics are summarized in Table 4.

Table 4. Descriptive Statistics for Subordinate Officers and Commanders

Scale	No. of items	M	SD	skewness	kurtosis
Organization Structure					
Proximity ¹	2	1.77	0.87	0.87	-0.29
Organizational Layers ²	1	1.71	0.69	0.46	-0.84
Leader-Member Exchange (LMX)	7	5.27	1.18	-0.50	-0.68
Superior Leader-Member Exchange (SLMX)	7	6.12	0.77	-1.34	2.51
Mentoring Effectiveness - Subordinate ³	16	2.92	0.84	0.03	-0.49
Mentoring Effectiveness - Supervisor ³	16	3.73	0.75	-0.47	-0.18
Perceived Organizational Support (POS)	9	5.15	1.06	-0.51	-0.03
Perceived Opportunities for Promotion (POP)	4	5.03	1.26	-0.25	-0.92
Affective Commitment (AC)	8	4.42	1.21	-0.23	-0.77
Overall Job Satisfaction	16	5.33	0.85	-0.36	-0.49
Perception job satisfaction	8	5.10	0.96	-0.64	0.59
Affective job satisfaction	8	5.05	1.12	-0.56	-0.10
Intent to Remain (ITR)	5	4.95	1.83	-0.64	-0.74
Sample size for subordinates (N=147), for supervisors (N=117)					
¹ (1-4 scale...1 = In the same building, to 4 = Not in the same building, but greater than 5 minutes drive time)					
² Number of layers = 1, 2, or 3					
³ (1-5 scale...1 = Not at all, to 5 = To a very large extent)					
Note: all other scales are from 1-7...1 = Strongly disagree to 7 = Strongly agree					

Due to the fact that each of the variables, with the exception of organization structure and mentoring effectiveness, were measured on a 7-point Likert scale, with the value 4 "Neither Disagree nor Agree," Table 4 indicates that the means for overall job satisfaction, POS, LMX, and perceived opportunities for promotion all scored slightly above the "Slightly Agree" response for the three subordinate officer types. Similarly, the mean for SLMX scored slightly above the "Slightly Agree" response for the two commander types. At the same time, affective commitment and intent to remain scored slightly above the "Neither Disagree nor Agree" response for the three subordinate officer types. On the other hand, the mean for mentoring effectiveness (on a 1-5 scale) for the subordinates was between "To a Slight Extent" and "To Some Extent." Similarly, the mean for mentoring effectiveness for the commanders was just above "To Some Extent." For the organizational structure proximity measure, a value of 1 meant that the subordinate and commander were in the same building with no communication barriers and a value of 4 meant that the subordinate and commander were not in the same building and experienced some communication barriers. For the organizational structure layers measure, a value of 1 meant that the commander was the direct supervisor of the subordinate and a value of 3 meant that there were 3 or more layers between the subordinate and their commander.

The correlations and reliabilities between each of the variables for subordinate officers and commanders are displayed in Table 5.

Table 5. Correlations for Measures of Subordinate Officers and Commanders

Indicator	1	2	3	4	5	6	7	8	9	10	11
1. Organizational Structure - Proximity	(0.75)										
2. Organizational Structure - Layers	0.01	(-)									
3. Leader-Member Exchange (LMX)	-0.16	-0.29**	(0.91)								
4. Superior Leader-Member Exchange (SLMX)	0.07	0.04	-0.01	(.89)							
5. Mentoring Effectiveness - Subordinate	-0.16	-0.22*	0.73**	0.006	(.92)						
6. Mentoring Effectiveness - Superior	0.02	0.01	0.04	.73**	0.143	(.95)					
7. Perceived Organizational Support (POS)	-0.16	-0.21*	0.63**	0.00	0.50**	-0.04	(.91)				
8. Perceived Opportunities for Promotion (POP)	-0.35**	-0.24**	0.51**	-0.08	0.40**	-0.09	0.54**	(.80)			
9. Job Satisfaction - Affective	-0.06	-0.36**	0.40**	-0.05	0.30**	0.01	0.64**	0.48**	(.83)		
10. Affective Commitment	-0.11	-0.18*	0.49**	-0.07	0.43**	-0.04	0.69**	0.44**	0.69**	(.84)	
11. Intent to Remain (ITR)	-0.13	-0.06	0.32**	0.00	0.20*	-0.07	0.39**	0.32**	0.51**	0.42**	(.92)

Reliabilities are shown along the diagonal. Sample size for subordinates (N=147), for supervisors (N=117)
 ** Correlation is significant at the 0.01 level (2-tailed)
 * Correlation is significant at the 0.05 level (2-tailed)

Analysis of Research Questions and Associated Hypotheses

Analysis was first conducted to determine if there were differences in the perceptions and intentions of subordinate officers and their commanders based on the subordinate officer-type. The research questions are presented again as well as the constructs and associated hypotheses with each research question.

“How do junior officers feel about the support they receive from their commanders and their parent organization? How do they feel about their promotion opportunities?”

To answer these questions, the constructs of LMX, mentoring effectiveness, POS, and POP were evaluated using MANOVA. For comparison of individual types of subordinate officers, CE-EOD and EOD officers are treated as separate groups, even though they all have had EOD training. First, differences in the mean survey responses between traditional CE, BEE, EOD, and CE-EOD officers were examined using MANOVA to evaluate the first research question and associated hypotheses. No significant differences were found between officer types, with regards to the four

dependent variables, based on Hotelling's Trace values ($F = 1.66$ with 12 degrees of freedom and $p = 0.074$). Table 6 presents the results of the MANOVA.

Table 6. Means and Standard Deviations of Support Constructs by Officer Type

Dependent Variable	Officer Type			
	Trad CE	BEE	EOD	CE-EOD
LMX	5.31 (1.06)	5.00 (1.37)	5.01 (1.36)	5.70 (1.21)
Mentoring Effectiveness	3.00 (0.81)	2.58 (0.83)	3.02 (0.93)	3.27 (0.85)
POS	5.16 (0.93)	4.91 (1.29)	4.90 (1.38)	5.74 (0.73)
POP	5.08 (1.17)	4.93 (1.38)	4.89 (1.34)	4.81 (1.43)

Note: N=85 (Trad CE), N=32 (BEE), N=13 (EOD), N=12 (CE-EOD)

The means and lack of significant differences between officer types for these four constructs indicate that the perceptions of subordinate officers do not vary based on officer type. Additionally, with the exception of the mentoring construct, the average means for each of the constructs correspond to responses greater than "Neither agree nor disagree" but less than "Strongly agree." Because mentoring is based on a 1-5 scale, the values correspond to responses greater than "To a slight extent" but less than "To some extent." The following hypotheses can now be addressed.

H1a: CE-EOD officers will report lower leader-member exchange relationships than traditional CE officers.

According to the analysis, there wasn't a statistically significant difference between any of the groups of officers. In fact, instead of being lower than traditional CE

officers, CE-EOD officers had the highest mean LMX score for all of the subordinate officer groups. ***This finding does not support the hypothesis.***

H3a: CE-EOD officers will report lower mentoring effectiveness than traditional CE officers.

According to the analysis, there was a not statistically significant difference between any of the officer types. Contrary to the hypothesis, the subordinate officer group with the highest mean mentoring effectiveness was CE-EOD officers. ***This finding does not support the hypothesis.***

H5a: CE-EOD officers will report lower perceived organizational support than traditional CE officers.

According to the analysis, there were no statistically significant differences between any of the groups of officers. In fact, instead of being lower than traditional CE officers, CE-EOD officers had the highest mean POS score for all of the subordinate officer groups. Additionally, EOD officers who were not EOD flight chiefs had the lowest mean POS score for all of the subordinate officer types. ***This finding does not support the hypothesis.***

H7a: CE-EOD officers will perceive fewer opportunities for promotion than traditional CE officers.

According to the analysis, there were no statistically significant differences between any of the groups of officers. However, CE-EOD officers perceived fewer

opportunities for promotion than traditional CE officers, BEE officers, and EOD officers as the hypothesis suggested, just not significantly. *This finding does not support the hypothesis.*

“What are the career intentions of traditional CE, CE-EOD, EOD, and BEE officers? Do these career intentions differ?”

To answer these questions, the constructs of job satisfaction, affective commitment, and intent to remain were evaluated using MANOVA and ANOVA. First, differences in the means between traditional CE, BEE, EOD, and CE-EOD officers were examined using MANOVA to evaluate this research question and the associated hypotheses. Because the literature review suggested that job satisfaction and affective commitment might be the best predictors of intent to remain, they are included in this analysis.

A significant difference was found between officer types, with regards to the dependent variables, based on Hotelling's Trace values ($F = 1.97$ with 12 degrees of freedom and $p = 0.026$). This significant finding led to further individual tests based on officer types. According to the analysis, there was a statistically significant difference between BEE and CE-EOD officers with regards to affective commitment. CE-EOD officers averaged significantly higher affective commitment than BEE officers (5.06 compared to 3.95 respectively, $p < .05$). There was also a statistically significant difference between traditional CE and CE-EOD officers (4.93 compared to 5.40 respectively, $p < .05$) as well as between BEE and CE-EOD officers (4.87 compared to 5.40 respectively, $p < .05$) with regards to affective job satisfaction. No differences

between officers were found for overall job satisfaction or intent to remain. Table 7 presents the results of the MANOVA and ANOVA.

Table 7. Means and Standard Deviations of Intent Constructs by Officer Type

Dependent Variable	Officer Type			
	Trad CE	BEE	EOD	CE-EOD
Affective Commitment	4.42 (1.15)	3.95 ¹ (1.33)	4.55 (1.15)	5.06 ¹ (1.07)
Job Satisfaction - Affective	4.93 ² (1.14)	4.87 ³ (1.23)	5.32 (0.71)	5.40 ^{2,3} (0.39)
Job Satisfaction - Overall	5.28 (0.82)	5.13 (1.01)	5.39 (0.69)	5.88 (0.60)
Intent to Remain	4.94 (1.83)	4.88 (1.86)	4.77 (1.90)	4.67 (2.00)
Note: N=85 (Trad CE), N=32 (BEE), N=13 (EOD), N=12 (CE-EOD)				
Note ¹ : Mean difference between BEE and CE-EOD is significant, p =.04				
Note ² : Mean difference between traditional CE and CE-EOD is significant, p =.02				
Note ³ : Mean difference between BEE and CE-EOD is significant, p =.03				

The means and significant differences between officer types for these constructs indicate that the perceptions of subordinate officers do vary somewhat based on officer type. Additionally, the average means for each of the constructs correspond to responses greater than “Neither agree nor disagree” but less than “Strongly agree.” The following hypotheses can now be examined.

H8a: CE-EOD officers will report lower affective commitment with their Civil Engineer Squadron/Group than traditional CE officers.

According to the analysis, there was a statistically significant difference between BEE officers and CE-EOD officers, but no difference between traditional CE officers and CE-EOD, EOD, or BEE officers. CE-EOD officers averaged a significantly higher

affective commitment (5.06 compared to 3.95, $p < .05$) than BEE officers. Contrary to the hypothesis, CE-EOD officers had the highest mean affective commitment score compared to all of the subordinate officer types in the study. ***This finding does not support the hypothesis.***

H9a: Job satisfaction of EOD officers will be lower than the job satisfaction of traditional CE officers.

According to the analysis, there was a statistically significant difference between BEE officers and CE-EOD officers and between CE-EOD officers and traditional CE officers for affective job satisfaction, but no difference between traditional CE officers and EOD or BEE officers. CE-EOD officers averaged a higher affective commitment than both BEE and traditional CE officers (5.40 compared to 4.87 and 4.93 respectively, $p < .05$). No statistical difference was found between officer types based on overall job satisfaction. However, contrary to the hypothesis, instead of being lower than traditional CE officers, CE-EOD officers had the highest mean affective and overall job satisfaction score for all of the subordinate officer groups. ***This finding does not support the hypothesis.***

H9b: CE- EOD officers will report a lower intent to remain in the Air Force than traditional CE officers will.

According to the analysis, there wasn't a statistically significant difference between the subordinate officer types in the study. However, CE-EOD officers did report

the lowest mean intent to remain in the Air Force of the three subordinate officer groups.

This finding does not support the hypothesis.

“How does mentoring effectiveness and perceived opportunities for promotion relate to the intent to remain of traditional CE, CE-EOD, EOD, and BEE officers?”

A correlation based on officer type was performed to determine if mentoring effectiveness and/or perceived opportunities for promotion related to intent to remain.

Table 8 displays the results.

Table 8. Correlation between Mentoring Effectiveness, Perceived Opportunities for Promotion, & Intent to Remain for all Officer Types

Traditional CE	1	2	3	BEE	1	2	3
1. ITR	1.00			1. ITR	1.00		
2. Mentoring	0.22*	1.00		2. Mentoring	0.22	1.00	
3. POP	0.22*	0.40**	1.00	3. POP	0.55**	0.37*	1.00
EOD	1	2	3	CE-EOD	1	2	3
1. ITR	1.00			1. ITR	1.00		
2. Mentoring	0.30	1.00		2. Mentoring	0.16	1.00	
3. POP	0.54*	0.45	1.00	3. POP	0.10	0.56	1.00

* Significant at p = 0.01, **Significant at p = 0.05
 N = 89 for traditional CE, N = 36 for BEE, N = 14 for EOD, and N = 13 for CE-EOD

The analysis revealed that there was a significant correlation for traditional CE officers with both mentoring effectiveness and POP for ITR (0.22 and 0.22 respectively, $p < .01$). A significant correlation was also found between mentoring effectiveness and POP for traditional CE officers (0.40, $p < .05$). There was also a significant correlation for BEE officers between POP and ITR (0.55, $p < .05$) and also a significant correlation between mentoring effectiveness and POP (0.37, $p < .01$). For EOD officers, a significant correlation was found between POP and ITR (0.54, $p < .01$). No significant

correlation was found for CE-EOD officers between mentoring effectiveness, perceived opportunities for promotion and intent to remain.

“Do commanders view their subordinates the same way? Do commanders and subordinates view their relationship the same way?”

To evaluate these research questions, two types of analyses were done. First, the Part 1 commander survey responses were evaluated using ANOVA to determine if there were any differences between the way commanders view their different subordinate officer types. Second, the Part 2 commander survey responses, along with subordinate responses, based on LMX/SLMX and mentoring effectiveness/superior mentoring effectiveness were evaluated using correlations between commanders and subordinates based on commander type.

The Part 1 commander survey solicited BCE and SQ/CC perceptions of CE-EOD officers and their duties compared to traditional CE officers and also BEE officers compared to other BSC officers. According to the analysis, there was a statistically significant difference between the confidence that BCE's had about what traditional CE officers do on a daily basis compared to their confidence of what CE-EOD officers do on a daily basis (6.73 compared to 5.55, $p < .01$). None of the other Part 1 dependent variables were statistically different based on subordinate officer type for BCE's or SQ/CC's. Tables 9 and 10 present the results of the ANOVA for each type of commander.

Table 9. Comparison of Mean Responses for CE Officers on the Dependent Variables using ANOVA

BCE	Subordinate Officer Type		
Dependent Variable	Trad CE	CE-EOD	p
Knowledgeability of Subordinates Job	6.73 (0.65)	5.55 (1.29)	0.001*
Mentoring Capability	7.00 (0.00)	6.36 (1.50)	0.19
Career Guidance Comfort	7.00 (0.00)	6.55 (0.93)	0.14

Note: N = 11

Table 10. Comparison of Mean Responses for Aeromedical Officers on the Dependent Variables using ANOVA

SQ/CC	Subordinate Officer Type		
Dependent Variable	BSC	BEE	p
Knowledgeability of Subordinates Job	5.87 (0.99)	6.13 (0.72)	0.16
Mentoring Capability	6.14 (0.68)	5.88 (0.81)	0.19
Career Guidance Comfort	5.73 (1.16)	5.93 (0.88)	0.33

Note: N = 15

Knowledgeability of Subordinates Job. Two questions were asked of squadron commanders about their confidence in knowing what their subordinate officers do on a daily basis. Based on the results presented in Table 9, BCE's had a statistically significant higher mean confidence about what traditional CE officers do on a daily basis compared to their confidence of what CE-EOD officers do on a daily basis (6.73 compared to 5.55, $p < .01$). Based on the results presented in Table 10, SQ/CC's had a higher mean

confidence about what BEE officers do on a daily basis compared to their confidence of what other BSC officers do on a daily basis (6.13 compared to 5.87).

Mentoring Capability. Two questions were asked of squadron commanders about their capability in mentoring their subordinate officers. Based on the results presented in Table 9, BCE's perceived a higher mean capability of mentoring traditional CE officers compared to their perception of mentoring CE-EOD officers (7.00 compared to 6.36). Based on the results presented in Table 10, SQ/CC's perceived a higher mean capability of mentoring other BSC officers compared to their perception of mentoring BEE officers (6.14 compared to 5.88).

Career Guidance Comfort. Two questions were asked of squadron commanders about their comfort in providing career guidance to their subordinate officers. Based on the results presented in Table 9, BCE's had a higher mean confidence about providing career guidance to traditional CE officers compared to their confidence about providing career guidance to CE-EOD officers (7.00 compared to 6.55). Based on the results presented in Table 10, SQ/CC's had only a slightly higher mean confidence about providing career guidance to BEE officers compared to their confidence about providing career guidance to other BSC officers (5.93 compared to 5.73).

Do commanders and subordinates view their relationship the same way?"

The second part of analysis involved whether commanders and subordinates view their relationship the same way. To do this, the LMX/SLMX and mentoring effectiveness/superior mentoring effectiveness constructs were correlated based on the

type of commander. Table 11 displays the results of the correlation and the descriptive statistics associated with these constructs.

Table 11. Correlations and Descriptive Statistics for Commander/Subordinate Relationships

Indicator	Descriptive Statistics		Correlation Matrix - BCE			
	Mean	S.D.	1	2	3	4
1. Leader-Member Exchange (LMX)	5.37	1.09	(.91)			
2. Superior Leader-Member Exchange (SLMX)	6.16	0.67	-0.05	(.89)		
3. Mentoring Effectiveness - Subordinate	3.04	0.81	0.70**	-0.02	(.92)	
4. Mentoring Effectiveness - Superior	3.91	0.66	0.02	0.80**	0.04	(.95)
Indicator	Descriptive Statistics		Correlation Matrix - SQ/CC			
	Mean	S.D.	1	2	3	4
1. Leader-Member Exchange (LMX)	5.07	1.35	(.91)			
2. Superior Leader-Member Exchange (SLMX)	6.03	0.96	0.00	(.89)		
3. Mentoring Effectiveness - Subordinate	2.55	0.80	0.77**	-0.02	(.92)	
4. Mentoring Effectiveness - Superior	3.31	0.80	-0.01	0.70**	0.06	(.95)

N = 102 for BCE and N = 36 for SQ/CC; Reliabilities shown along the diagonal

The results presented indicate that commanders and subordinates do not view their relationships the same way. Commanders have higher mean values for each of the constructs measured than their subordinates. Additionally, LMX correlated highly with mentoring effectiveness while SLMX correlated highly with superior mentoring effectiveness. On the other hand, LMX and mentoring effectiveness do not correlate with SLMX or superior mentoring effectiveness.

“Are officer’s perceptions of the support they receive affected by the way the organization is structured?”

Thus far, the analysis has revealed that there are not differences between subordinate officers with regards to the constructs of interest. Additionally, the analyses found some differences in the way commander’s view their subordinates and in the way

subordinates and commanders view their relationships. Now, structural equation modeling will be used to determine if organizational structure has a mediating role in the way subordinates perceive the support they receive from their commanders and organization. Organizational structure will be evaluated using two different subgroups, proximity-barriers and the number of organizational layers between the commander and subordinate.

Before the path analyses were run, the assumptions of the method were tested. Specifically, structural equation modeling assumes multi-variable normality. A kurtosis analysis was conducted in order to establish the validity of normality assumptions and any subsequent estimators such as maximum likelihood and generalized least squares. Kurtosis is an estimate of the flatness or peak of the distribution, as well as the overall tendency toward a long tail at either end. A perfectly normal distribution has a kurtosis of zero. With the exception of SLMX, all kurtosis values fell within the acceptable range of +/- 2 (as seen in Table 4).

The reliability of each of the scales was also evaluated. According to the literature, a Cronbach alpha score greater than 0.6 for a newly developed scale is good and an alpha greater than 0.7 for an accepted scale is good (Hair et al., 1998). All of the scales for this research had coefficient alpha reliabilities greater than 0.7.

A covariance matrix (as seen in Table 12) of the variables of interest was also calculated to analyze the proposed structural equation models used in the LISREL 8 program.

Table 12. Covariance Matrix for Subordinate Officers used for LISREL Analysis – No Organizational Structure Effect

Indicator	1	2	3	4	5	6	7	8	9
1. Leader-Member Exchange (LMX)	1.40								
2. Superior Leader-Member Exchange (SLMX)	-0.01	0.59							
3. Mentoring Effectiveness - Subordinate	0.72	0.00	0.71						
4. Mentoring Effectiveness - Superior	0.03	0.43	0.09	0.57					
5. Perceived Organizational Support (POS)	0.79	0.00	0.45	-0.03	1.13				
6. Perceived Opportunities for Promotion (POP)	0.76	-0.07	0.53	-0.08	0.73	1.59			
7. Job Satisfaction	0.53	-0.04	0.92	0.01	0.76	0.68	1.25		
8. Affective Commitment	0.70	-0.07	0.95	-0.04	0.89	0.67	0.93	1.46	
9. Intent to Remain (ITR)	0.70	0.00	1.07	-0.10	0.75	0.75	1.05	0.92	3.35

As mentioned in the literature, organizational structure may have a mediating effect on the perceptions, affective components of attitudes, and intentions of traditional CE, CE-EOD, EOD, and BEE officers. Accordingly, the LISREL analysis will be discussed according to the effect organizational structure does or does not have on the subordinate officers in this study.

No Effects from Organizational Structure. For this group, all subordinates are included in the LISREL analysis, regardless of their organizational relationship (proximity or layers) to their commander. The sample size for this group was 147 subordinate officers. The null model (which is the same for all organizational structures) had paths from leader-member exchange and mentoring effectiveness (exogenous variables) to perceived organizational support and promotion opportunities (endogenous variables). There were also paths from perceived organizational support and promotion opportunities to job satisfaction and commitment, and paths from job satisfaction and commitment to intent to remain. However, the null model had no correlations between the exogenous or endogenous variables.

The hypothesized model (which is the same for all organizational structures) is based on theoretical data and intuition, following social exchange theory and a general model of the theory of reasoned action described in the literature review, with all subordinate data included, regardless of the subordinate's proximity to their commander. The model suggests that subordinate perceptions like LMX and mentoring relate to POS and perceived opportunities for promotion. In addition, affective components of attitudes like POS and perceived opportunities for promotion relate to the affective components of job satisfaction (nature of the work and communication) and commitment, and that job satisfaction and commitment then relate to the subordinate officer's intent to remain in the Air Force. Because the survey data showed high correlations among LMX and mentoring, among POS and perceived opportunities for promotion, and among job satisfaction and commitment, correlations were added to the hypothesized model.

The "Alternative" model (Figure 5) removes the relationships from mentoring to POS and from perceived opportunities for promotion to commitment, since these paths were not significant in the hypothesized model (Figure 4). Due to the fact that this alternative model was not significantly different than the hypothesized model, but it did allow for 2 extra degrees of freedom, "Alternative" model will be declared the model that best represents the underlying structure of intent to remain among Air Force subordinate officers. An analysis of the "Alternative" model is described below. Because LISREL can't estimate the standard errors, the first variable in each pair of measured x variables was chosen as the reference indicators. Additionally, because all of the constructs only had a single indicator, I provided error estimates in the Theta Epsilon and Theta Delta matrix for all of the constructs based on the formula $e = (1-\alpha)*\text{variance}$.

The first assessment of model fit must be done for the overall model. The first step is to analyze the measures of absolute fit. The first measure is the chi-square, and for the “Alternative” model, the chi-square provides a good fit, and is significant because the p-value is greater than the suggested 0.05 level. The second measure is the Standardized Root Mean Square Residual (std. RMR). The std. RMR is the average absolute discrepancy between the predicted and observed covariance matrices. A value less than 0.05 indicates good fit. For the “Alternative” model, the std. RMR is 0.022, which is good. The third measure is the Goodness of Fit Index (GFI), which provides an estimate of the variance accounted for in the model. A GFI greater than 0.90 indicates good model fit. The perfect GFI = 1, so the 0.99 in the “Alternative” model is very good.

The next assessment is to evaluate the measures of parsimonious fit, or how good is the fit given the number of paths in the model. The first measure is the Root Mean Square Error of Approximation (RMSEA), which considers the maximum likelihood fit as a function of the degrees of freedom. A RMSEA value less than 0.08 is good, and the “Alternative” model’s RMSEA = 0.0, is acceptable. Lastly, we need to check for measures of relative fit. To do this, we look at the Comparative Fit Index (CFI), which considers the relative fit of the model, to the null model, rather than testing for perfect fit like the GFI. In the “Alternative” model, the CFI is 1.0, which is much greater than the 0.90 suggested as a minimum. Results of the model fit are shown in Table 13.

Table 13. Fit Indices for Structural Equation Models of Subordinate Officers Addressing Organizational Structure Variables

Model	df	χ^2	p	std RMR	GFI	RMSEA	CFI
A. Alternative Model (No Org Struct)	10	7.37	-	0.022	0.99	0.0	1.00
B. Alternative Model (Prox ≤ 2)	10	12.17	-	0.026	0.98	0.06	0.99
C. Alternative Model (Prox > 2)	10	11.11	-	0.031	0.98	0.05	0.99
D. Alternative Model (Layer = 1)	10	13.70	-	0.050	0.94	0.06	0.98
E. Alternative Model (Layer = 2)	10	10.72	-	0.050	0.95	0.01	1.00

*** Significant at the 0.05 level (2-tailed)

All of the measures analyzed so far indicate good fit for the “Alternative” model. While additional models were evaluated during analysis, overall, the “Alternative” model provides the best fit with the most degrees of freedom. The next assessment of the model is to look in the Summary Statistics in the LISREL output to check the differences between the predicted and observed covariance matrices in the standardized and fitted residuals. These values should be less than 1.96 (critical value of z score for $\alpha = .05$). From the LISREL data, no points of “ill-fit” were found. The next assessment of the model is to check the modification indices. For good fit, we would like all of these values to be less than 3.84 (critical value of chi-square for 1 degree of freedom at the 0.05 level). From the output, there are no points of “ill-fit” seen.

The unstandardized path coefficients and their statistical significance were found in the LISREL Estimates (Maximum Likelihood) section. The unstandardized path coefficients are seen in Figure 5, with significant values identified in the legend. In the “Completely Standardized Solution,” the remaining path coefficients are found. The standardized path coefficients are seen in Figure 5, below the unstandardized path coefficients, with significant values identified in the legend. All significant paths are shown in bold face.

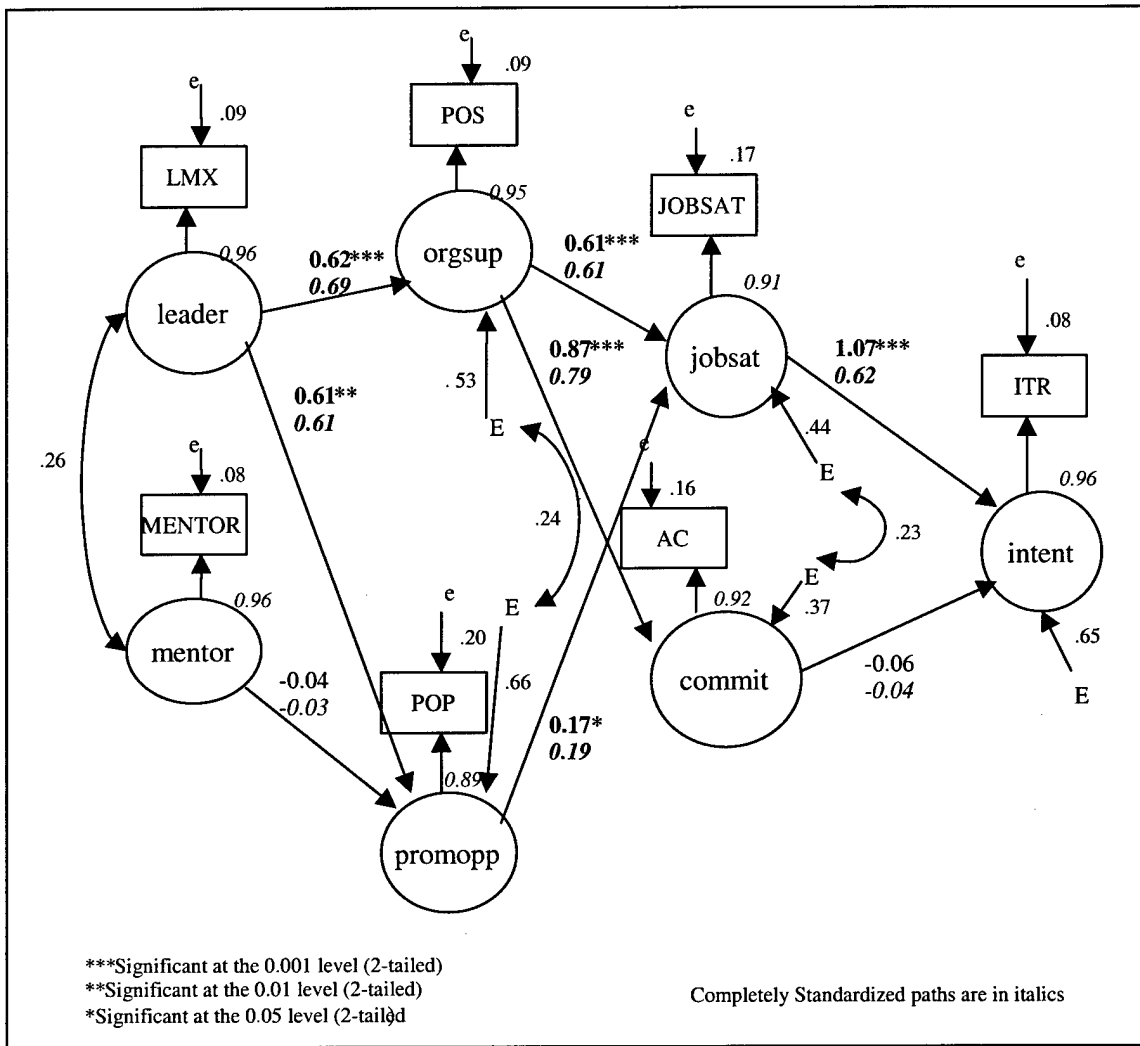


Figure 5. "Alternative 1" Path Diagram for Air Force Officer's Intent to Remain in the Air Force (N=147)

Effects from Organizational Structure. To determine if the type of organizational structure had any effect on the perceptions, affective components of attitudes, and intentions of the subordinate officers, additional LISREL analysis was performed in the same manner as described above. The only difference was the breakdown of the survey respondents and the reduced sample size this created.

After analyzing the organizational structure data from the survey respondents, it was determined that two main categories of organizational structure could be used to determine whether organizational structure played a role in the perceptions, affective components of attitudes, and intentions of Air Force Officers based on the hypothesized model. Organizational structure was thus divided into proximity-barriers and the number of organizational layers between the subordinate and the commander. The effects of organizational structure were analyzed separately based on these categories. To ensure that these were two separate subgroups of organizational structure, a frequency count was conducted on the data based on layers and proximity-barriers. Table 14 displays the results.

Table 14. Frequencies of Organizational Layers and Proximity-Barriers for All Subordinate Officers

		Layers		Total
		1	2	
Proximity- Barriers	<= 2	24	27	51
	> 2	33	31	64
Total		58	60	115

Based on the results presented in Table 14, it is evident that the two subgroups of organizational structure are indeed separate subgroups. Each of the subgroups will now be analyzed using structural equation modeling.

Proximity-barriers. For the proximity-barriers analysis, it was found that 44% of the subordinate officers were in the same building as their commander and felt that there was no communication barrier based on this proximity. The remaining 56% reported being in a different building, some communication barriers, or both. Based on this,

subordinate officers were divided into two groups, Proximity ≤ 2 (officers in the same building with no communication barriers) and Proximity > 2 (officers not in the same building and/or with some communication barriers). Due to the fact that CE-EOD officers are some physical distance from their commanders, and it was suggested that BEE officers were also physically separated from their commanders, this distinction based on physical proximity to the commander seemed appropriate to test the hypotheses. Table 15 shows the proximity for all subordinate officers and Tables 16, 17, 18, and 19 show the specific breakdown for each type of subordinate officer. The total sample size for Prox ≤ 2 was now 64 and the Prox > 2 sample size was 83.

Table 15. Break-Out of Proximity-Barriers Organizational Structure Subgroup for Subordinate Air Force Officer Survey Respondents

		Communication				Total
		Creates a Not a barrier	Creates a Slight barrier	Creates a Moderate barrier	Creates a Significant barrier	
Proximity to CC	In the same building	64	2	3	0	69
	Close walking distance	17	10	2	0	29
	Within 5 minutes drive time	8	17	2	0	27
	Greater than 5 minutes drive time	3	7	8	4	22
	Total	92	36	15	4	147

Table 16. Break-Out of Proximity-Barriers Organizational Structure Subgroup for Traditional CE Air Force Officer Survey Respondents

Traditional CE		Communication				Total
		Creates a Not a barrier	Creates a Slight barrier	Creates a Moderate barrier	Creates a Significant barrier	
Proximity to CC	In the same building	42	2	3	0	47
	Close walking distance	13	8	1	0	22
	Within 5 minutes drive time	2	6	1	0	9
	Greater than 5 minutes drive time	1	3	3	0	7
	Total	58	19	8	0	85

Table 17. Break-Out of Proximity-Barriers Organizational Structure Subgroup for BEE Air Force Officer Survey Respondents

BEE		Communication				Total
		Creates a Not a barrier	Creates a Slight barrier	Creates a Moderate barrier	Creates a Significant barrier	
Proximity to CC	In the same building	13	0	0	0	13
	Close walking distance	2	2	1	0	5
	Within 5 minutes drive time	3	9	1	0	13
	Greater than 5 minutes drive time	1	1	1	1	4
	Total	19	12	3	1	35

Table 18. Break-Out of Proximity-Barriers Organizational Structure Subgroup for EOD Air Force Officer Survey Respondents

EOD		Communication				Total
		Creates a Not a barrier	Creates a Slight barrier	Creates a Moderate barrier	Creates a Significant barrier	
Proximity to CC	In the same building	8	0	0	0	8
	Close walking distance	1	0	0	0	1
	Within 5 minutes drive time	0	1	0	0	1
	Greater than 5 minutes drive time	1	1	1	1	4
	Total	10	2	1	1	14

Table 19. Break-Out of Proximity-Barriers Organizational Structure Subgroup for CE-EOD Air Force Officer Survey Respondents

CE-EOD		Communication				Total
		Creates a Not a barrier	Creates a Slight barrier	Creates a Moderate barrier	Creates a Significant barrier	
Proximity to CC	In the same building	1	0	0	0	1
	Close walking distance	1	0	0	0	1
	Within 5 minutes drive time	3	1	0	0	4
	Greater than 5 minutes drive time	0	2	3	2	7
	Total	5	3	3	2	13

The same hypothesized models were run for both proximity models and evaluated in the same manner as described above for the model without organizational structure effects. Model fit was analyzed for each of the models, and the measures of absolute fit

all met minimum fit criteria, and no points of “ill-fit” were found. The standardized path coefficients are seen in Figure 6 (prox ≤ 2) and in Figure 7 (prox > 2), below the unstandardized path coefficients, with significant values identified in the legend. All significant paths are shown in bold face.

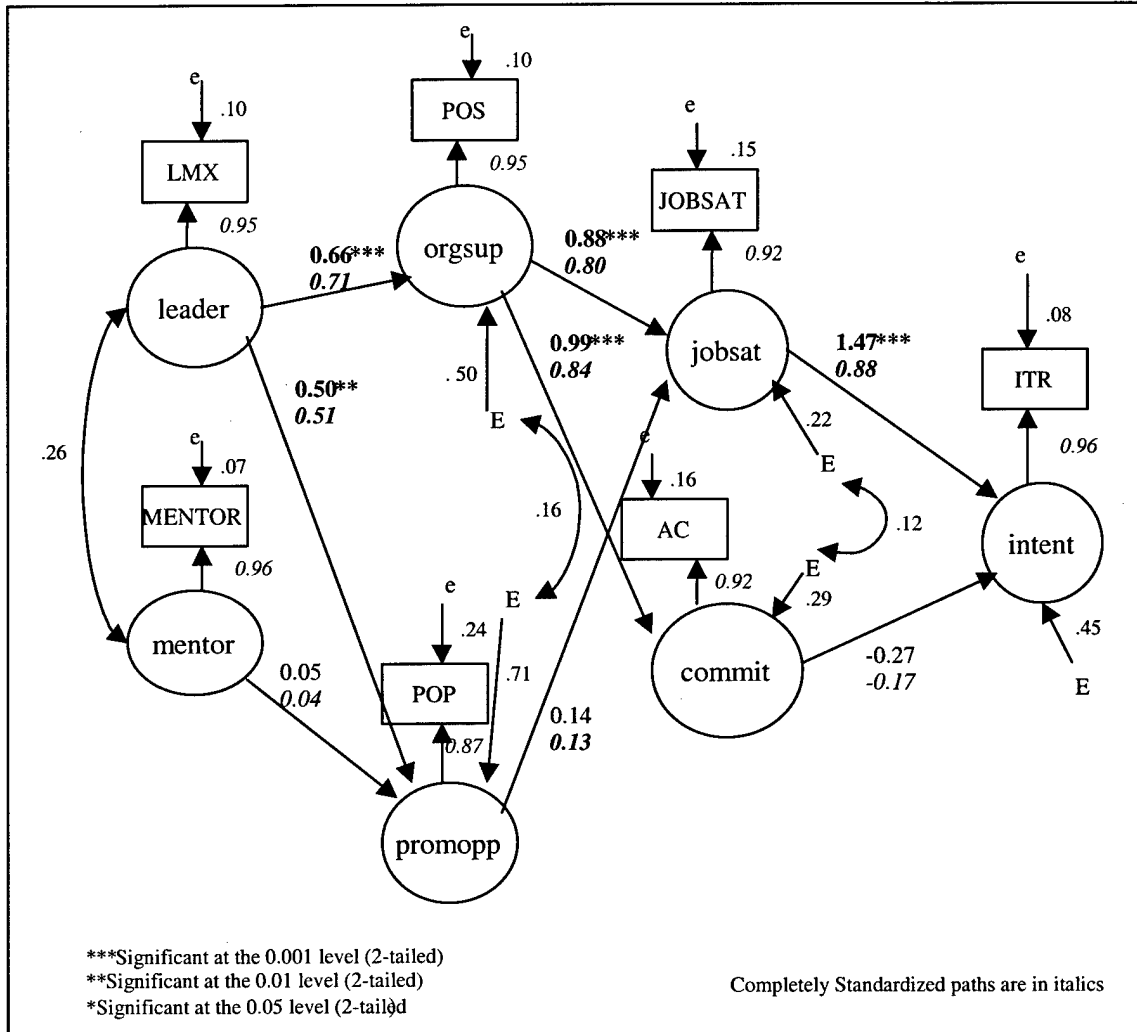


Figure 6. “Alternative 1” Path Diagram for Air Force Officer’s Intent to Remain in the Air Force (Prox ≤ 2) (N = 64)

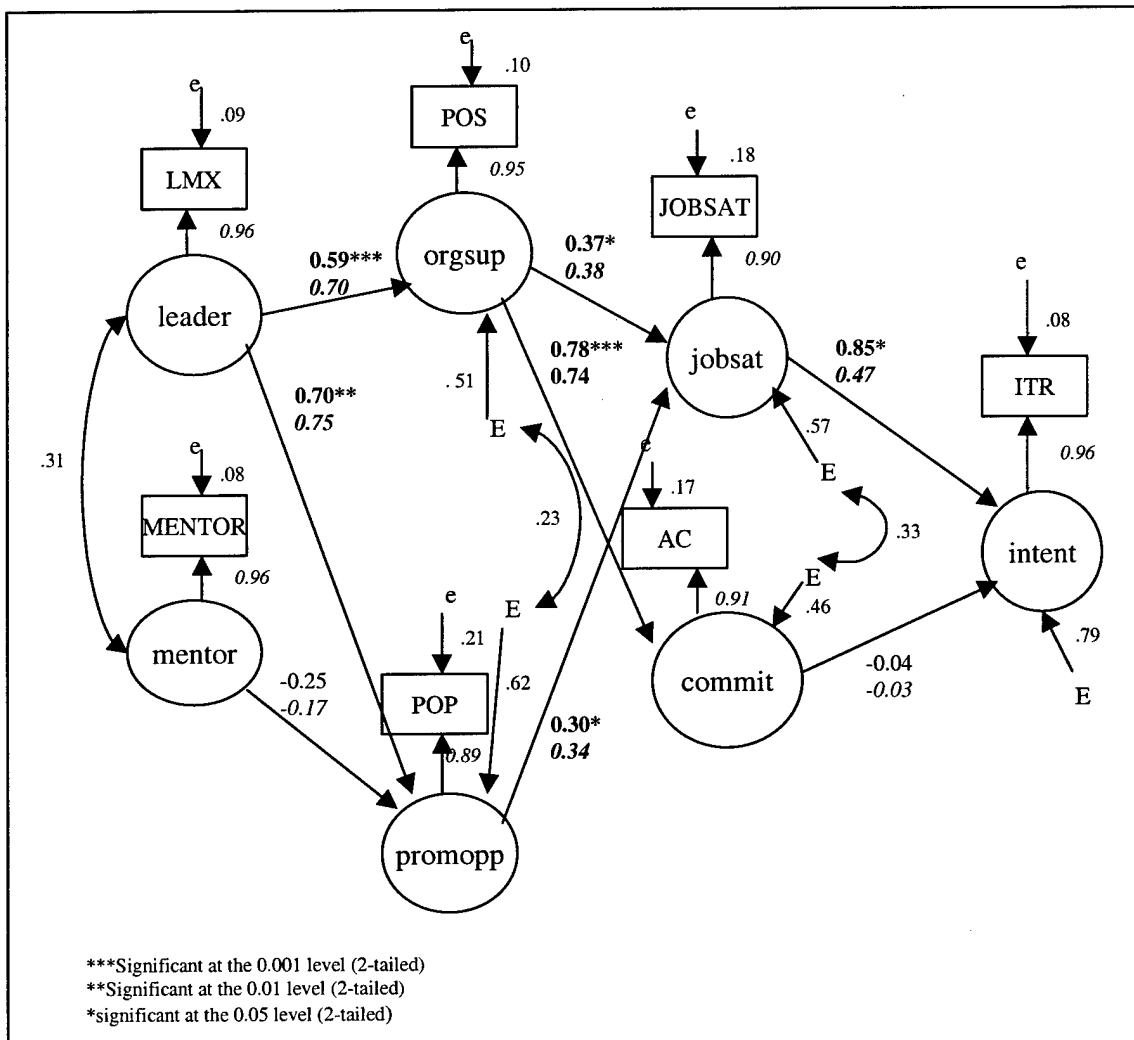


Figure 7. “Alternative 1” Path Diagram for Air Force Officer’s Intent to Remain in the Air Force (Prox > 2) (N = 83)

Next, to confirm that organizational structure acted as a moderator, as suggested in the literature review, a “multiple-group” solution was performed in LISREL in which parameter estimates for each group (proximity ≤ 2 and proximity > 2) was derived. The completely standardized path coefficients that were significant and the nested model comparisons for the proximity subgroup are seen in Table 20. Based on the results reported in Table 20, overall organizational structure based on proximity-barriers does

not play a moderating role in subordinate officer's overall intent to remain in the Air Force. However, individual paths within the structural equation model appear to be different, while the overall intent to remain for individual subgroups based on proximity is not significantly different.

The lack of a significant difference in the overall model could be due to either random error or a Type-2 error where differences can't be detected. When this problem occurs, it is suggested that low power may be the reason (Cook & Campbell, 1979), so a power analysis in LISREL was done to determine how large of a sample size would be required to find a statistically significant difference based on proximity-barrier type.

Table 20. Completely Standardized Path Coefficients and Nested Model Comparison for All Proximity Types

TYPE	LMX to POS	LMX to POP	POS to Job Sat	POS to Commit	POP to Job Sat	Job Sat to ITR
All Proximity	0.69***	0.61**	0.61***	0.79***	0.19*	0.62***
Proximity <= 2	0.71***	0.51**	0.8***	0.84***	0.130	0.88***
Proximity > 2	0.7***	0.75**	0.38*	0.74***	0.34*	0.47*
	df	X ²	p	***Significant at the 0.001 level (2-tailed)		
Unconstrained	20	12.78	-	**Significant at the 0.01 level (2-tailed)		
Constrained	22	13.13	-	*Significant at the 0.05 level (2-tailed)		
Difference	2	0.35	-			
N = 100 each	(need 53)	18.91				
Difference		6.13	*			

Assuming additional survey respondents would answer in a similar manner, it was determined that 100 respondents in each of the subgroups were required to detect a significant difference in the two proximity-barriers groups. This equates to an additional 53 survey respondents for this sample needed to determine a significant difference.

Organizational Layers. Due to the fact that subordinates were provided three possible responses to the organizational layer question, the number of organizational

layers was divided into groups based on those responses. Organizational layers was divided into three groups, where layers = 1, 2, or 3. EOD officers who were not acting as an EOD flight commander were excluded from this analysis because they were not asked how many organizational layers separated them from their commander. The total sample size for Layers = 1 was now 56, Layers = 2 was 57, and Layers = 3 was 17. For the structural equation modeling, Layers = 3 was not used because of the small sample size.

The same hypothesized models were run for the two organizational layer models and evaluated in the same manner as described above. Model fit was analyzed for all three of the models, and the measures of absolute fit all met minimum fit criteria, and no points of "ill-fit" were found. The path coefficients are seen in Figure 8 and Figure 9, with significant values identified in the legend. All significant paths are shown in bold face.

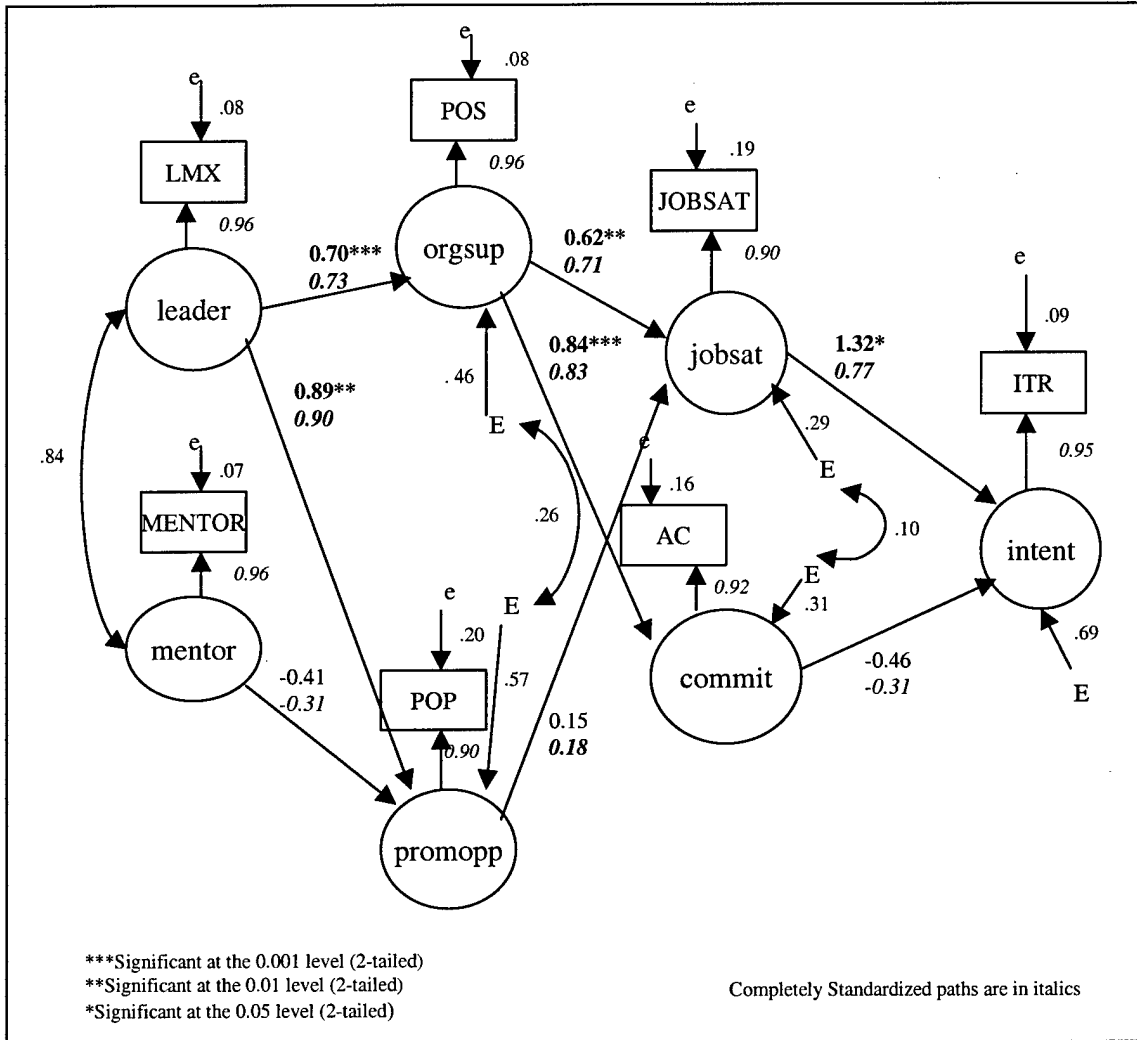


Figure 8. "Alternative 1" Path Diagram for Air Force Officer's Intent to Remain in the Air Force (Layer = 1) (N = 56)

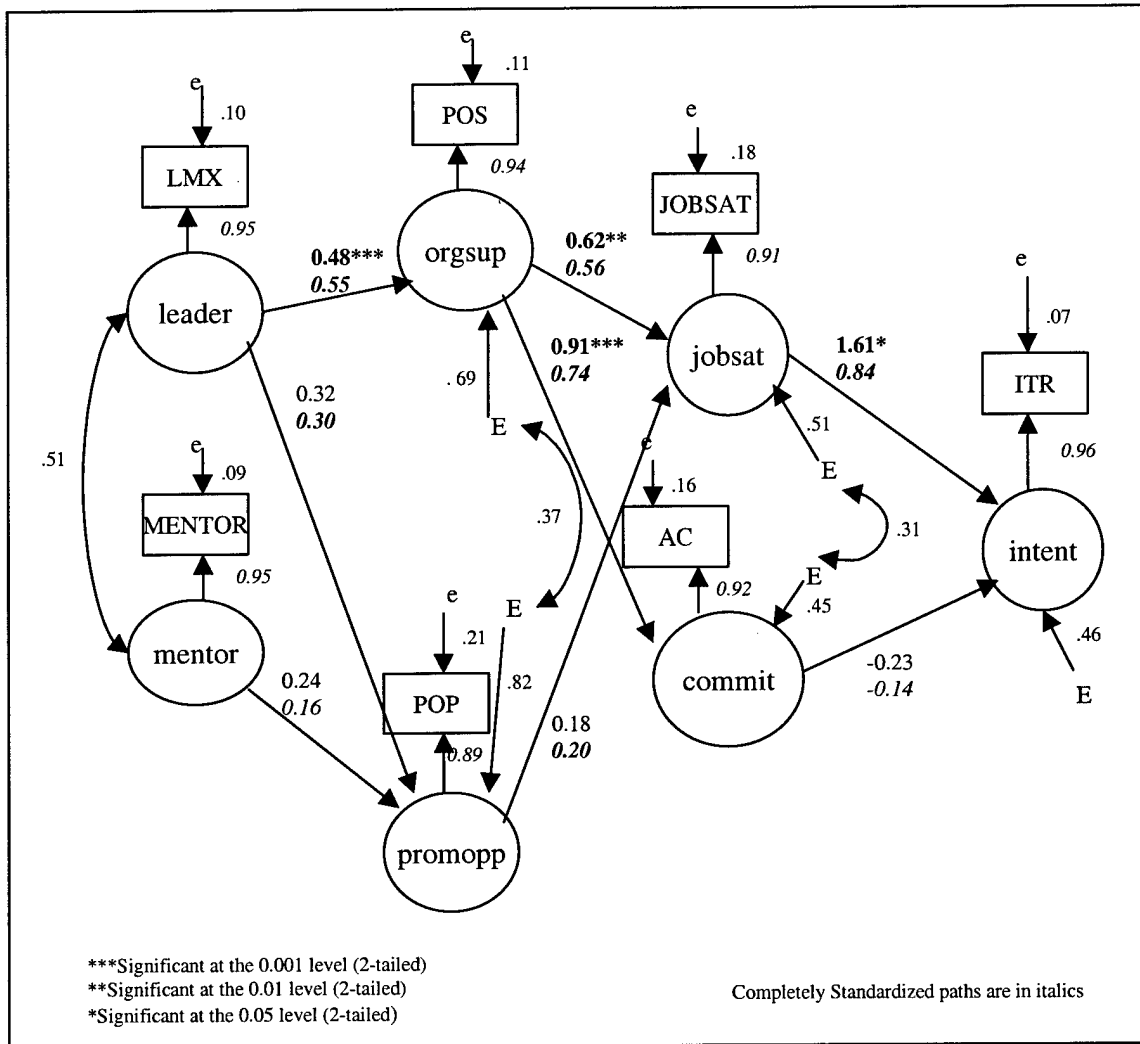


Figure 9. “Alternative 1” Path Diagram for Air Force Officer’s Intent to Remain in the Air Force (Layer = 2) (N = 57)

Similar to the proximity-barriers model, to confirm that organizational structure acted as a moderator, a “multiple-group” solution was performed in LISREL in which parameter estimates for each group (layer = 1 and layer = 2) was derived. The completely standardized path coefficients that were significant and the nested model comparisons for the proximity subgroup are seen in Table 21. Based on the results reported in Table 21, overall organizational structure based on the number of

organizational layers between commander and subordinate does not play a moderating role in subordinate officer's overall intent to remain in the Air Force. However, individual paths within the structural equation model appear to be different, while the overall intent to remain for individual subgroups based on proximity is not significantly different. Again, a power analysis in LISREL was done to determine how large of a sample size would be required to find a statistically significant difference based on proximity-barrier type.

Table 21. Completely Standardized Path Coefficients and Nested Model Comparison for Organizational Layers Types

TYPE	LMX to POS	LMX to POP	POS to Job Sat	POS to Commit	POP to Job Sat	Job Sat to ITR
Layer = 1	0.73***	0.90**	0.71***	0.83***	0.180	0.77***
Layer = 2	0.55***	0.3	0.56**	0.74***	0.200	0.84*
	df	X ²	p	***Significant at the 0.001 level (2-tailed)		
Unconstrained	20	24.41	-	**Significant at the 0.01 level (2-tailed)		
Constrained	22	26.49	-	*Significant at the 0.05 level (2-tailed)		
Difference	2	2.08	-			
N = 65 each	(need 17)	32.66				
Difference		8.25	*			

Assuming additional survey respondents would answer in a similar manner, it was determined that only 65 respondents in each of the subgroups were required to detect a significant difference in the two proximity-barriers groups. This equates to an additional 17 survey respondents for this sample needed to determine a significant difference.

Additionally, the explained variance for each of the structural equation models with respect to structure is also different. The E's in the models represent 1 minus the explained variance of the endogenous variables. This value explains how much of the variability in the construct is explained by the path relationships entering the construct. For example, for the intent to remain construct with proximity <=2, E = .45, which means

that 55% of variance in the intent to remain construct is explained by the job satisfaction and commitment variables that enter the intent to remain construct. This 55% compares to only 21% of the variance explained in the proximity > 2 model. This means that the further the subordinate is from the commander, the more factors that contribute to the subordinate's intent to remain in the Air Force other than job satisfaction and affective commitment. Table 22 shows the explained variance for each of the endogenous constructs based on structure type.

Table 22. Explained Variance for each of the Endogenous Constructs Based on Organizational Structure

Construct	Explained Variance			
	Proximity <= 2	Proximity > 2	Layer = 1	Layer = 2
POS	50%	49%	54%	31%
POP	71%	54%	43%	18%
Job Sat	29%	38%	71%	49%
AC	78%	43%	69%	55%
ITR	55%	21%	31%	54%

Organizational structure was also evaluated based on multivariate analysis of officer type and multivariate and individual (tests of between-subjects effects) analysis of the two organizational structure types. First, differences in the mean responses between CE-EOD, BEE, EOD, and traditional CE officers were examined using MANOVA. A significant difference between officer types was found with regards to proximity, based on Hotelling's Trace values ($F = 2.692$ with 16 degrees of freedom and $p = 0.001$). This significant finding led to further individual tests based on officer types. According to the analysis, there was a statistically significant difference (at the 0.05 level) between

traditional CE officers and CE-EOD officers, but no difference between CE-EOD officers, EOD officers, and BEE officers with regards to organizational structure. In fact, the higher the mean value, either the further physical distance separates the subordinate from their leader and/or barriers to communication exist. The largest mean proximity occurs for CE-EOD officers, which confirms the results presented in Table 19. Table 23 presents the ANOVA results for all subordinate officers.

Table 23. Comparison of Means for the Proximity Variable across Subordinate Officer Types using ANOVA

Dependent Variable	Officer Type				F	p
	Trad CE	BEE	EOD	CE-EOD		
Proximity	3.129 ¹ (1.42)	3.84 (1.72)	3.69 (2.21)	5.25 ¹ (1.86)	6.75	0.00
Note: N=85 (Trad CE), N=32 (BEE), N=13 (EOD), N=12 (CE-EOD)						
Note ¹ : Mean difference between traditional CE and CE-EOD is significant, p = .00						

Differences in the means between CE-EOD, BEE, and traditional CE officers with regards to the number of layers between subordinate and their commander were then examined using MANOVA. A significant difference between officer types was found based on Hotelling's Trace values (F = 3.26 with 18 degrees of freedom and p = 0.000). This significant finding led to further individual tests based on officer types. According to the analysis, there was a statistically significant difference (at the 0.01 level) between traditional CE officers and CE-EOD officers, and between CE-EOD officers and BEE officers with regards to organizational layers. The smallest mean number of layers occurred for CE-EOD officers. Table 24 presents the ANOVA results for all subordinate officers based on organizational layers.

Table 24. Comparison of Means for the Organizational Layer Variable across Subordinate Officer Types using ANOVA

Dependent Variable	Officer Type			F	p
	Trad CE	BEE	CE-EOD		
Organizational Layers	1.88 ^{1,2} (0.70)	1.45 ¹ (0.56)	1.08 ² (0.29)	3.26	0.00
Note: N=85 (Trad CE), N=33 (BEE), N=12 (CE-EOD)					
Note ¹ : Mean difference between traditional CE and BEE is significant, p = .01					
Note ² : Mean difference between traditional CE and CE-EOD is significant, p = .00					

Next, for the proximity model, multivariate tests were performed based on the physical proximity of the subordinate to the commander. Again, the two groups that were analyzed to compare any differences in the means were subordinates whose proximity was ≤ 2 (in the same building with no communication barriers) and whose proximity was >2 (either not in the same building and/or some communication barriers). Using MANOVA, it was found that there was a significant difference between the two organizational structure groups based on Hotelling's Trace values ($F=2.416$ with 8 degrees of freedom and $p=0.018$). This significant finding led to further individual tests based on the two organizational structure groups. As seen in Table 25, four of the eight variables show statistically reliable differences in the mean values. What this means is that those subordinates in the same building as their commander with no barriers to communication are statistically different from those subordinate officers who are either not in the same building as their commander and/or experience some barriers to communication with regards to POS, LMX, perceived opportunities for promotion, and mentoring. Additionally, η^2 indicates the strength of the relationship between organizational structure types. For example, proximity explains 4.4% of the difference in POS between organizational structure groups.

Table 25. Comparison of Means of Dependent Variables by Proximity Type using MANOVA

Variable	Org Str Type	Mean	Std Dev	df	F	Sig.	Eta ²
POS	Prox <= 2	5.38	1.05	1	6.46	0.01*	0.04
	Prox > 2	4.90	1.04	1			
LMX	Prox <= 2	5.46	1.09	1	3.84	0.05*	0.03
	Prox > 2	5.08	1.23	1			
POP	Prox <= 2	5.44	1.16	1	14.39	0.001*	0.09
	Prox > 2	4.67	1.22	1			
ITR	Prox <= 2	5.08	1.89	1	1.28	0.26	0.01
	Prox > 2	4.73	1.80	1			
AC	Prox <= 2	4.59	1.27	1	3.37	0.07	0.02
	Prox > 2	4.22	1.15	1			
MENTOR	Prox <= 2	3.15	0.85	1	7.45	0.01**	0.05
	Prox > 2	2.77	0.80	1			
JOB SAT-AFFECTIVE	Prox <= 2	5.16	1.18	1	1.29	0.260	0.01
	Prox > 2	4.94	1.07	1			
JOB SAT - OVERALL	Prox <= 2	5.46	0.85	1	3.68	0.06	0.03
	Prox > 2	5.19	0.84	1			

Note: Sample size Prox <= 2 (N=64), Prox >2 (N=83)
Hotelling's Trace values (F = 2.42 with 8 degrees of freedom and p = 0.018)

Next, for the organizational layer model, multivariate tests were performed based on the number of organizational layers between the subordinate and their commander. Again, the three groups that were analyzed to compare any differences in the means were subordinates whose layers = 1, whose layers = 2, and whose layers = 3. Using MANOVA, it was found that there was a significant difference between the three organizational structure groups based on Hotelling's Trace values (F = 3.368 with 16 degrees of freedom and p = 0.001). This significant finding led to further individual tests based on the three organizational structure groups. As seen in Table 26, seven of the eight dependent variables show statistically reliable differences in the mean values. What this means is that subordinates are statistically significantly different from each other with regards to the constructs of interest (LMX, POP, ITR, AC, mentoring effectiveness, affective job satisfaction, and overall job satisfaction) based on the number of layers

between them and their commander. Additionally, Eta^2 indicates the strength of the relationship between organizational structure types. For example, the number of organizational layers explains 13% of the difference in POS between organizational structure groups based on layers between subordinates and commanders.

Table 26. Comparison of Means of Dependent Variables by Organizational Layer Type using MANOVA

Variable	Org Str Type	Mean	Std Dev	df	F	Sig.	Eta ²
POS	Layer = 1	5.37	1.14	2	2.50	0.09	0.13
	Layer = 2	5.08	0.96				
	Layer = 3	4.78	0.84				
LMX	Layer = 1	5.68 ^{1,2}	1.20	2	7.23	0.001***	0.10
	Layer = 2	5.00 ¹	1.09				
	Layer = 3	4.76 ²	0.85				
POP	Layer = 1	5.29 ³	1.27	2	4.79	0.01**	0.07
	Layer = 2	5.04 ⁴	1.20				
	Layer = 3	4.22 ^{3,4}	1.05				
ITR	Layer = 1	5.26 ⁵	1.70	2	3.88	0.02*	0.06
	Layer = 2	4.41 ⁵	1.96				
	Layer = 3	5.40	1.51				
AC	Layer = 1	4.71 ⁶	1.21	2	3.86	0.02*	0.06
	Layer = 2	4.09 ⁶	1.19				
	Layer = 3	4.25	1.19				
MENTOR	Layer = 1	3.14 ⁷	0.88	2	3.57	0.03*	0.05
	Layer = 2	2.76 ⁷	0.76				
	Layer = 3	2.72	0.80				
JOB SAT-AFFECTIVE	Layer = 1	5.53 ^{8,9}	1.06	2	11.15	0.001***	0.15
	Layer = 2	4.66 ⁸	1.09				
	Layer = 3	4.53 ⁹	1.08				
JOB SAT - OVERALL	Layer = 1	5.66 ^{10,11}	0.82	2	9.78	0.001***	0.13
	Layer = 2	5.06 ¹⁰	0.83				
	Layer = 3	4.95 ¹¹	0.71				

Note: Sample size Layer = 1 (N=56), Layer = 2 (N=57), Layer = 3 (N=17)
Hotelling's Trace values (F = 3.37 with 16 degrees of freedom and p = 0.001)

Note¹: Mean difference between L=1 and L=2 is significant, p = .01
 Note²: Mean difference between L=1 and L=3 is significant, p = .01
 Note³: Mean difference between L=1 and L=2 is significant, p = .01
 Note⁴: Mean difference between L=2 and L=3 is significant, p = .05
 Note⁵: Mean difference between L=1 and L=2 is significant, p = .04
 Note⁶: Mean difference between L=1 and L=2 is significant, p = .02
 Note⁷: Mean difference between L=1 and L=2 is significant, p = .05
 Note⁸: Mean difference between L=1 and L=2 is significant, p = .00
 Note⁹: Mean difference between L=1 and L=3 is significant, p = .00
 Note¹⁰: Mean difference between L=1 and L=2 is significant, p = .00
 Note¹¹: Mean difference between L=1 and L=3 is significant, p = .01

Each of the remaining hypotheses were evaluated using structural equation modeling. Hypotheses 9-13 will be evaluated using both structural equation modeling and a combination of MANOVA and ANOVA. The final results for each of the hypotheses are shown in Table 27.

H1: Leader-member exchange (LMX) will be positively related to perceived organizational support (POS).

According to the structural equation models presented, leader-member exchange was positively related to perceived organizational support. For all of the models presented, LMX has a significantly strong relationship to POS. For example, in Figure 3, it can be seen that the path from LMX to POS is 0.69, suggesting that higher LMX reports do lead to higher POS reports. In fact, LMX showed a much stronger relationship than mentoring effectiveness to POS. ***This finding is consistent with the hypothesis.***

H2: Leader-member exchange (LMX) will be positively related to intent to remain in the Air Force.

According to the structural equation models presented, LMX did positively relate to intent to remain in the Air Force. This can be inferred from the indirect path LMX-POS-job satisfaction-intent to remain. As Figure 3 reports, the overall path coefficients were 0.69-0.61-0.62, which are all statistically significant. This means that LMX did lead to intent to remain in the Air Force for the officer groups surveyed here. ***This finding is consistent with the hypothesis.***

H3: Mentoring effectiveness will be positively related to perceived organizational support.

According to the structural equation models presented, this hypothesis is not supported in any of the models. The path from mentoring effectiveness and POS was removed from the path models because it was not significant. ***This finding is not consistent with the hypothesis.***

H4: Perceived organizational support will be positively related to job satisfaction.

According to the structural equation models presented, POS did positively relate to job satisfaction. The direct path from POS to job satisfaction had a significant overall path coefficient of 0.61, indicating that POS did lead to job satisfaction among the officer groups surveyed here. ***This finding is consistent with the hypothesis.***

H5: Perceived organizational support will be positively related to affective commitment.

According to the structural equation models presented, POS positively related to affective commitment. The direct path from POS to affective commitment had a significant overall path coefficient of 0.79, indicating that POS did lead to affective commitment among the officer groups surveyed here. ***This finding is consistent with the hypothesis.***

H6: Perceived opportunities for promotion will be positively related to job satisfaction.

According to the structural equation models presented, officers who perceive greater opportunities for promotion will report higher job satisfaction. The direct path

from POP to job satisfaction had a significant overall path coefficient of 0.19, indicating that perceived opportunities for promotion did lead to job satisfaction among the officer groups surveyed here. *This finding is consistent with the hypothesis.*

H7: Affective commitment will be positively related to intent to remain in the Air Force.

According to the structural equation models presented, this hypothesis is not supported. The direct path from affective commitment to intent to remain was -0.04 (not a significant overall path coefficient), indicating that for this sample, affective commitment is not strong enough to significantly explain more of the intent to remain reports. This means that higher affective commitment reports do not lead to higher intentions to remain in the Air Force among the officer groups surveyed here. *This finding is not consistent with the hypothesis.*

H9: Organizational structure will be negatively related to mentoring effectiveness.

Based on the results displayed in Table 25, it is apparent that for this group of subordinate officers, officers who were more physically separated from their commanders did experience lower mentoring effectiveness. The mean mentoring effectiveness score for those officers in the same building as their commander was 3.15, which was significantly different ($p < 0.01$) from those officers not in the same building as their commander (mean = 2.77). Additionally, based on the results displayed in Table 26, subordinate officers who have more organizational levels between themselves and their commanders perceived lower mentoring effectiveness. *The results are consistent with the hypothesis.*

H10: Organizational structure will be negatively related to perceived organizational support.

Based on the results displayed in Table 25, it is apparent that for this group of subordinate officers, officers who are more physically separated from their commanders will experience lower perceived organizational support. The mean POS score for those officers in the same building as their commander was 5.38, which was significantly different ($p < 0.01$) from those officers not in the same building as their commander (mean = 4.90). However, POS was not significantly different based on organizational layers. The largest mean POS rating was from those subordinate officers who only had 1 layer between them and their commander.

Based on the structural equation models presented and discussed, officers who are more physically separated from their commanders do experience lower perceived organizational support, but not to a significant degree. The path coefficients for POS with proximity ≤ 2 and proximity > 2 are 0.71 and 0.70 respectively, and the path coefficients for POS with layers = 1 and 2 are 0.73 and 0.53 respectively. ***The results are partially consistent with the hypothesis.***

H11: Organizational structure will be negatively related to leader-member exchange.

Based on the results displayed in Table 25, it is apparent that for this group of subordinate officers, officers who are more physically separated from their commanders did experience lower LMX relationships. The mean LMX score for those officers in the same building as their commander was 5.46, which was significantly different ($p < 0.05$) from those officers not in the same building as their commander (mean = 5.08).

Additionally, based on the results displayed in Table 26, there was a statistically significant difference for LMX based on the number of layers. Subordinate officers who have more organizational levels between themselves and their commanders perceived lower mentoring effectiveness. The mean LMX rating for those subordinate officers with 3 layers separating them from their commander experienced the lowest LMX rating (4.76) of all the number of organizational layers. *The results are consistent with the hypothesis.*

H12: Organizational structure will be negatively related to job satisfaction.

Based on the results displayed in Table 25, it is apparent that for this group of subordinate officers, officers who are more physically separated from their commanders did not experience lower job satisfaction. The mean affective job satisfaction score for those officers in the same building as their commander was 5.16, which was not significantly different from those officers not in the same building as their commander (mean = 4.94). Additionally, the overall mean job satisfaction score for those officers in the same building was 5.46 compared to the 5.19 (not statistically different) of those officers not in the same building. However, with regards to the number of layers, officers who have more layers between them and their commanders had the lowest mean affective and overall job satisfaction reports.

Additionally, from the structural equation model, the hypothesis was confirmed. As Table 26 indicates, the paths from POS to job satisfaction and from POP to job satisfaction were significantly different based on the proximity of the officer to their commander. The path coefficients for proximity ≤ 2 and for proximity > 2 for POS to

job satisfaction were 0.80 and 0.38 respectively. Similarly, the path coefficients for POP to job satisfaction were 0.13 and 0.34 respectively. The path coefficients for layer = 1 and 2 for POS to job satisfaction were 0.71 and 0.61 respectively indicating that the relationships between the variables for job satisfaction are different even though not all of the mean levels for job satisfaction are different. *The results are partially consistent with the hypothesis.*

H13: Organizational structure will be negatively related with intent to remain.

Based on the results displayed in Table 25, it is apparent that for this group of subordinate officers, officers who are more physically separated from their commanders will not experience a lower intent to remain. The mean intent to remain score for those officers in the same building as their commander was 5.08, which was not significantly different from those officers not in the same building as their commander (mean = 4.73). On the other hand, based on Table 26, officers who have 2 layers between them are significantly less likely to remain in the Air Force than those officers with just 1 layer. However, those officers with 3 layers between themselves and their commander had the highest intent to remain.

At the same time, from the structural equation model, this hypothesis was not confirmed because the difference between the constrained and the unconstrained models were not significantly different with respect to overall intent to remain based on organizational structure. As Table 19 indicates, the path from job satisfaction to intent to remain was significantly different based on the proximity of the officer to their commander (for proximity ≤ 2 , the path coefficient was 0.88 and for proximity > 2 , it

was only 0.47), but the overall intent to remain models were not different. As Table 20 indicates, the path from job satisfaction to intent to remain was different based on the number of layers (for layer = 1, the path coefficient was 0.77, and for layer = 2, the path coefficient was 0.92) indicating that the further away the subordinate is from their commander, or the more layers between them and their commander, the less impact job satisfaction alone will have on the intent of the officer to remain in the Air Force. *The results are not consistent with the hypothesis.*

The final results for each of the hypotheses are presented in Table 27.

Table 27. Thesis Hypotheses, Variables, Analysis Method, and Results

Hypothesis	Dependent Variable	Independent Variable	Method	Results Supported
H1	POS	LMX	Structural Equation Modeling	Y
H1a	CE-EOD officers Traditional CE officers	LMX	MANOVA/ANOVA	N
H2	ITR	LMX	Structural Equation Modeling	Y
H3	LMX	Mentoring effectiveness	Structural Equation Modeling	N
H3a	CE-EOD officers Traditional CE officers	Mentoring effectiveness	MANOVA/ANOVA	N
H4	Job satisfaction	POS	Structural Equation Modeling	Y
H4a	CE-EOD officers Traditional CE officers	POS	MANOVA/ANOVA	N
H5	Affective commitment	POS	Structural Equation Modeling	Y
H6	Job satisfaction	Perceived Promotion	Structural Equation Modeling	Y
H6a	CE-EOD officers Traditional CE officers	Perceived Promotion	MANOVA/ANOVA	N
H7	ITR	Affective commitment	Structural Equation Modeling	N
H7a	CE-EOD officers Traditional CE officers	Affective commitment	MANOVA/ANOVA	N
H8a	CE-EOD officers Traditional CE officers	Job satisfaction	MANOVA/ANOVA	N
H8a	CE-EOD officers Traditional CE officers	ITR	MANOVA/ANOVA	N
H9	Mentoring effectiveness	Organizational Structure	MANOVA/ANOVA	Y
H10	POS	Organizational Structure	Structural Equation Modeling & MANOVA/ANOVA	P P
H11	LMX	Organizational Structure	MANOVA/ANOVA	Y
H12	Job satisfaction	Organizational Structure	Structural Equation Modeling & MANOVA/ANOVA	Y P
H13	ITR	Organizational Structure	Structural Equation Modeling & MANOVA/ANOVA	N N

Note: N = 147
 Results Supported: Y = Consistent with hypothesis, N = Not consistent with hypothesis,
 P = Partially consistent with hypothesis

Summary

This chapter employed multiple analysis of variance (MANOVA) functions, analysis of variance (ANOVA) and the method of structural equation modeling to examine the research questions and associated hypotheses. The results of the analysis were consistent with seven of the nineteen hypotheses, two of the hypotheses were

partially supported, and ten of the hypotheses were not supported by the analysis results. These findings supported the notion that subordinate officer's perceptions and affective components of attitudes about their current duty position and their commander lead to an overall positive intent to remain in the Air Force. Additionally, the Part 1 commander responses were analyzed to determine the confidence commanders felt toward the relationships they have with their subordinates. The value of these findings, as well as other implications, will be discussed in detail in the following chapter.

V. Conclusions and Recommendations

This chapter concludes this research effort by first revealing a final answer to the research questions posed in the introduction, including a summary of findings for each of the constructs identified in the literature review, and their associated hypotheses. Second, it identifies areas of concern for Air Force Civil Engineer and Bioenvironmental leaders, and uses the data to suggest possible courses of action. Third, possible limitations of this study are identified and recommendations for future research are suggested. Finally, the chapter concludes with the author's final comments.

Research Questions

One goal of this research effort was to answer the following questions:

1. How do junior officers feel about the support they receive from their commanders and their parent organization? How do they feel about their promotion opportunities?
2. How does mentoring effectiveness and perceived opportunities for promotion relate to the intent to remain of traditional CE, EOD, and BEE officers to remain in the Air Force?
3. Are officer's perceptions of the support they receive affected by the way the organization is structured?
4. What are the career intentions of traditional CE officers, EOD officers, and BEE officers? Do these career intentions differ?
5. Do commanders view their subordinates the same way? Do commanders and subordinates view their relationship the same way?

Each individual research question and a summary of findings for each of the associated constructs and their associated hypotheses will now be presented.

How do junior officers feel about the support they receive from their commanders and their parent organization? How do they feel about their promotion opportunities?

To answer the first research question, analysis was conducted to determine if there were differences in the perceptions and intentions of subordinate officers and their commanders based on the type of officer that they are. According to the results of the structural equation modeling and the multivariate analysis, junior officers feel average to slightly positive about the support they receive from both their commander and their organization. Measures of both leader-member exchange and perceived organizational support were high for all of the subordinate officer groups. In addition, junior officers felt that their promotion opportunities were average to slightly positive. Overall, there were no significant differences in junior officer's perceptions of their support and promotion opportunities by officer type. Now, the four constructs that are applicable to this research question are discussed.

Leader-Member Exchange. The leader-member exchange (LMX) model of leadership stresses that leaders have different kinds of relationships with different subordinates. It was suggested that CE-EOD officers might feel that they were a part of the "out-group" and that they were different from traditional CE officers. What this thesis discovered was that there was no difference among the subordinate officer groups measured with respect to LMX. In fact, the mean response for all officer groups was greater than "Slightly agree," suggesting that the subordinate officers are all equally happy with the relationships they have with their commander. At the same time, the mean superior leader-member exchange (SLMX) response rate for commanders was

greater than “Moderately agree,” suggesting that commanders felt the relationships with their subordinates was stronger than the subordinate perceived.

In support of past research (e.g., Settoon, Bennett, & Liden, 1996), LMX was found to be positively related to POS and ITR, indicating that a positive increase in LMX ratings would result in a positive increase in POS and ITR ratings by subordinates. Thus, the stronger the relationship between the commander and the subordinate, the more support the subordinate felt from the organization and the more they intended to remain in the Air Force. Additionally, it was hypothesized that CE-EOD officers would experience lower LMX reports than traditional CE officers would. However, CE-EOD officers had the highest mean LMX ratings among the subordinate officers surveyed. This finding could be due to the fact that the CE-EOD officer was the direct subordinate of the BCE and thus a relationship existed, whether by choice or due to the nature of the chain of command, between these two individuals.

Mentoring Effectiveness. It was assumed that the BCE was the mentor of the subordinate CE-EOD and traditional CE officers. Similarly, the SQ/CC was assumed to be the mentor of the subordinate BEE officers. Kram (1985) warned that assigned mentoring relationships may not be as beneficial as mentoring relationships that develop informally, due to personality conflicts between parties and the lack of true personal commitment of either the mentor or the protégé to the relationship because it was not formed on their initiative. There was a belief that commanders who most likely do not have any EOD (or BEE) experience mentored EOD (and BEE) officers, and that this relationship was not as effective as other mentoring relationships. The analyses revealed that none of the eleven BCE's did in fact have EOD experience and only one of the

sixteen SQ/CC's had BEE experience. Additionally, the mean mentoring effectiveness for all of the subordinate officers was below a "Slightly disagree" response, and the mean mentoring effectiveness for all of the commanders was below a "Neither agree nor disagree" response. What this means is that subordinate officers felt that the mentoring relationships they had with their commanders was not effective. Even though their mean response was higher, commanders also felt that the mentoring relationships they had with their subordinates were not that effective. These findings could suggest that subordinates might seek mentoring relationships with other supervisors in their organizations and that these relationships might be more effective.

The hypotheses analysis revealed that mentoring effectiveness was not positively related to POS. However, this finding does not indicate that mentoring effectiveness is not related to support subordinates feel from the organization in any way. It does indicate that because LMX and mentoring effectiveness were so highly correlated (and because LMX was positively related to POS) that mentoring effectiveness might still have an effect on the subordinate's POS, but through the LMX relationship. It was also hypothesized that CE-EOD officers would perceive lower mentoring effectiveness than traditional CE officers, but this hypothesis was not confirmed because CE-EOD officers had the highest mentoring effectiveness reports. As was the case with LMX, the BCE is in fact the mentor of the CE-EOD officer simply due to their position in the organization.

Perceived Organizational Support. Perceived organizational support (POS) is the employee's perception of being valued and cared about by the organization. It was suggested that CE-EOD officers would report less POS than traditional CE officers. What the analyses revealed was that there were no differences among the subordinate

officer types, and that the mean response rate for all subordinate officers was above a “Slightly agree” response.

The analyses of the POS hypotheses suggests that all of the subordinate officers in this study were satisfied with the perceived organizational support that they received and that this POS led to higher job satisfaction and higher organizational commitment. These findings support past research (e.g., Eisenberger, Cummings, Armeli, & Lynch, 1997), which found that POS did lead to higher job satisfaction and organizational commitment. It also revealed that CE-EOD officers had the highest POS reports, which again may indicate that the contact CE-EOD officers have with their commander translates into a feeling of being cared about by the organization.

Perceived Opportunities for Promotion. Perceived opportunities for promotion is the degree to which the employee feels that there is a potential for vertical occupational mobility. It was suggested that EOD trained officers would perceive fewer opportunities for promotion than traditional CE officers and BEE officers. The analyses of the subordinate officers in this thesis seem to confirm the proposition presented in the introduction that EOD officers know there are a limited number of jobs for EOD officers in the Air Force. Even though there was no statistically significant difference among the subordinate officers, CE-EOD and EOD officers did have the lowest response rates of all subordinate officers.

How does mentoring effectiveness and perceived opportunities for promotion relate to the intent to remain of traditional CE, EOD, and BEE officers to remain in the Air Force?

The second research question looked at the correlations between mentoring effectiveness and perceived opportunities for promotion with subordinate officers intent to remain in the Air Force. The analysis found that mentoring effectiveness was correlated with intent to remain for only traditional CE officers. Due to the fact that mentoring effectiveness was so highly correlated with the LMX measure, mentoring effectiveness alone did not significantly influence any other path in the model. Essentially, officers indicated that they might not be getting the mentorship that they may need; however, this may not be as important as past research has suggested because they still plan to remain in the Air Force. One reason for this confusing result may have come from the items regarding mentorship and the fact that some of the subordinates identified someone other than their commander as their actual mentor. Additionally, perceived opportunities for promotion were correlated with intent to remain for all officer types except CE-EOD officers, indicating that the availability of promotions does have an impact on the intent to remain of subordinate officers. These results may be slightly misleading, however, due to the small sample size for EOD and CE-EOD officers.

Are officer's perceptions of the support they receive affected by the way the organization is structured?

The third research question examined the effects, if any, organizational structure had on the perceptions of subordinate officers. Structure, as defined in this thesis, did

seem to have an impact on the perceptions of officers of the support they receive from their commander and their organization. Subordinates in the same building as their commander who experienced no barriers to communication perceived significantly better organizational support, leader relations, opportunity for promotion and mentoring effectiveness, than those subordinate officers who were either not in the same building as their commander and/or experience some barriers to communication. Essentially, subordinates who are closest to their commanders perceive the best relationships with their commanders, and their organization as well. This finding expands upon previous research (e.g., Pennington, 1998) that found that subordinates who were closer to their supervisors would have more informal contact and more mentoring opportunities.

Additionally, organizational structure with respect to the number of organizational layers between a subordinate and their commander also had an impact on the perceptions of officers of the support they receive from their commander and their organization. Subordinates with one organizational layer between themselves and their commander perceived significantly better exchange relationships, perceived opportunities for promotion, mentoring effectiveness, affective job satisfaction, overall job satisfaction, affective commitment, and intent to remain. Essentially, subordinates who have only one organizational layer between themselves and their commander perceive the best relationships with their commanders and their organization, confirming past research (e.g., Worthy, 1950), which found that fewer hierarchical levels tended to create a potential for more effective supervision.

What are the career intentions of traditional CE officers, EOD officers, and BEE officers? Do these career intentions differ?

The fourth research question examined the career intentions of the subordinate officers surveyed. Fifty-three percent of the subordinate officers surveyed responded with a "Slightly agree" or above response (37% responded with a "Moderately agree" or above response) with regards to their intent to remain in the Air Force for the next five years. Because the mean values were not higher, it is hard to make a more substantial judgment about the career intentions of these officers, although the outlook does not appear to be negative. On the other hand, 28% of the subordinate officers surveyed here responded with a "Slightly disagree" or lower response (only 9% responded with a "Moderately disagree" or below response) with regards to their intent to remain in the Air Force. These results indicate that retention may still be a problem for the civil engineer and bioenvironmental engineer career fields.

Since the original focus of this research was on EOD trained officers, a brief discussion of this specific group is appropriate. In the introduction, it was suggested that EOD trained officers and BEE officers share a similar physical proximity to their commanders and role in the larger squadron/group structure. What the analyses revealed was that these EOD officers and BEE officers are not the same. CE-EOD officers had the highest job satisfaction, POS, LMX, AC, and mentoring effectiveness as compared to traditional CE, BEE, and EOD officers, while at the same time CE-EOD officers have the lowest POP and ITR. These higher ratings for job satisfaction, POS, LMX, AC, and mentoring effectiveness may be due to the fact that only one organizational layer separates the CE-EOD officer from their commander. What these findings also reveal is

that while CE-EOD officers seem to be satisfied with the nature of their work and communication in their jobs, feel connected to their organization, have a good relationship with their commander, and feel that they receive effective mentoring from their commander, they also realize that their promotion opportunities are limited. So, while they enjoy their job, they may enjoy it too much to remain in an Air Force that does not offer them the opportunity to pursue an EOD career as they progress in rank.

Job Satisfaction. Studies in the area of satisfaction and turnover have consistently shown that dissatisfied workers are more likely than satisfied workers to terminate employment; thus, satisfaction scores can predict turnover (e.g., Lawler, 1973). Four facets of job satisfaction were evaluated in this thesis: nature of the work and communication (affective components of job satisfaction) and promotion opportunities and supervisor (perceptions of job satisfaction). Sixty percent of the subordinate officers surveyed indicated their overall job satisfaction (combining all four facets) was at a "Slightly agree" or above response, indicating that job satisfaction is fairly high for those officers surveyed here. At the same time, only 2% of the subordinate officers indicated overall job satisfaction below a "Slightly disagree" response. For the affective component of job satisfaction, 55% of the subordinate officers reported measures at a "Slightly agree" or above response, and 16% reported measures below a "Slightly disagree" response.

It was suggested that CE-EOD officers would have lower job satisfaction than traditional CE officers. In fact, instead of being lower than traditional CE officers, CE-EOD officers had the highest mean affective and overall job satisfaction score for all of the subordinate officer groups. This finding seems to confirm that EOD officers really

enjoy the job they are doing in EOD positions. At the same time, job satisfaction was shown to have the strongest impact on the intent to remain in the Air Force for all subordinate officers, emphasizing the importance that job satisfaction has on employees.

Affective Commitment. Affective commitment refers to the employee's emotional attachment to, identification with, and involvement in, the organization. It was suggested that the affective commitment that subordinate officers felt towards their organizations would have an impact on their intent to remain in the Air Force. Analyses found that CE-EOD officers had the highest mean affective commitment score for all of the subordinate officer types in the study. What this might suggest is that CE-EOD officers may be more committed to the CE Squadron/Group because they are being allowed to do the job that they want to do and enjoy. While affective commitment might be important to determining intentions to remain, in this thesis, this effect was not found due to the strength of the affective component of job satisfaction included in the model.

Intent to Remain. Based on past research (e.g., Basset, 1994), both job satisfaction and affective commitment were suggested to affect the intentions of subordinate officers to remain in the Air Force. It was also suggested that CE-EOD officers would have a lower intent to remain in the Air Force than traditional CE officers would. While there was no significant difference among the subordinate officer groups, CE-EOD officers did report the lowest mean intent to remain in the Air Force of the four subordinate officer groups. What this could suggest is that even though CE-EOD officers enjoy their job and are committed to their organization, they are still not sure if the Air Force, and/or their Civil Engineer Squadron/Group are where they want to remain. This could be based on the lack of perceived opportunities for promotion for EOD officers in

the CE career field and/or the Air Force. At the same time, all officer groups report a value greater than “Neither Disagree nor Agree” and close to the “Slightly Agree” response to remaining in the Air Force. Since the intent to remain questions specifically targeted a time period of the next five years, this finding seems to suggest that with this sample of subordinate traditional CE, BEE, EOD, and CE-EOD officers, that the Air Force does have a retention problem with approximately half of these subordinate officers for the next five years.

Do commanders view their subordinates the same way? Do commanders and subordinates view their relationship the same way?

To answer the last research question, the views of the commanders surveyed were analyzed to determine if they view their subordinates the same way and if commanders and subordinates viewed their relationship the same way. The commanders surveyed in this thesis, Base Civil Engineers (BCE's) and Aeromedical squadron commanders (SQ/CC's), did seem to view their subordinates the same way for the three dependent variables studied (knowledgeability of subordinates job, mentoring capability, and career guidance comfort). The only category where BCE's were statistically significantly different in their view of subordinates was with regards to their confidence of what traditional CE officers do on a daily basis compared to their confidence of what CE-EOD officers do on a daily basis. An example comment of what would make BCE's more confident about what CE-EOD officers do on a daily basis is “Attending a mini-EOD course like the Fire Marshall course.” BCE's also felt more confident mentoring traditional CE officers compared to CE-EOD officers, and more comfortable providing

career guidance to traditional CE officers compared to CE-EOD officers. These results imply that BCE's are less confident about what CE-EOD officers do and how to best provide guidance to EOD trained officers. This may be due to the fact that none of the BCE's surveyed had any EOD training. An example comment of what would make BCE's more comfortable providing career guidance to EOD officers is "Knowing their career progression better." Comments from BCE's, combined with these results, indicate that BCE's would like additional training and/or information about EOD trained officers and how they may differ from traditional CE officers.

On the other hand, SQ/CC's seemed to feel more confident about what BEE officers do on a daily basis compared to other BSC officers, and more confident providing career guidance to BEE officers than other BSC officers. An example comment of what would make SQ/CC's more confident of providing career guidance to BSC officers is "Guidance from the chief BSC." At the same time, they also felt less confident mentoring BEE officers than other BSC officers. An example comment of what would make SQ/CC's more confident about mentoring BEE officers is "Working day to day with them more." Upon first glance, these findings seem to contradict the BCE findings. However, the SQ/CC's have many individual career fields under their command, whereas the BCE only has traditional CE and CE-EOD officers. The mission and purpose of the BEE career field may be better defined for the SQ/CC than the EOD officer's mission and purpose is defined for the BCE.

While commanders tended to view their subordinates the same way, the research found that commanders and subordinates do not view their relationship the same way. Commanders had higher mean values for both mentoring effectiveness and leader-

member exchange than subordinates reported, confirming previous research. At the same time, the LMX and mentoring effectiveness constructs (and the SLMX and superior mentoring effectiveness constructs) correlated highly with each other, but the subordinate responses did not correlate at all with the commander's responses. This suggests that commanders and subordinates are out of touch with each other. Commanders view the relationships higher than their subordinates, and may therefore think that the relationship needs no work. However, this does not seem to be the case when subordinates rate the mentoring relationship as between "To a slight extent" and "To some extent" effective, indicating that the relationship needs work. There is a disconnect with regards to the relationship between commanders and subordinates that needs to be addressed by commanders if they hope to affect the intentions of subordinates to remain in the Air Force.

Air Force Implications

These findings reveal a number of issues that should be considered by leaders in the Air Force Civil Engineer and Air Force Bioenvironmental community. The first is that what seems to be more significant with regards to the intent to remain in the Air Force of subordinate officers is the proximity to the commander or the number of organizational layers between the subordinate and their commander and not the officer type. It is easier to explain the intent to remain in the Air Force for those officers in the same building experiencing fewer communications barriers (e.g., 55% of the intent to remain was explained) than those officers who were not co-located with their commanders (e.g., only 21% of the intent to remain was explained). It was also easier to

explain the intent to remain for those subordinate officers with two layers between themselves and their squadron commander (e.g., 54% of the intent to remain was explained) than those officers who were the direct subordinates of the squadron commander (e.g., only 31% of the intent to remain was explained).

Additionally, the strength of the individual relationships for the constructs studied in this thesis were significantly different based on proximity or the number of organizational layers. Therefore, organizational structure, both the physical distance that may or may not separate subordinates and their commanders and the number of organizational layers that separate subordinates and their commanders, is helpful to explain the perceptions, affective components of attitudes, and intentions of subordinate officers.

These findings are clearly applicable to the Air Force Civil Engineer career field, the Air Force Bioenvironmental career field, and the Air Force community as a whole. I would recommend that commanders look at the types of relationships they have with their subordinates, especially those who are some physical distance from their office and those who are not the direct subordinates of the squadron commander. Subordinate officers who were physically separated from their commanders perceived lower leader-member exchange relationships, lower mentoring effectiveness, lower perceived organizational support, and lower perceived opportunities for promotion. Social exchange theory suggested that if one group (e.g., the CE or BSC squadron) provides something of value (e.g., POS, POP, etc.) to another group (e.g., the traditional CE, CE-EOD, EOD, or BEE officer), then the offering will be reciprocated with desired behavior (e.g., intent to remain in the Air Force). In this case, the relationships between

commanders and their subordinate officers, especially those who are separated by a physical distance, need to be strengthened if the subordinate officers are to be persuaded to stay in the Air Force.

Another significant finding was that job satisfaction is the greatest predictor of intent to remain in the Air Force for these subordinate officers. Job satisfaction has consistently been shown to be an indicator of imminent employee turnover (e.g., Basset, 1994). Job satisfaction was confirmed to be the greatest predictor of intent to remain while affective commitment was found to not predict intent to remain. While POS did contribute to and affect the affective commitment of subordinate officers, it was not a significant path that determined intent to remain. While it seems important for subordinate officers to feel connected to their organizations, this affective commitment may not be a direct factor towards improving the intent to remain of subordinate officers. Considering the retention and recruiting problems that the Air Force is facing today, the findings of this study may lead to better understanding among senior Air Force leadership about what subordinate officers feel.

A final implication to the Air Force is that EOD officers like the autonomy they have and they also like doing EOD work. This satisfaction has an affect on their overall intentions with regards to the Air Force. When asked if they would accept another EOD position in the Air Force if it were offered, 80% responded that they would. At the same time, when asked if they would remain in EOD their entire career if given the opportunity, 73% responded that they would. This indicates that EOD officers enjoy doing EOD work, and would be more than satisfied with their Air Force career if they were allowed to pursue their EOD training and experience further.

Limitations

There were two main limitations to this study. The first is the sample size of the survey respondents. For this thesis, a match-up of subordinates and commanders at the squadron level was sought to compare BCE and SQ/CC's perceptions of EOD and BEE officers compared to traditional CE and BSC officers. This attempt to match subordinate officers and their commanders was only at locations where there were CE-EOD flight chiefs. This self-imposed restriction allowed the researcher to contact only a small portion of the traditional CE and BEE officers to participate in this study. At the same time, none of the other BSC officers were surveyed to compare to BEE officers like the traditional CE officers were compared to CE-EOD officers. If additional BEE trained officers, traditional CE officers, and other BSC officers were included in the study, the results may have been different because the sample size would have allowed for more rigorous analysis.

The small sample size also had an effect on the strength of the structural equation modeling performed. Because a power problem was detected when attempting to distinguish between the subgroups of organization structure, the model conclusions that were drawn were not conclusive. It was found that only a small increase in the sample size of subordinate officers was needed to actually conclude that organizational structure played a role in the perceptions of subordinate officers when individual officer type did not play a role.

The second limitation of the study was the type of questions asked of the commanders. In attempting to determine if BCE's or SQ/CC's treated their subordinates

differently, the researcher had to rely on the self-reports from the commander. The main difficulty with this and other measures of the subordinate-superior dyad taken from the superior's point of view is the tendency for superiors to respond somewhat defensively and to give "socially desirable" answers (Graen & Scandura, 1987). For example, mentoring effectiveness from the commander's perspective was 3.73 while the subordinates only rated the effectiveness at 2.92. Additionally, in the Part 1 survey, commanders responded that they were very capable of mentoring their subordinates, but this confidence is not reflected in the self-reports of the actual relationships with their subordinates. While commanders feel that they are capable of providing career guidance and mentoring to their subordinates, this confidence may be overstated and additional training may be required to improve the effectiveness of the relationships between commanders and subordinates.

Future Research

There are several ways that this topic could be expanded in future research efforts. First, the type of survey respondents could be examined across other career fields in the Air Force or even among civilian corporations to determine if proximity and the number of organizational layers have the same results on subordinate officers/employees that this research suggested. Second, an increased sample size is needed to actually verify the impact organizational structure may have on the perceptions of subordinate officers. While it was shown that a small increase in sample size would actually reveal the differences between the subgroups of organizational structure, assuming the additional

survey respondents replied in a similar manner, it was not actually proven that this would change the results of this study.

Final Comments

In general, subordinate officers expressed average to high levels of job satisfaction, perceived organizational support, leader-member exchange, and perceived opportunities for promotion. Additionally, they reported average levels for affective commitment and intent to remain, and low levels of mentoring effectiveness. What these findings suggest is that the subordinate officers surveyed here felt that their mentoring relationships with their commanders are not that effective, but that their LMX relationships with their commanders provide enough support to allow the subordinates perceived organizational support and perceived opportunities for promotion to be high enough to be satisfying. Additionally, the perceived organizational support that subordinate officers receive allows them to have high job satisfaction and affective commitment. In turn, this high job satisfaction led to an overall intent to remain in the Air Force.

What this thesis also found was that the organizational structure subordinates perceived in relation to their commander had an effect on the perceptions of officers of the support they receive from their commander and their organization. While I realize that commanders have a lot on their plate, I believe that becoming sensitive to the perceptions of their subordinate officers will add to the overall effectiveness of the squadron and will also increase the retention of subordinate officers. In general terms, leaders influence the environment; the environment influences the satisfaction and

commitment of subordinate officers, and satisfaction and commitment influence intent to remain. Just spending a little extra time with the officers who are more physically separated or removed from the commander based on organizational layers may go a long way in improving the perceptions, attitudes, and intentions of Air Force officers.

Appendix A: Traditional CE and CE-EOD Survey



**A SURVEY TO ASSESS ATTITUDES, FEELINGS, AND PERCEPTIONS
OF CIVIL ENGINEER OFFICERS**

TO BE COMPLETED BY:

Conducted by the
AIR FORCE INSTITUTE OF TECHNOLOGY
AIR UNIVERSITY (AETC)
DEPARTMENT OF THE AIR FORCE

for

The Air Force Civil Engineer Support Agency (AFCESA)
Contingency Support Directorate



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

20 OCT 2000

Dear Fellow Officers

Captain Laurie Richter, a graduate student at the Air Force Institute of Technology, is conducting research on the attitudes and perceptions of civil engineer and explosive ordnance disposal (EOD) officers toward job satisfaction, work environments and supervisor/subordinate relationships. The survey results will be used to determine similarities and differences in these areas that may have a particular impact on career progression and retention. HQ AFCESA is sponsoring Captain Richter in this effort.

You are part of a relatively small group of officers selected to represent the views of the career field. The attached survey provides you an opportunity to share your opinions and experiences and will take about 10-15 minutes to complete. Your honest and candid answers are very important to the veracity of the survey results. We encourage and appreciate your support in completing the survey.

Please return the completed questionnaire in the attached envelope through your base mail system within 5 days after you receive it. **Your answers will be kept completely confidential.** Thanks again for your help. Please contact Captain Richter at (937) 429-9996 or laurie.richter@afit.af.mil if you have any questions or comments.

Sincerely

BRUCE R. BARTHOLD, Col, USAF
Commander

Attachments:

1. Survey
2. Self-addressed Envelope

About the Study

Purpose: My research is investigating the attitudes, perceptions, and feelings about the work environment and the relationships between Air Force Explosive Ordnance Disposal (EOD) Officers and traditional Civil Engineer (CE) Officers. This survey will also provide insight into the mentoring received by EOD and traditional CE officers.

Confidentiality: I would greatly appreciate your completing the survey. You are a part of a relatively small group of officers selected to represent the views of EOD and traditional CE officers. **Your answers are important.** Your perceptions and actual experiences are essential. ALL ANSWERS ARE STRICTLY CONFIDENTIAL and, unless you wish to tell me your identity, all answers are anonymous. No one outside the research team will ever see your questionnaire. No identification of individual responses will occur. I ask for some demographic and base information in order to interpret results more accurately, and in order to link some of the junior officer responses to those of Base Civil Engineer's (SQ/CC's or GP/CC's).

Disposition: I will provide a report to Lt Col Thomas Dombrowsky of the Air Force Civil Engineer Support Agency (AFCESA) Contingency Support Directorate. I can also make the results available to you if requested.

Time Required: It will probably take you about 10-15 minutes to complete this questionnaire.

Contact Information: If you have any questions or comments regarding this survey, you may contact either me or my thesis advisor via email, mail, or phone. Thank you very much for your participation.

Sincerely,

Capt Laurie Richter
Air Force Institute of Technology/ENV
2950 P Street, Bldg. 640
WPAFB OH 45433-7765
laurie.richter@afit.af.mil
DSN 785-3636 ext. 6085

Major Michael Rehg, Ph.D.
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DSN 785-3636 ext. 4711

Privacy Notice

In accordance with AFI 37-132, Paragraph 3.2, the following information is provided as required by the Privacy Act of 1974:

Authority: 10 U.S.C. 8012, Secretary of the Air Force; powers and duties; delegation by; implemented by AFI 36-2601, Air Force Personnel Survey Program.

Purpose: To obtain information regarding the attitudes, feelings, and perceptions of civil engineer officers in the Air Force. Surveys will be administered to both junior officers and the Base Civil Engineer (SQ/CC or GP/CC) of these officers.

Routine Use: No analysis of individual responses will be conducted and only members of the research team will be permitted access to the raw data.

No individual will be identified to anyone outside of the research team.

A final report will be provided to the Air Force Civil Engineer Support Agency, Contingency Support Directorate.

Participation: Participation is VOLUNTARY. No adverse action will be taken against any member who does not participate in this survey or who does not complete any part of the survey.

INSTRUCTIONS

All items are answered by filling in the appropriate spaces directly on the survey or writing a response in the space provided. If, for any item, you do not find a response that fits your situation exactly, use the one that is the closest to the way you feel.

Please complete the questionnaire, seal it and return it in the enclosed addressed envelope through your base mail system to:

CE Officer Survey, AFIT/ENV, Bldg. 640, 2950 P Street, Wright-Patterson AFB, OH 45433

Questions in this part are designed to assess your attitudes about your job as an Air Force officer. Mark the circle that corresponds to the selection that best describes the way you feel about each issue.

In the following statements, the word "organization" refers to the Civil Engineer Squadron/Group organization that you belong to. The BCE refers to your Base Civil Engineer (SQ/CC or GP/CC). Please answer each statement with respect to these definitions.

1. How would you best describe the *proximity* of your office to your BCE's office.
 In the same building
 Not in the same building, but within close walking distance
 Not in the same building, but within 5 minutes drive time
 Not in the same building, but greater than 5 minutes drive time
 Other _____
2. Which statement best describes how often you see your BCE?
 Rarely -- no more than once a month Frequently -- about two times per week
 Occasionally -- about once a week Often -- on a daily basis
3. To what extent does the *proximity* of your office to your BCE's office affect communication?
 It is not a barrier to communication
 It creates a slight barrier to communication
 It creates a moderate barrier to communication
 It creates a significant barrier to communication
4. Including your BCE, how many organizational/management layers (number of supervisors) are between you and your BCE?
 1 (my BCE is my immediate supervisor) 2 3 or more

Estimate the amount of contact you have with your BCE during an average week. If you do not have contact every week, divide the amount of time spent over a longer period by the number of weeks. All contacts should total to 100%.

When communicating with your BCE during an average week, how often is the contact via:

- | | |
|--|---------------------------------|
| 5. Formal gatherings or ceremonies | Percentage of Contacts: _____ % |
| 6. At formal Squadron/Group functions | Percentage of Contacts: _____ % |
| 7. Informal, one-on-one discussions | Percentage of Contacts: _____ % |
| 8. Email | Percentage of Contacts: _____ % |
| 9. Phone calls | Percentage of Contacts: _____ % |
| 10. Chance meetings | Percentage of Contacts: _____ % |
| 11. Informal, outside of work (club, etc.) | Percentage of Contacts: _____ % |

Total Percentage of Contacts: 100 %

For each statement, please fill in the circle for the number that indicates the extent to which you agree the statement is true. Use the scale below for your responses.

	①	②	③	④	⑤	⑥	⑦
	Strongly Disagree	Moderately disagree	Slightly disagree	Neither Disagree nor agree	Slightly agree	Moderately agree	Strongly agree
12. There is really too little chance for promotion on my job.	1	2	3	4	5	6	7
13. My BCE is quite competent in doing his/her job.	1	2	3	4	5	6	7
14. I sometimes feel my job is meaningless.	1	2	3	4	5	6	7
15. Communications seem good within this organization.	1	2	3	4	5	6	7
16. Those who do well on the job stand a fair chance of being promoted.	1	2	3	4	5	6	7
17. My BCE is unfair to me.	1	2	3	4	5	6	7
18. I like doing the things I do at work.	1	2	3	4	5	6	7
19. The goals of this organization are not clear to me.	1	2	3	4	5	6	7
20. People get ahead as fast here as they do in other places.	1	2	3	4	5	6	7
21. My BCE shows too little interest in the feelings of subordinates.	1	2	3	4	5	6	7
22. I feel a sense of pride in doing my work.	1	2	3	4	5	6	7
23. I often feel that I do not know what is going on with this organization.	1	2	3	4	5	6	7
24. I am satisfied with my chances for promotion.	1	2	3	4	5	6	7
25. I like my BCE.	1	2	3	4	5	6	7
26. My job is enjoyable.	1	2	3	4	5	6	7
27. Work assignments are not fully explained.	1	2	3	4	5	6	7
28. The organization strongly considers my goals and values.	1	2	3	4	5	6	7
29. Help is available from the organization when I have a problem.	1	2	3	4	5	6	7
30. The organization takes pride in my accomplishments at work.	1	2	3	4	5	6	7
31. The organization really cares about my well being.	1	2	3	4	5	6	7
32. The organization is willing to extend itself in order to help me perform my job to the best of my ability.	1	2	3	4	5	6	7
33. Even if I did the best job possible, the organization would fail to notice me.	1	2	3	4	5	6	7
34. The organization cares about my general satisfaction at work.	1	2	3	4	5	6	7
35. The organization shows very little concern for me.	1	2	3	4	5	6	7
36. The organization cares about my opinions.	1	2	3	4	5	6	7
37. My working relationship with my BCE is effective.	1	2	3	4	5	6	7
38. My BCE understands my problems and needs.	1	2	3	4	5	6	7
39. I can count on my BCE to "bail me out," even at his or her own expense, when I really need it.	1	2	3	4	5	6	7
40. My BCE has enough confidence in me that he/she would defend and justify my decisions if I was not present to do so.	1	2	3	4	5	6	7
41. Regardless of how much power my BCE had built into his or her position, my BCE would be personally inclined to use his/her power to help me solve problems in my work.	1	2	3	4	5	6	7
42. My BCE recognizes my potential.	1	2	3	4	5	6	7
43. I usually know where I stand with my BCE.	1	2	3	4	5	6	7
44. In my current duty section, promotions are regular.	1	2	3	4	5	6	7
45. In my current duty section, I'm in a dead-end job.	1	2	3	4	5	6	7
46. There is a good opportunity for advancement in my current duty section.	1	2	3	4	5	6	7
47. There is a good chance to get ahead in my current duty section.	1	2	3	4	5	6	7

	①	②	③	④	⑤	⑥	⑦
	Strongly Disagree	Moderately disagree	Slightly disagree	Neither Disagree nor agree	Slightly agree	Moderately agree	Strongly agree
48. As soon as I can find a better job, I'll leave the Air Force.						①	② ③ ④ ⑤ ⑥ ⑦
49. I am actively looking for a job outside the Air Force.						①	② ③ ④ ⑤ ⑥ ⑦
50. I am seriously thinking of quitting my job in the Air Force.						①	② ③ ④ ⑤ ⑥ ⑦
51. I often think of quitting my job in the Air Force.						①	② ③ ④ ⑤ ⑥ ⑦
52. I think I will still be working in the Air Force five years from now.						①	② ③ ④ ⑤ ⑥ ⑦
53. I would be very happy to spend the rest of my career with this organization.						①	② ③ ④ ⑤ ⑥ ⑦
54. I enjoy discussing my organization with people outside it.						①	② ③ ④ ⑤ ⑥ ⑦
55. I really feel as if this organization's problems are my own.						①	② ③ ④ ⑤ ⑥ ⑦
56. I think that I could easily become attached to another organization as I am to this one.						①	② ③ ④ ⑤ ⑥ ⑦
57. I do not feel like "part of the family" at my organization.						①	② ③ ④ ⑤ ⑥ ⑦
58. I do not feel "emotionally attached" to this organization.						①	② ③ ④ ⑤ ⑥ ⑦
59. This organization has a great deal of personal meaning for me.						①	② ③ ④ ⑤ ⑥ ⑦
60. I do not feel a strong sense of belonging to my organization.						①	② ③ ④ ⑤ ⑥ ⑦
61. Compared to the fellow officers in your organization, your job performance is above average.						①	② ③ ④ ⑤ ⑥ ⑦
62. I am satisfied with the type of contact I have with my BCE.						①	② ③ ④ ⑤ ⑥ ⑦
63. I am satisfied with how often I have contact with my BCE.						①	② ③ ④ ⑤ ⑥ ⑦
64. I feel that the Civil Engineer organization is the best place for EOD.						①	② ③ ④ ⑤ ⑥ ⑦
65. If given the opportunity, I would accept another EOD position in the Air Force.						①	② ③ ④ ⑤ ⑥ ⑦
66. If given the opportunity, I would remain in EOD my entire Air Force career.						①	② ③ ④ ⑤ ⑥ ⑦

Using the following scale, fill in the circle that indicates the extent to which you believe each question is true.

	①	②	③	④	⑤
	Not at All	To a Slight Extent	To Some Extent	To a Large Extent	To a Very Large Extent
To what extent has your BCE...					
67. Encouraged you to try new ways of behaving on the job?				①	② ③ ④ ⑤
68. Discussed your questions or concerns regarding feelings of competence, commitment to advancement, relationships with peers, and supervisors or work/family conflicts?				①	② ③ ④ ⑤
69. Served as a role model?				①	② ③ ④ ⑤
70. Demonstrated good listening skills in your conversations?				①	② ③ ④ ⑤
71. Conveyed feelings of respect for you as an individual?				①	② ③ ④ ⑤
72. Encouraged you to talk openly about anxieties and fears that detract from your work?				①	② ③ ④ ⑤
73. Shared personal experiences as an alternative perspective to your problem?				①	② ③ ④ ⑤
74. Displayed attitudes and values similar to your own?				①	② ③ ④ ⑤
75. Assigned responsibilities to you that have increased your contact with people who will judge your potential for future advancement?				①	② ③ ④ ⑤
76. Reduced unnecessary risks that could have threatened your opportunities for promotion?				①	② ③ ④ ⑤
77. Helped you to meet new colleagues?				①	② ③ ④ ⑤
78. Given you projects or tasks that have prepared you for higher positions?				①	② ③ ④ ⑤
79. Helped you to finish projects or tasks to meet deadlines that otherwise would have been difficult to complete?				①	② ③ ④ ⑤
80. Encouraged you to prepare for advancement?				①	② ③ ④ ⑤
81. Given you projects that present opportunities to learn new skills?				①	② ③ ④ ⑤
82. Given projects that have increased your contact with higher level managers?				①	② ③ ④ ⑤

83. How important is it to you personally to spend your career in the Air Force rather than some other organization?
 It is very important for me to spend my career in the Air Force.
 Fairly important
 Of some importance
 Of no importance at all
 I have no feelings about this one way or the other
84. Which best describes your Air Force career plans?
 Definitely will make it a career.
 Most likely will make it a career. } GO TO Question 86
 Even chance.
 Most likely will not make it a career.
 Definitely will not make it a career.
85. If you answered "Most likely will not make it a career" or "Definitely will not make it a career" to Question 84, what is the main reason for your decision?

86. Who do you receive your mentoring from? (Who mentors you most?)
 Base Civil Engineer (BCE) Squadron Commander (if other than your BCE) Other EOD Officers
 Flight Chief Other _____
87. How long have you been on active duty? (Please fill in the blanks with the number of years and the number of months, i.e. 4 years 7 months) _____ years and _____ months
88. How long have you and your BCE been stationed together at your BASE? (please fill in the blanks with the number of years and the number of months, i.e. 1 years 8 months) _____ years and _____ months
89. Which best describes your current Duty Position?
 Maintenance Engineering Flight Engineering Flight Resource Flight
 Readiness Flight Environmental Flight Explosive Ordnance Disposal (EOD) Flight
 Squadron Commander Chief of Operations OTHER _____
90. Please indicate whether you have ever attended the Explosive Ordnance Disposal (EOD) training school and why you chose to attend or not attend.
 YES, have attended already
 NO, but would like to attend in the future
WHY? _____
 NO, would NOT like to attend
WHY? _____

***This completes the survey. Thank you for your participation.
If you have any additional comments, please write them here.***

Appendix B: BCE Survey, Part 1



**A SURVEY TO ASSESS ATTITUDES, FEELINGS, AND PERCEPTIONS
OF BASE CIVIL ENGINEER (BCE) OFFICERS**

BCE SURVEY, PART 1

Conducted by the
AIR FORCE INSTITUTE OF TECHNOLOGY
AIR UNIVERSITY (AETC)
DEPARTMENT OF THE AIR FORCE

for

**The Air Force Civil Engineer Support Agency (AFCESA)
Contingency Support Directorate**

About the Study

Purpose: My research investigates the attitudes, perceptions, and feelings about the work environment and the relationships between Air Force Explosive Ordnance Disposal (EOD) Officers and traditional Civil Engineer (CE) Officers. It will also provide insight into the mentoring received by EOD and traditional CE officers. This survey will help gauge the attitudes, feelings, and perceptions of Base Civil Engineers (BCE's) as they relate to the civil engineer officers working for them.

Confidentiality: I would greatly appreciate your completing the survey. You are a part of a relatively small group of officers selected to represent the views of commanders. **Your answers are important.** Your perceptions and actual experiences are essential. **ALL ANSWERS ARE STRICTLY CONFIDENTIAL.** No one outside the research team will ever see your questionnaire. No identification of individual responses will occur. I ask for some demographic information in order to interpret results more accurately, and in order to link some of the junior officer responses to those of BCE's (SQ/CC's or GP/CC's).

Disposition: I will provide a report to Lt Col Thomas Dombrowsky of the Air Force Civil Engineer Support Agency (AFCESA) Contingency Support Directorate. I can also make the results available to you if requested.

Time Required: It will probably take you about 5 minutes to complete each questionnaire in this package.

Contact Information: If you have any questions or comments regarding this survey, you may contact either me or my thesis advisor via email, mail, or phone. Thank you very much for your participation.

Sincerely,

Captain Laurie Richter
Air Force Institute of Technology/ENV
2950 P Street, Bldg. 640
WPAFB OH 45433-7765
laurie.richter@afit.af.mil
DSN 785-3636 ext. 6085

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DSN 785-3636 ext. 4711

Privacy Notice

In accordance with AFI 37-132, Paragraph 3.2, the following information is provided as required by the Privacy Act of 1974:

Authority: 10 U.S.C. 8012, Secretary of the Air Force; powers and duties; delegation by; implemented by AFI 36-2601, Air Force Personnel Survey Program.

Purpose: To obtain information regarding the attitudes, feelings, and perceptions of civil engineer officers in the Air Force. Surveys will be administered to both junior officers and the Base Civil Engineer (SQ/CC or GP/CC) of these officers.

Routine Use: No analysis of individual responses will be conducted and only members of the research team will be permitted access to the raw data.

No individual will be identified to anyone outside of the research team.

A final report will be provided to the Air Force Civil Engineer Support Agency, Contingency Support Directorate.

Participation: Participation is VOLUNTARY. No adverse action will be taken against any member who does not participate in this survey or who does not complete any part of the survey.

The following questions refer to your general feelings, attitudes, and perceptions of EOD and traditional CE officers. EOD officers are defined as any officer who has attended and graduated from the Explosive Ordnance Disposal School and is currently the EOD Flight Chief in your Squadron/Group. Traditional CE officers are defined as those officers who have not had EOD training, but have experience in engineering, environmental, operations, readiness, and/or resources flights.

Mark the circle that corresponds to the selection that best describes the way you feel about each issue.

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

1. I am confident that I know what traditional CE officers do on a daily basis. ① ② ③ ④ ⑤ ⑥ ⑦
2. I am confident that I know what EOD officers do on a daily basis. ① ② ③ ④ ⑤ ⑥ ⑦
3. What, if anything, would make you feel more confident about knowing their daily jobs?

4. I am capable of mentoring traditional CE officers. ① ② ③ ④ ⑤ ⑥ ⑦
5. I am capable of mentoring EOD officers. ① ② ③ ④ ⑤ ⑥ ⑦
6. What, if anything, would make you feel more capable of mentoring traditional CE officers?

7. What, if anything, would make you feel more capable of mentoring EOD officers?

8. I am comfortable providing career guidance to traditional CE officers. ① ② ③ ④ ⑤ ⑥ ⑦
9. I am comfortable providing career guidance to EOD officers. ① ② ③ ④ ⑤ ⑥ ⑦
10. What would make you feel more comfortable providing career guidance to traditional CE officers?

11. What would make you feel more comfortable providing career guidance to EOD officers?

12. I would give the same career advice to traditional CE officers that I would give to EOD officers. ① ② ③ ④ ⑤ ⑥ ⑦
13. Why would your career advice to traditional CE officers and EOD officers be the same or differ?

14. The EOD function fits in with the rest of the CE Squadron/Group. ① ② ③ ④ ⑤ ⑥ ⑦
15. What recommendations would you give to improve the fit between the CE Squadron/Group and EOD?

16. The EOD function has a lot in common with other traditional CE functions. ① ② ③ ④ ⑤ ⑥ ⑦

17. Of the officers that you mentor, which flight are they located in? (Please check all that apply)

- Maintenance Engineering Flight
- Resource Flight
- Readiness Flight
- Operations Flight
- OTHER _____
- Engineering Flight
- Explosive Ordnance Disposal (EOD) Flight
- Environmental Flight
- Squadron Commander

18. How long have you been on active duty? (please fill in the blanks with the number of years and the number of months, i.e. 4 years 7 months)

_____ years and _____ months

19. Please indicate whether you have ever attended the Explosive Ordnance Disposal (EOD) training school and why you chose to attend or not attend.

YES, Why? _____

NO, Why? _____

This completes this portion of the survey. If you have any additional comments, please write them here.

I want to know what the survey results are

I *do not* want to know what the survey results are

Now, please complete the additional surveys attached for each of your subordinates.

Appendix C: BCE Survey, Part 2



**A SURVEY TO ASSESS ATTITUDES, FEELINGS, AND PERCEPTIONS
OF BASE CIVIL ENGINEER (BCE) OFFICERS**

BCE SURVEY, PART 2

FOR THE COMMANDER OF:

Conducted by the
AIR FORCE INSTITUTE OF TECHNOLOGY
AIR UNIVERSITY (AETC)
DEPARTMENT OF THE AIR FORCE

for

The Air Force Civil Engineer Support Agency (AFCESA)
Contingency Support Directorate

Questions in this part are designed to assess your attitudes, feelings, and perceptions as a Base Civil Engineer (BCE).
Mark the circle that corresponds to the selection that best describes the way you feel about each issue.

In the following statements, the word "subordinate" refers to the officer whose name appears on the front of this survey.

1. How would you best describe the *proximity* of your office to your subordinate's office.
 In the same building
 Not in the same building, but within close walking distance
 Not in the same building, but within 5 minutes drive time
 Not in the same building, but greater than 5 minutes drive time
 Other _____
2. Which statement best describes how often you see your subordinate?
 Rarely – no more than once a month Frequently – about two times per week
 Occasionally – about once a week Often – on a daily basis
3. To what extent does the *proximity* of your office to your subordinate's office affect communication?
 It is not a barrier to communication
 It creates a slight barrier to communication
 It creates a moderate barrier to communication
 It creates a significant barrier to communication
4. Including yourself, how many organizational/management layers (number of supervisors) are between you and your subordinate?
 1 (I directly supervise my subordinate) 2 3 or more

Estimate the number of contacts you have with your subordinate during an average week. If you do not have contact every week, divide the amount of time spent over a longer period by the number of weeks. All contacts should total to 100%.

When communicating with your subordinate (the officer whose name appears on the front of this survey) during an average week, how often is the contact via:

- | | |
|--|---------------------------------|
| 5. Formal gatherings or ceremonies | Percentage of Contacts: _____ % |
| 6. At formal Squadron/Group functions | Percentage of Contacts: _____ % |
| 7. Informal, one-on-one discussions | Percentage of Contacts: _____ % |
| 8. Email | Percentage of Contacts: _____ % |
| 9. Phone calls | Percentage of Contacts: _____ % |
| 10. Chance meetings | Percentage of Contacts: _____ % |
| 11. Informal, outside of work (club, etc.) | Percentage of Contacts: _____ % |

Total Percentage of Contacts: 100 %

12. How long have you and your subordinate been stationed together at your BASE? (please fill in the blanks with the number of years and the number of months, i.e. 1 years 7 months)

_____ years and _____ months

Using the following scale, fill in the circle that indicates the extent to which you believe each question is true.

	① Not at All	② To a Slight Extent	③ To Some Extent	④ To a Large Extent	⑤ To a Very Large Extent
Regarding your subordinate, to what extent have you...					
13. Encouraged him/her to try new ways of behaving on the job?	①	②	③	④	⑤
14. Discussed his/her questions or concerns regarding feelings of competence, commitment to advancement, relationships with peers, and supervisors or work/family conflicts?	①	②	③	④	⑤
15. Served as a role model?	①	②	③	④	⑤
16. Demonstrated good listening skills in your conversations?	①	②	③	④	⑤
17. Conveyed feelings of respect for him/her as an individual?	①	②	③	④	⑤
18. Encouraged him/her to talk openly about anxieties and fears that detract from his/her work?	①	②	③	④	⑤
19. Shared personal experiences as an alternative perspective to his/her problem?	①	②	③	④	⑤
20. Displayed attitudes and values similar to his/her own?	①	②	③	④	⑤
21. Assigned responsibilities to him/her that have increased his/her contact with people who will judge his/her potential for future advancement?	①	②	③	④	⑤
22. Reduced unnecessary risks that could have threatened his/her opportunities for promotion?	①	②	③	④	⑤
23. Helped him/her to meet new colleagues?	①	②	③	④	⑤
24. Given him/her projects or tasks that have prepared him/her for higher positions?	①	②	③	④	⑤
25. Helped him/her to finish projects or tasks to meet deadlines that otherwise would have been difficult to complete?	①	②	③	④	⑤
26. Encouraged him/her to prepare for advancement?	①	②	③	④	⑤
27. Given him/her projects that present opportunities to learn new skills?	①	②	③	④	⑤
28. Given projects that have increased his/her contact with higher level managers?	①	②	③	④	⑤

Using the following scale, fill in the circle that indicates the extent to which you believe each question is true.

	① Strongly Disagree	② Moderately disagree	③ Slightly disagree	④ Neither Disagree nor agree	⑤ Slightly agree	⑥ Moderately agree	⑦ Strongly agree
29. My working relationship with my subordinate is effective.	①	②	③	④	⑤	⑥	⑦
30. I understand the problems and needs of my subordinates.	①	②	③	④	⑤	⑥	⑦
31. My subordinates can count on me to "bail them out," even at my own expense, when they really need it.	①	②	③	④	⑤	⑥	⑦
32. I have enough confidence in my subordinate to defend and justify his/her decisions if he/she was not present to do so.	①	②	③	④	⑤	⑥	⑦
33. Regardless of how much power I have built into my position, I would be personally inclined to use my power to help my subordinate solve problems in his/her work.	①	②	③	④	⑤	⑥	⑦
34. I recognize my subordinate's potential.	①	②	③	④	⑤	⑥	⑦
35. My subordinate usually knows where they stand with me.	①	②	③	④	⑤	⑥	⑦
36. Compared to the other officers in your organization, his/her job performance is above average.	①	②	③	④	⑤	⑥	⑦
37. I am satisfied with the type of contact I have with my subordinate.	①	②	③	④	⑤	⑥	⑦
38. I am satisfied with how often I have contact with my subordinate.	①	②	③	④	⑤	⑥	⑦

*This completes the survey. Thank you for your participation.
If you have any additional comments, please write them here.*

Please distribute the attached survey to the officer listed on the front of this survey. You may either fill out and use the memo attached to the survey, or discard the memo.

Appendix D: BEE Survey



**A SURVEY TO ASSESS ATTITUDES, FEELINGS, AND
PERCEPTIONS OF BIOENVIRONMENTAL ENGINEER
OFFICERS**

TO BE COMPLETED BY:

Conducted by the
AIR FORCE INSTITUTE OF TECHNOLOGY
AIR UNIVERSITY (AETC)
DEPARTMENT OF THE AIR FORCE

for

The Air Force Medical Operations Agency (AFMOA)
Environmental & Occupational Health Division



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

OCT 24 2000

AFMOA/SGZE
110 Luke Avenue, Room 405
Bolling AFB, DC 20332-7050

Dear Fellow Officers

The Air Force Medical Operations Agency, Environmental and Occupational Health Division, in conjunction with its goal of providing support to the BEE career field, is sponsoring the attached survey that addresses the satisfaction and retention of Air Force bioenvironmental engineer officers. A graduate student at the Air Force Institute of Technology is conducting research on the attitudes, perceptions, feelings about the work environment, and the supervisor - subordinate relationships among the officers in the bioenvironmental engineering career field.

As part of the effort to reach this goal, the agency must clearly understand the needs of its bioenvironmental engineer personnel. The attached survey is an effort to collect information specifically targeting the issues that may affect bioenvironmental engineer officers. The survey results will be used to help guide senior Air Force managers to make informed decisions about the career field.

Please take 10-15 minutes to complete the attached survey. You are part of a relatively small group of officers selected to represent the views of all Bioenvironmental Engineer officers and commanders. This survey gives you an opportunity to share your opinions and experiences concerning your job in the Air Force. Please base your answers on your own experiences and opinions. **Your answers are very important.**

Please return the completed questionnaire in the attached envelope through your base mail system within 5 days after you receive it. Your participation is essential to ensure that we're doing everything we can to support our Air Force officers. **Your answers will be kept completely confidential.** Thanks for your help. If you have any questions or comments, please contact Captain Laurie Richter at (937) 429-9996 or laurie.richter@afit.af.mil.

Sincerely,

FORREST R. SPRESTER, Colonel, USAF, BSC
Associate Chief for Bioenvironmental Engineering
Air Force Medical Operations Agency
Office of the Surgeon General

Attachments:
Survey & Self-addressed Envelope

About the Study

Purpose: My research is investigating the attitudes, perceptions, and feelings about the work environment and the relationships between Air Force Bioenvironmental Engineer (BEE) officers and their commanders. This survey will also provide insight into the mentoring received by BEE officers.

Confidentiality: I would greatly appreciate your completing the survey. You are a part of a relatively small group of officers selected to represent the views of all BEE officers. **Your answers are important.** Your perceptions and actual experiences are essential. ALL ANSWERS ARE STRICTLY CONFIDENTIAL. No one outside the research team will ever see your questionnaire. No identification of individual responses will occur. I ask for some demographic information in order to interpret results more accurately, and in order to link some of the junior officer responses to those of Aeromedical and Dental Squadron Commander's (SQ/CC's or GP/CC's).

Disposition: I will provide a report to Lt Col Art Kaminski of the Air Force Medical Operations Agency (AFMOA) Environmental and Occupational Health Division. I can also make the results available to you if requested.

Time Required: It will probably take you about 10-15 minutes to complete this questionnaire.

Contact Information: If you have any questions or comments regarding this survey, you may contact either me or my thesis advisor via email. Thank you very much for your participation.

Sincerely,

Capt Laurie Richter
Air Force Institute of Technology/ENV
2950 P Street, Bldg. 640
WPAFB OH 45433-7765
laurie.richter@afit.af.mil
DSN 785-3636 ext. 6085

Major Michael Rehg, Ph.D.
Air Force Institute of Technology/ENV
2950 P Street, Bldg. 640
WPAFB OH 45433-7765
michael.rehg@afit.af.mil
DSN 785-3636 ext. 4711

Privacy Notice

In accordance with AFI 37-132, Paragraph 3.2, the following information is provided as required by the Privacy Act of 1974:

Authority: 10 U.S.C. 8012, Secretary of the Air Force; powers and duties; delegation by; implemented by AFI 36-2601, Air Force Personnel Survey Program.

Purpose: To obtain information regarding the attitudes, feelings, and perceptions of bioenvironmental engineer officers in the Air Force. Surveys will be administered to both junior officers and the Aeromedical/Dental Squadron Commander (SQ/CC or GP/CC) of these officers.

Routine Use: No analysis of individual responses will be conducted and only members of the research team will be permitted access to the raw data.

No individual will be identified to anyone outside of the research team.

A final report will be provided to the Air Force Medical Operations Agency (AFMOA) Environmental and Occupational Health Division.

Participation: Participation is VOLUNTARY. No adverse action will be taken against any member who does not participate in this survey or who does not complete any part of the survey.

INSTRUCTIONS

All items are answered by filling in the appropriate spaces directly on the survey or writing a response in the space provided. If, for any item, you do not find a response that fits your situation exactly, use the one that is the closest to the way you feel.

Please complete the questionnaire, seal it and return it in the enclosed addressed envelope through your base mail system to:

BEE Officer Survey, AFIT/ENV, Bldg. 640, 2950 P Street, Wright-Patterson AFB, OH 45433

Questions in this part are designed to assess your attitudes about your job as an Air Force officer. Mark the circle that corresponds to the selection that best describes the way you feel about each issue.

In the following statements, the word "organization" refers to the Aeromedical or Dental Squadron organization that you belong to. The SQ/CC refers to your Aeromedical or Dental Squadron Commander, whichever applies to your organization's chain of command. Please answer each statement with respect to these definitions.

1. How would you best describe the *proximity* of your office to your SQ/CC's office.
 In the same building
 Not in the same building, but within close walking distance
 Not in the same building, but within 5 minutes drive time
 Not in the same building, but greater than 5 minutes drive time
 Other _____
2. Which statement best describes how often you see your SQ/CC?
 Rarely - no more than once a month Frequently - about two times per week
 Occasionally - about once a week Often - on a daily basis
3. To what extent does the *proximity* of your office to your SQ/CC's office affect communication?
 It is not a barrier to communication
 It creates a slight barrier to communication
 It creates a moderate barrier to communication
 It creates a significant barrier to communication
4. Including your SQ/CC, how many organizational/management layers (number of people) are between you and your SQ/CC?
 1 (my BCE is my immediate supervisor) 2 3 or more

Estimate the amount of contact you have with your SQ/CC during an average week. If you do not have contact every week, divide the amount of time spent over a longer period by the number of weeks. All contacts should total to 100%.

When communicating with your SQ/CC during an average week, how often is the contact via:

- | | |
|--|---------------------------------|
| 5. Formal gatherings or ceremonies | Percentage of Contacts: _____ % |
| 6. At formal Squadron/Group functions | Percentage of Contacts: _____ % |
| 7. Informal, one-on-one discussions | Percentage of Contacts: _____ % |
| 8. Email | Percentage of Contacts: _____ % |
| 9. Phone calls | Percentage of Contacts: _____ % |
| 10. Chance meetings | Percentage of Contacts: _____ % |
| 11. Informal, outside of work (club, etc.) | Percentage of Contacts: _____ % |
| Total Percentage of Contacts: <u>100</u> % | |

For each statement, please fill in the circle for the number that indicates the extent to which you agree the statement is true. Use the scale below for your responses.

	①	②	③	④	⑤	⑥	⑦
	Strongly Disagree	Moderately disagree	Slightly disagree	Neither Disagree nor agree	Slightly agree	Moderately agree	Strongly agree
12. There is really too little chance for promotion on my job.	1	2	3	4	5	6	7
13. My SQ/CC is quite competent in doing his/her job.	1	2	3	4	5	6	7
14. I sometimes feel my job is meaningless.	1	2	3	4	5	6	7
15. Communications seem good within this organization.	1	2	3	4	5	6	7
16. Those who do well on the job stand a fair chance of being promoted.	1	2	3	4	5	6	7
17. My SQ/CC is unfair to me.	1	2	3	4	5	6	7
18. I like doing the things I do at work.	1	2	3	4	5	6	7
19. The goals of this organization are not clear to me.	1	2	3	4	5	6	7
20. People get ahead as fast here as they do in other places.	1	2	3	4	5	6	7
21. My SQ/CC shows too little interest in the feelings of subordinates.	1	2	3	4	5	6	7
22. I feel a sense of pride in doing my work.	1	2	3	4	5	6	7
23. I often feel that I do not know what is going on with this organization.	1	2	3	4	5	6	7
24. I am satisfied with my chances for promotion.	1	2	3	4	5	6	7
25. I like my SQ/CC.	1	2	3	4	5	6	7
26. My job is enjoyable.	1	2	3	4	5	6	7
27. Work assignments are not fully explained.	1	2	3	4	5	6	7
28. The organization strongly considers my goals and values.	1	2	3	4	5	6	7
29. Help is available from the organization when I have a problem.	1	2	3	4	5	6	7
30. The organization takes pride in my accomplishments at work.	1	2	3	4	5	6	7
31. The organization really cares about my well being.	1	2	3	4	5	6	7
32. The organization is willing to extend itself in order to help me perform my job to the best of my ability.	1	2	3	4	5	6	7
33. Even if I did the best job possible, the organization would fail to notice me.	1	2	3	4	5	6	7
34. The organization cares about my general satisfaction at work.	1	2	3	4	5	6	7
35. The organization shows very little concern for me.	1	2	3	4	5	6	7
36. The organization cares about my opinions.	1	2	3	4	5	6	7
37. My working relationship with my SQ/CC is effective.	1	2	3	4	5	6	7
38. My SQ/CC understands my problems and needs.	1	2	3	4	5	6	7
39. I can count on my SQ/CC to "bail me out," even at his or her own expense, when I really need it.	1	2	3	4	5	6	7
40. My SQ/CC has enough confidence in me that he/she would defend and justify my decisions if I was not present to do so.	1	2	3	4	5	6	7
41. Regardless of how much power my SQ/CC had built into his or her position, my SQ/CC would be personally inclined to use his/her power to help me solve problems in my work.	1	2	3	4	5	6	7
42. My SQ/CC recognizes my potential.	1	2	3	4	5	6	7
43. I usually know where I stand with my SQ/CC.	1	2	3	4	5	6	7
44. In my current duty section, promotions are regular.	1	2	3	4	5	6	7
45. In my current duty section, I'm in a dead-end job.	1	2	3	4	5	6	7
46. There is a good opportunity for advancement in my current duty section.	1	2	3	4	5	6	7

①	②	③	④	⑤	⑥	⑦
Strongly Disagree	Moderately disagree	Slightly disagree	Neither Disagree nor agree	Slightly agree	Moderately agree	Strongly agree
47. There is a good chance to get ahead in my current duty section.					① ② ③ ④ ⑤ ⑥ ⑦	
48. As soon as I can find a better job, I'll leave the Air Force.					① ② ③ ④ ⑤ ⑥ ⑦	
49. I am actively looking for a job outside the Air Force.					① ② ③ ④ ⑤ ⑥ ⑦	
50. I am seriously thinking of quitting my job in the Air Force.					① ② ③ ④ ⑤ ⑥ ⑦	
51. I often think of quitting my job in the Air Force.					① ② ③ ④ ⑤ ⑥ ⑦	
52. I think I will still be working in the Air Force five years from now.					① ② ③ ④ ⑤ ⑥ ⑦	
53. I would be very happy to spend the rest of my career with this organization.					① ② ③ ④ ⑤ ⑥ ⑦	
54. I enjoy discussing my organization with people outside it.					① ② ③ ④ ⑤ ⑥ ⑦	
55. I really feel as if this organization's problems are my own.					① ② ③ ④ ⑤ ⑥ ⑦	
56. I think that I could easily become attached to another organization as I am to this one.					① ② ③ ④ ⑤ ⑥ ⑦	
57. I do not feel like "part of the family" at my organization.					① ② ③ ④ ⑤ ⑥ ⑦	
58. I do not feel "emotionally attached" to this organization.					① ② ③ ④ ⑤ ⑥ ⑦	
59. This organization has a great deal of personal meaning for me.					① ② ③ ④ ⑤ ⑥ ⑦	
60. I do not feel a strong sense of belonging to my organization.					① ② ③ ④ ⑤ ⑥ ⑦	
61. Compared to the fellow officers in your organization, your job performance is above average.					① ② ③ ④ ⑤ ⑥ ⑦	
62. I am satisfied with the type of contact I have with my SQ/CC.					① ② ③ ④ ⑤ ⑥ ⑦	
63. I am satisfied with how often I have contact with my SQ/CC.					① ② ③ ④ ⑤ ⑥ ⑦	
64. I feel that the Aeromedical or Dental Squadron organization is the best place for the BEE flight.					① ② ③ ④ ⑤ ⑥ ⑦	

Using the following scale, fill in the circle that indicates the extent to which you believe each question is true.

①	②	③	④	⑤
Not at All	To a Slight Extent	To Some Extent	To a Large Extent	To a Very Large Extent

To what extent has your SQ/CC...

64. Encouraged you to try new ways of behaving on the job?	①	②	③	④	⑤
65. Discussed your questions or concerns regarding feelings of competence, commitment to advancement, relationships with peers, and supervisors or work/family conflicts?	①	②	③	④	⑤
66. Served as a role model?	①	②	③	④	⑤
67. Demonstrated good listening skills in your conversations?	①	②	③	④	⑤
68. Conveyed feelings of respect for you as an individual?	①	②	③	④	⑤
69. Encouraged you to talk openly about anxieties and fears that detract from your work?	①	②	③	④	⑤
70. Shared personal experiences as an alternative perspective to your problem?	①	②	③	④	⑤
71. Displayed attitudes and values similar to your own?	①	②	③	④	⑤
72. Assigned responsibilities to you that have increased your contact with people who will judge your potential for future advancement?	①	②	③	④	⑤
73. Reduced unnecessary risks that could have threatened your opportunities for promotion?	①	②	③	④	⑤
74. Helped you to meet new colleagues?	①	②	③	④	⑤
75. Given you projects or tasks that have prepared you for higher positions?	①	②	③	④	⑤
76. Helped you to finish projects or tasks to meet deadlines that otherwise would have been difficult to complete?	①	②	③	④	⑤
77. Encouraged you to prepare for advancement?	①	②	③	④	⑤
78. Given you projects that present opportunities to learn new skills?	①	②	③	④	⑤
79. Given projects that have increased your contact with higher level managers?	①	②	③	④	⑤

80. How important is it to you personally to spend your career in the Air Force rather than some other organization?

- It is very important for me to spend my career in the Air Force.
- Fairly important
- Of some importance
- Of no importance at all
- I have no feelings about this one way or the other

81. Which best describes your Air Force career plans?

- Definitely will make it a career.
 - Most likely will make it a career.
 - Even chance.
 - Most likely will not make it a career.
 - Definitely will not make it a career.
- } GO TO Question 83

82. If you answered "Most likely will not make it a career" or "Definitely will not make it a career" to Question 81, what is the main reason for your decision?

83. Who do you receive your mentoring from? (Who mentors you most?)

- Squadron Commander (SQ/CC)
- Flight Chief
- Other BEE Officers
- Other _____

84. How long have you been on active duty? (please fill in the blanks with the number of years and the number of months, i.e. 4 years 7 months)

_____ years and _____ months

85. How long have you and your SQ/CC been stationed together at your BASE? (please fill in the blanks with the number of years and the number of months, i.e. 1 years 8 months)

_____ years and _____ months

86. Which flight best describes your current Duty Position?

- Bioenvironmental Engineering (BEE) Flight
- Readiness Flight
- Physical Exams Flight
- Public Health Flight
- OTHER _____

***This completes the survey. Thank you for your participation.
If you have any additional comments, please write them here.***

Appendix E: SQ/CC Survey, Part 1



**A SURVEY TO ASSESS ATTITUDES, FEELINGS, AND
PERCEPTIONS OF BIOENVIRONMENTAL ENGINEER
OFFICERS**

SQ/CC SURVEY, PART 1

Conducted by the
AIR FORCE INSTITUTE OF TECHNOLOGY
AIR UNIVERSITY (AETC)
DEPARTMENT OF THE AIR FORCE

for

**The Air Force Medical Operations Agency (AFMOA)
Environmental & Occupational Health Division**

About the Study

Purpose: My research investigates the attitudes, perceptions, and feelings about the work environment and the relationships between Bioenvironmental Engineer (BEE) officers and their commanders. It will also provide insight into the mentoring received by BEE officers. This survey will help gauge the attitudes, feelings, and perceptions of Aeromedical or Dental Squadron Commanders (SQ/CC's) as they relate to the bioenvironmental engineer officers working for them.

Confidentiality: I would greatly appreciate your completing the survey. You are a part of a relatively small group of officers selected to represent the views of commanders. **Your answers are important.** Your perceptions and actual experiences are essential. **ALL ANSWERS ARE STRICTLY CONFIDENTIAL.** No one outside the research team will ever see your questionnaire. I ask for some demographic information in order to interpret results more accurately, and in order to link some of the junior officer responses to those of Aeromedical or Dental Squadron Commanders.

Disposition: I will provide a report to Lt Col Art Kaminski of the Air Force Medical Operations Agency (AFMOA) Environmental and Occupational Health Division. I can also make the results available to you if requested.

Time Required: It will probably take you about 5 minutes to complete each questionnaire in this package.

Contact Information: If you have any questions or comments regarding this survey, you may contact either me or my thesis advisor via email, mail, or phone. Thank you very much for your participation.

Sincerely,

Captain Laurie Richter
Air Force Institute of Technology
2950 P Street, Bldg. 640
WPAFB OH 45433-7765
laurie.richter@afit.af.mil
DSN 785-3636 ext. 6085

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DSN 785-3636 ext. 4711

Privacy Notice

In accordance with AFI 37-132, Paragraph 3.2, the following information is provided as required by the Privacy Act of 1974:

Authority: 10 U.S.C. 8012, Secretary of the Air Force; powers and duties; delegation by; implemented by AFI 36-2601, Air Force Personnel Survey Program.

Purpose: To obtain information regarding the attitudes, feelings, and perceptions of bioenvironmental engineer officers in the Air Force. Surveys will be administered to both junior officers and the Aeromedical or Dental Squadron Commanders of these officers.

Routine Use: No analysis of individual responses will be conducted and only members of the research team will be permitted access to the raw data.

No individual will be identified to anyone outside of the research team.

A final report will be provided to the Air Force Medical Operations Agency (AFMOA) Environmental and Occupational Health Division.

Participation: Participation is VOLUNTARY. No adverse action will be taken against any member who does not participate in this survey or who does not complete any part of the survey.

The following questions refer to your general feelings, attitudes, and perceptions of Bioenvironmental Engineer (BEE) and other Biomedical Service Corp (BSC) officers. BEE officers are defined as any officer whose current duty AFSC is 43Exx and works at the base BEE flight/shop. BSC officers are defined as any other officer within the BSC that you may, or may not, currently supervise.

Mark the circle that corresponds to the selection that best describes the way you feel about each issue.

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

1. I am confident that I know what BEE officers do on a daily basis. ① ② ③ ④ ⑤ ⑥ ⑦
2. I am confident that I know what other BSC officers do on a daily basis. ① ② ③ ④ ⑤ ⑥ ⑦
3. What, if anything, would make you feel more confident about knowing their daily jobs?

4. I am capable of mentoring BEE officers. ① ② ③ ④ ⑤ ⑥ ⑦
5. I am capable of mentoring other BSC officers. ① ② ③ ④ ⑤ ⑥ ⑦
6. What, if anything, would make you feel more capable of mentoring BEE officers?

7. What, if anything, would make you feel more capable of mentoring other BSC officers?

8. I am comfortable providing career guidance to BEE officers. ① ② ③ ④ ⑤ ⑥ ⑦
9. I am comfortable providing career guidance to other BSC officers. ① ② ③ ④ ⑤ ⑥ ⑦
10. What would make you feel more comfortable providing career guidance to BEE officers?

11. What would make you feel more comfortable providing career guidance to other BSC officers?

12. I would give the same career advice to BEE officers that I would give to other officers in the BSC career field. ① ② ③ ④ ⑤ ⑥ ⑦
13. Why would your career advice to BEE officers and other officers in the BSC career field be the same or differ?

14. The BEE function fits in with the rest of the Aeromedical or Dental Squadron. ① ② ③ ④ ⑤ ⑥ ⑦
15. What recommendations would you give to improve the fit between the Aeromedical or Dental Squadron and BEE flights?

16. The BEE function has a lot in common with other traditional Aeromedical or Dental Squadron functions. ① ② ③ ④ ⑤ ⑥ ⑦

17. Of the officers that you mentor, which flight are they located in? (Please check all that apply)

- Bioenvironmental Engineering (BEE) Flight
- Physical Exams Flight
- Audiology Flight
- OTHER _____
- Public Health Flight
- Optometry Flight
- Occupational Medicine Flight

18. How long have you been on active duty? (please fill in the blanks with the number of years and the number of months, i.e. 4 years 7 months)

_____ years and _____ months

19. Have you ever held, or do you currently hold, a Bioenvironmental Engineer (BEE) AFSC?

- YES
- NO

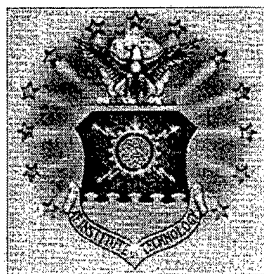
This completes this portion of the survey. If you have any additional comments, please write them here.

Please let me know if you are interested in the survey results:

- I want to know what the survey results are
- I *do not* want to know what the survey results are

Now, please complete the additional surveys attached for each of your subordinates.

Appendix F: SQ/CC Survey, Part 2



**A SURVEY TO ASSESS ATTITUDES, FEELINGS, AND PERCEPTIONS
OF BIOENVIRONMENTAL ENGINEER OFFICERS**

SQ/CC SURVEY, PART 2

FOR THE COMMANDER OF:

Conducted by the
AIR FORCE INSTITUTE OF TECHNOLOGY
AIR UNIVERSITY (AETC)
DEPARTMENT OF THE AIR FORCE

for

The Air Force Medical Operations Agency (AFMOA)
Environmental & Occupational Health Division

Questions in this part are designed to assess your attitudes, feelings, and perceptions as an Aeromedical or Dental Squadron Commander (SQ/CC). Mark the circle that corresponds to the selection that best describes the way you feel about each issue.

In the following statements, the word "subordinate" refers to the officer whose name appears on the front of this survey.

1. How would you best describe the *proximity* of your office to your subordinate's office.
 In the same building
 Not in the same building, but within close walking distance
 Not in the same building, but within 5 minutes drive time
 Not in the same building, but greater than 5 minutes drive time
 Other _____
2. Which statement best describes how often you see your subordinate?
 Rarely - no more than once a month Frequently - about two times per week
 Occasionally - about once a week Often - on a daily basis
3. To what extent does the *proximity* of your office to your subordinate's office affect communication?
 It is not a barrier to communication
 It creates a slight barrier to communication
 It creates a moderate barrier to communication
 It creates a significant barrier to communication
4. Including yourself, how many organizational/management layers (number of supervisors) are between you and your subordinate?
 1 (I directly supervise my subordinate) 2 3 or more

Estimate the number of contacts you have with your subordinate during an average week. If you do not have contact every week, divide the amount of time spent over a longer period by the number of weeks. All contacts should total to 100%.

When communicating with your subordinate (the officer whose name appears on the front of this survey) during an average week, how often is the contact via:

- | | |
|--|--------------------------------|
| 5. Formal gatherings or ceremonies | Percentage of Contacts: _____% |
| 6. At formal Squadron/Group functions | Percentage of Contacts: _____% |
| 7. Informal, one-on-one discussions | Percentage of Contacts: _____% |
| 8. Email | Percentage of Contacts: _____% |
| 9. Phone calls | Percentage of Contacts: _____% |
| 10. Chance meetings | Percentage of Contacts: _____% |
| 11. Informal, outside of work (club, etc.) | Percentage of Contacts: _____% |
| Total Percentage of Contacts: <u>100</u> % | |

12. How long have you and your subordinate been stationed together at your BASE? (please fill in the blanks with the number of years and the number of months, i.e. 1 years 7 months)

_____ years and _____ months

Using the following scale, fill in the circle that indicates the extent to which you believe each question is true.

	①	②	③	④	⑤
	Not at All	To a Slight Extent	To Some Extent	To a Large Extent	To a Very Large Extent
<i>Regarding your subordinate, to what extent have you...</i>					
13. Encouraged him/her to try new ways of behaving on the job?	①	②	③	④	⑤
14. Discussed his/her questions or concerns regarding feelings of competence, commitment to advancement, relationships with peers, and supervisors or work/family conflicts?	①	②	③	④	⑤
15. Served as a role model?	①	②	③	④	⑤
16. Demonstrated good listening skills in your conversations?	①	②	③	④	⑤
17. Conveyed feelings of respect for him/her as an individual?	①	②	③	④	⑤
18. Encouraged him/her to talk openly about anxieties and fears that detract from his/her work?	①	②	③	④	⑤
19. Shared personal experiences as an alternative perspective to his/her problem?	①	②	③	④	⑤
20. Displayed attitudes and values similar to his/her own?	①	②	③	④	⑤
21. Assigned responsibilities to him/her that have increased his/her contact with people who will judge his/her potential for future advancement?	①	②	③	④	⑤
22. Reduced unnecessary risks that could have threatened his/her opportunities for promotion?	①	②	③	④	⑤
23. Helped him/her to meet new colleagues?	①	②	③	④	⑤
24. Given him/her projects or tasks that have prepared him/her for higher positions?	①	②	③	④	⑤
25. Helped him/her to finish projects or tasks to meet deadlines that otherwise would have been difficult to complete?	①	②	③	④	⑤
26. Encouraged him/her to prepare for advancement?	①	②	③	④	⑤
27. Given him/her projects that present opportunities to learn new skills?	①	②	③	④	⑤
28. Given projects that have increased his/her contact with higher level managers?	①	②	③	④	⑤

Using the following scale, fill in the circle that indicates the extent to which you believe each question is true.

	①	②	③	④	⑤	⑥	⑦
	Strongly Disagree	Moderately disagree	Slightly disagree	Neither Disagree nor agree	Slightly agree	Moderately agree	Strongly agree
29. My working relationship with my subordinate is effective.	①	②	③	④	⑤	⑥	⑦
30. I understand the problems and needs of my subordinates.	①	②	③	④	⑤	⑥	⑦
31. My subordinates can count on me to "bail them out," even at my own expense, when they really need it.	①	②	③	④	⑤	⑥	⑦
32. I have enough confidence in my subordinate to defend and justify his/her decisions if he/she was not present to do so.	①	②	③	④	⑤	⑥	⑦
33. Regardless of how much power I have built into my position, I would be personally inclined to use my power to help my subordinate solve problems in his/her work.	①	②	③	④	⑤	⑥	⑦
34. I recognize my subordinate's potential.	①	②	③	④	⑤	⑥	⑦
35. My subordinate usually knows where they stand with me.	①	②	③	④	⑤	⑥	⑦
36. Compared to the other officers in your organization, his/her job performance is above average.	①	②	③	④	⑤	⑥	⑦
37. I am satisfied with the type of contact I have with my subordinate.	①	②	③	④	⑤	⑥	⑦
38. I am satisfied with how often I have contact with my subordinate.	①	②	③	④	⑤	⑥	⑦

*This completes the survey. Thank you for your participation.
If you have any additional comments, please write them here.*

Please distribute the attached survey to the officer listed on the front of this survey. You may either fill out and use the memo attached to the survey, or discard the memo.

Appendix G: EOD Officer Survey



**A SURVEY TO ASSESS ATTITUDES, FEELINGS, AND PERCEPTIONS
OF EXPLOSIVE ORDNANCE DISPOSAL (EOD) OFFICERS**

Conducted by the
AIR FORCE INSTITUTE OF TECHNOLOGY
AIR UNIVERSITY (AETC)
DEPARTMENT OF THE AIR FORCE

for

The Air Force Civil Engineer Support Agency (AFCESA)
Contingency Support Directorate



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

20 OCT 2000

Dear Fellow Officers

Captain Laurie Richter, a graduate student at the Air Force Institute of Technology, is conducting research on the attitudes and perceptions of civil engineer and explosive ordnance disposal (EOD) officers toward job satisfaction, work environments and supervisor/subordinate relationships. The survey results will be used to determine similarities and differences in these areas that may have a particular impact on career progression and retention. HQ AFCESA is sponsoring Captain Richter in this effort.

You are part of a relatively small group of officers selected to represent the views of the career field. The attached survey provides you an opportunity to share your opinions and experiences and will take about 10-15 minutes to complete. Your honest and candid answers are very important to the veracity of the survey results. We encourage and appreciate your support in completing the survey.

Please return the completed questionnaire in the attached envelope through your base mail system within 5 days after you receive it. **Your answers will be kept completely confidential.** Thanks again for your help. Please contact Captain Richter at (937) 429-9996 or laurie.richter@afit.af.mil if you have any questions or comments.

Sincerely

A handwritten signature in black ink, appearing to read "Bruce R. Barthold".

BRUCE R. BARTHOLD, Col, USAF
Commander

Attachments:

1. Survey
2. Self-addressed Envelope

About the Study

Purpose: My research is investigating the attitudes, perceptions, and feelings about the work environment of Air Force Explosive Ordnance Disposal (EOD) officers. This survey will also provide insight into the mentoring received by EOD officers.

Confidentiality: I would greatly appreciate your completing the survey. You are a part of an attempt to survey all Air Force officers with EOD training. **Your answers are important.** Your perceptions and actual experiences are essential. **ALL ANSWERS ARE STRICTLY CONFIDENTIAL** and, unless you wish to tell me your identity, all answers are anonymous. No one outside the research team will ever see your questionnaire. No identification of individual responses will occur. I ask some demographic information in order to interpret results more accurately.

Disposition: I will provide a report to Lt Col Thomas Dombrowsky of the Air Force Civil Engineer Support Agency (AFCESA) Contingency Support Directorate. I can also make the results available to you if requested.

Time Required: It will probably take you about 10-15 minutes to complete this questionnaire.

Contact Information: If you have any questions or comments regarding this survey, you may contact either me or my thesis advisor via email, mail, or telephone. Thank you very much for your participation.

Sincerely,

Capt Laurie Richter
Air Force Institute of Technology/ENV
2950 P Street, Bldg. 640
WPAFB OH 45433-7765
laurie.richter@afit.af.mil
DSN 785-3636 ext. 6085

Major Michael Rehg, Ph.D.
Air Force Institute of Technology/ENV
2950 P Street, Bldg. 640
WPAFB OH 45433-7765
michael.rehg@afit.af.mil
DSN 785-3636 ext. 4711

Privacy Notice

In accordance with AFI 37-132, Paragraph 3.2, the following information is provided as required by the Privacy Act of 1974:

Authority: 10 U.S.C. 8012, Secretary of the Air Force; powers and duties; delegation by; implemented by AFI 36-2601, Air Force Personnel Survey Program.

Purpose: To obtain information regarding the attitudes, feelings, and perceptions of civil engineer officers in the Air Force. Surveys will be administered to both junior officers and the Base Civil Engineer (SQ/CC or GP/CC) of these officers.

Routine Use: No analysis of individual responses will be conducted and only members of the research team will be permitted access to the raw data.

No individual will be identified to anyone outside of the research team.

A final report will be provided to the Air Force Civil Engineer Support Agency, Contingency Support Directorate.

Participation: Participation is VOLUNTARY. No adverse action will be taken against any member who does not participate in this survey or who does not complete any part of the survey.

INSTRUCTIONS

All items are answered by filling in the appropriate spaces directly on the survey or writing a response in the space provided. If, for any item, you do not find a response that fits your situation exactly, use the one that is the closest to the way you feel.

Please complete the questionnaire, seal it and return it in the enclosed addressed envelope through your base mail system to:

CE Officer Survey, AFIT/ENV, Bldg. 640, 2950 P Street, Wright-Patterson AFB, OH 45433

Questions in this part are designed to assess your attitudes about your job as an Air Force officer. Mark the circle that corresponds to the selection that best describes the way you feel about each issue.

In the following statements, the word "organization" refers to your current duty position and the organization that you belong to. The "supervisor" refers to your immediate supervisor or the person that writes your performance report. Please answer each statement with respect to these definitions.

1. How would you best describe the *proximity* of your office to your supervisor's office.
 In the same building
 Not in the same building, but within close walking distance
 Not in the same building, but within 5 minutes drive time
 Not in the same building, but greater than 5 minutes drive time
 Other _____
2. Which statement best describes how often you see your supervisor?
 Rarely – no more than once a month Frequently – about two times per week
 Occasionally – about once a week Often – on a daily basis
3. To what extent does the *proximity* of your office to your supervisor's office affect communication?
 It is not a barrier to communication
 It creates a slight barrier to communication
 It creates a moderate barrier to communication
 It creates a significant barrier to communication

Estimate the amount of contact you have with your supervisor during an average week. If you do not have contact every week, divide the amount of time spent over a longer period by the number of weeks. All contacts should total to 100%.

When communicating with your supervisor during an average week, how often is the contact via:

- | | |
|--|--------------------------------|
| 4. Formal gatherings or ceremonies | Percentage of Contacts: _____% |
| 5. At Formal Squadron/Group functions | Percentage of Contacts: _____% |
| 6. Informal, one-on-one discussions | Percentage of Contacts: _____% |
| 7. Email | Percentage of Contacts: _____% |
| 8. Phone calls | Percentage of Contacts: _____% |
| 9. Chance meetings | Percentage of Contacts: _____% |
| 10. Informal, outside of work (club, etc.) | Percentage of Contacts: _____% |

Total Percentage of Contacts: 100 %

For each statement, please fill in the circle for the number that indicates the extent to which you agree the statement is true. Use the scale below for your responses.

	①	②	③	④	⑤	⑥	⑦
	Strongly Disagree	Moderately disagree	Slightly disagree	Neither Disagree nor agree	Slightly agree	Moderately agree	Strongly agree
11. There is really too little chance for promotion on my job.							
12. My supervisor is quite competent in doing his/her job.							
13. I sometimes feel my job is meaningless.							
14. Communications seem good within this organization.							
15. Those who do well on the job stand a fair chance of being promoted.							
16. My supervisor is unfair to me.							
17. I like doing the things I do at work.							
18. The goals of this organization are not clear to me.							
19. People get ahead as fast here as they do in other places.							
20. My supervisor shows too little interest in the feelings of subordinates.							
21. I feel a sense of pride in doing my work.							
22. I often feel that I do not know what is going on with this organization.							
23. I am satisfied with my chances for promotion.							
24. I like my supervisor.							
25. My job is enjoyable.							
26. Work assignments are not fully explained.							
27. The organization strongly considers my goals and values.							
28. Help is available from the organization when I have a problem.							
29. The organization takes pride in my accomplishments at work.							
30. The organization really cares about my well being.							
31. The organization is willing to extend itself in order to help me perform my job to the best of my ability.							
32. Even if I did the best job possible, the organization would fail to notice me.							
33. The organization cares about my general satisfaction at work.							
34. The organization shows very little concern for me.							
35. The organization cares about my opinions.							
36. My working relationship with my supervisor is effective.							
37. My supervisor understands my problems and needs.							
38. I can count on my supervisor to "bail me out," even at his or her own expense, when I really need it.							
39. My supervisor has enough confidence in me that he/she would defend and justify my decisions if I was not present to do so.							
40. Regardless of how much power my supervisor had built into his or her position, my supervisor would be personally inclined to use his/her power to help me solve problems in my work.							
41. My supervisor recognizes my potential.							
42. I usually know where I stand with my supervisor.							
43. In my current duty section, promotions are regular.							
44. In my current duty section, I'm in a dead-end job.							
45. There is a good opportunity for advancement in my current duty section.							
46. There is a good chance to get ahead in my current duty section.							

	①	②	③	④	⑤	⑥	⑦					
	Strongly Disagree	Moderately disagree	Slightly disagree	Neither Disagree nor agree	Slightly agree	Moderately agree	Strongly agree					
47. As soon as I can find a better job, I'll leave the Air Force.						①	②	③	④	⑤	⑥	⑦
48. I am actively looking for a job outside the Air Force.						①	②	③	④	⑤	⑥	⑦
49. I am seriously thinking of quitting my job in the Air Force.						①	②	③	④	⑤	⑥	⑦
50. I often think of quitting my job in the Air Force.						①	②	③	④	⑤	⑥	⑦
51. I think I will still be working in the Air Force five years from now.						①	②	③	④	⑤	⑥	⑦
52. I would be very happy to spend the rest of my career with this organization.						①	②	③	④	⑤	⑥	⑦
53. I enjoy discussing my organization with people outside it.						①	②	③	④	⑤	⑥	⑦
54. I really feel as if this organization's problems are my own.						①	②	③	④	⑤	⑥	⑦
55. I think that I could easily become attached to another organization as I am to this one.						①	②	③	④	⑤	⑥	⑦
56. I do not feel like "part of the family" at my organization.						①	②	③	④	⑤	⑥	⑦
57. I do not feel "emotionally attached" to this organization.						①	②	③	④	⑤	⑥	⑦
58. This organization has a great deal of personal meaning for me.						①	②	③	④	⑤	⑥	⑦
59. I do not feel a strong sense of belonging to my organization.						①	②	③	④	⑤	⑥	⑦
60. Compared to the fellow officers in your organization, your job performance is above average.						①	②	③	④	⑤	⑥	⑦
61. I am satisfied with the type of contact I have with my supervisor.						①	②	③	④	⑤	⑥	⑦
62. I am satisfied with how often I have contact with my supervisor.						①	②	③	④	⑤	⑥	⑦
63. I feel that the Civil Engineer organization is the best place for EOD.						①	②	③	④	⑤	⑥	⑦
64. If given the opportunity, I would accept another EOD position in the Air Force.						①	②	③	④	⑤	⑥	⑦
65. If given the opportunity, I would remain in EOD my entire Air Force career.						①	②	③	④	⑤	⑥	⑦

Using the following scale, fill in the circle that indicates the extent to which you believe each question is true.

	①	②	③	④	⑤					
	Not at All	To a Slight Extent	To Some Extent	To a Large Extent	To a Very Large Extent					
To what extent has your SUPERVISOR...										
66. Encouraged you to try new ways of behaving on the job?						①	②	③	④	⑤
67. Discussed your questions or concerns regarding feelings of competence, commitment to advancement, relationships with peers, and supervisors or work/family conflicts?						①	②	③	④	⑤
68. Served as a role model?						①	②	③	④	⑤
69. Demonstrated good listening skills in your conversations?						①	②	③	④	⑤
70. Conveyed feelings of respect for you as an individual?						①	②	③	④	⑤
71. Encouraged you to talk openly about anxieties and fears that detract from your work?						①	②	③	④	⑤
72. Shared personal experiences as an alternative perspective to your problem?						①	②	③	④	⑤
73. Displayed attitudes and values similar to your own?						①	②	③	④	⑤
74. Assigned responsibilities to you that have increased your contact with people who will judge your potential for future advancement?						①	②	③	④	⑤
75. Reduced unnecessary risks that could have threatened your opportunities for promotion?						①	②	③	④	⑤
76. Helped you to meet new colleagues?						①	②	③	④	⑤
77. Given you projects or tasks that have prepared you for higher positions?						①	②	③	④	⑤
78. Helped you to finish projects or tasks to meet deadlines that otherwise would have been difficult to complete?						①	②	③	④	⑤
79. Encouraged you to prepare for advancement?						①	②	③	④	⑤
80. Given you projects that present opportunities to learn new skills?						①	②	③	④	⑤
81. Given projects that have increased your contact with higher level managers?						①	②	③	④	⑤

82. How important is it to you personally to spend your career in the Air Force rather than some other organization?
- It is very important for me to spend my career in the Air Force.
 - Fairly important
 - Of some importance
 - Of no importance at all
 - I have no feelings about this one way or the other

83. Which best describes your Air Force career plans?
- Definitely will make it a career.
 - Most likely will make it a career.
 - Even chance.
 - Most likely will not make it a career.
 - Definitely will not make it a career.
- } GO TO Question 85

84. If you answered "Most likely will not make it a career" or "Definitely will not make it a career" to Question 83, what is the main reason for your decision?
- _____

85. Who do you receive your mentoring from? (Who mentors you most?)
- Supervisor
 - Other EOD officers
 - SQ/CC or GP/CC
 - Other _____

86. How long have you been on active duty? (Please fill in the blanks with the number of years and the number of months, i.e. 4 years 7 months) _____ years and _____ months

87. How long have you and your supervisor been stationed together at your BASE? (please fill in the blanks with the number of years and the number of months, i.e. 1 years 8 months) _____ years and _____ months

88. What is your current Duty Position? _____

89. Please describe why you chose to attend the Explosive Ordnance Disposal (EOD) training school.
- _____
- _____

90. If you were given the opportunity to hold another EOD job in the Air Force, would you take the position? Why or Why Not? _____
- _____

***This completes the survey. Thank you for your participation.
If you have any additional comments, please write them here.***

Appendix H: Prior Notice Email to Commanders

Dear Commander:

My name is Captain Laurie Richter and I am currently an AFIT student working on a thesis, sponsored by AFCESA, studying the attitudes, perceptions, and feelings about the work environment and the working relationships between traditional CE officers, EOD officers, and their commanders. Within the next few weeks, you should receive a package in the mail containing several surveys. You will be provided instructions to:

1. Complete a BCE survey,
2. Complete a survey on each of the officers you rate, and
3. Distribute one survey to each of the officers you rate to fill out.

Because the study is looking at BCE - CE officer relationships, you are the focal point for the surveys getting distributed to your subordinates.

I know that your time is very precious, but if you could please take the time to fill out the surveys as soon as you receive them, I would greatly appreciate it. It should take you less than 45 minutes to complete the entire package. All responses are voluntary and completely confidential. You, and your subordinates, are part of a very important group of CE officers selected to represent the views of all CE officers within the Air Force. With your participation, we will learn more about the working relationships among CE commanders and their subordinates, and other attitudes CE officers hold. The more people who respond, the more accurate the results about the CE career field I can report.

I will be sending a reminder email out two weeks after the surveys are mailed out. If for some reason you do not receive the survey package, could you please contact me via email

(laurie.richter@afit.af.mil) or phone (937-429-9996). Thank you very much for your participation.

VR, Laurie Richter

Appendix I: Follow-up Email to Commanders

Dear Commander,

This is a follow-up email to provide you input on the Civil Engineer Officer Survey responses that I have received to date. If you *have* already completed this survey and returned it, thank you very much. If you could also pass on a sincere thanks to those subordinates who have completed the survey, I would appreciate it. Since the survey is anonymous when the front cover is removed, I don't know who has or has not completed it, only total numbers.

To make this an accurate study, one that truly reflects the attitudes of the CE officer core, I need survey responses from you (the Part 1 & Part 2's) and your subordinates. I want to emphasize that all surveys are confidential, and analysis will be at the group level only to protect all respondents' identity. If you would complete any remaining BCE surveys that you have left, and also encourage your subordinates to complete theirs, I can provide more accurate feedback to you and all CE officers.

The following is a list of surveys that I have received from your base as of 20 Nov 00. This number takes into account any changes you have made to the total number of surveys that are applicable to your base (i.e. If an officer had PCS'd from your base, I reduced the # of surveys mailed out total.)

	<u># of surveys mailed out</u>	<u># of surveys received</u>
BCE Survey, Part 1	1	0
BCE Survey, Part 2	8	0
Subordinate Surveys	8	0

Thank you for your continued support. Please feel free to contact me either via email (laurie.richter@afit.af.mil) or phone (937-429-9996) if you have any questions or concerns.
V/R Capt Laurie Richter

Appendix J: Follow-up Email to EOD Officers

Dear fellow EOD Officer,

By now you should have received an EOD Officer Survey package in the mail. If you *have* already completed this survey and returned it, thank you very much. If you *have not* completed the survey yet, please take a few minutes to complete the survey as soon as possible. Because the number of EOD officers is so small, I would like to get a 100% return rate for these surveys. I assure you that your responses will be confidential, and no one will be able to identify you from the results of the survey. I would like the report to accurately reflect the attitudes of the EOD officers in the Air Force. Your input does matter!

If you *have not* received this survey package, please contact me via email (laurie.richter@afit.af.mil) or phone (937-429-9996) so that I can get this package to you as soon as possible.

Thank you very much for your help.
V/R Capt Laurie Richter

Appendix K: Subordinate Officer Comments

This appendix contains individual comments written directly on the surveys by the survey respondents. These comments are identical, word-for-word as the respondents made them, with the only exception being the correction of spelling errors.

If you answered “Most likely will not make it a career” or “Definitely will not make it a career” to Question 82, what is the main reason for your decision?

Traditional CE Officers:

Limited opportunity for advancement – not aligned w/ my views and values.

Eroding benefits and lack of honorable mission.

Lack of promotion opportunities based off of performance...only time in service matters.

Not for me, too many opportunities as a civilian.

I want more creative freedom, a smaller organization, and a chance to run my own business, and no deployments.

Don't like where the career field takes me.

AEF concept/deployment/more of a personnel manager than an engineer/sick of “additional duties” and being forced into “highly recommended” activities.

The requirement for regular deployment does not coincide with my family values.

Separation from family/dual military couple.

Stability, things you do outside your job, bad commanders.

Money, remote tour, deployments.

Lack of attention paid to readiness.

Stability with family and self employment opportunities.

Family and other interests.

Family, I can't move them every 2-3 years. I want to be a good mother.

I love the AF, but I feel strongly that children should have a stay at home parent. I hope to have children someday and I will most likely be the one to stay at home. I plan to finish my career as a reservist, though.

Finishing law school soon, and want to work in a private firm. (I like the work better).

Inability to focus on job at hand, inability to actually be an engineer (technically) and abundance of additional/useless duties.

Op tempo too high, don't like moving around, ideological differences.

AF will not provide me the challenges that I desire.

Support vs operations, i.e. have's and have nots.

I am not an engineer in the AF...I am a manager and a paper pusher. I went to school to be an engineer!

Time away from home and the amount of "kissing up" required to make rank.

CE-EOD Officers:

Family reasons and I have no desire to be a BCE.

I have no interest for many (not all; there are still some I would enjoy) of the CE jobs that would await me once I finished my time in EOD.

Uncertainty of promotion...If I wait until ten years of service before moving to the private sector, I will be behind the power curve and too old for several Federal jobs.

Don't want to PCS every 3 years.

EOD Officers:

I'm in the Reserves and will stay in till retirement.

I would rather be an officer – not a game/role player.

BEE Officers:

I want to use my degrees.

Raise a family.

Lack of accountability and weak evaluation system that does little to differentiate between "A - C" players.

Career field is a joke, it is not valued by the AF and is extremely poorly placed in the Wing org chart.

Lifestyle factors.

Please indicate whether you have ever attended the Explosive Ordnance Disposal (EOD) training school and why you chose to attend or not attend.

Yes, have attended already (CE-EOD & EOD Officers)

Required. I would have volunteered to attend even if it was not required.

Challenging career field with the best enlisted personnel.

Warrior mentality; tight knit community not unsimilar to REDHORSE.

Increase of knowledge and it presented more challenges...more combat oriented!

I chose to be part of the best group of folks in DoD.

Wanted to blow shit up. (And for the challenge/exciting mission of EOD).

I attended to allow me to broaden my CE experience since the only way to serve in EOD is to go through NAVSCOLEOD. A broad CE career will help in future promotion.

It is important that I am not only a good leader, but also a competent EOD tech.

I saw an organization who were a cut above and did a job I would enjoy.

Gives me more experience to draw from if I ever become a BCE. Interesting career field, with lots of motivated members. I like the family environment that EOD creates across the AF.

Great camaraderie in EOD, it was a challenge & I don't like engineering.

Civil Engineer mentality seems transfixed on our peacetime mission—EOD has a better focus on combat support.

CE was boring and I wanted a challenging, immediately rewarding, "not too many others do this" kind of job. I wanted to be more involved w/the troops.

Interested in explosives from civilian life, interest in knowing everything about munitions as a munitions officer.

Elite, motivated group of people to work with, it looked like an exciting, and challenging career field.

It's an exciting mission. Also, I dreaded continuing with mundane engineering stuff. I wanted to have a better understanding of what the people working for me were doing, and esprit de corps.

EOD is definitely something different and new. There are also very few contracts (paperwork) to work with. In addition, being a military organization, one can actually lead troops.

Wanted an exciting, challenging job.

Rewarding job, personal satisfaction in accomplishing mission.

CE EOD officers were needed, career broadening, personal challenge.

EOD was the only CE job I could cross train into.

The personal challenge and chance to serve my country in an exciting & demanding job.

One of the few CE CGO positions available to be a flight commander.

No, but would like to attend in the future (traditional CE officers)

I found the work to be interesting and exciting with more opportunities for TDY and hands on work.

Learn more about EOD.

Only part of CE that is interesting.

I may never attend due to the fact that it would limit my base locations. My husband is an active duty pilot.

To provide support and proper oversight as OSC; allows for more well rounded commander and increase communication with OG/LG community.

Closer to the tip of the spear, more feeling of contribution.

When BCE.

Rounding out my training; good for future BCE position when making decisions regarding EOD.

It fits my personality as well as an opportunity for career broadening.

Chance to take on management of military personnel, it would be a challenge, and has more opportunity to travel the world with increased responsibility.

It looks interesting.

It's early in my career; planning to go to AFIT GEEM next and then maybe to EOD.

I am thinking of adding this to my career path.

If EOD remains in the CE career field, then I would like to learn as much as I can about it.

It is an important part of CE base recovery and denial.

EOD is the most interesting flight in CE.

Interesting area to be involved in.

I think explosives are exciting.

It's part of OE & AS and as a potential future BCE I need to "know the business".

No, would not like to attend (traditional CE officers)

Not interested.

No application to outside world for what I want to do.

Not interested.

Not interested.

Don't want to make AF a career.

Too late in my career.

I am past the age/time in grade to attend.

I am not interested. I am an engineer and that's what I'd rather do.

No possibility of a career. One job and then back to CE.

Not my cup of tea.

The deployment does not coincide with my family values.

Not interested in explosives.

Too late in my career to attend and expect career progression.

Not interested.

Too old, family commitments.

Not where I want my career to go.

Does not appeal to me.

Not interested in becoming an EOD officer.

I have no desire to blow things up.

Too many TDYs.

I have no overwhelming desire to work with high explosives.

I love civil engineering too much.

Doesn't interest me at all.

Don't see it necessary for command. That is why we have EOD officers.

Not sure how long will stay in AF.

Seven months training TDY = too much time from family.

Too senior.

No interest in going to school. No great interest in EOD.

Not enough interest.

Does not interest me.

Have little interest in applying aspect towards career. I honestly don't think I have the patience and dedication towards learning a new career field.

Environmental is my goal.

Not interested in becoming an EOD troop.

Does not fit into my career goals. Would be exciting, but life is about more than exciting.

My wife is an MX and joint spouse assignment would be difficult.

Highly respect what they do, but have no desire to do it myself.

Not interested.

Too senior.

I like to look but don't want to touch things that go boom.

Not interested. Too risky.

Getting out of the AF.

EOD is a career broadening tour, with few skills applicable to future jobs.

Not interested in that career field.

It is interesting but would not help my future as an engineer.

To late in career to make transition. Already have flight/cc experience.

No desire.

I am not interested in EOD.

No desire.

Have no desire to work that closely with explosives.

Currently not in synch with current career path.

If I wanted to attend, it would have been earlier in my career.

No interest.

Married with 2 children and the school is very long and has a high washout rate.

EOD doesn't interest me.

Not interesting to me.

I have many other things that I would like to accomplish my time in the AF. There doesn't seem to be enough time to attend the school and take an EOD assignment, while still progressing in my career.

If you were given the opportunity to hold another EOD job in the Air Force, would you take the position? (*EOD officers*)

Yes. Most CE officer jobs are really positions where you get all the special projects (i.e. DV visits, slide shows) or chasing work orders.

Yes, it's a great career field.

Yes (and I did). EOD gives me the chance to actually be in charge of troops or have an impact on the mission.

Yes – I would hold another EOD position if in concert with career and promotion plans.

Yes, best job, most rewarding.

Yes, but depends on timing and location – I'm close to retirement.

That depends. I would not want to take over another EOD flight. I need to look at an Ops chief job, which will make me more competitive for BCE. However, there is an EVCOM EOD Lt Col billet (currently filled by an Army officer) that I would take. In addition, the AF liason officer at the NAVSCOLEOD would be fine as well. EOD is great, buy my goal has always been to become a BCE. Staying in EOD, I believe, would jeopardize that.

Yes, immediately. There is a real community and sense of professionalism with the group.

Yes.

Absolutely (and am slated to PCS to one soon!). I feel a strong sense of pride with the EOD family, and really feel at home with the type of missions it faces.

Yes, the people are motivated, they want to be there when you actually safe a device or ordnance item you feel good plus you get to blow stuff up.

Yes, EOD has been very challenging, very interesting and very rewarding career for me.

It depends on the job. I'd like to unequivocally say yes, but, having had the Hill AFB EOD shop and then the EOD position at the FP Battlelab (i.e. unit & Air Staff again), I would hesitate @ taking a job which has EOD issues as it's only focus. It seems to me the EOD career field fights the same battle all the time, there's just new faces leading the charge...that's a frustrating way to operate.

Possibly yes: I'd love the opportunity to run another flight, however I'm in my 3rd straight EOD position. As a BCE, I would prefer a squadron with an EOD flight.

Additional Comments:

Traditional CE Officers:

Overall concern within the CE community is the reduced focus on vision and mission readiness at O-5/O-6 levels. There are more individuals being placed in key positions (BCE/Ops Chiefs) without proper knowledge of basic CE operations. We are seeing more political managers than true leaders and its becoming more and more transparent to our CGO's and airmen.

I'm a new Lt and have had limited contact with the BCE due to circumstances beyond both our control. However, as a new Lt I have a fresh perspective on the EOD flight relations and would be happy to share them if there is any further interest.

In the two short months that I have been at Dover AB, I've been deployed (TDY) or on leave half that time. Many of my responses are based on my expectations of this organization. I have been in the AF for only 5 years, 3 months. I was an enlisted troop for 6 years in the Navy.

I am prior enlisted CE, now assigned as a 2Lt AF for less than 2 weeks. I have no real knowledge or background on the squadron here at Travis or its commander.

I have already tried a life as a civilian engineer and I left it to come into the Air Force. I wake up every day happy that I made that decision. The Air Force will be my home for the next 20 years or more. I get most of my guidance from the head of maintenance engineer, rather than the BCE. But when I do meet with the BCE, he is always been caring and very helpful.

I am new to the military so these answers are probably somewhat naïve.

Promotion opportunities are a significant issue with me. I am a "above the zone" Major. My discussions with previous bosses and AFPC have led me to the conclusion that job performance is not as important as how well your boss (and his boss) write your OPR/PRF. The bottom line is your promotion opportunities (as a "P") depends solely on how your career looks on paper. And it comes down to the "discriminators." E.g. The current "hot" phrase, the right word, or school recommendations.

This is a great career field. But I think I would be more free and happy on the outside. Many of these questions don't relate as well to me. I have closer contact with my SQ CC than with my BCE.

Sense of community is tremendously stronger overseas than it is here. Reorganization resulting from MEO completely disrupts sense of order, command and control, organization. Result is chaos and huge negative impact on morale and welfare of workforce.

I am very unhappy with my current BCE. It is more frustrating than ever since he took command. He only appears to be concerned with how he personally appears to his supervisors. Mostly at the expense of our squadron's pride and past! Feel free to contact me if you desire more information.

In general your questions are obviously aimed at measuring perceived BCE effectiveness. Obviously, I've got a good one. His predecessor reaked havoc and was promoted because he looked good to the flight suits. The real challenge to "raising" good BCEs is getting O-5's off of staff positions before they are CC's. Squadrons don't and shouldn't run like staffs.

To actually be a civil engineer is hard when all officers do is management. That is why I wish to leave. I want to use my degree.

Although I have respect for my BCE, he has an uphill battle in improving relationships within this organization and on this installation.

I love being in the AF and look forward to a full career serving my country but if the AF ever forces me into a decision between what's best for my family or what's best for the AF my family comes first! I don't currently feel that the AF considers the family first. I am speaking strictly from a peacetime perspective.

I had a hard time answering the questions about promotion opportunities because the way I see it, all CE jobs provide promotion opportunity to the degree that without excelling I could still retire as a Major.

Current BCE has been in position for five months, three of which I was TDY. Therefore, not much time to build deep relationship at a commander - to - officer level.

Questions were answered from perspective the CE group commander is the BCE. Questions seemed overly emotional. Answers to some questions were negative because I wouldn't even desire that type of relationship with any BCE.

I have 12 years of prior service, 4 years active duty as a dental technician and 8 years in the Air Guard and Reserves as an Engineers Assistant. My goal going into college at the age of 25 was to become an officer in Air Force Civil Engineering. I am making the Air Force a career as a Civil Engineer.

CE-EOD Officers:

RE: #53. I am in a very good organization, and I am glad to have had the opportunity to be assigned here. However, I like change and I like to move. I would not want to spend the "rest of my career" in any one particular organization. RE: #57. The USAF in general has no programs for single officers. A lot of time and effort is spent fulfilling the needs of single airmen in dorms and family members, especially spouses of deployed members. But no effort is put toward single officers and their needs.

If there was one base where I could remain stationed for an extended period of time (20 years), then I would remain in the AF.

To put my answers in proper perspective you need to know: 1). I chose to stovepipe in EOD because I knew I didn't need to make Lt Col in order to retire. 2). I'm a Major w/retirement orders. 3). I chose my current job for the pleasure of doing the operational work, not promotion potential. 4). I made all of these choices freely w/o pressure.

Being physically separate from the CE compound makes for great autonomy and helps with professional maturity but it does restrict access to the BCE. However, it is best for EOD to normally remain separate, as most CE troops don't understand our business and how we operate.

I feel strongly that the Air Force should allow me to stay in the EOD career field instead of rotating me back as a traditional CE officer. It is what I enjoy doing and therefore pursue more vigorously to get better at it. I think the AF otherwise misuses the \$100,000 it costs to put an officer through EOD School just to allow him/her to do one assignment and then go back doing traditional CE officer assignments. If an outside company said I could do EOD with them, I would definitely leave the AF. EOD's what I want to do!

Currently, there is no advancement in EOD beyond the flight level unless you are lucky enough to get a follow on assignment to the schoolhouse, technical division, or Battle Lab. There is no career progression in this career field; (only Lt and mid level Capt).

My answers are based on my experiences with 6 different BCE's.

EOD Officers:

Do not believe my personal situation applies to any other officer in the AF!

We need to allow our officers to spend more time in EOD to compete on equal footing with the other services, and to maintain credibility with other countries.

I think BCEs should not view staying in EOD as a dead end job (if beyond one assignment). EOD has acquisition, technical training, command, MAJCOM, and Air Staff positions. They should encourage the right balance of career experience valuable to the Engineering field and be knowledgeable of other jobs available besides just running an EOD flight.

I believe there are a number of EOD officers who have joined EOD in order to escape CE. Their goal then becomes to go from one EOD billet to another EOD billet, effectively limiting their career. In the end, this short sighted view will prevent EOD from having a voice at senior levels.

Note: I completed this survey based on my position on PACAF staff – a non-EOD position – I have just PCS'd to an EOD position – CENTCOM Joint Security.

In the CE career field, officers earn 4-5 year degrees only to build power point slides and run special projects. There is a limited opportunity to be a true leader.

BEE Officers:

The problem with this job is resources. I work my people to death routinely & I hate it! I can't both prepare them for daily tasks and disaster response. The potential for killing (literally) a BEE tech is grossly unacceptable.

Questions 1-4 were answered for current location. In the near future the BEE office will be co-located with the entire medical group.

Get BEEs out of the MDG and position at Wing level in an OSHA type office. Give BEE environmental job to CEV and our Readiness job to CEX, then contract out or civilianize most of the day-to-day activity.

I would like to point out that some of the questions would be meant or geared towards the immediate supervisor, esp. when you get to questions starting with 64. I have immense respect for my SQ/CC and think he is doing an outstanding job. Any base would be lucky to have him.

I feel that as Bioenvironmental Engineers we are far too removed from the AF and MDG mission. This is also evident in base level command positions. I don't know any BEEs

that have become SQ/CC or MDG/CC. Furthermore, there are few opportunities for leadership career broadening opportunities. As a BEE you either work in a flight @ base level, as a specialist in a lab, or as a BEE @ MAJCOM. There is a glass ceiling.

For "To what extent has your SQ/CC...?" – for all the "not at all" responses – keep in mind he has zero opportunity so far. And also keep in mind there has been no time, I feel, for him to come to a conclusion on my competence/character so he would want to "defend" my actions. In general, he is a good man and SQ/CC. But what about my interaction with my BEF Chief.

I love the USAF and serving my country. This is what has kept me in the AF all these years. What almost got me to separate was the negative impact my job has on my family. The horrendously long hours day after day coupled with the Ops tempo are becoming too much for many families. There seems to be no end to it. We get involved in one useless peacekeeping operation after another with very little national security interest. Also, I have seen some of my best friends separate with 14 years of service because the assignment system was unwilling to work with them. I got very lucky on my assignment and this is what has kept me in.

My SQ/CC is a fellow BEE officer. He is technically outstanding. He is a micro-manager and lacks tolerance with others that don't see things his way. He has moderate communication skills and uses intimidation/disciplinary threats as a management tool. It is my perception that he provides no top cover on difficult issues and supports the flight and myself only when it is to his benefit. He is a political careerist. Fortunately, he does not determine my fate, I do, and I thoroughly enjoy the AF and the BEE career field.

I have a good SQ/CC, I just don't feel the Medical Group is the best place for BIO. My general feeling from the MDG is if you don't do direct patient care, you're a second class citizen. I'd rather be a line officer.

I'd like to see a survey on MDG commanders. Most seem to care less about Bioenvironmental Engineering. This is especially true now that MDGs are focused on recapturing beneficiaries in accordance with AF/SG mandate. Everything else (readiness, occ health) is not too important now.

I have been TDY for 4 mon. @ BEE school so I have not had a lot of opportunity to learn about base level operations or to convene with my SQ/CC.

Question #20 – I believe here people get ahead faster than in other places (a lot faster).

No direction from senior BEEs to tell SQ/CC this is the focus "priority." Too much tasking of BEEs – nothing getting done proficiently. Where Bio input into PCO concept & Marketing for value? Assignment system needs work – not all positions advertised.

Basically, I have no contact w/ my SQ/CC. His policy is to only deal w/ Flt CC. That is the same for assignments, projects, mentoring, etc. That's a shame considering that there are only 13 officers in my SQ (6 of which are Flt/CC).

Much of the questions regarding the SQ/CC seem strange to me; as I do not work directly for him. Would it be better to ask questions of mentoring about the immediate supervisors?

Appendix L: Commander Comments

This appendix contains individual comments written directly on the surveys by the survey respondents. These comments are identical, word-for-word as the respondents made them, with the only exception being the correction of spelling errors.

Part 1 Survey Write-In Responses:

What, if anything, would make you feel confident about knowing their jobs?

BCE's:

More exposure time to EOD shop which would be easier/better if done in O-3/O-4 grades first.

Diverse background.

More time to spend with them ~ but extremely limited.

Attending a mini-EOD course like (Fire Marshall course).

Nothing, most are two levels removed from me, so I don't need to know their every move.

Is it addressed in the 32E CFETP?

SQ/CC's:

Have a briefing put together for young officers – all AFSCs – showing BSC job.

I would have to be a participant. My flights keep me pretty well informed overall.

What, if anything, would make you feel more capable of mentoring traditional CE (BSC) officers?

BCE's:

Nothing more.

Experience is the basis of credibility.

SQ/CC's:

Guidance from chief BSC.

Breakdown of traditional jobs – size, facilities, etc.

More daily contact.

Sticking to general issues of officership, leadership, wing rapport, plus increased interaction with their functional areas.

Continued BSC career agenda items.

Increased knowledge of the BCS corps. Again, we encourage interaction with other BSC officers.

More familiarity with corp specific promotion/career requirements.

Working day to day with them more.

What, if anything, would make you feel more capable of mentoring EOD (BEE) officers?

BCE's:

Early exposure to EOD in CE would be good.

Education.

EOD officers are CE officers, therefore experience is the basis of credibility.

Spending more time observing daily activities early in my career.

An EOD course, similar to the Fire Fighter course for CE's at Goodfellow.

Only if I had technical training could I do a better job.

SQ/CC's:

Guidance from chief BEE.

More service corp contact. Closer work proximity.

Sticking to general issues of officership, leadership, wing rapport.

More knowledge about career progression.

Continued BSC agenda items.

Continue the experience I am now receiving to the career field.

AFMDA could put a periodic BEE/BSC newsletter for commanders.

Increased knowledge of the BEE field. We have a senior BSC assigned as a mentor for that career area to ensure quality mentoring, and we encourage communication with MAJCOM functions as well.

More familiarity with corp specific promotion/career requirements.

Working day to day with them more.

What would make you feel more comfortable providing career guidance to traditional CE (BSC) officers?

BCE:

Nothing more.

A higher confidence in where CE career field is headed in the future ~ joint, technical, contract?

SQ/CC:

Guidance from chief BSC.

More reference material about specific career/goals.

Knowing more about what is important for BSC officers in particular.

Continued BSC career agenda items.

Continued interface with the MOG/MAJCOM senior BSC liaisons.

Increased knowledge of the BSC corps. Again, we encourage interaction with other BSC officers.

More familiarity with corp specific promotion/career requirements.

Knowing their career progression better.

What would make you feel more comfortable providing career guidance to EOD (BEE) officers?

BCE:

More exposure early in the career.

No difference. A higher confidence in where CE career field is headed in the future ~ joint, technical, contract?

Better understanding of their career progression.

SQ/CC:

Guidance from chief BEE.

More reference material about specific career/goals.

Continued BSC career agenda items.

Continued interface with the MOG/MAJCOM senior BEE liasons.

Increased knowledge of the BEE field. We have a senior BEE assigned as a mentor for that career area to ensure quality mentoring, and we encourage communication with MAJCOM functions as well.

More familiarity with corp specific promotion/career requirements.

Knowing their career progression better.

Why would your career advice to EOD (BEE) officers and traditional CE (other officers in the BSC career field) be the same or differ?

BCE:

I view EOD officer opportunities as career broadening.

I would advise the EOD officers that broadening out will be necessary to field grades and higher.

We are all AF officers first. AFSC is second.

EOD officers are CE officers...most career advice applies.

Why does this survey keep forcing a difference?

I strongly feel all CE officers should be treated the same!!

Each person is assessed differently.

EOD career path up until Major is different.

How much time does the EOD officer have in EOD jobs, and do they prefer to remain in EOD, in EOD stovepipe, or return to mainstream.

SQ/CC:

Don't know career track.

BEE's role on base/job is dependent on mission-not # people on station which increases slope of responsibility for other BSCs.

Different specialties.

Clinical vs. technical support, leadership opportunities.

Much is similar, but I tailor my counseling to specific needs.

Career broadening paths will be different based on specialties.

There is some career advice that is essential for all corps. Areas where I feel better advice would come from a functional expert, I defer to them.

Science officers vs. clinicians have different opportunities.

Basic officer advice is the same. Career field specific advice would be specific.

What recommendations would you give to improve the fit between the CE Squadron/Group (Aeromedical Squadron/Group) and EOD (BEE) flights?

BCE:

Capitalize on opportunities to share/cross feed across functional lines e.g. CEF, CEV, CEX may have opportunities to share.

Ensure you train and exercise together; incorporate them together in wing exercises and squad for training.

Stop any further discussion of moving them out.

Remind entire squadron that all flights fit in the CE family.

There is no tie other than we are all Airmen.

The fit is good, but they have technical capabilities with munitions and weapons uncommon with the rest of CE specialties.

SQ/CC:

Educate role of BEE to younger dental and MSC officers.

More Aeromedical function oriented.

Can't see any.

Involvement/communication crucial.

Continue to strengthen the interface: flight med, public health and BEE in the OHWG and AMC.

I feel it "fits" well now.

Additional Comments:

BCE:

EOD has been A/C maint, EMS, and the old ABO organization. They are best suited for CE squadrons. This is consistent with Army organization.

I feel very strongly about this subject. My EOD flight CC should have every opportunity to rise to SQ/CC in his future. He is a brilliant leader.

Our EOD fits in well to our squadron because of the personalities involved and they are located next to my office (So we see them often). The relationship is similar to CEX and CEF.

Honestly, I'm sure your survey will be helpful, but out at the wing, we can't get any Captains to help mentor 2LTs since we are so short manned CE wide in Captains. The AF would benefit more if we had less Captains getting Masters degrees at AFIT and out in the field. AEF deployments are pushing the lack of officer manning to new limits to cope with.

If we treat EOD like it belongs, it will! You could study CEF and CEX as "outsiders" also, but it takes strong leadership to know they belong. Everyone has their specialty, but

it takes all of us to get the job done. I am not an expert in every area of CE, but I can lead and mentor all of my officers, EOD is no different in that respect.

SQ/CC:

I'm a dental officer – should have asked this in your survey – thanks for opportunity. I've always been impressed with BEE's – they are proactive in medical service.

The collapse of AMOS into MDOS & MDSS will break off BEE flight from others and interrupt the collaboration.

For what its worth – I am a family practitioner/flight surgeon by trade. Also have prior service experience as a munitions officer.

Squadron commander for 2 weeks.

Questions 15 & 16 are open to significant interpretation. Yes, BEEs do a lot of things very different from the daily healthcare you see in dental clinics and flight medicine. By the same token, what they do is very important to the health and well being of our base community and the leadership responsibilities of my position across the flights.

Part 2 Survey Write-In Responses:

BCE:

The job of BCE is extremely demanding, and time consuming ~ but lack of contact with key personnel will decrease the organizations effectiveness ~ therefore it's a must.

Is there a relational problem between CE officers and BCE's? Or is that what this study is trying to establish?

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Vita

Captain Laurie K. Richter was born on [REDACTED] in Lansing, Michigan. She graduated from J.W. Sexton High School in June 1989 and received a full Air Force Reserve Officer Training Corps scholarship to attend the Georgia Institute of Technology. She graduated with a Bachelor of Civil Engineering from the Georgia Institute of Technology in March 1994. Upon graduation, she received a reserve commission in the United States Air Force.

Captain Richter was first assigned to the 82nd Civil Engineer Squadron at Sheppard Air Force Base, Texas as a design engineer, Chief of Military Construction, and Squadron Section Commander. In May of 1997, she attended Explosive Ordnance Disposal training (NAVSCOLEOD) at Eglin AFB, Florida and Indian Head, Maryland. Upon completion of EOD training, she was assigned as the EOD Flight Chief at Kirtland AFB, New Mexico in January 1998. While at Kirtland AFB, she was also the 877th Civil Engineer Squadron Commander. In August 1999, she entered the Engineering and Environmental Management program, School of Engineering and Management, Air Force Institute of Technology. Upon graduation, she will be assigned to the Air Force Civil Engineering and Services School as an instructor.

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14. ABSTRACT This research examined the effect of organizational structure on the relationships between subordinates and their supervisors using measures of leader-member exchange (LMX), mentoring effectiveness, perceived organizational support (POS), perceived opportunities for promotion, job satisfaction, affective commitment, and intent to remain. The sample obtained included 147 subordinate Air Force traditional Civil Engineer officers, Explosive Ordnance Disposal (EOD) officers, Bioenvironmental Engineer officers, and 27 squadron commanders at 19 Air Force bases. The methods of multiple analysis of variance and structural equation modeling were used to evaluate five research questions and nineteen hypotheses. Overall, no differences were found between the types of subordinate officer surveyed for the constructs of interest. However, it was found that subordinates and their commanders view their relationships differently. Commanders reported higher responses for LMX and mentoring effectiveness that did not correlate with their subordinate's responses, suggesting that the relationship between commanders and their subordinates needs to be strengthened. The research also revealed that subordinate officers felt average to slightly positive about the LMX, POS, perceived opportunities for promotion, job satisfaction, affective commitment, and intent to remain in the Air Force. The research concluded with providing tentative support for suggesting that organizational structure may play a role in the perceptions and intentions of subordinate officers.					
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