



**OPERATIONS TEMPO AND TURNOVER INTENTIONS: AN EXPLORATORY
STUDY OF THE AIR FORCE'S EXPLOSIVE ORDNANCE DISPOSAL (EOD)
CAREER FIELD AND DEVELOPMENT OF THE AIR FORCE CIVIL
ENGINEER RETENTION QUESTIONNAIRE**

THESIS

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AFIT/GEM/ENV/09-M17

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Abstract

From a managerial perspective, the attraction and retention of high-quality employees is more important today than ever before (Holtom, Mitchell, Lee, & Eberly, 2008). This continuing growth of importance with regards to retention has validated the efforts of many studies within the context of turnover to better understand the relationship between turnover and the factors that may influence the behavior. Employers want to know what the reasons are for employee turnover. However, more importantly is that once behaviors are identified the employers are then equipped with a better understanding of how this relationship can be controlled. This relationship also has significant importance within the military structure because of its difference when compared to other firms and organizations. As military operations continue to develop and requirements continue to grow, it is critical to maintain continuity through retention of experienced, high-quality members. The United States military relies solely on training and developing its young members to grow into the senior leaders of its organization; it does not recruit senior executives from outside the organization to function as the senior leaders. The uniqueness of this structure within the United States military expresses in itself the importance of retention and controlling turnover among its members. As a result to this unique structure, Congress, the Department of Defense, and military commanders are concerned by the increased rates of turnover (Huffman, Adler, Dolan, & Castro, 2005). The purpose of this study intends to address this concern.

*To Mom and Pop
“It’s Always Been Your Song!”*

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CHAPTER 1

INTRODUCTION & LITERATUR REVIEW

In our transitioning economy, observers, both inside and outside of organizations, have come to view a firm's workforce as far more valuable resource (Beatty, Huselid, & Schneier, 2003). Companies' reliance on knowledge has increased dramatically over the last century. Drucker (1999) remarked that the most valuable asset of a 21st-century institution (whether business or non-business) will be its knowledge workers and their productivity. This appears to have come to fruition; in 1900, only 17 percent of all jobs required knowledge workers, while now over 60 percent do now and this trend is expected to continue. According to a yearlong study conducted by McKinsey & Company that involved 77 companies and almost 6,000 managers, the most important corporate resource over the next 20 years will be clever, technologically literate, globally savvy, and operationally innovative employees (Michaels, Handfield-Jones, & Axelrod, 2001). This differential contribution that high-caliber employees provide to the organization's success is considerable. For instance, Michaels et al. (2001) claim that the top software engineers write ten times more usable code than their average counterparts.

From a managerial perspective, this suggests that the retention of high-quality employees is incredibly important today and will be equally, if not more, important in the future (Holtom, Mitchell, Lee, & Eberly, 2008). Recognizing this issue, over 1500 studies have been done to better understand individual's turnover decisions (Holtom et al., 2008). Turnover is defined as the act of an employee leaving an organization (Griffeth & Hom, 2001). Generally, turnover is classified into one of two categories, namely, involuntary or voluntary. An instance of involuntary turnover, or a discharge, reflects an employer's decision to terminate the employment relationship. An instance of voluntary turnover, or a quit, reflects an employee's decision to leave an organization when the organization would prefer to retain him or her (Shaw, Delery, Jenkins, & Gupta, 1998). Of these two, involuntary is the preferred form of turnover from the organizations perspective. This allows the organization to aggressively replace weak performers with employees who more appropriately fit within the organization. Voluntary turnover, in contrast, is a potential loss of an asset to the organization.

Like the private sector, turnover and retention is an important issue for military managers. To understand the importance of voluntary turnover within the military context, it is important to understand that the military is structured like many professional service firms (e.g., accounting, law, and consulting firms). That is, the military relies almost exclusively on internal labor markets. Individuals' careers are characterized with a series of jobs where they build the critical base of knowledge to perform at higher levels. These careers are punctuated at a handful of discrete points where the individual is evaluated for promotion (Malos & Campion, 1995). Those that are promoted are retained and those not selected for promotion are targeted to leave the organization after a

designated period. Positively, this eliminates institutional impediments to removing those members that do not perform. Negatively, this makes voluntary turnover a more critical issue because those employees that are promoted and become senior leaders must come from within the organization. Any time members leave voluntarily, new members must be recruited, trained, become proficient, and accustom themselves to the military's culture over several years before they assume these senior leadership positions (Holt, Rehg, Lin, & Miller, 2007).

Several studies have explored turnover within the military (e.g. Castro & Alder, 2005; Holt et al., 2007; Huffman, Adler, Dolan, & Castro, 2005). One common explanation as to why members leave voluntarily is the high pace of military operations, termed operations tempo or OPTEMPO (Huffman et al., 2005). This term became popular during the 1990s when a military draw-down corresponded with a significant increase in military operations (Castro & Alder, 2005). Interestingly, research findings exploring the extent to which operations tempo has been linked to turnover decisions have been inconsistent. Some studies, as expected, have linked a high operations tempo to higher intentions to leave the military (Giacalone, 2000; Sullivan, 1998). Other studies, however, have found operations tempo either to be linked to members' plans to stay in the military or, apparently, to be unrelated to their decisions (Castro, Huffman, Adler, & Bienvenu, 1998; Reed & Segal, 2000).

The apparent inconsistencies of these findings have been attributed to several different things. Huffman et al. (2005) suggested the following may have contributed to the different findings: (a) the different operational definitions of turnover, (b) measuring role overload and operations tempo subjectively rather than objectively, (c) the different

operational definitions of operations tempo, (d) failure to control for variation due to key demographic and organizational variables, and (e) overlooking possible curvilinear relationships. While this study will not address all of these factors, it will build on these previous studies, updating findings to account for one key factor, the changing environment. Previous studies analyzed data that were collected prior or shortly after our current military operations that began in the Middle East in March 2003. Huffman et al. (2005) collected data from May 1999 to January 2001. Hosek, Kavanagh, and Miller (2006), as well as Olsen (2008) in two separate studies, used secondary data from the August 2004 Status of Forces Survey to test the relationship between operations tempo and turnover. At the time the Status of Forces survey was administered, members may have participated in one deployment. Today, some occupational specialties within the United States military have participated in several deployments and are likely preparing for another. Thus, it is reasonable to believe that the findings from previous studies that examined the impact of operations tempo on retention and turnover within today's military environment may need to be updated; furthermore the inconsistencies in the findings support additional research.

Accordingly, the purpose of this study will be to analyze and identify relevant organizational and individual factors that are related to members' turnover intentions, using data that was recently collected from airmen within the Explosive Ordnance Disposal (EOD) career field. Using this data to test the relationship between operations tempo and turnover will address some of the concerns of previous studies. The recent collection of this data accounts for the demanding operational environment that many are encountering. Currently, EOD airmen are on an 18-month cycle in which they are

deployed for 6 months, return for 12 months, and then are eligible to deploy again (Air Force Times, 2008). In addition to this intense deployment cycle, these airmen are primarily tasked to operate in the most extremely hostile environments during their deployments. When they are not deployed, these members continuously receive extensive training and are expected to respond during any hour of the day.

Based on this analysis, a behavioral model will be proposed and a questionnaire that can be administered to Air Force Civil Engineer officers will be developed. This group is targeted because the strength within the civil engineer career field has experienced a 15% reduction between September 2006 and September 2007 (Air Force-magazine.com, 2007 & 2008). Yet, the operations tempo among this group is believed to have dramatically increased over the last few years. In particular, these officers are being asked to fulfill several additional requirements that have traditionally been fulfilled by other services. Finally, it is costly to replace these members. The money dedicated to retraining an officer within the civil engineer career field exceeds \$20,000 (Air Force Instruction 65-503, 2006).

General Model of Turnover Decisions

Employee turnover and retention continues to be a subject of interest to many employers and managers. The underlying premise behind this practical concern has been that voluntary turnover represents a significant cost to organizations in terms of knowledge and resources (Steel, Griffeth, & Hom, 2002). As members leave that organizational leaders would like to retain, the organization loses the knowledge those departing employees have. To replace them, organizational leaders must invest time and money to recruit and select replacements. Beyond this, the replacements must be trained,

requiring additional time and financial investments. If all goes well, organizations should receive some return on these investments whereby the new employees' performance exceeds the performance of those who left. Nonetheless, it is feasible that the replacements are not as effective when compared to those that had voluntarily left.

Consequently, researchers have tried to identify individual variables that may trigger decisions to leave organizations voluntarily (Mobley, Horner, & Hollingsworth, 1978) and isolate other factors internal and external to the organization that contribute to exit decisions (Mobley, Griffeth, Hand, & Meglino, 1979; Steel, 1996). For scholars, the topic has continued to be developed over the last century from the early efforts of Bernays (1910) and Crabb (1912) to the more recent studies of Bibby (2008) and Holtom et al. (2008). Much of this research, however, can be traced back to the efforts of March and Simon (1958), Mobley (1977), and Price and Mueller (1981).

March and Simon (1958) conducted an explicit, formal, and systematic analysis of the process of turnover (Hom & Griffeth, 1995) and suggested that employees consider how desirable they felt the current organization was (i.e., perceived desirability of movement) and the ease with which they could separate from that current organization (i.e., perceived ease of movement) as they made the decision to voluntarily leave. This is presented in Figure 1. An individual's perceived desirability of movement is a function of job satisfaction. When the individual's satisfaction is high, the individual would not have a desire to move. This would be balanced, however, against the perceptions one has regarding alternatives. For instance, it would be plausible for those that are extremely satisfied to still leave if they felt they had a great number of more desirable alternatives

(i.e., extra-organizational alternatives in Figure 1). Along the same lines, those that might be dissatisfied may still remain if few alternatives were perceived. March and Simon (1958) went on to suggest that turnover might be avoided if the organization effectively balanced incentives with employee contributions. The goal would be to reach a state of equilibrium between inducements and contributions (Hom & Griffeth, 1995). If the employee feels that their contributions are being matched by the inducements, then there is no desire to leave the organization (Olsen, 2008).

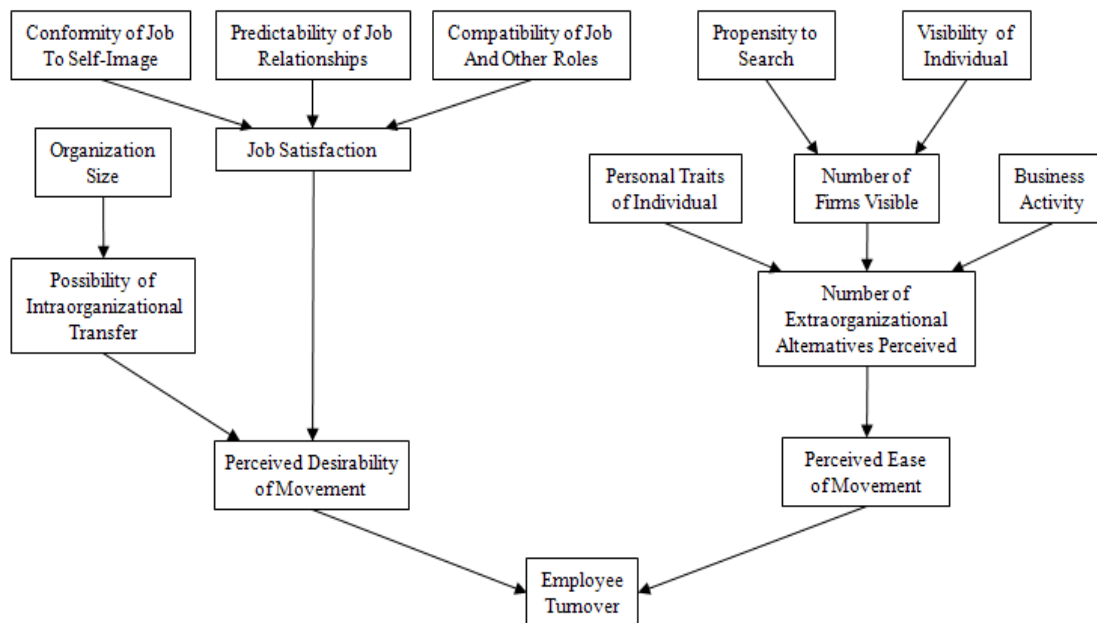


Figure 1. March and Simon's Model of Motivation (Hom & Griffeth, 1995)

Mobley (1977) identified a more comprehensive model to describe the withdrawal process and shed light on the sequence of steps employees tend to go through before voluntarily leaving. This model is presented in Figure 2 and suggests a number of possible mediating steps between dissatisfaction and actual turnover. In sum, Mobley (1977) evaluated the psychology of the withdrawal process and suggested that the

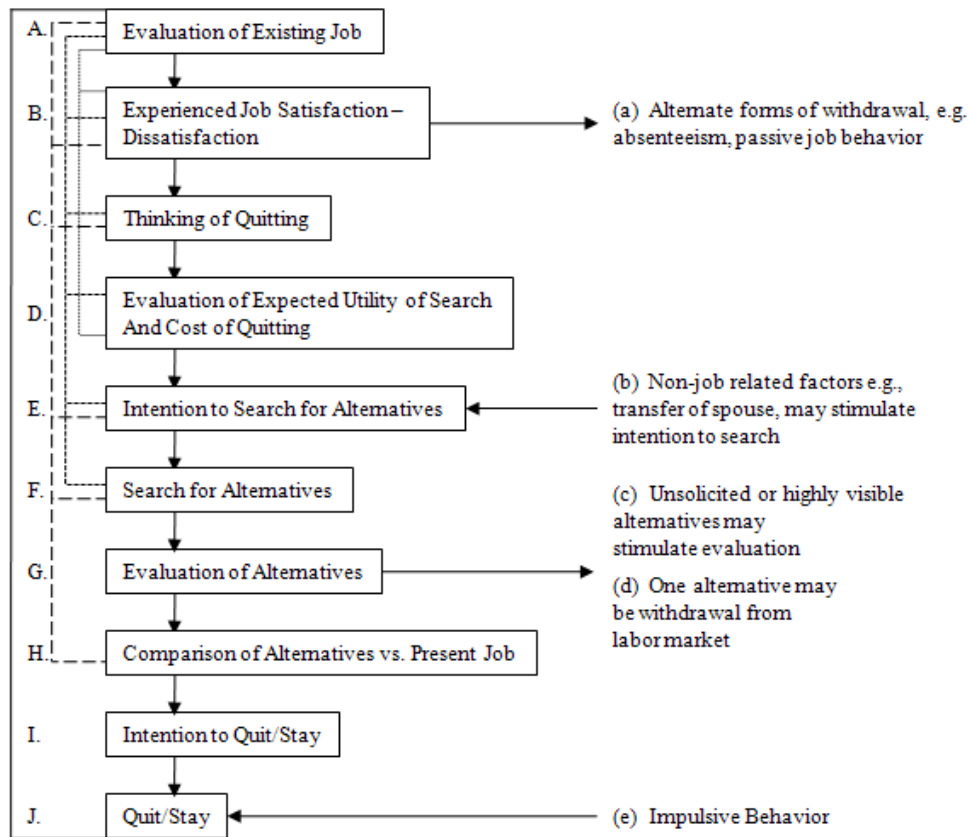


Figure 2. The employee turnover decision process (Mobley, 1977)

decision to leave an organization included a set of withdrawal cognitions (e.g., thoughts of quitting, expected utility of withdrawal) and job search behaviors (e.g., job search, evaluate alternatives) that link job dissatisfaction to actual turnover behavior. Generally consistent with what March and Simon (1958) proposed, individuals begin the process of evaluating their current jobs and those that are dissatisfied will have thoughts of quitting. These feelings of dissatisfaction are balanced and weighed by also considering the perceived costs associated with quitting. Presumably, individuals will begin searching for alternative employment only when they believe there will be some return or improvement over their current position. Mobley and his colleagues (1979) expanded

this framework in a subsequent effort, positing that employee values, job perceptions, and labor market perceptions combined to influence withdrawal intentions via the linkages (Holtom et al., 2008). Similar to the initial model proposed by Mobley (1977), Mobley, Griffeth, Hand, and Megilo (1979) proposed that intentions to quit were the primary antecedent to turnover. This effort was among the first to identify potential moderating effects on the turnover decision and provided the basis for a heuristic model demonstrating many indirect and direct influences on turnover (Hom & Griffeth, 1995).

In support of Mobley (1977), Price and Mueller (1981) suggested that insights into the evaluations, choices, and turnover decisions are gained by the understanding of an individual's job satisfaction and commitment, a development based on the earlier work of Price (1977). This model is presented in Figure 3. Price and Mueller (1981) suggested that turnover was predicted by an individual's intentions to stay and other opportunities which integrate the ideas from March and Simon (1958) as well as Mobley (1977). These intentions were a function of job satisfaction and other factors such as the generalized training the individual has. Several factors, in turn, influenced one's job satisfaction. These included attitudes toward pay, perceived fairness of decision (i.e., distributive justice), opportunities for advancement, and the routine nature of work which identified the antecedents of job satisfaction and intent to leave and added organizational commitment as a mediator between the two variables. Price and Mueller (1981) performed a longitudinal test of their model and identified the four most important determinants of turnover to be intention to stay, opportunity, general training, and job satisfaction.

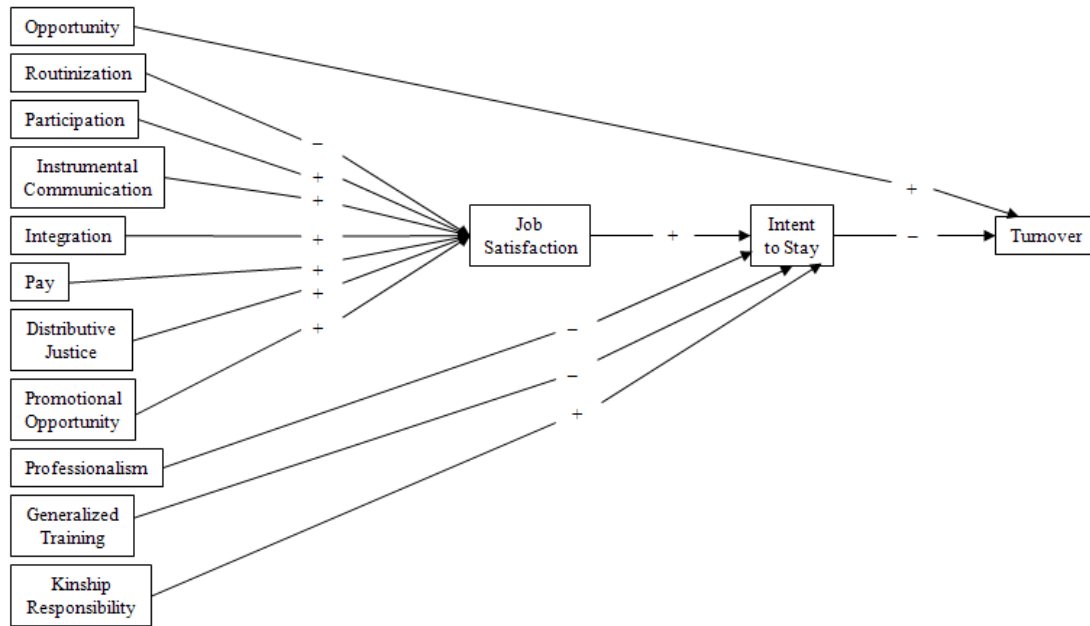


Figure 3. The causal model of turnover (Price and Mueller, 1981)

In looking at the earliest models of turnover, the basic tenet has been that turnover decisions are centered on one's job satisfaction and intentions. These intentions are then linked to actual turnover behavior. Steel and Ovalle (1984) conducted a meta-analysis of 34 studies and determined that job satisfaction and behavioral intentions did indeed account for 50% of the variability in turnover decisions. More recently, Griffeth, Hom, and Gaertner (2000) has further confirmed the predictive strength of the determinants proposed within these historical models. Using meta-analytic techniques, they found that job satisfaction, job search, comparison of alternatives, withdrawal cognitions, and quit intentions have been among the best predictors of actual turnover decisions. Over time, researchers have incorporated more predictors of an individual's intentions, like his or her organizational commitment, and investigated the antecedents of these predictors (Holtom et al., 2008). Moreover, they have examined the role that other

contextual variables play in turnover decisions. Pfeffer and Davis-Blake (1992), for instance, proposed that pay dispersion predicted turnover among university administrators such that turnover was lower at institutions with more compressed pay structures. O'Reilly, Caldwell, and Barnett (1989) concluded that heterogeneity in tenure led to lower levels of group social integration and ultimately influenced individual turnover. Others have examined additional negative personal conditions such as exhaustion and stress (Holtom et al., 2008). Most of these studies, however, have one or two independent variables with voluntary turnover as the dependent variable. Van de Ven and Johnson (2006) suggest that “one has a much greater likelihood of making important knowledge advances to theory and practice if the study is designed so that it juxtaposes and compares competing plausible explanations of the phenomena being investigated” (p.814). A study with multiple independent variables within the same context would provide a better understanding of the behaviors that take place.

Integrating this research into the relatively simple model shown in Figure 4, turnover intentions appear to be influenced by satisfaction and commitment. In turn, satisfaction and commitment are subsequently influenced by economic, organizational, and individual characteristics. Economic characteristics include variables such as perceived job alternatives, general job availability, and one's wage relative to one's expected changes in wages at other jobs. Organizational characteristics include variables such as performance, pay distribution, and perceived organizational support. Individual characteristics include variables such as self-confidence, conscientiousness, negative affectivity, and family status (e.g., marital status, dependent children). Holtom et al.'s

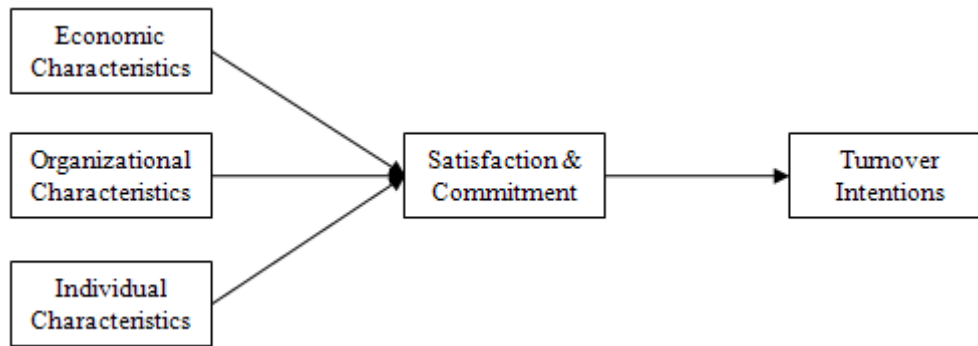


Figure 4. General turnover model

(2008) recent qualitative review of turnover research indicated that the last decade of turnover has been marked by major trends that are consistent with this model. These trends include (a) new studies of individual difference predictions of turnover (e.g., Barrick & Zimmerman, 2005; Maertz & Campion, 2004; Bauer, Erdogan, Liden, & Wayne, 2006), (b) a continued focus on stress- and change-related attitudes (e.g., an evaluation of the organizational characteristics) (e.g., Wanberg & Banas, 2000; Cavanaugh, Boswell, Roehling, & Boudreau, 2000; Podsakoff, LePine, & LePine, 2007), (c) an increased focus on contextual variables with an emphasis on interpersonal relationships (e.g., interpersonal citizenship behaviors) (e.g., Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002; Kammeyer-Mueller & Wanberg, 2003), (d) an enhanced focus on factors looking specifically at staying (e.g., organizational commitment and job embeddedness) (e.g., Mitchell, Holtom, Lee, Sablinski, & Erez, 2001; Lee, Mitchell, Sablinski, Burton, & Holtom, 2004; Allen 2006), and (e) expansion of our understanding of previously identified relationships (e.g., Meyer, Stanley, Herscovitch, & Topolnytsky, 2002; Vandenberghe, Bentein, & Stinglhamber, 2004).

Review of Research Related to Key Turnover Variables and Hypotheses

Clearly, the historical review of turnover has suggested that it has received considerable attention from researchers over the decades (Hom & Griffeth, 1995; March & Simon, 1958; Mobley, 1977; Price & Mueller, 1981; Steele & Ovalle, 1984). As noted, Holtem et al. (2008) indicated that there are over 1,500 academic studies published on turnover which have explored myriad aspects of the issue. It is beyond the scope of this manuscript to address each of those issues. Instead, several salient variables are reviewed. These were selected for several reasons. First, they align theoretically with the historical (and the integrated) models that were presented. Second, there is considerable empirical support linking these variables to turnover. Finally, they are appropriate as the military context is considered.

This final point warrants some consideration due to the unique nature of the military environment. Within the military setting, turnover has been studied in similar ways to that of the civilian sector. It has primarily focused on the systematic evaluations that individuals have about the job (Holt et al., 2007). Although the research has been centered on the same areas, differences between civilian organizations and military organizations suggests that they should be treated as unique contexts with unique features. For example, civilians are provided with the liberty to leave an organization immediately when an unexpected job opportunity appears (consistent with the theory posited by March & Simon (1958) where a satisfied member leaves), while a military member is required to fulfill their commitment before they are allowed to terminate their service (Holt et al., 2007; Steel, 1996). Further, the military has unique demands.

Service members are frequently required to spend extended time away from their families to attend military schools; train for war; or conduct humanitarian, peacekeeping, or combat operations (Castro & Alder, 2005). These demands suggest a unique organizational variable that influences turnover decisions, termed operations tempo (which will be discussed in more detail in a subsequent section).

Job Satisfaction & Commitment

As presented in the integrated model (see Figure 4), job satisfaction and commitment are key factors that influence turnover decisions. Due to the result of its significant influence on an individual's well-being, job satisfaction has been extensively studied since the 1930s and has been linked to numerous negative outcomes (Sanchez, Bray, Vincus, & Bann, 2004). With respect to an individual level, a person that is not satisfied with their job may endure frustration, aggression, psychological withdrawal, poor physical health, shortened life span, mental health problems, and lower overall life satisfaction (Harpaz, 1983). At the organizational level, studies have consistently shown that the effects of lower job satisfaction are linked to higher turnover, more absenteeism, a higher volume of grievances, and decreased job performance (Harpaz, 1983; Lawler, Hackman, & Kaufman, 1973).

Job satisfaction is generally assessed as an attitudinal variable (Spector, 1997). Tett and Meyer (1993:261) defined job satisfaction "to be one's affective attachment to the job viewed either in its entirety (global satisfaction) or with regard to particular aspects (facet satisfaction; e.g., pay, promotion, operating conditions, nature of work)." Spector (1997:2) simplified the definition of job satisfaction and identified it as "how

people feel about their jobs and different aspects of their jobs. It is the extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs.”

As noted in the historical review, turnover researchers have identified job satisfaction as the centerpiece of many models that is influenced from both inside and outside of the organization (Spector, 1997). From the previous discussion, it appears that where studies have differed is in the specific factors that researchers have suggested to have an influence on this key variable. Regardless of the specific differences, job satisfaction does appear to be a central piece of one’s turnover decision. Tett and Meyer (1993), in a meta-analytic review of the literature published, found that a mean correlation of $-.58$ existed between job satisfaction and intention to quit. The results from their effort supported those conclusions identified in previous research which found that job satisfaction correlates well with intention to quit (e.g., Blau, 1993; Shore, Newton, & Thornton, 1990).

In a military context, research has shown that military personnel tend to report lower levels of job satisfaction than civilian employees (Blair & Phillips, 1983; Bowers, 1976; Fredland & Little, 1983; Woodruff & Conway, 1990). Sanchez and colleagues (2004) suggested that job satisfaction in the military may be different due to the inherent stressors and compensation associated with the work environment. Differences between military and civilian employment are aspects such as separation from family, friends, and a familiar environment; dangerous and unpleasant conditions; long and irregular hours; low pay; and frequent rotation (Olsen, 2008). Blair and Phillips (1983) found that

service personnel had a significantly lower level of job satisfaction than civilians on 17 of 18 facets used to measure job satisfaction (the one exception was job security).

Despite this growing literature that suggests differing levels, little effort has shown the outcomes, like turnover, that may be related to the service member's job satisfaction. Still, earlier efforts (e.g., Bluedorn, 1982; Mobley et al., 1979; Blau, 1993; Shore et al., 1990) that identified the relationship between an individual's job satisfaction and turnover (i.e., intention to leave and actual turnover) provide strong support that the relationship may exist. Based on this, the following hypothesis is presented:

H1: Job Satisfaction will have a significant relationship with intention to leave in such a way that decreased job satisfaction will increase the individual's intention to leave.

Organizational commitment is the other central aspect of employee and organizational linkages that has received considerable attention. Mowday, Porter, and Steers (1982) suggest that organizational commitment be understood as the relative strength of an individual's identification and involvement with a particular organization. Further, organizational commitment can be divided into three separate dimensions, namely, a strong belief in and acceptance of organizational goals and values, a willingness to exert considerable energy on behalf of the organization, and a strong desire to maintain membership in the organization (Mowday et al., 1982). From this idea, Meyer and Allen (1991) suggested three general types of commitment. These have been referred to as affective, continuance, and normative commitment (e.g., Meyer & Allen, 1997; Gade, 2003). Affective commitment represents an individual's emotional attachment, or identification, with an organization (Gade, 2003). Continuance commitment represents the feeling that an individual has to continue within the

organization because it would be hard to find another job or because they have too many years invested within the organization to leave (Gade, 2003). Normative commitment represents an individual's moral obligation to remain with the organization (Gade, 2003).

It has been proposed that each form of commitment is a particularly powerful predictor in an employee's intention to leave the organization and with turnover behavior; this is because of its presumed sensitivity to characteristics of the work environment (Brockner, Tyler, & Cooper-Schneider, 1992; Meyer & Allen, 1991; Mowday et al., 1982; Meyer & Allen, 1997). Meyer and Allen (1991) argued for each form of commitment that (a) an employee with strong affective commitment feels an emotional attachment to the organization and therefore will be less likely to choose to be absent from work and will be motivated to perform better on the job, (b) an employee with strong continuance commitment stays with an organization, not for reasons of emotional attachment, but because of a recognition that the costs associated with doing otherwise are simply too high, however it is negatively related to attendance and other performance indicators, and (c) an employee with strong normative commitment is tied to the organization by feelings of obligation and duty; therefore an employee with strong normative commitment will have a positive relationship with their work behavior (i.e., job performance, work attendance, and organizational citizenship). These relationships then have an effect on the employee's retention. With respect to turnover, while negative correlations are strongest for affective commitment, significant relationships between commitment and turnover variables are found for all three conceptualizations of commitment (Meyer & Allen, 1997).

Meyer, Allen, and Smith (1993) tested this, attempting to demonstrate that organizational commitment contributes to the understanding of work behavior. Among the significant findings from their study, turnover intentions were linked to organizational commitment. Others have consistently found that organizational commitment was negatively associated with turnover intentions as well as behavioral components of turnover (Griffeth et al., 2000; Mathieu & Zajac, 1990; Tett & Meyer, 1993). In sum, regardless of the reason, intentions to quit tend to be diminished among those employees with a strong commitment to the organization.

The growing body of research demonstrates the importance of understanding organizational commitment; however, while it is a vital concern to military organizations, there have been relatively few studies on organizational commitment conducted with military personnel. Based on the Meyer and Allen model (1997), Gade, Tiggel, and Schumm (2003) is a notable exception. They examined the relationship between a soldier's affective commitment and continuance commitment and their intentions to stay in the service. Their research supported their predictions; soldiers' intentions to stay in the service were positively affected by both measures of commitment (i.e., affective and continuance). Due to the relationship between organizational commitment and employee retention, the military has recently been interested in the connection between these two variables (Allen, 2003). Given this and the significance of the findings from previous research, the following is hypothesized:

H2: Organizational commitment will have a significant relationship with intention to leave in such a way that decreased organizational commitment will increase the individual's intention to leave.

Economic Characteristics

Labor market. The availability of job alternatives has been widely regarded as a precondition to personal mobility; March and Simon (1958) originally conceived the ideas of perceived ease of movement, as well as perceived desirability of movement, as prime motivators of employee decisions to participate within or leave organizations (see Figure 1). Turnover researchers have continued to expect significant relationships between measures of job availability and turnover criteria (Steel, 1996). However, the multidimensional construct March and Simon (1958) suggested has been simplified. Typically, the availability of alternatives has usually been measured with perception-based, self-report questionnaires using a simplistic one-item or short multi-item scale (Steel & Griffeth, 1989) to measure job market variables (e.g., Mobley, Horner, & Hollingsworth, 1978; Price & Mueller, 1981; Jackofsky & Peters, 1983). Studies which have explored the relationship between these perceptions and turnover intentions have consistently reported weak correlations (Griffeth et al., 2005). When reviewing the literature, Steel and Griffeth (1989) found an average corrected correlation of .13 between the measures of perceived alternatives and turnover intentions. Hom, Caranikas-Walker, Prussia, and Griffeth (1992) supported the findings of Steel and Griffeth (1989) and identified a .14 correlation between the two measures.

Confronted with the empirical evidence (e.g., Steel & Griffeth, 1989; Hom et al., 1992; Griffeth, Hom & Gaertner, 2000), scholars attempted to reconcile the weak findings by arguing that labor market perceptions may be a more complex idea and the measures that have been used to study the issue are flawed (Griffeth et al., 2005). Steel

and Griffeth (1989) found that the typical perceived alternatives instrument was a one-item rating scale. They go on to argue that these single-item measures may overlook key facets of the issue. They, in fact, identified six dimensions related to job market perceptions: the quantity and quality of alternatives (i.e., March & Simon, 1958), crystallization of alternatives (i.e., the concreteness of an individual's employment alternatives (Steel & Griffeth, 1989)), accessibility of alternatives, individual mobility, and individual access to a network of job availability information (Griffeth et al., 2005). Using this framework, Griffeth and colleagues (2005) have since developed a multidimensional construct to measure job market perceptions. The development of their construct involved a rigorous process that consisted of three studies to build and validate their proposed measures. Study 1 developed the construct and assessed the internal consistency and dimensionality of the measures. Study 2 revised some of the items from Study 1, replicated the analysis from Study 1, and conducted a confirmatory factor analysis. Study 3 cross-validated the revised measures from Study 2 and examined convergent, discriminate, and predictive validity. In the end, the results from their study found extensive support for the construct validity of their scales and identified five factors to measure job market perceptions, namely, (a) ease of movement, (b) desirability of movement, (c) networking, (d) crystallized alternatives, and (e) mobility.

Despite the weak relationship between job alternatives and turnover that has been observed, the perceived relationship is still of significant concern to organizations especially within a military context. Many have argued that the civilian labor market influences military retention; yet the relationship has received little attention (e.g., Steel,

1996). This absence of research may be related to the lack of control that a service member has over the timing of a turnover decision. Nonetheless, Steel (1996) concluded that a relationship existed between perceived number of job alternatives and reenlistment of a service member. Consistent with what he hypothesized, there was a significant negative relationship between the two variables ($r = -.18$); however, he did not account for the effect of other established predictors of turnover (e.g., job satisfaction or intention to quit) and focused exclusively on measures of job availability. Findings from Steel (1996) and the recommendation to integrate the multidimensional instrument into the contemporary turnover frameworks (Griffeth et al., 2005) provides support to further explore the relationship within the current military environment:

Organizational Characteristics

Perceived organizational support. Research suggests that employees in an organization form global beliefs concerning the extent to which the organization values their contributions and cares about their well-being (Eisenberger, Huntington, Hutchison, & Sowa, 1986), dubbing this general belief as perceived organizational support. Employees desire affection and want to know that their effort is appreciated by their organization. Several antecedents have been suggested to influence an employee's perceived organizational support, namely, (a) job conditions (Eisenberger, Rhoades, & Cameron, 1999), (b) supervisor support (Settoon, Bennett, & Liden, 1996), (c) personality (Aquino & Griffeth, 1999), and (d) human resource practices (Wayne, Shore, & Liden, 1997). Perceived organizational support is also related to a variety of work-related outcomes. An employee's perception that their organization supports and cares

about them is positively related to work attendance (Eisenberger et al., 1986), job performance (Eisenberger, Fasolo, & Davis-LaMastro, 1990), citizenship behaviors (Shore & Wayne, 1993), job satisfaction (Eisenberger, Cummings, Armelo, & Lynch, 1997), and affective commitment to that organization (Eisenberger, Fasolo, & Davis-LaMastro, 1990; Shore & Wayne, 1993; Wayne et al., 1997).

With regards to turnover, research has suggested that employees with high perceived organizational support would be less likely to quit their job and look for or accept an alternate job (Eisenberger et al., 1990). In turn, these employees would more likely feel obligated to “repay” the organization (Shore & Wayne, 1993). More recently, Allen, Shore, and Griffeth (2003) considered perceived organizational support as a key antecedent to organizational commitment and job satisfaction, which in turn are negatively related to turnover intentions, which are positively related to actual turnover behavior. Their theoretical model is shown in Figure 5. The efforts from their study found that perceived organizational support was significantly negatively related to turnover intentions, thereby supporting their hypothesis that employees with a high perception of organizational support were less likely to withdraw. More importantly, they concluded that the relationship between perceived organizational support and turnover was mediated by organizational commitment and satisfaction, suggesting that perceived organizational support is a distal determinant of turnover through its effect as a critical antecedent to commitment and satisfaction (Allen et al., 2003).

The argument is consistent with March and Simon (1958) in that an employee’s decision to stay in the organization is based on the balance between the inducements

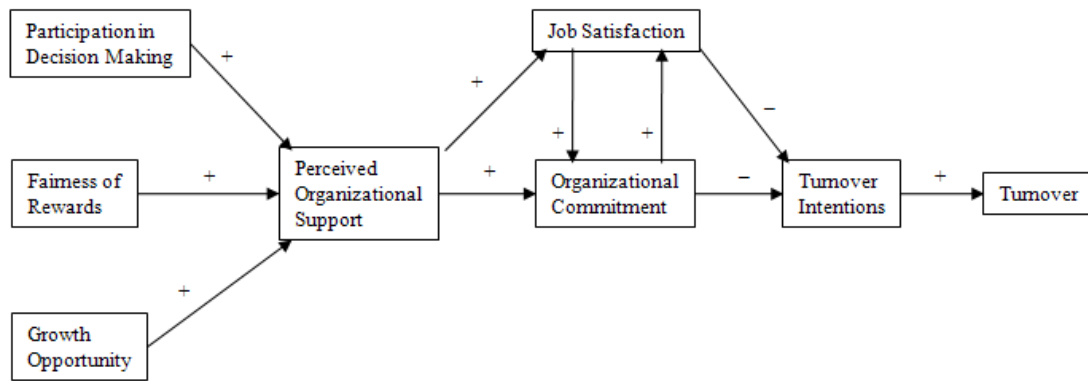


Figure 5. Perceived organizational support – Theoretical model (Allen et al., 2003)

offered by the organization and the contributions expected of the employee (Allen et al., 2003). In this context, inducements are not necessarily the rewards and benefits that the employee receives, yet instead they are the support extended by the organization. An organization that offers inducement by how it values and cares for an employee may develop a positive perceived organizational support, creating an obligation that the employee feels they must repay to the organization (Allen et al., 2003). Research suggests that perceived organizational support is negatively related with an employee's intention to quit (e.g., Wayne et al., 1997), but more research is needed to support that an empirical relationship exists between perceived organizational support and turnover (Griffeth, Hom, & Gaertner, 2000). Further, the literature also needs to extend the review of the relationship and effects of perceived organizational support within the military.

Based on these findings, the following is hypothesized:

H3: Perceived organizational support will have a significant relationship with a service member's intention to leave the military in such a way that decreased perceived organizational support will increase the individual's intention to leave.

Family concerns. Although traditional gender roles are no longer a common practice among households (i.e., single-earner families), central points of adult life still remain to be family and work; however, the expectations of them are not always compatible and ultimately can create conflicts between work and family life (Bryon, 2005; Netemeyer et al., 1996). Work-family conflict (also termed work interference with family) and family-work conflict (also termed family interference with work) (Byron, 2005) are organizational terms used to discuss the effects of this balance and are understood as “a form of inter-role conflict in which the role pressures from the work and family domains are mutually non-compatible in some respect. That is, participation in the work (family) role is made more difficult by virtue of participation in the family role” (Greenhaus & Beutell, 1985, p. 76). This subject is an important topic of research in organizational behavior and efforts made in recent years have significantly advanced the understanding of how work affects family life and vice versa (Frone, Russell, & Cooper, 1992; Greenhaus & Beutell, 1985; O’Driscoll, Ilgen, & Hildreth, 1992). The effects of these conflicts are a significant concern to an organization. Research has found that these conflicts between family life and work life have led to job dissatisfaction, job burnout, and turnover (Burke, 1988; Frone et al., 1992; Greenhaus, 1988; Pleck, Staines, & Long, 1980; Tramel, 2008). A common agreement among the early research efforts is that general demands of a role, the time devoted to a given role, and the strain produced by a given role are domain elements used to define work-family conflict and family-work conflict (Netemeyer, Boles, & McMurrian, 1996).

A meta-analysis performed by Mesmer-Magnus and Viswesvaran (2005) identified eight categories of external variables that are generally reviewed in studies of work-family conflict and family-work conflict: (a) job related stressors (e.g., work – role ambiguity, job stress, lack of autonomy in performing work functions, etc.), (b) level of support received from work environment (e.g., presence of company-sponsored work/family policies and programs, work culture conducive to dealing with conflicting family demands, etc.), (c) organizational attachment and commitment, (d) behaviors indicative of organizational withdrawal (e.g., intent to leave), (e) job/career satisfaction, (f) life satisfaction (e.g., involvement in activities with the family domain, emotional support from family members), (g) physical and mental health (e.g., clinical depression, emotional exhaustion, etc.), and (h) other non-work or family-related issues. Mesmer-Magnus and Viswesvaran's (2005) effort concluded that a correlation existed for both work-family conflict and family-work conflict with six of the eight identified external variables. More interesting, work-family conflict and family-work conflict had similar correlations with organization withdrawal (i.e., intent to leave). This conclusion is consistent with previous efforts (e.g., Goff, Mount, & Jamison, 1990; Burke, 1988) identifying that work-family conflict and family-work conflict were predictive of tardiness, absenteeism, family-related interruptions at work, and intent to leave the organization.

The importance of work-family conflict has not gone unnoticed within the military (Adams, King, & King, 1996). Members of the military are frequently separated from their families for extended periods of time; even when they are not, the level of

workplace demands strains the healthiest of families (Bartone, Adler, & Vaitkus, 1998; Britt & Bliese, 2003; Caldwell & Gilreath, 2002; Castro & Alder, 2000). Given these unique demands the work environment exhibits, the following is hypothesized:

H4: Work (family)-family (work) conflict will have a significant relationship with intention to leave in such a way that increased work (family)-family (work) conflict will increase the individual's intention to leave.

Operations tempo. Although work-family conflict captures some of the challenges that military members are confronted with, operations tempo is a unique term that is specific to the military and relates to the demands the job imposes on its members. Military turnover literature has defined this term several ways and has identified different facets to capture its meaning. For example, studies have defined operations tempo as the number of deployments (e.g., Adler et al., 1997; Reed & Segal, 2000; Huffman et al., 2005), time away from home station (e.g., Sticha, Sadacca, Difazio, Kneer, Hogan, & Diana, 1999; Sullivan 1998), and long work hours (Giacalone, 2000). With the demands on military members being high and the operations in Iraq and Afghanistan requiring more intensive and more prolonged use of U.S. military power than at any time since the Vietnam War (Hosek, Kavanagh, & Miller, 2006), soldiers are frequently exposed to war-zone stressors, harsh environments, and separation from family (Hoge, Castro, Messer, McGurk, Cotting, & Koffman, 2004). In addition, deployments are also longer and more frequent than those that occurred during the U.S. military's peacekeeping operations (Castro & Alder, 2005). Some service members are experiencing their second and third tour to support operations in the Middle East, and it is not uncommon for these service members to be home for only six months before they are tasked to deploy again

(Hosek et al., 2006). These current demands have sparked an interest in the extent to which they effect individuals' emotions, as well as their intended behaviors as a result of those emotions.

While deployments are considered one of the most visible indicators of operations tempo, it is important to understand this is a multi-faceted construct that has been operationalized in several different ways. A review of the literature indicated that operations tempo is reflected in garrison workloads, training time, and time in deployed environments (e.g., the number and frequency of times a service member deploys, the number of days a service member spends on training exercises, and the number of hours a service member works each week) (Castro & Alder, 2005). Huffman et al. (2005) defined operations tempo as “the rate of military operations as measured by deployments, training exercises, temporary duty (TDY) assignments, and work hours” (p. 176). This definition is also consistent with the study performed by Olsen (2008).

The relevance of operations tempo emerged in the turnover research in the early 1990s as the size of the military shrunk and military operations increased throughout the world (Castro & Alder, 1999). Since its addition into the military turnover literature, operations tempo has been studied extensively (e.g., Sullivan, 1998; Reed & Segal, 2000; Castro, Huffman, Adler, & Bienvenu, 1999; Alder, Castro, & Bartone, 1997) and is commonly used to explain service members' intentions to leave the military (Huffman, Adler, Dolan, & Castro, 2005). The lack of standardized measures, unfortunately, makes it difficult to compare the results across studies.

Still, one could conclude that operations tempo influence on turnover is inconsistent (Huffman et al., 2005). Studies have reported that high operations have a significant positive relationship with an individual's intention to leave (Giacalone, 2000; Alder, Castro, & Bartone, 1997; Sullivan 1998), while other efforts reported that high operations tempo have a negative relationship with an individual's intention to leave (Castro et al., 1999). Additional studies identified that a relationship between the two factors did not exist (Reed & Segal, 2000). More recently, Huffman and colleagues (2005) combined measures of deployments, training exercises, TDY assignments, and work hours to identify a soldier's operations tempo. Using three instruments (i.e., a general operations tempo survey, a career decisions survey, and a brief interview) these researchers collected data over a 20-month period and used the information to identify the effects of operations tempo on soldiers' career intentions. Their effort concluded that role overload related to work hours had a stronger relationship with turnover than a workload measure of work hours. Further, their research offered support to suggest that the relationship between operations tempo and turnover intentions may be curvilinear (i.e., at very low and very high levels of operations tempo, turnover intentions are high. At moderate levels of operations tempo, turnover intentions are low) (Huffman et al., 2005). In an effort to replicate these findings, Olsen (2008) explored the effect of operations tempo on a large population of Air Force members. His efforts reviewed the results of a survey administered in 2004 (n = 2,171); however, the results from his study did not identify a curvilinear relationship between operations tempo and turnover intentions.

The inconsistent findings identified throughout the operations tempo research support the need to further explore the relationship, suggesting that conclusions cannot be made based on earlier findings. Considering these inconsistent findings and the changes in the current environment, the following is hypothesized:

H5: Operations tempo will have a significant relationship with intention to leave in such a way that increased operations tempo will increase the individual's intention to leave.

Individual Characteristics

To provide a true understanding of the subject, turnover research must take into account key demographic variables (Huffman et al., 2005). In the employee turnover literature, these individual characteristics (e.g., marital status, age, education, or number of dependents) have been studied extensively and have been linked to turnover (Holt et al., 2007). In a meta-analytical review of employee turnover, Cotton and Tuttle (1986) found that demographic variables such as age, marital status, and number of dependents all had a negative relationship with regards to turnover. In addition, they identified that the level of education had a positive relationship with regards to turnover. Hom and Griffeth (1995) conducted a meta-analysis of the turnover literature which was later updated in an effort to offer a final review of the turnover research in the 20th century, as well as extend the effort of Cotton and Tuttle (1986) by estimating the size and variability of predictor-quit relationships rather than only their statistical reliability (Griffeth et al., 2000). Their effort identified few demographic attributes that influenced turnover, namely, age, number of children, and tenure. With the inclusion of the added

publications, the results from their study reflected the findings presented in the Hom and Griffeth (1995) effort (Griffeth et al., 2000).

Provided the unique nature of the military, few studies on military turnover have addressed the relationship between individual demographics and turnover behavior. When reviewing the influence operations tempo had on a population of Army soldiers, Huffman et al. (2005) considered both rank and unit type within their model. Rank was considered because it may play a role in determining the dynamic between operations tempo and turnover given that more junior service members were more likely to report their intention to leave than noncommissioned officers and officers. Their findings identified a significant negative relationship between rank with both turnover intentions and turnover behavior, suggesting that the higher the rank the more likely the individual would not separate from the military (Huffman et al., 2005). In a recent study, Olsen (2008) also studied the effect of rank, as well as gender, on operations tempo and turnover behavior; however, his results did not identify an influence on the relationship between operations tempo and turnover.

Provided the results from the literature and the lack of research considering the demographical influences with the military turnover, it is important to consider individual characteristics and their behavioral influence within a military organization. Given the controlled population of this study, this effort will explore the relationship that individual variables, namely, marital status, number of dependents, and education, have on a member's turnover behavior; and test hypothesis H7 to identify the significant relationships:

H6: Individual characteristics will have a significant relationship with intention to leave in such a way that an increase of individual characteristics will increase the individual's intention to leave.

Summary

This chapter provided a review of the turnover literature and discussed the relationships that have been identified between turnover and several economic, organizational, and individual factors. These conclusions present several possible influences on an individual's turnover intentions and suggest further research be done to explore this behavior. The following chapter will discuss the method used in this study to observe turnover behaviors within an Air Force organization and offer additional knowledge to the body of turnover research.

CHAPTER 2

METHOD

The purpose of this chapter is to outline the procedure used to test the research hypotheses for this study. The data used for this study were collected through the efforts of Tramel (2008) and were used as part of a more limited study, focusing on the member's perception of work-family conflict (WFC), family-work conflict (FWC), job satisfaction, organizational commitment, and turnover intentions.

Participants

The original study was designed to examine how work-family conflict and family-work conflict affected retention of enlisted airmen within a specific occupational specialty in the Air Force, namely, the field of Explosive Ordnance Disposal (EOD). Given this purpose, all active duty, reservists, and guardsmen within this specialty were sampled (i.e., approximately 2,350 members from this occupation were invited to participate). To participate in the survey, subjects must have had at least six months of military service and have completed EOD technical training (Tramel, 2008). All members of the population were categorized into homogenous groups based on available demographic variables. For example, the responses of active duty airmen, Air National Guard, and Air Force Reserve were separated due to the dramatic difference in roles and responsibilities during "in garrison" and deployed location operations (Tramel, 2008). Seven hundred and seventy one completed questionnaires were collected. This sample included responses from Airmen, Non-commissioned Officers (NCO), Senior Non-commissioned Officers (SNCO), and Officers. For the purpose of this study,

questionnaires completed by SNCOs, and Officers, as well as those questionnaires completed by members of the Air National Guard and Air Force Reserve, were removed from the sample ($n = 191$). The SNCO responses were removed because the military's 20-year retirement plan may bias the results when examining turnover intentions. That is, those in the SNCO ranks of the career field may indicate an intention to turnover; however, these intentions may not be related to their job satisfaction and, instead, be related to their plans to retire. Officers ($n = 8$) were removed because the study focused on enlisted members and job differences might encourage different behaviors, ultimately providing inconsistencies in the results. In addition, Air National Guard and Air Force Reserve ($n = 62$) responses were removed because of the difference in their job description when compared to those of active duty members.

After removing these categories from the sample, the total sample size for analysis was 580 (a response rate of 57.9%, assuming that the survey invitation reached all 1,002 active duty individuals of the NCO ranks and below). The sample included 547 (94.3%) males and 31 (5.3%) females (2 participants failed to indicate their gender). The average age of participants was 27.40 years ($SD = 4.68$) with a median of 27 years. Table 1 presents the rank distribution of the participants, giving the number and the percent of the total sample for each rank. Airman, the lowest ranking members, represented approximately 36% of the sample; NCOs represented the remaining 64%. The average years in service for this sample was 7.39 years ($SD = 4.41$) with a median of 6 years. With regards to marital status, 55.2% of the sample were married, 34.7% were single (have never been married), 9.5% of the sample were separated, and

Table 1

Rank Distribution of Survey Responses

Category	Rank	Number	Percent of Sample
Airman	Airman (E-2)	1	0.2%
	Airman First Class (E-3)	48	8.3%
	Senior Airman (E-4)	161	27.8%
NCO	Staff Sergeant (E-5)	245	42.2%
	Technical Sergeant (E-6)	125	21.6%
Total		580	100.0%

0.7% did not indicate their marital status. Of the individuals that were currently married or separated, 19.3% had been divorced 1 or more times.

Procedure

The data were collected using a web-based survey. A letter signed by Major General Del Eulberg, the senior officer in these members leadership chain, was sent to the members. The letter discussed the importance of the survey and emphasized the need to better understand their current attitudes within the career field. This initial invitation was followed with a reminder approximately two weeks later and the survey closed out two weeks after the reminder.

Measures

Unless noted, participants responded to the survey items using a 6-point Likert-type scale. Options included: (a) disagree very strongly, (b) disagree strongly, (c) disagree, (d) agree, (e) agree strongly, and (f) agree very strongly.

Job satisfaction. Specific facets of job satisfaction were measured, namely, pay satisfaction, promotion satisfaction, and work-itself satisfaction. These scales were based on those developed by Spector (1997) and are consistent with previous research on military turnover (DMDC, 2008). Each facet was measured using a total of ten items. An example item (intended to measure promotion satisfaction) was: “Those who do well on the job stand a fair chance of being promoted.” Each facet reported a Coefficient Alpha of .38, .77, and .79, respectively. The Coefficient Alpha of .38 for pay satisfaction resulted in that facet being removed from the analysis.

Commitment. Affective, continuance, and normative commitment were measured with scales adapted from Meyer, Allen, and Smith (1993). Each dimension of commitment (affective, continuance, and normative) was measured with six items. Participants responded to each item twice where they were instructed to consider the Air Force and their occupation (i.e., Explosive Ordnance Disposal occupation) while not directly comparing the two. Each measure reported a Coefficient Alpha of .84 or greater. An example item (intended to measure normative commitment) was: “I would not leave the _____ right now because I have a sense of obligation to the people in it.”

Operations tempo. Operations tempo is a term within academic literature that has been defined several ways. For this study, the definition given by Huffman, Adler, Dolan, & Castro (2005) will be used, defining operations tempo “as the rate of military operations measured by deployments, training exercises, temporary duty (TDY) assignments, and work hours” (p. 176). Operations tempo was captured with two categorical items. First, the participants reported the “number of deployments they had

since 2001.” Second, they reported the total number of days TDY [temporary duty assignments of business trips] they had in the past 18 months to include non-deployment trips (training, exercise, range clearances, security details, professional military education (PME), etc.). Both items had six response options. The response options for number of deployments were: (1) 1-2, (2) 3-4, (3) 5-6, (4) 7-8, (5) 9-10, (6) 10+. The response options for number of days TDY in the past 18 months were: (1) 1-25, (2) 26-50, (3) 51-75, (4) 76-100, (5) 101-125, (6) 126+.

Family concerns. Ten items from Netemeyer, Boles, and McMurrian (1996) were used to measure work-family conflict (WFC) and family-work conflict (FWC). WFC and FWC reported a Coefficient Alpha of .94 and .92, respectively. These items addressed the tensions between individual’s personal and professional lives. One item intended to assess family-work conflict asked, “My home life interferes with my responsibilities at work such as getting to work on time, accomplishing daily tasks, and working overtime.”

Perceived organizational support. Perceived organizational support was measured with 17 items. As with commitment, participants responded to each item twice, considering the Air Force and their occupation. Considering the Air Force, perceived organizational support reported a Coefficient Alpha of .94; considering their occupation (i.e., EOD occupation) reported an Alpha of .96. An example of a statement that the participants were asked to comment on was “help is available from the _____ when I have a problem.”

Life domain. Life domain was measured using two sets of statements with two separate scales. The first set of statements captured the member’s non-work satisfaction

on items related to either their home station location or their deployed location and reported a Coefficient Alpha of .81 and .77, respectively. The items were measured using a 6-point Likert-type scale anchored by (1) very dissatisfied and (6) very satisfied. An example of a statement which the individual was asked to provide their level of satisfaction is “how dissatisfied or satisfied are you with the entertainment/recreation/club facilities that are available?”

The second set of statements captured the member’s level of satisfaction on items related to marital commitment (MC), asking how often the participant and their spouse/partner shared in the item together (Coefficient Alpha = .94). The items were measured using a 7-point Likert-type scale. The member’s were given the options of (0) never, (1) less than once a month, (2) once or twice a month, (3) once or twice a week, (4) once a day, (5) more often, (6) N/A. An example of a question which the members were asked was “how often do you and your spouse engage in outside interests together?”

Individual characteristics. Eight demographic questions were asked; some were open-ended and some were categorical. Age was indicated with an open-ended item (i.e., What is your current age?). Education was indicated with a categorical item where members reported the highest level of education completed ((1) high school/general education development (GED), (2) some college, (3) 2-year college degree (Community College of the Air Force (CCAF), Associate degree), (4) 4-year college degree (Bachelor of Science (BS), Bachelor of Arts (BA)), and (5) Higher Education).

Turnover intentions. Turnover intentions were assessed using four different measures; three of the four measures used the response options described. Two measures captured the participant’s intention to leave the Air Force (Coefficient Alphas of .87

and .74, respectively) and one measure captured their intention to leave the EOD occupation (Coefficient Alpha = .80). An example item included “I am planning to look for a new job within the next year.” The final measure was a single item measure in which individuals were asked to select the category that best described their career intentions. The categories included: (a) definitely stay in until retirement, (b) probably stay in until retirement, (c) definitely stay in beyond present obligation, but not until retirement, (d) undecided, (e) probably leave upon completion of current obligation, and (f) definitely leave upon current obligation. The final measure reported no variance in the responses and was removed from analysis.

Analysis

In an attempt to avoid yea-sayer or nay-sayer bias, positively and negatively phrased items were used throughout the questionnaire. Prior to any analysis, the appropriate items were reverse coded (Alreck & Settle, 2004). Once properly scored, single-variable and multi-variable regression analysis were used to identify the relationship between the independent and dependent variables previously discussed and measure the effects on turnover intentions. For this study, single-variable regression analysis was used to measure the significance of the relationship between each independent variable (e.g., family concerns, commitment) with each dependent variable. In addition, stepwise regression analysis was used to capture the joint contribution of the independent variables with the dependent variables and observe the significance of their relationship.

CHAPTER 3

ANALYSIS & RESULTS

Preface

A summary of the results from this study are provided in the following chapter. The focus of the research was to use existing data collected from airmen within the Explosive Ordnance Disposal (EOD) career field to test the general turnover model (see Figure 4) and identify relevant organizational and individual factors that influence turnover intentions. The primary purpose from the data analysis was to determine the effects that operations tempo had on turnover intentions. Single-variable, multi-variable, and step-wise regression methods were used to identify the relationship between the variables and determine the level of significance that operations tempo had on the influence of turnover intention. From these results, and the findings from previous research on turnover intention, a questionnaire was developed that can be administered to Air Force Civil Engineer officers with the intent to identify the factors that influence voluntary turnover within their career field.

Descriptive Information

Descriptive statistics are presented in Table 2. This table reports the means, standard deviations, and correlations among all of the study variables.

Job satisfaction – Turnover intention relationship. Two specific facets of job satisfaction were measured, namely, promotion satisfaction and general work satisfaction. The hypothesis predicted that each facet of job satisfaction would have a significant negative relationship with turnover intention. As hypothesized, promotion satisfaction

Table 2

Descriptive Statistics

Variable	M	SD	1	2	3	4	5	6	7
Turnover Intention									
1. Intention to Leave Air Force (Measure 1)	4.43	1.28	-						
2. Intention to Leave Air Force (Measure 2)	4.30	1.26	.58**	-					
3. Intention to Leave EOD	2.74	1.48	.37**	.26**	-				
Job Satisfaction									
4. Promotion Satisfaction	3.33	0.78	-.24**	-.26**	-.13**	-			
5. Work Satisfaction	4.88	0.93	-.24**	-.17**	-.48**	.12**	-		
Organizational Commitment									
6. Affective Commitment – Air Force	2.61	1.06	-.34**	-.63**	.01	.24**	.07	-	
7. Normative Commitment – Air Force	2.47	1.05	-.48**	-.71**	-.17**	.23**	.13**	.75**	-
8. Continuance Commitment – Air Force	2.59	1.21	-.44**	-.60**	-.14**	.15**	.04	.46**	.56**
9. Affective Commitment – EOD	4.94	1.00	-.26**	-.06	-.63**	.06	.56**	-.08	.02
10. Normative Commitment – EOD	4.28	1.35	-.36**	-.17**	-.72**	.09*	.47**	-.03	.24**
11. Continuance Commitment – EOD	3.17	1.18	-.39**	-.29**	-.53**	.06	.25**	.10*	.28**
Operations Tempo									
12. Number of Deployments	1.49	0.63	.00	.02	.01	.02	.08	.04	.00
13. Number of Days TDY	3.03	1.66	.05	.06	.05	-.12**	-.04	.09*	-.07
Family Concerns									
14. Work Family Conflict	4.32	1.00	.33**	.22**	.22**	-.24**	-.05	.10*	-.24**
15. Family Work Conflict	2.71	0.88	.09*	.05	.06	-.06	-.14**	.04	-.02
Organizational Support									
16. Perceived Organizational Support – Air Force	2.50	0.86	-.34**	-.51**	-.03	.40**	.04	.66**	.61**
17. Perceived Organizational Support – EOD	4.12	0.99	-.27**	-.08	-.57**	.17**	.48**	-.05	.05
Life Domain									
18. Non-work Satisfaction – Home Station	4.13	0.86	-.10*	-.20**	-.09*	.21**	.17**	.15**	.16**
19. Non-work Satisfaction – Deployed Location	3.79	0.93	-.13**	-.16**	-.25**	.10*	.22**	.02	.02
20. Marital Commitment	4.01	1.36	-.05	-.04	-.08	.12**	.09*	-.06	-.06
Individual Characteristics									
21. Marital Status	1.75	0.62	.04	-.01	.03	-.09*	.02	.03	-.02
22. Children	0.42	0.49	.01	-.01	.02	-.12**	.04	.08	-.01
23. Education	2.23	0.71	.11**	.07	.16**	-.11**	-.10*	.00	-.04

** Correlation is significant at the .01 level (2-tailed)

* Correlation is significant at the .05 level (2-tailed)

Table 2 (continued)

Variable	8	9	10	11	12	13	14	15	16
Turnover Intention									
1. Intention to Leave Air Force (Measure 1)									
2. Intention to Leave Air Force (Measure 2)									
3. Intention to Leave EOD									
Job Satisfaction									
4. Promotion Satisfaction									
5. Work Satisfaction									
Organizational Commitment									
6. Affective Commitment – Air Force									
7. Normative Commitment – Air Force									
8. Continuance Commitment – Air Force	-								
9. Affective Commitment – EOD	-.02	-							
10. Normative Commitment – EOD	.11**	.71**	-						
11. Continuance Commitment – EOD	.59**	.32**	.50**	-					
Operations Tempo									
12. Number of Deployments	-.01	.03	.01	-.05	-				
13. Number of Days TDY	-.07	-.03	-.02	-.11**	.20**	-			
Family Concerns									
14. Work Family Conflict	.09*	-.05	.16**	-.14**	.20**	.19**	-		
15. Family Work Conflict	.03	-.10*	-.07	-.02	.08	.03	.18**	-	
Organizational Support									
16. Perceived Organizational Support – Air Force	-.36**	-.13**	-.02	.09*	-.03	-.09*	-.25**	.08	-
17. Perceived Organizational Support – EOD	-.07	.64**	.62**	.31**	-.06	-.11**	-.20**	-.10*	.05
Life Domain									
18. Non-work Satisfaction – Home Station	.06	.10*	.11**	-.03	.00	.06	-.09*	-.09*	.22**
19. Non-work Satisfaction – Deployed Location	.03	.20**	.25**	.09*	-.08	-.03	-.23**	-.08*	.18**
20. Marital Commitment	-.05	.06	.08	-.01	-.06	-.04	-.19**	-.09*	.02
Individual Characteristics									
21. Marital Status	.08	-.01	-.07	.02	.23**	.08*	.27**	.07	-.01
22. Children	.12**	.04	-.01	.05	.22**	.09*	.29**	.08	-.05
23. Education	-.10*	-.12**	-.08*	-.17**	.07	.11**	.13**	.06	.00

** Correlation is significant at the .01 level (2-tailed)

* Correlation is significant at the .05 level (2-tailed)

Table 2 (continued)

Variable	17	18	19	20	21	22	23
Turnover Intention							
1. Intention to Leave Air Force (Measure 1)							
2. Intention to Leave Air Force (Measure 2)							
3. Intention to Leave EOD							
Job Satisfaction							
4. Promotion Satisfaction							
5. Work Satisfaction							
Organizational Commitment							
6. Affective Commitment – Air Force							
7. Normative Commitment – Air Force							
8. Continuance Commitment – Air Force							
9. Affective Commitment – EOD							
10. Normative Commitment – EOD							
11. Continuance Commitment – EOD							
Operations Tempo							
12. Number of Deployments							
13. Number of Days TDY							
Family Concerns							
14. Work Family Conflict							
15. Family Work Conflict							
Organizational Support							
16. Perceived Organizational Support – Air Force							
17. Perceived Organizational Support – EOD	-						
Life Domain							
18. Non-work Satisfaction – Home Station	.10*	-					
19. Non-work Satisfaction – Deployed Location	.22**	.35**	-				
20. Marital Commitment	.07	.09*	.02	-			
Individual Characteristics							
21. Marital Status	-.11**	-.01	.01	-.17**	-		
22. Children	-.07	-.05	-.04	-.27**	.46**	-	
23. Education	-.14**	.00	-.07	-.02	.16**	.19**	-

** Correlation is significant at the .01 level (2-tailed)

* Correlation is significant at the .05 level (2-tailed)

was negatively related to all three measures of turnover intention with significant correlation: intention to leave the Air Force measure 1 (AF-1) ($r = -.24, p < .01$), intention to leave the Air Force measure 2 (AF-2) ($r = -.26, p < .01$), and intention to leave the explosive Ordnance disposal (EOD) occupation ($r = -.13, p < .01$). General work satisfaction was also negatively related to all three measures of turnover intention. The relationships were intention to leave AF-1 $r = -.24$ ($p < .01$), intention to leave the AF-2 $r = -.17$, ($p < .01$), and intention to leave the EOD occupation $r = -.48$ ($p < .01$). These results provided support for the hypothesis that a significant negative relationship existed between job satisfaction and turnover intention.

Organizational commitment – Turnover intention relationship. Affective, normative, and continuance commitment, all with respect to the Air Force and EOD, were measured to identify the participant's organizational commitment. It was hypothesized that all six variables (i.e., three levels of commitment toward the Air Force and three levels of commitment toward the occupation) would have a significant negative relationship with turnover intention. As reported in Table 2, all but two relationships were as expected. Of those relationships that were significant, affective commitment to the Air Force had an average correlation of $r = -.49$ ($p < .01$) with turnover intention. Similarly, normative and continuance commitment had an average correlation of $r = -.45$ ($p < .01$) and $r = -.39$ ($p < .01$), respectively with turnover intention. With respect to the EOD occupation, affective, normative, and continuance commitment had average correlations of $r = -.45$ ($p < .01$), $r = -.42$ ($p < .01$), $r = -.40$ ($p < .01$), respectively with turnover intentions. In contrast, the specific relationship between affective commitment

to the Air Force was not related to intentions to leave the EOD occupation ($r = .01$, not significant), nor was affective commitment to the EOD occupation related to intention to leave AF-2 ($r = -.06$, not significant). Affective commitment to both the Air Force and the EOD occupation were negatively related to intentions to leave. The relationship between affective commitment to the Air Force and turnover intentions was $r = -.34$ ($p < .01$), while the relationship between affective commitment to the EOD occupation and turnover intentions was $r = -.26$ ($p < .01$). These results provide some support for the hypothesis that a significant negative relationship exists between organizational commitment and turnover intention.

Operations tempo – Turnover intention relationship. Operations tempo was measured by the response to the number of deployments since 2001 and the number of days TDY (temporary duty assignments) in the past 18 months (non-deployment). Each was hypothesized to be significantly and positively related with turnover intention. As reported in Table 2 though, both measures were not related with turnover intention. The correlations for the number of deployments were $r = .00$ (not significant), $r = .02$ (not significant), and $r = .01$ (not significant) with the first measure of intention to leave the Air Force, the second measure of intention to leave the Air Force, and intention to leave the EOD occupation, respectively. The correlations for the number of days TDY reported were $r = .05$ (not significant), $r = .06$ (not significant), and $r = .05$ (not significant) with the first measure of intention to leave the Air Force, second measure of intention to leave the Air Force, and intention to leave the EOD occupation, respectively.

The results did not support the hypotheses that there was a significant positive relationship between operations tempo and turnover intention.

Family concerns – Turnover intention relationship. Items of work-family conflict and family-work conflict were measured and hypothesized to have a significant positive relationship with turnover intention. Table 2 displays that the family-work measure was not related to two of the three turnover intention measures: the second measure of intention to leave the Air Force ($r = .05$, not significant) and intention to leave the EOD occupation ($r = .06$, not significant). Family-work conflict was significantly related with the first measure of intention to leave the Air Force ($r = .09$, $p < .05$). Work-family conflict was positively related with turnover intention and the average correlation was $r = .26$ ($p < .01$). The results provided partial support that a significant positive relationship existed between family concerns and turnover intention.

Organizational support – Turnover intention relationship. Perceived organizational support with respect to both the Air Force and EOD were measured. Both were expected to have a significant negative relationship with turnover intention. As reported in Table 2, all but two relationships were consistent with these hypotheses. The specific relationship between perceived organizational support to the Air Force was not related to intentions to leave the EOD occupation ($r = -.03$, not significant), nor was perceived organizational support to the EOD occupation related to the first measure of intention to leave the Air Force ($r = -.08$, not significant). On the other hand, perceived organizational support to the Air Force and the EOD occupation were negatively related with turnover intention. Perceived organizational support to the Air Force had an average

correlation of $r = -.43$ ($p < .01$) with turnover intentions. Similarly, perceived organizational support to the EOD occupation had an average correlation of $r = -.42$ ($p < .01$) with turnover intentions. These results provided support for the hypotheses that a significant negative relationship existed between organizational support and turnover intention.

Life domain – Turnover intention relationship. Life domain was an organizational issue that captured the participants' perceptions of their quality of life. Three variables were included: non-work satisfaction (i.e., life satisfaction at their home station), non-work satisfaction (i.e., life satisfaction at their deployed location), and marital commitment. Each was hypothesized to have a significant negative relationship with turnover intention. Marital commitment was not related to any turnover intention measures; the correlation was $r = -.05$ (not significant), $r = -.04$ (not significant), and $r = -.08$ (not significant) with the first measure of intention to leave the Air Force, the second measure of intention to leave the Air Force, and intention to leave the EOD occupation, respectively. Both measures of non-work satisfaction (home station and deployed location) were significantly related with all three measures of turnover intention. Non-work satisfaction (home station) was significant at the $p < .05$ level when tested with the first measure of intention to leave the Air Force ($r = -.01$) and intention to leave the EOD occupation ($r = -.09$). Non-work satisfaction (deployed location) reported an average correlation of $r = -.18$ ($p < .01$). This analysis provided partial support for the hypothesis that the participants' life domain negatively related with turnover intention.

Individual characteristics – Turnover intentions relationship. The hypothesis stated that intention to leave would change with marital status, whether the participant had children, and the level of education held by the individual. As identified from the results presented in Table 2, with the exception of education, these variables were not related to either of the measures of intentions to leave the Air Force or intention to leave the EOD occupation. Marital status reported a correlation of $r = .04$ (not significant) with the first measure of intention to leave the Air Force, $r = -.01$ (not significant) with the second measure of intention to leave the Air Force, and $r = .03$ (not significant) with intention to leave the EOD occupation. Similarly, whether the participant had children did not have a significant correlation with any of the three measures of turnover intention. The level of education, however, was significantly and positively related with two of the turnover measures, namely, the first measure of intention to leave the Air Force ($r = .11$, $p < .01$) and intention to leave EOD ($r = .16$, $p < .01$). These results provide partial support for the hypothesis that intention to leave would change with respect to the individual factors of marital status, children, and level of education.

Stepwise Regression

The second stage of the statistical analysis involved stepwise regression and results are presented in Table 3 and Table 4. These tables report the standardized beta (*Std. β*) and the coefficient of determination (R^2) among all of the study variables. Stepwise regression was selected because it allows for evaluation of a series of variables simultaneously and permits the evaluation of multiple variables simultaneously. With this approach, a final model is presented that includes those variables that are

Table 3

Results of stepwise analysis – Organizational characteristics

	Intention to Leave Air Force (Measure 1)	Intention to Leave Air Force (Measure 2)	Intention to Leave EOD	Promotion Satisfaction	Work Satisfaction
Organizational Characteristics	Std. β	Std. β	Std. β	Std. β	Std. β
Number of Deployments	-	-	-	-	.12**
Number of Days TDY	-	-	-	-	-
Work Family Conflict	.18**	.11**	.10*	-.12**	-
Family Work Conflict	-	-	-	-	-.09*
Perceived Organizational Support – AF	-.26**	-.48**	-	.36**	-
Perceived Organizational Support – EOD	-.20**	-	-.50**	.09*	.39**
Non-work Satisfaction – Home Station	-	-.11**	-	.12**	.12**
Non-work Satisfaction – Deployed Location	-	-	-.13**	-	.11*
Marital Commitment	-	-	-	-	-
R²	.18**	.30**	.33**	.22**	.24**

** Significant at $p < .01$

* Significant at $p < .05$

Table 3 (continued)

	Affective Commitment - AF	Normative Commitment - AF	Continuance Commitment - AF	Affective Commitment - EOD	Normative Commitment - EOD	Continuance Commitment - EOD
Organizational Characteristics	Std. β	Std. β	Std. β	Std. β	Std. β	Std. β
Number of Deployments	.07*	-	-	.08*	-	-
Number of Days TDY	-.08*	-	-	-	-	-
Work Family Conflict	-	-.11**	-	-	-	-.09*
Family Work Conflict	-	-	-	-	-	-
Perceived Organizational Support – AF	.70**	.60**	.36**	-.20**	-.09*	-
Perceived Organizational Support – EOD	-	-	-	.63**	.59**	.28**
Non-work Satisfaction – Home Station	-	-	-	.08*	-	-
Non-work Satisfaction – Deployed Location	-.11**	-	-	-	.13*	-
Marital Commitment	-.09**	-	-	-	-	-
R²	.48**	.40**	.13**	.44**	.40**	.09**

** Significant at $p < .01$

* Significant at $p < .05$

Table 4

Results of stepwise analysis – Individual characteristics

	Intention to Leave Air Force (Measure 1)	Intention to Leave Air Force (Measure 2)	Intention to Leave EOD	Promotion Satisfaction	Work Satisfaction
Individual Characteristics	Std. β	Std. β	Std. β	Std. β	Std. β
Marital Status	-	-	-	-	-
Children	-	-	-	-.11**	-
Education	.11*	-	.15**	-	-.09*
R²	.01*	-	.02**	.013**	.008*

** Significant at $p < .01$ * Significant at $p < .05$

Table 4 (continued)

	Affective Commitment - AF	Normative Commitment - AF	Continuance Commitment - AF	Affective Commitment - EOD	Normative Commitment - EOD	Continuance Commitment - EOD
Individual Characteristics	Std. β	Std. β	Std. β	Std. β	Std. β	Std. β
Marital Status	-	-	-	-	-	-
Children	-	-	.14**	-	-	.08*
Education	-	-	-.12**	-.12**	-.08*	-.18**
R²	-	-	.03**	.014**	.007*	.03**

** Significant at $p < .01$ * Significant at $p < .05$

significantly related to the dependent variable (turnover intentions) after the effects of the other variables are considered. Given the purpose of this study to identify those variables salient to the prediction of turnover intentions, this method was well suited.

Organizational characteristics – Turnover intention relationship. Nine variables were measured, namely, the number of deployments since 2001, the number of days TDY in the past 18 months (non-deployment), work-family conflict, family-work conflict, perceived organizational support from the Air Force, perceived organizational support from the EOD occupation, non-work satisfaction (i.e., life satisfaction at their home station), non-work satisfaction (i.e., life satisfaction at their deployed location), and marital commitment. The hypothesis stated that the stepwise regression would identify the organizational issues that were significant in predicting the participant's turnover intention. In addition, the hypothesis also stated that both measures of operations tempo, the number of deployments since 2001 and the number of days TDY in the past 18 months (non-deployment), would be identified as significant predictors of the participant's turnover intention. As reported in Table 3, five of the nine variables, namely, work-family conflict, perceived organizational support from the Air Force, perceived organizational support from the EOD occupation, non-work satisfaction at home station, and non-work satisfaction at deployed location were reported as significant predictors of the participant's intention to leave. When predicting the first measure of intention to leave the Air Force, work-family conflict (*Std. β = .18, $p < .05$*), perceived organizational support from the Air Force (*Std. β = -.26, $p < .05$*), and perceived organizational support from the EOD occupation (*Std. β = -.20, $p < .05$*) were significant

predictors with an R^2 value of .18 ($p < .05$) for the model. When predicting the second measure of intention to leave the Air Force, work-family conflict ($Std. \beta = .11, p < .05$), perceived organizational support from the Air Force ($Std. \beta = -.48, p < .05$), and non-work satisfaction (home station) ($Std. \beta = -.11, p < .05$) were significant predictors with an R^2 value of .30 ($p < .05$) for the model. When intentions to leave the EOD occupation was tested, work-family conflict ($Std. \beta = .10, p < .05$), perceived organizational support from the EOD occupation ($Std. \beta = -.50, p < .05$), and non-work satisfaction (deployed location) ($Std. \beta = -.13, p < .05$) were significant predictors with an R^2 value of .33 ($p < .05$) for the model. The results provided partial support that the organizational issues were significant in predicting the participant's turnover intention. Furthermore, these results identified that the measures of operations tempo were not significant in predicting the participant's intention to leave.

Individual characteristics – Turnover intention relationship. Three variables were measured, namely, marital status, whether the participant had children, and the level of education held by the participant. The hypothesis stated that the stepwise regression would identify that all three variables were significant in predicting the participant's turnover intention. As reported in Table 3, the level of education held by the participant was the only significant variable in predicting the participant's turnover intention. The level of education was significant with the first measure of intention to leave the Air Force ($Std. \beta = .11, R^2 = .01, p < .05$) and intention to leave the EOD occupation ($Std. \beta = .15, R^2 = .02, p < .05$). The results provided partial support that individual issues were significant in predicting the participant's turnover intention. Furthermore, these results

identified that the level of education held by the participant was significant in predicting their intention to leave.

Collective Interpretation

Table 5 represents a collective summary of all the variables that were tested against the dependent variable (intention to leave). The table identifies those variables that were determined to have a significant relationship with the three individual measures of intention to leave. Significant relationships are identified with an X in the respective row and column. These findings suggest which measures to capture in the Air Force Civil Engineer officers questionnaire that will be presented in the next chapter. For example, measures of marital status and children were found to be not significant and therefore may not be included in the questionnaire.

Summary

This chapter provided a summary of the results from the analysis of the data collected through the efforts of Tramel (2008). The focus of this analysis was to identify which organizational and individual issues had a significant relationship with turnover intention. Furthermore, the analysis focused on the effect that operations tempo had on the participant's turnover intention. The results of this analysis suggest that all variables except for marital commitment, marital status, number of children, and family-work conflict have a significant relationship with the turnover intentions of members from the Air Force EOD occupations. In addition, these results did not support the hypothesized behavior between operations tempo and turnover intentions, and suggest that a significant

Table 5

Collective interpretation of significant relationships based on the correlations and step-wise regression

Variable	Intention to Leave Air Force (Measure 1)	Intention to Leave Air Force (Measure 2)	Intention to Leave EOD
Job Satisfaction			
- Promotion Satisfaction	X	X	X
- Work Satisfaction	X	X	X
Organizational Commitment			
- Affective Commitment – Air Force	X	X	-
- Normative Commitment – Air Force	X	X	X
- Continuance Commitment – Air Force	X	X	X
- Affective Commitment – EOD	X	-	X
- Normative Commitment – EOD	X	X	X
- Continuance Commitment – EOD	X	X	X
Operations Tempo			
- Number of Deployments	-	-	-
- Number of Days TDY	-	-	-
Family Concerns			
- Work Family Conflict	X	X	X
- Family Work Conflict	-	X	-
Organizational Support			
- Perceived Organizational Support – Air Force	X	X	-
- Perceived Organizational Support – EOD	X	-	X
Life Domain			
- Non-work Satisfaction – Home Station	-	X	-
- Non-work Satisfaction – Deployed	-	-	X
Location			
- Marital Commitment	-	-	-
Individual Factors			
- Marital Status	-	-	-
- Children	-	-	-
- Education	X	-	X

Note. Findings serve as basis for questionnaire but do not drive final decisions.

relationship does not exist between the two variables. Furthermore, these results provide recommendations of the variables to include in the questionnaire that will be developed and administered to the Air Force Civil Engineer officers to capture the turnover behavior within the career field.

CHAPTER 4

DISCUSSION

Provided the turbulence within the military environment, it is continuously important to update our understanding that this culture has an individual's career intention. This study explored the relationship of multiple predictor variables with turnover intentions. The primary purpose of this effort was to (1) test the relationship between operations tempo and turnover intentions using data collected by Tramel (2008) (see Appendix A for EOD retention survey) and (2) identify the most relevant organizational and individual factors that are related to Air Force members' turnover intentions. Unexpectedly, operations tempo was not significantly related to intentions to leave. This finding was in contrast with earlier efforts (Alder et al., 1997; Sullivan, 1998) which concluded that there was a negative relationship between operations tempo and turnover; however, it does support the findings of Castro et al. (1999), Reed and Segal (2000), and Olsen (2008) who found that a high measure of operations tempo either encouraged a member's intention to stay in the military or had no effect at all.

The significance of this finding warrants consideration provided the definition of operations tempo which was presented earlier. Operations tempo was defined as "the rate of military operations as measured by deployments, training exercises, temporary duty (TDY) assignments, and work hours" (Huffman et al., 2005: p. 176). This entire domain was not captured in this study because of the secondary data that were used in the analysis. Instead, the measure used only the number of deployments and TDY assignments. Thus, one could conclude that a more complete measure might show a relationship. With a more complete measure, Huffman and colleagues (2005) did find a

relationship between operations tempo and turnover intentions, suggesting that an improved measure of operations tempo (i.e., number of deployments, number of days TDY, number of training exercises, and work hours) may be the appropriate way to more accurately discern the effects.

Still, several organizational and individual factors were related to a member's turnover intentions. While most turnover researchers have only explored the influence of one or two independent variables (Holtom et al., 2008), this study identified 15 variables (see Table 4) that had a significant relationship with an individual's intention to leave. These findings were consistent with the results from many research efforts which explored turnover behavior (e.g., Blau, 1993; Griffeth et al., 2000; Steel, 1996; Wayne et al., 1997; Frone et al., 1992). More importantly, these results provide a significant contribution as they suggest a number of antecedents to turnover intentions, captured from a controlled population.

This was also the first step toward addressing the concerns which Air Force Civil Engineer leaders have expressed with regards to retention among Civil Engineer officers. Reviewing the results from the analysis of this study, in conjunction with the recommendations provided by the extant literature, an empirically grounded questionnaire was developed to measure the relationship between the emotions of the individual and their career intentions. While the format of this questionnaire is similar to Tramel (2008), additional variables (e.g., civilian labor market, additional dimensions of operations tempo) were included to offer a better understanding of turnover decisions.

The proposed questionnaire is attached in Appendix B. Table 6 summarizes the variables that are included along with the sources and estimates for reliability.

Pilot Study

A pilot-test was done to ensure that a sample of officers felt that the questionnaire could be used to assess the desired information. Many researchers have suggested that all questionnaires and survey instruments should be extensively tested prior to their use. Pre-testing provides researchers with an empirical basis to systematically revise questionnaires in order to reduce ambiguity and bias. In this study, participants were asked to take the questionnaire and (a) identify misunderstood questions, (b) identify other areas that were salient, (c) identify ambiguities of the new items, and (d) report response time. The intent was not to identify the reliability of the measures but to ensure that the measures were appropriate to capture the emotions experienced within the military environment.

Twelve officers that would fall within the target population completed the pilot-test. On average, the participants were 28 years old and would explain some relevant demographic characteristics (i.e., age, rank, marital status, and number of children). Overall, the first pilot-test indicated that the questionnaire could capture participants' beliefs regarding a specific attitude. Nonetheless, common areas which the participants identified for further consideration were measures to address an individual's concerns with respect to permanent change of station (PCS), the type of work that the individual is performing (e.g., engineering work versus administrative work), and the emotions of those individuals who are single (e.g., the difficulty to begin a significant relationship

Table 6

Summary of variables in the Air Force Civil Engineer retention survey

Variable	Definition	Source of Measure	Example Item	Reliability
Career Intentions	Future intentions to stay with the organization	Tramel, 2008	"I am thinking of leaving the Air Force."	$\alpha = .80$
Job Satisfaction	The extent to which people like or dislike their jobs			
Pay	Satisfaction with pay and raises		"I feel I am being paid a fair amount for the work I do."	$\alpha = .75$
Promotion	Satisfaction with promotion opportunities	Spector, 1997	"I am satisfied with my chances for promotion."	$\alpha = .73$
Operating Conditions	Satisfaction with rules and procedures		"I have too much to do at work."	$\alpha = .62$
Nature of Work	Satisfaction with the type of work done		"My job is enjoyable."	$\alpha = .78$
Organizational Commitment	Factors which are specific and influenced by the organization			
Affective	An individual's emotional attachment, or identification, with an organization	Meyer and Allen, 1997	"I enjoy discussing my organization with people outside it."	$\alpha = .85$
Normative	An individual's moral obligation to remain with the organization		"This organization deserves my loyalty."	$\alpha = .73$
Continuance	The feeling that an individual has to continue within the organization		"I believe that I have too few options to consider leaving."	$\alpha = .79$

Table 6 (continued)

Variable	Definition	Source of Measure	Example Item	Reliability
Economic Characteristics	Factors influenced by external variables outside of the organization			
Civilian Labor Market	An individual's desire and perception of job alternatives			
Ease of Movement	Quantity, quality, and accessibility of job alternatives	Griffeth et al., 2005	"There really aren't very many jobs for people like me in today's job market."	$\alpha = .73$
Desirability of Movement	Desire for a new job		"By and large, the jobs I could get if I left here are superior to the job I have now."	$\alpha = .85$
Networking	Access to job availability information		"I have contacts in other companies who might help me line up a new job."	$\alpha = .76$
Crystallization of Alternatives	Concreteness of employment alternatives		"I have found a better alternative than my job."	$\alpha = .80$
Mobility	Outside influences that may affect ability to leave your current job		I am unable to move to another place of residence now even if a better job came along."	$\alpha = .70$

Table 6 (continued)

Variable	Definition	Source of Measure	Example Item	Reliability
Organizational Characteristics	Factors which are specific and influenced by the organization			
Family Concerns	Conflicts between work life and family life			
Work-family Conflict	Participation at work interferes with participation in the family life	Netemeyer et al., 1996	"The demands of my work interfere with my home and family life."	$\alpha = .88$
Family-work Conflict	Participation with the family interferes with participation in the work life		"I have to put off doing things at work because of demands on my time at home."	$\alpha = .86$
Perceived Organizational Support	Perception of support from the organization	Eisenberger et al., 1986	"This organization cares about my opinions."	$\alpha = .97$
Life Domain	Satisfaction with variables outside of the job	Tramel, 2008	"How satisfied are you with your current place of residence?"	$\alpha = .79$
Operations Tempo	Rate of operations measured by deployments, training exercises, TDY assignments, and work hours	DMDC, 2004; Huffman et al., 2005	"How satisfied are you with the number of deployments that you have been assigned?"	
Individual Characteristics	Factors specific to the individual			
Age				
Rank				
Education				
Marital Status				
Number of Children				

because of their work environment). It was suggested to also capture the emotions at the squadron level in addition to the career field and the Air Force.

Limitations

Foremost, the analysis was limited by the secondary data that were used. This data measured the attitudes of enlisted members of the EOD career field and therefore may not reflect the general population of the military or another career field within the Air Force. This limitation affects the ability to generalize the results to another population; however, constraints were identified within the method of this study to address this limitation and best mirror the intended population for the Air Force Civil Engineer retention survey. First, responses to the original data set included all enlisted ranks within the Air Force. The analysis of this study removed those participants that were identified within the Senior Non-commissioned Officer ranks (i.e., Master Sergeant, Senior Master Sergeant, and Chief Master Sergeant) to best mirror the time-in-service and age of the intended group of Civil Engineer officers. Second, the data collected by Tramel (2008) included responses from all duty components of the Air Force (i.e., active duty, Air National Guard, and Air Force Reserve). To reflect the group of Civil Engineer officers, this study removed all participants that were not identified as active duty. While this does not completely account for the lack of generalization between the two populations, similarities between the two career fields should be considered. For example, not only are both groups members of the Air Force and receive similar benefits and compensation for their work, but both populations fall under the same command structure within the Air Force (i.e., Squadron, Group, Wing, etc.) suggesting that they

experience similar operating conditions within their work environment. In addition, the operational demands of these two career fields also share similarities. Air Force Civil Engineer officers and Air Force enlisted EOD airmen are both assigned to a 1:2 dwell time ratio for deployments, meaning that members within those career fields can expect to be deployed a minimum of 6 months out of an 18 month period (Air Force Times, 2008). Further, both career fields were recently identified as being some of the most deployed career fields in 2008 (Rolfson, 2008).

Because this survey was administered and data were collected by an outside source, methodological issues with the design of the survey could not be addressed (Kiecolt & Nathan, 1985; Olsen, 2008). As noted, not all of the dimensions of operations tempo were captured. Also, operations tempo was measured by having individuals self-report how many days they had spent on temporary duty assignments in the past 18 months that were not related to a deployment. Because the data were collected anonymously, these reports could not be verified nor could the number of deployments each member reported. While a deployment is a significant life-event and the number should be accurately recalled, there may be some error in the number of days reported due to recall errors. Further, these two dimensions were measured as close-ended items rather than open-ended, thereby limiting the detail that the participants could provide in their responses.

In addition, the method of collecting data presents an inherent problem. The data were collected with a single questionnaire suggesting that common method bias may influence the relationships that were observed. While no question this is a concern,

attitudes represented the variables of interest in this type of turnover study and a questionnaire is the best way to measure these attitudes.

While the questionnaire may have been the best way to collect the data, problems still may have come from the subject matter involved. In many questionnaires, there are sensitive questions respondents tend not to answer, or do not provide honest responses, because the information is sensitive and they may be too embarrassed or even scared of potential consequences (Alreck & Settle, 2004). In this case, several questions in the survey requested the participant to report their career intentions. While instructions for the EOD retention survey addressed confidentiality and stated that all responses were anonymous, there is still a potential that individuals were uncomfortable sharing these intentions and did not provide honest responses.

Finally, the author of this study is a member of the population intended to take the Air Force Civil Engineer retention survey, suggesting that there is a potential for confirmatory bias within the measures used for the proposed survey. While confirmatory bias cannot be completely eliminated, to control for personal emotions from being included in the survey, the majority of the measures within the proposed Air Force Civil Engineer retention survey were tested in earlier turnover studies and were identified as reliable measures to predict turnover intentions.

Future Research

While there are possible limitations identified in this study, the conclusions presented offer a strong addition to the collection of turnover literature, particularly

within the United States military. As mentioned earlier, the sample used for this study was the entire EOD career field, reducing the possibility of sampling bias. In addition, a large response rate was received in this research effort which increased the reliability and lowered the chance of a sampling error of the data provided.

Several opportunities for additional research have evolved through the efforts of this study. Further research should consider the recommendations provided from the pilot study and administer and analyze the Air Force Civil Engineer retention survey. The efforts of this study will address the concerns expressed by Air Force Civil Engineer leaders and provide an understanding of the behaviors that influence a Civil Engineer officer's career intention. After a defined period of time following completion of this survey, researchers should follow up with those individuals that participated and attempt to identify those who may have separated. Doing this will provide the researcher an opportunity to identify a relationship between career intention and actual turnover behavior and offer a better understanding of the influence that the economic, organizational, and individual factors have on turnover.

Additional research should consider using the proposed survey as a framework to develop a test that can apply the unfolding model of turnover (Lee & Mitchell, 1994) to Air Force Civil Engineer officers. Drawing from image theory, Lee and Mitchell (1994) diverged from previous lines of study with an innovative model of turnover based on a series of deliberations and proposed that the experience of a positive or negative event activates the thought process of quitting (Holt et al., 2007). The unfolding model portrays employee turnover as a complex process and suggests that the positive or

negative event will lead an individual down one of five decision paths prior to actual turnover behavior. An empirical test of this theory (Lee, Mitchell, Wise, & Fireman, 1996) found that the model could explain the majority of health professionals' (63%) decisions to leave with one of the four major decision paths. Lee, Mitchell, Holtom, McDaniel, and Hill (1999) returned back to this theory and refined the model that was presented by Lee and Mitchell (1994). Figure 6 depicts the unfolding model's theorized paths and hypothesized that a higher proportion of individuals leaving jobs will be classified into the theorized paths using the revised unfolding model of voluntary turnover than the original model (Lee et al., 1999). The modifications that were made to the earlier unfolding model resulted in a significant net increase (30.1%) in the classification of job leavers (Lee et al., 1999). The efforts from these studies suggest that people use different, distinct, and systematic psychological processes, or paths, when leaving organizations (Lee et al., 1999). This study could also be a follow-on to the effort of Holt et al. (2007) that was able to classify 83% of the military participants in their study within one of the unique paths of the unfolding model.

Finally, additional research efforts should consider using the proposed survey to conduct a longitudinal study among a group of Air Force Civil Engineer Company Grade Officers. At the beginning of a Civil Engineer officer's career, they are required to complete an introductory course that provides them with general information about the career field. The timing of this course provides an opportunity to document general emotions at the beginning of their career and offers researchers an opportunity to follow

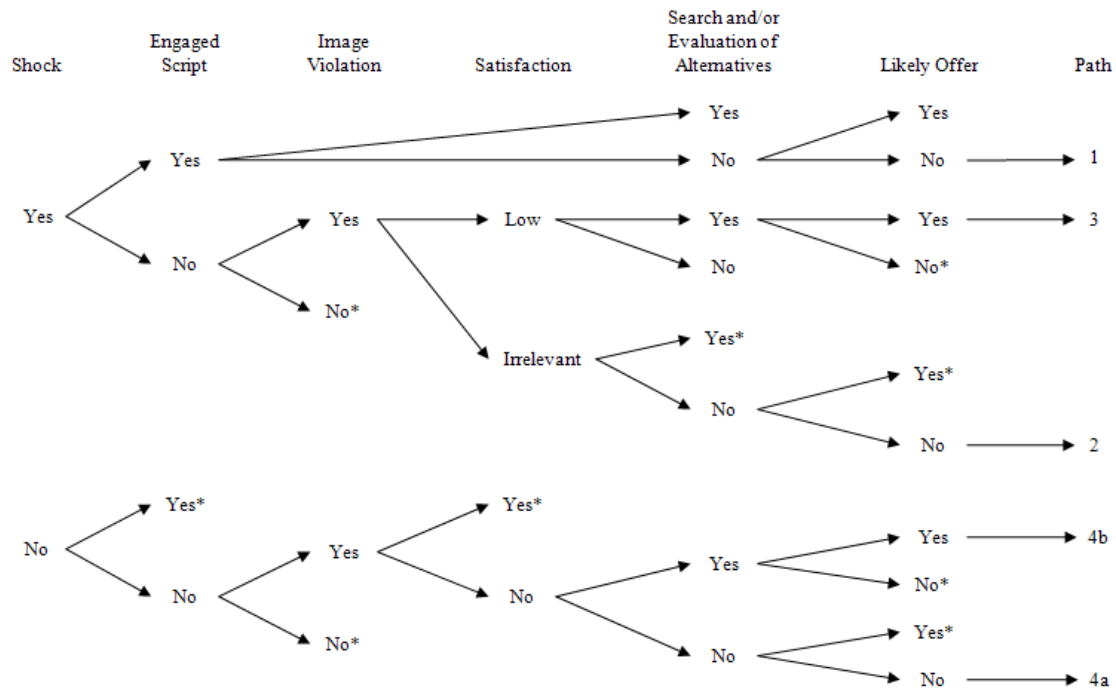


Figure 6. The unfolding model of voluntary turnover (Lee, Mitchell, Holtom, McDaniel, & Hill, 1999)

^a An asterisk (*) indicates that the route is not classifiable and that it represents a theory falsification – a way in which an individual could leave an organization that would not be part of one of the model's paths.

the individuals over a defined period of time and monitor the changes of emotions and their influences on career intentions and turnover behavior.

Conclusions

The findings of this research identified several organizational and individual factors that have a significant influence on an individual's career intentions and used the results from those findings to develop a detailed questionnaire that can be used to not only address, but provide clear understanding to, the behaviors within an organization. Regardless of the sample that was analyzed in this study, these results suggest a starting point for leaders to focus their attention to mitigate voluntary turnover. Military members are expected to perform, but just as important as their level of performance is

their feelings and attitudes toward the job which they do. It is the responsibility of military leaders to exhaust all efforts to understand these emotions and consider them in the decisions that they make. The efforts of this study equip those military leaders with the appropriate tools to make the appropriate decisions.

INTEGRITY FIRST, SERVICE BEFORE SELF, EXCELLENCE IN ALL WE DO

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Appendix A: Air Force Civil Engineer Retention Survey

PART I

Job Satisfaction

We would like to understand how you feel about different aspects of your job. Questions 1 thru 17 will help us do that. For each statement, please fill in the circle for the number that indicates the extent to which you believe the statement is true. Use the scale below for your responses.

		①	②	③	④	⑤	⑥	⑦
		Strongly Disagree	Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Agree	Strongly Agree
1.	I feel I am being paid a fair amount for the work I do.	①	②	③	④	⑤	⑥	⑦
2.	There is really too little chance for promotion on my job.	①	②	③	④	⑤	⑥	⑦
3.	Many of our rules and procedures make doing a good job difficult.	①	②	③	④	⑤	⑥	⑦
4.	I sometimes feel my job is meaningless.	①	②	③	④	⑤	⑥	⑦
5.	Raises are too few and far between.	①	②	③	④	⑤	⑥	⑦
6.	Those who do well on the job stand a fair chance of being promoted.	①	②	③	④	⑤	⑥	⑦
7.	My efforts to do a good job are seldom blocked by red tape.	①	②	③	④	⑤	⑥	⑦
8.	I like doing the things I do at work.	①	②	③	④	⑤	⑥	⑦
9.	I feel unappreciated by the Air Force when I think about what they pay me.	①	②	③	④	⑤	⑥	⑦
10.	People get ahead as fast here as they do in other places (i.e., private sector).	①	②	③	④	⑤	⑥	⑦
11.	I have too much to do at work.	①	②	③	④	⑤	⑥	⑦
12.	I feel a sense of pride in doing my job.	①	②	③	④	⑤	⑥	⑦
13.	I feel satisfied with my chances for salary increases.	①	②	③	④	⑤	⑥	⑦
14.	I am satisfied with my chances for promotion.	①	②	③	④	⑤	⑥	⑦
15.	I have too much paperwork.	①	②	③	④	⑤	⑥	⑦
16.	My job is enjoyable.	①	②	③	④	⑤	⑥	⑦
17.	All things considered (i.e., pay, promotion, operating conditions, nature of work), I feel satisfied with my present job.	①	②	③	④	⑤	⑥	⑦

PART II

Organizational Commitment

We would like to understand your level of commitment to the Air Force (i.e., viewed as an organization) and to the CE career field. Questions 18 thru 40 will help us do that. For each statement, please fill in the circle for the number that indicates the extent to which you believe the statement is true. For each statement, please provide a response for both CE Career Field and Air Force. Use the scale below for your responses.

	① Strongly Disagree	② Disagree	③ Slightly Disagree	④ Neither Agree or Disagree	⑤ Slightly Agree	⑥ Agree	⑦ Strongly Agree
	CE Career Field				Air Force		
18. I would be very happy to spend the rest of my career in the _____.	① ② ③ ④ ⑤ ⑥ ⑦				① ② ③ ④ ⑤ ⑥ ⑦		
19. I do not feel any obligation to remain with the _____.	① ② ③ ④ ⑤ ⑥ ⑦				① ② ③ ④ ⑤ ⑥ ⑦		
20. I am not afraid of what might happen if I quit the _____ without having another job lined up.	① ② ③ ④ ⑤ ⑥ ⑦				① ② ③ ④ ⑤ ⑥ ⑦		
21. I enjoy discussing the _____ with people outside it.	① ② ③ ④ ⑤ ⑥ ⑦				① ② ③ ④ ⑤ ⑥ ⑦		
22. Even if it were to my advantage, I do not feel it would be right to leave the _____ now.	① ② ③ ④ ⑤ ⑥ ⑦				① ② ③ ④ ⑤ ⑥ ⑦		
23. It would be very difficult for me to leave the _____ right now, even if I wanted to.	① ② ③ ④ ⑤ ⑥ ⑦				① ② ③ ④ ⑤ ⑥ ⑦		
24. I really feel as if the _____ problems are my own.	① ② ③ ④ ⑤ ⑥ ⑦				① ② ③ ④ ⑤ ⑥ ⑦		
25. I would feel guilty if I left the _____ now.	① ② ③ ④ ⑤ ⑥ ⑦				① ② ③ ④ ⑤ ⑥ ⑦		
26. Too much of my life would be disrupted if I decided I wanted to leave the _____ right now.	① ② ③ ④ ⑤ ⑥ ⑦				① ② ③ ④ ⑤ ⑥ ⑦		
27. I think I could easily become attached to another organization as I am to the _____.	① ② ③ ④ ⑤ ⑥ ⑦				① ② ③ ④ ⑤ ⑥ ⑦		

①	②	③	④	⑤	⑥	⑦										
Strongly Disagree	Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Agree	Strongly Agree										
			CE Career Field			Air Force										
28.	The _____ deserves my loyalty.		①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
29.	It wouldn't be too costly for me to leave the _____ in the near future.		①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
30.	I do not feel like “part of the family” in the _____.		①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
31.	I would not leave the _____ right now because I have a sense of obligation to the people in it.		①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
32.	Right now, staying with the _____ is a matter of necessity as much as a desire.		①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
33.	I do not feel “emotionally attached” to the _____.		①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
34.	I owe a great deal to the _____.		①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
35.	I believe I have too few options to consider leaving the _____.		①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
36.	The _____ has a great deal of personal meaning to me.		①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
37.	One of the few negative consequences of leaving the _____ would be scarcity of available alternatives.		①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
38.	I do not feel a strong sense of belonging to the _____.		①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
39.	One of the major reasons I continue to work for the _____ is that leaving would require considerable personal sacrifice; another organization may not match the overall benefits I have here.		①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
40.	If I had not already put so much of myself into the _____, I might consider working elsewhere.		①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦

PART III

Family Concerns

We would like to understand any concerns between your work and family. Questions 41 thru 50 will help us do that. For these questions, family is understood as what you, the participant, define to be your family. These questions do not only apply to those individuals who are married or have children. For each statement, please fill in the circle for the number that indicates the extent to which you believe the statement is true. Use the scale below for your responses.

① Strongly Disagree	② Disagree	③ Slightly Disagree	④ Neither Agree or Disagree	⑤ Slightly Agree	⑥ Agree	⑦ Strongly Agree				
41.	The demands of my work interfere with my home and family life.			①	②	③	④	⑤	⑥	⑦
42.	The demands of my family or spouse/significant other interfere with work-related activities.			①	②	③	④	⑤	⑥	⑦
43.	The amount of time my duties take up makes it difficult to fulfill family responsibilities.			①	②	③	④	⑤	⑥	⑦
44.	I have to put off doing things at work because of demands on my time at home.			①	②	③	④	⑤	⑥	⑦
45.	Things I want to do at home do not get done because of the demands my job puts on me.			①	②	③	④	⑤	⑥	⑦
46.	Things I want to do at work don't get done because of the demands of my family or spouse/partner.			①	②	③	④	⑤	⑥	⑦
47.	My job produces strain that makes it difficult to fulfill family duties.			①	②	③	④	⑤	⑥	⑦
48.	My home life interferes with my responsibilities at work such as getting to work on time, accomplishing daily tasks, and working overtime.			①	②	③	④	⑤	⑥	⑦
49.	Due to work-related duties, I have to make changes to my plans for family activities.			①	②	③	④	⑤	⑥	⑦
50.	Family-related strain interferes with my ability to perform job-related duties.			①	②	③	④	⑤	⑥	⑦

PART IV

**Perceived
Organizational Support**

We would like to understand your perception of support from the Air Force (i.e., viewed as an organization) and from the CE career field. Questions 51 thru 71 will help us do that. For each statement, please fill in the circle for the number that indicates the extent to which you agree the statement is true. For each statement, please provide a response for both CE Career Field and Air Force. Use the scale below for your responses.

	① Strongly Disagree	② Disagree	③ Slightly Disagree	④ Neither Agree or Disagree	⑤ Slightly Agree	⑥ Agree	⑦ Strongly Agree
				CE Career Field		Air Force	
51. The _____ values my contribution to its well-being.	①	②	③	④	⑤	⑥	⑦
52. If the _____ could hire someone to replace me at a lower salary it would do so.	①	②	③	④	⑤	⑥	⑦
53. The _____ fails to appreciate any extra effort from me.	①	②	③	④	⑤	⑥	⑦
54. The _____ strongly considers my goals and values.	①	②	③	④	⑤	⑥	⑦
55. The _____ would ignore any complaint from me.	①	②	③	④	⑤	⑥	⑦
56. The _____ disregards my best interests when it makes decisions that affect me.	①	②	③	④	⑤	⑥	⑦
57. Help is available from the _____ when I have a problem.	①	②	③	④	⑤	⑥	⑦
58. The _____ really cares about my well-being.	①	②	③	④	⑤	⑥	⑦
59. Even if I did the best job possible, the _____ would fail to notice.	①	②	③	④	⑤	⑥	⑦
60. The _____ is willing to help me when I need a special favor.	①	②	③	④	⑤	⑥	⑦

① Strongly Disagree	② Disagree	③ Slightly Disagree	④ Neither Agree or Disagree	⑤ Slightly Agree	⑥ Agree	⑦ Strongly Agree
			CE Career Field		Air Force	
61. The _____ cares about my general satisfaction at work.			① ② ③ ④ ⑤ ⑥ ⑦			① ② ③ ④ ⑤ ⑥ ⑦
62. If given the opportunity, the _____ would take advantage of me.			① ② ③ ④ ⑤ ⑥ ⑦			① ② ③ ④ ⑤ ⑥ ⑦
63. The _____ shows little concern for me.			① ② ③ ④ ⑤ ⑥ ⑦			① ② ③ ④ ⑤ ⑥ ⑦
64. The _____ cares about my opinions.			① ② ③ ④ ⑤ ⑥ ⑦			① ② ③ ④ ⑤ ⑥ ⑦
65. The _____ takes pride in my accomplishments at work.			① ② ③ ④ ⑤ ⑥ ⑦			① ② ③ ④ ⑤ ⑥ ⑦
66. The _____ tries to make my job as interesting as possible.			① ② ③ ④ ⑤ ⑥ ⑦			① ② ③ ④ ⑤ ⑥ ⑦
67. The _____ 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			① ② ③ ④ ⑤ ⑥ ⑦
68. The _____ would forgive an honest mistake on my part.			① ② ③ ④ ⑤ ⑥ ⑦			① ② ③ ④ ⑤ ⑥ ⑦
69. The _____ would grant a reasonable request for a change in my working conditions.			① ② ③ ④ ⑤ ⑥ ⑦			① ② ③ ④ ⑤ ⑥ ⑦
70. The _____ would understand if I were unable to finish a task on time.			① ② ③ ④ ⑤ ⑥ ⑦			① ② ③ ④ ⑤ ⑥ ⑦
71. The _____ wishes to give me the best possible job for which I am qualified.			① ② ③ ④ ⑤ ⑥ ⑦			① ② ③ ④ ⑤ ⑥ ⑦

PART V

Life Domain

We would like to understand how you feel about different aspects of life away from work. Questions 72 thru 79 will help us do that. For each statement, please fill in the circle for the number that indicates the extent to which you are satisfied with the statement. Use the scale below for your responses.

① N/A	① Very Dissatisfied	② Dissatisfied	③ Somewhat Dissatisfied	④ Neither Satisfied or Dissatisfied	⑤ Somewhat Satisfied	⑥ Satisfied	⑦ Very Satisfied					
72.	My place of current residence (i.e., house, apartment, condominium).				①	①	②	③	④	⑤	⑥	⑦
73.	My home, leave, and vacation opportunities.				①	①	②	③	④	⑤	⑥	⑦
74.	The entertainment/recreation/club facilities that is available.				①	①	②	③	④	⑤	⑥	⑦
75.	My personal safety.				①	①	②	③	④	⑤	⑥	⑦
76.	The schools my children attend.				①	①	②	③	④	⑤	⑥	⑦
77.	Child care arrangements/facilities.				①	①	②	③	④	⑤	⑥	⑦
78.	The quality of education my children receive.				①	①	②	③	④	⑤	⑥	⑦
79.	The medical/dental services that is available.				①	①	②	③	④	⑤	⑥	⑦

PART VI

Operations Tempo

We would like to understand your level of operations tempo and how you feel about different it. Questions 80 thru 93 will help us do that. For questions 80 thru 85, respond to the best of your knowledge by WRITING IN THE INFORMATION requested.

80. Since entering the Air Force, how many deployments have you been on? (Include current deployment if you are currently deployed)
_____ deployment(s)
81. Since entering the Air Force, what is the total amount of time that you have spent deployed? (Include current days deployed if you are currently deployed)
_____ month(s) _____ day(s)
82. Since entering the Air Force, how many Joint Expeditionary Tasking deployments (previously known at In-Lieu-Of or ILO deployments) have you been on? (Include current deployment if you are currently assigned on a Joint Expeditionary Tasking deployment).
_____ Joint Expeditionary Tasking deployment(s)
83. Over the previous 12 months, how many days have you spent away from your duty station? (i.e., TDY – not to include days deployed)
_____ day(s)
84. Over the previous 12 months, how many training exercises have you participated in? (i.e., Silver Flag, Eagle Flag, etc.)
_____ exercises(s)
85. In the past 12 months, how many times have you had to work longer than your normal duty day?
_____ time(s)

For questions 86 thru 93, please fill in the circle for the number that indicates the extent to which you are satisfied with the statement. Use the scale below for your responses.

		①	②	③	④	⑤	⑥	⑦
		Very Dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neither Satisfied or Dissatisfied	Somewhat Satisfied	Satisfied	Very Satisfied
86.	How satisfied are you with the number of deployments time you have been deployed?	①	②	③	④	⑤	⑥	⑦
87.	How satisfied are you with the length (days deployed) of those deployments?	①	②	③	④	⑤	⑥	⑦
88.	How satisfied are you with the frequency of deployments (i.e., dwell ratio)?	①	②	③	④	⑤	⑥	⑦
89.	Overall, how satisfied are you with your deployment experience (i.e., number, length, and frequency)?	①	②	③	④	⑤	⑥	⑦
90.	Over the previous 12 months, how satisfied are you with the number of days that you have spent away from your duty station (i.e., TDY – not to include days deployed)?	①	②	③	④	⑤	⑥	⑦
91.	Over the previous 12 months, how satisfied are you with the number of training exercises that you have participated in (i.e., Silver Flag, Eagle Flag, etc.)?	①	②	③	④	⑤	⑥	⑦
92.	Over the previous 12 months, how satisfied are you with the number of times that you have had to work longer than your normal duty day?	①	②	③	④	⑤	⑥	⑦
93.	Overall, how satisfied are you with your perceived level of operations tempo (i.e., number of deployments, number of days TDY over the last 12 months, number of training exercises over the last 12 months, number of times you have had to work longer than your normal duty day)?	①	②	③	④	⑤	⑥	⑦

PART VII

**Environmental Issues
(Civilian Labor Market)**

We would like to understand how you feel about the civilian labor market. Questions 94 thru 110 will help us do that. For question 94 thru 108, 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	Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Agree	Strongly Agree				
94.	If I were to enter the civilian job market, I would receive many job offers from many organizations.			①	②	③	④	⑤	⑥	⑦
95.	It would be easy for me to get a job in a location where I'd prefer to work.			①	②	③	④	⑤	⑥	⑦
96.	There really aren't very many jobs for people like me in today's job market.			①	②	③	④	⑤	⑥	⑦
97.	Given my qualifications and experience, getting a new job would not be very hard at all.			①	②	③	④	⑤	⑥	⑦
98.	I can think of a number of organizations that would probably offer me a job if I was looking.			①	②	③	④	⑤	⑥	⑦
99.	If I looked for a job, I would probably wind up with a <i>better</i> job than the one I have now.			①	②	③	④	⑤	⑥	⑦
100.	By and large, the jobs I could get if I left here are <i>superior</i> to the job I have now.			①	②	③	④	⑤	⑥	⑦
101.	Most of the jobs I could get would be an <i>improvement</i> over my present circumstances.			①	②	③	④	⑤	⑥	⑦
102.	I have a far-reaching "network" of contacts which could help me find out about other job opportunities.			①	②	③	④	⑤	⑥	⑦
103.	I have contacts in other companies who might help me line up a new job.			①	②	③	④	⑤	⑥	⑦
104.	My work and/or social activities tend to bring me in contact with a number of people who might help me line up a new job.			①	②	③	④	⑤	⑥	⑦
105.	Right now, I have a job offer "on the table" from another company, if I choose to take it.			①	②	③	④	⑤	⑥	⑦
106.	I have found a better alternative than my job.			①	②	③	④	⑤	⑥	⑦

① Strongly Disagree	② Disagree	③ Slightly Disagree	④ Neither Agree or Disagree	⑤ Slightly Agree	⑥ Agree	⑦ Strongly Agree				
107. I am unable to move to another place of residence now even if a better job came along.				①	②	③	④	⑤	⑥	⑦
108. There are too many factors in my personal life (e.g., school age children, relatives, etc.) which make it very difficult for me to leave in the near future.				①	②	③	④	⑤	⑥	⑦

For question 109 and 110 respond by CHECKING THE BOX ☒ that best describes you.

109. Compared to other career fields, what do you feel is the current demand for your occupation in civilian employment?
- ☐ **Very High**
 - ☐ **High**
 - ☐ **Neither High or Low**
 - ☐ **Low**
 - ☐ **Very Low**
110. Suppose that you are offered an opportunity for civilian employment. Assuming that you could separate from the Air Force, how likely is it that you would choose to do so?
- ☐ **Very Likely**
 - ☐ **Likely**
 - ☐ **Neither Likely or Unlikely**
 - ☐ **Unlikely**
 - ☐ **Very Unlikely**

PART VIII

Career Intentions

We would like to understand how you feel about your career intentions. Questions 111 thru 124 will help us do that. For questions 111 thru 115, please fill in the circle for the number that best indicates your desire to stay. Use the scale below for your responses.

①	②	③	④	⑤
Greatly Decreased My Desire to Stay	Decreased My Desire to Stay	Neither Increased or Decreased My Desire to Stay	Increased My Desire to Stay	Greatly Increased My Desire to Stay
111. What impact have deployments had on your military career intentions?	①	②	③	④ ⑤
112. What impact has the lack of deployments had on your military career intentions?	①	②	③	④ ⑤
113. What impact has time away (or lack thereof) from your permanent duty stations had on your military career intentions?	①	②	③	④ ⑤
114. What impact has the lack of time away from your permanent duty stations had on your military career intentions?	①	②	③	④ ⑤
115. What impact has your perceived level of operations tempo (i.e., number of deployments, number of days TDY over the last 12 months, number of training exercises over the last 12 months, number of times you have had to work longer than your normal duty day) had on your military career intentions?	①	②	③	④ ⑤

For questions 116 thru 122 please fill in the circle for the number that indicates the extent to which you believe the statement is true. Use the scale below for your responses.

① Strongly Disagree	② Disagree	③ Slightly Disagree	④ Neither Agree or Disagree	⑤ Slightly Agree	⑥ Agree	⑦ Strongly Agree				
116. I have thought about separating in the last 9 months.				①	②	③	④	⑤	⑥	⑦
117. I am thinking of leaving the Air Force.				①	②	③	④	⑤	⑥	⑦
118. I am thinking of leaving the CE career field.				①	②	③	④	⑤	⑥	⑦
119. I am planning to look for a new job outside of the Air Force within the next year.				①	②	③	④	⑤	⑥	⑦
120. I am planning to look for a new job outside of the CE career field within the next year.				①	②	③	④	⑤	⑥	⑦
121. I expect to work within the Air Force beyond my current commitment.				①	②	③	④	⑤	⑥	⑦
122. I expect to work within the CE career field beyond my current commitment.				①	②	③	④	⑤	⑥	⑦

For question 123 and 124 respond by CHECKING THE BOX ☒ that best describes you.

123. Suppose that you have to decide whether to stay on active duty. Assuming that you could stay, how likely is it that you would choose to do so?
- ☐ **Very Likely**
 - ☐ **Likely**
 - ☐ **Neither Likely or Unlikely**
 - ☐ **Unlikely**
 - ☐ **Very Unlikely**
124. Which best describes your current active duty Air Force career intentions?
- ☐ **Definitely stay in until retirement**
 - ☐ **Probably stay in until retirement**
 - ☐ **Definitely stay in beyond present obligation, but not until retirement**
 - ☐ **Undecided**
 - ☐ **Probably leave upon completion of current obligation**
 - ☐ **Definitely leave upon completion of current obligation**

PART IX

Demographics

This final section contains items regarding your personal characteristics. These items are very important for statistical purposes. Respond to each item by **WRITING IN THE INFORMATION** requested or **CHECKING THE BOX** ☒ that best describes you

125. What is your gender?

- ☐ **Male**
- ☐ **Female**

126. What is your age? _____ years

127. What is your rank?

- ☐ **Second Lieutenant (O-1)**
- ☐ **First Lieutenant (O-2)**
- ☐ **Captain (O-3)**

128. How long have you served on Active Duty Air Force?

_____ year(s) _____ month(s)

129. How long have you served Active Duty Air Force within the Civil Engineer Officer career field (AFSC – 32EX)?

_____ year(s) _____ month(s)

130. What is your current marital status?

- ☐ **Single (never married)**
- ☐ **Married**
- ☐ **Legally separated**
- ☐ **Divorced**
- ☐ **Widowed**

131. Is your spouse currently employed?

- ☐ **No**
- ☐ **Yes**
- ☐ **Does not apply**

132. Do you have children?

☐ **No**

☐ **Yes**

If yes, how many? _____

133. What is the highest level of education that you have completed?

☐ **Bachelor's Degree** **How many? _____**

☐ **Master's Degree** **How many? _____**

☐ **Doctorate Degree** **How many? _____**

☐ **Other (please specify) _____**

134. Have you passed the Fundamentals of Engineering (FE) exam?

☐ **No**

☐ **Yes**

☐ **Have not taken the exam**

☐ **Does not apply (not related to my specialty)**

135. Have you passed the Professional Engineers (PE) exam?

☐ **No**

☐ **Yes**

☐ **Have not taken the exam**

☐ **Does not apply (not related to my specialty)**

Thank you for your participation!

Appendix B: EOD Retention Survey (Tramel, 2008)

Demographics

Military Status:

- 1 = Active Duty
- 2 = Air National Guard
- 3 = Air Force Reserves

How many years of service have you served in the EOD Career Field: Drop down 1 – 30+ years

Gender:

- 1 = Male
- 2 = Female

What is your current rank: AB, AMN, A1C, SrA, SSgt, TSgt, MSgt, SMSgt, CMSgt

What is your current age:

What is your marital status:

- 1 = Single, never married
- 2 = Married
- 3 = Separated
- 4 = Divorced
 - 4a = 1
 - 4b = 2
 - 4c = 3
 - 4d = More
- 5 = Widow/er

How many children do you have? 1, 2, 3, 4, 5, 6, more

What is/are their age(s): <1, 1 – 40+

Educational Level (highest level completed):

- 1 = High School/GED
- 2 = Some college
- 3 = 2-year college degree (CCAF, Associate degree)
- 4 = 4-year college degree (BS, BA)
- 5 = Higher Education

Number of Deployments since 2001: (1-2), (3-4), (5-6), (7-8), (9-10), (10+)

Total number of days TDY's in the past 18 months, non-deployment (Training, Exercises, Range Clearances, Security Details, PME, ect.): 1 - 25, 26 - 50, 51 – 75, 76 – 100, 101 – 125, 126+

1. Disagree Very Strongly 2. Disagree Strongly 3. Disagree 4. Agree 5. Agree Strongly 6. Agree Very Strongly		
PayS 1	I feel I am being paid a fair amount for the work I do.	1 2 3 4 5 6
PayS 2	I am unappreciated by the Air Force when I think about what they pay me? (R)	1 2 3 4 5 6
PS 1	There is really too little chance for promotion on my job. (R)	1 2 3 4 5 6
PS 2	Those who do well on the job stand a fair chance of being promoted.	1 2 3 4 5 6
PS 3	People get ahead as fast here as they do in other places.	1 2 3 4 5 6
PS 4	I am satisfied with my chances for promotion.	1 2 3 4 5 6
WS 1	I sometimes feel my job is meaningless. (R)	1 2 3 4 5 6
WS 3	I feel a sense of pride in doing my job.	1 2 3 4 5 6
WS 4	My job is enjoyable.	1 2 3 4 5 6
TI 1	I have thought of separating in the last 9 months.	1 2 3 4 5 6
TI 2	I am thinking of leaving the Air Force.	1 2 3 4 5 6
TI 3	I am planning to look for a new job within the next year.	1 2 3 4 5 6

1. Disagree Very Strongly 2. Disagree Strongly 3. Disagree 4. Agree 5. Agree Strongly 6. Agree Very Strongly			
		Home Station	Deployed Location
WS 2	I like doing the things I do at work.	1 2 3 4 5 6	1 2 3 4 5 6

	1. Disagree Very Strongly 2. Disagree Strongly 3. Disagree 4. Agree 5. Agree Strongly 6. Agree Very Strongly	
WFC 1	The demands of my work interfere with my home and family life.	1 2 3 4 5 6
WFC 2	The amount of time my job takes up makes it difficult to fulfill family responsibilities.	1 2 3 4 5 6
WFC 3	Things I want to do at home do not get done because of the demands my job puts on me.	1 2 3 4 5 6
WFC 4	My job produces strain that makes it difficult to fulfill family duties.	1 2 3 4 5 6
WFC 5	Due to work-related duties, I have to make changes to my plans for family activities.	1 2 3 4 5 6
FWC 1	The demands of my family or spouse/partner interfere with work-related activities.	1 2 3 4 5 6
FWC 2	I have to put off doing things at work because of demands on my time at home.	1 2 3 4 5 6
FWC 3	Things I want to do at work don't get done because of the demands of my family or spouse/partner.	1 2 3 4 5 6
FWC 4	My home life interferes with my responsibilities at work such as getting to work on time, accomplishing daily tasks, and working overtime.	1 2 3 4 5 6
FWC 5	Family-related strain interferes with my ability to perform job-related duties.	1 2 3 4 5 6

1. Disagree Very Strongly 2. Disagree Strongly 3. Disagree 4. Agree 5. Agree Strongly 6. Agree Very Strongly			
Question #	Statement	Air Force	EOD Career Field
POS 1	The _____ values my contributions to its well-being.	1 2 3 4 5 6	1 2 3 4 5 6
POS 2	If the _____ could hire someone to replace me at a lower salary it would do so. (R)	1 2 3 4 5 6	1 2 3 4 5 6
POS 3	The _____ fails to appreciate any extra effort from me. (R)	1 2 3 4 5 6	1 2 3 4 5 6
POS 4	The _____ strongly considers my goals and values.	1 2 3 4 5 6	1 2 3 4 5 6
POS 5	The _____ would ignore any complaints from me. (R)	1 2 3 4 5 6	1 2 3 4 5 6
POS 6	The _____ disregards my best interest when it makes decisions that affect me. (R)	1 2 3 4 5 6	1 2 3 4 5 6
POS 7	Help is available from the _____ when I have a problem.	1 2 3 4 5 6	1 2 3 4 5 6
POS 8	The _____ really cares about my well being.	1 2 3 4 5 6	1 2 3 4 5 6
POS 9	The _____ is willing to extend itself in order to help me perform my job the best of my ability.	1 2 3 4 5 6	1 2 3 4 5 6
POS 10	Even if I did the best job possible, the _____ would fail to notice. (R)	1 2 3 4 5 6	1 2 3 4 5 6
POS 11	The _____ is willing to help me when I need a special favor.	1 2 3 4 5 6	1 2 3 4 5 6
POS 12	The _____ cares about my general satisfaction at work.	1 2 3 4 5 6	1 2 3 4 5 6
POS 13	If given the opportunity, the _____ would take advantage of me. (R)	1 2 3 4 5 6	1 2 3 4 5 6
POS 14	The _____ shows very little concern for	1 2 3 4 5 6	1 2 3 4 5 6

	me. (R)		
POS 15	The _____ cares about my opinions.	1 2 3 4 5 6	1 2 3 4 5 6
POS 16	The _____ takes pride in my accomplishments at work.	1 2 3 4 5 6	1 2 3 4 5 6
POS 17	The _____ tries to make my job as interesting as possible.	1 2 3 4 5 6	1 2 3 4 5 6
AC 1	I would be very happy to spend the rest of my career within the _____. (RS)	1 2 3 4 5 6	1 2 3 4 5 6
AC 2	I really feel as if the _____ problems are my own. (RS)	1 2 3 4 5 6	1 2 3 4 5 6
AC 4	I do not feel like “part of the family” in the _____. (R) (RS)	1 2 3 4 5 6	1 2 3 4 5 6
AC 5	I do not feel “emotionally attached” to the _____. (R) (RS)	1 2 3 4 5 6	1 2 3 4 5 6
AC 6	This _____ has a great deal of personal meaning for me. (RS)	1 2 3 4 5 6	1 2 3 4 5 6
AC 7	I do not feel a strong sense of belonging to the _____. (R) (RS)	1 2 3 4 5 6	1 2 3 4 5 6
NC 1	I do not feel any obligation to remain in the _____. (R)	1 2 3 4 5 6	1 2 3 4 5 6
NC 2	Even if it were to my advantage, I do not feel it would be right to leave the _____ organization now.	1 2 3 4 5 6	1 2 3 4 5 6
NC 3	I would feel guilty if I left the _____ now.	1 2 3 4 5 6	1 2 3 4 5 6
NC 4	The _____ deserves my loyalty.	1 2 3 4 5 6	1 2 3 4 5 6
NC 5	I would not leave the _____ right now because I have a sense of obligation to the people in it.	1 2 3 4 5 6	1 2 3 4 5 6
NC 6	I owe a great deal to the _____.	1 2 3 4 5 6	1 2 3 4 5 6
CC 1	It would be very hard for me to leave the _____ right now, even if I wanted to. (RS)	1 2 3 4 5 6	1 2 3 4 5 6
CC 2	Too much in my life would be disrupted if I decide I wanted to leave the _____ now. (RS)	1 2 3 4 5 6	1 2 3 4 5 6
CC 3	Right now staying with the _____ is a matter of necessity as much as desire. (RS)	1 2 3 4 5 6	1 2 3 4 5 6
CC 4	I feel I have too few options to consider leaving the _____. (RS)	1 2 3 4 5 6	1 2 3 4 5 6

CC 5	One of the few serious consequences of leaving the _____ would be the scarcity of available alternatives. (RS)	1 2 3 4 5 6	1 2 3 4 5 6
CC 6	One of the major reasons I continue to work for the _____ is that leaving would require considerable personal sacrifice — another organization may not match the overall benefits that I have here. (RS)	1 2 3 4 5 6	1 2 3 4 5 6
TI 4	I expect to work within the _____ beyond my current enlistment. (R)	1 2 3 4 5 6	1 2 3 4 5 6
TI 5	I am satisfied at being in the _____.	1 2 3 4 5 6	1 2 3 4 5 6

1. Very Dissatisfied 2. Somewhat Dissatisfied 3. Dissatisfied 4. Satisfied 5. Somewhat Satisfied 6. Very Satisfied			
How dissatisfied or satisfied are you with the following?		Home Station	Deployed Location
NWS 1	My dorm room or house.	1 2 3 4 5 6	1 2 3 4 5 6
NWS 2	The entertainment/recreation/club facilities that are available.	1 2 3 4 5 6	1 2 3 4 5 6
NWS 3	Communication with host country nationals.	1 2 3 4 5 6	1 2 3 4 5 6
NWS 5	My personal safety.	1 2 3 4 5 6	1 2 3 4 5 6

1. Very Dissatisfied 2. Somewhat Dissatisfied 3. Dissatisfied 4. Satisfied 5. Somewhat Satisfied 6. Very Satisfied		
How dissatisfied or satisfied are you with the following?		Home Station
NWS 4	The schools my children attend.	1 2 3 4 5 6
NWS 6	Child care arrangements/facilities.	1 2 3 4 5 6
NWS 7	The quality of education my children receive.	1 2 3 4 5 6

0. Never 1. Less Than Once a Month 2. Once or Twice a Month 3. Once or Twice a Week 4. Once a Day 5. More Often 6. N/A		
How often do you and your spouse/partner ...		
MC 1	engage in outside interests together?	0 1 2 3 4 5 6
MC 2	have a stimulating exchange of ideas?	0 1 2 3 4 5 6
MC 3	laugh together?	0 1 2 3 4 5 6
MC 4	calmly discuss something?	0 1 2 3 4 5 6
MC 5	work together on a project?	0 1 2 3 4 5 6

- CI 1: Which best describes your current active duty Air Force career intentions?
- a. “defiantly stay in until retirement”
 - b. “probably stay in until retirement”
 - c. “definitely stay in beyond present obligation, but not until retirement”
 - d. “undecided”
 - e. “probably leave upon completion of current obligation”
 - f. “definitely leave on completion of current obligation”

OEQ 1: What is the one thing that would increase your decision to remaining in the Air Force as an EOD Airman?

OEQ 2: If you intend to remain in Air Force EOD, what are the main reasons?

OEQ 3: If you intend to leave the EOD career field, but remain in the Air Force, what are the main reasons?

OEQ 4: If you decided to separate from the Air Force, what would be the number one reason?

OEQ 5: If you decided to separate from the Air Force, what would your next occupation be?

OEQ 6: How much time do you spend on off-duty education?

Vita

Captain Joseph A. Tortella grew up in Columbia, Maryland and graduated from Howard High School in 2000. Following graduation he entered undergraduate studies at the United States Air Force Academy in Colorado Springs, Colorado where he graduated with a Bachelor of Science degree in Civil Engineering in 2004. Upon graduation he was commissioned through the United States Air Force Academy and assigned to the 89th Civil Engineer Squadron as a member of the Presidential Wing at Andrews Air Force Base, Maryland. While stationed at Andrews, he held the position of Chief of Programming as well as filling Executive Officer duties for the 89th Mission Support Group. During this assignment, Captain Tortella was deployed to Southwest Asia in support of OPERATION IRAQI FREEDOM, OPERATION ENDURING FREEDOM, and HORN OF AFRICA. While deployed, he was assigned to the 379th Expeditionary Civil Engineer Squadron as the Chief of Construction Management. In August of 2007, he entered Graduated School at the Air Force Institute of Technology at Wright-Patterson Air Force Base, Ohio and in March of 2009 graduated with a Master of Science in Engineering Management. Following graduation, Captain Tortella will be assigned to the 51st Civil Engineer Squadron at Osan Air Base, Republic of South Korea.

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14. ABSTRACT From a managerial perspective, the attraction and retention of high-quality employees is more important today than ever before (Holtom, Mitchell, Lee, & Eberly, 2008). This continuing growth of importance with regards to retention has validated the efforts of many studies within the context of turnover to better understand the relationship between these behaviors. Employers want to know what the reasons are for employee turnover. However, more importantly is that once behaviors are identified the employers are then equipped with a better understanding of how this relationship can be controlled. This relationship also has significant importance within the military structure because of its difference when compared to other firms and organizations. As military operations continue to develop and requirements continue to grow, it is critical to maintain continuity through retention of experienced, high-quality members. The United States military relies solely on training and developing its young members to grow into the senior leaders of its organization; it does not recruit senior executives from outside the organization to function as the senior leaders. The uniqueness of this structure within the United States military expresses in itself the importance of retention and controlling turnover among its members. As a result to this form of operation, Congress, the Department of Defense, and military commanders are concerned by the increased rates of turnover (Huffman, Adler, Dolan, & Castro, 2005). The purpose of this study intends to address this concern.					
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