THE EFFECT OF MAJOR ORGANIZATIONAL POLICY

ON EMPLOYEE ATTITUTES TOWARD GRADUATE DEGREES

THESIS

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AFIT/GEM/ENV/06M-05

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AFIT/GEM/ENV/06M-05

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THESIS

Presented to the Faculty

Department of Systems and Engineering Management

Graduate School of Engineering and Management

Air Force Institute of Technology

Air University

Air Education and Training Command

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Engineering Management

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March 2006

AFIT/GEM/ENV/06M-05

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Abstract

Leaders initiate policies not only to improve the success of their organizations, but to influence employee performance, whereby employee attitudes toward a policy objective can influence their resulting behaviors. One group of employees, Air Force officers, experienced a policy change in 2005 that discontinued the use of academic degrees as criteria for officer promotions. With this change, there is a concern that the number of Air Force officers with graduate degrees might decrease. In particular, senior leaders in the Civil Engineer (CE) officer career field are concerned that this policy change might reduce the number of officers available to fill critical positions identified as requiring a graduate degree.

This study used a web-based survey to assess the attitudes of CE officers toward pursuing graduate degrees and revealed that their attitudes were not impacted by the policy change. In fact, their perceptions regarding the importance of graduate degrees remain high. In addition, the lower their intentions to leave the Air Force, the more effort they expended researching the pursuit of a graduate degree. Most of them reported researching graduate degree information at least once during 2005 and intending to earn one by 2010. Therefore, senior leaders should not expect to see a decline in the number of CE officers possessing graduate degrees in the near future.

To my deceased Father

Acknowledgments

First and foremost, I would like to thank my wife for her continuous support during our time at the Air Force Institute of Technology. The past eighteen months have been very challenging, and I appreciate her patience, support, guidance, and love during this long endeavor! Not only did she manage to keep our household in order while homeschooling our three oldest children, but also gave birth to our fourth child. In addition, I would like to thank my children for the time they gave up not having their dad around as often as they would have preferred.

Next, I want to thank my thesis advisor, Dr. Al Thal, for his support and guidance. His persistence and attention to detail sewed the conditions for the successful completion of this work. Furthermore, special thanks go to Colonel Jared Astin, Major Kent Halverson, and Major Mike Staples for their constructive feedback and direction concerning this research topic. This work would not have been possible without their encouraging and expert guidance.

Finally, I appreciate all the survey respondents who participated in making this a representative study. I want them to know how important their responses were in making this work beneficial to the Civil Engineer community. I am truly grateful for having had the opportunity of reaching out to so many of you.

Frank R. Hughes

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Chapter I. Introduction

Major organizational policies are used by leaders not only to improve the success

of their organizations, but to influence employee performance, whereby, employee

attitudes toward a policy objective influence their resulting behaviors. One group of

employees, Air Force officers, recently experienced a major policy change that

discontinued the use of academic degrees as criteria for officer promotions to the ranks of

lieutenant colonel and colonel. First, in 1997, degrees were removed from promotion

boards through the rank of major (U.S. Air Force AFI 36-2506, 1997), then, in 2005, they

were removed from promotion boards for the ranks of lieutenant colonel and colonel

(Jumper, 2005). With this latest policy change (see Appendix A), there is a concern that

the number of Air Force officers with graduate degrees could decrease. In particular,

senior leaders in the Civil Engineer (CE) officer career field are concerned that this

policy change could reduce the number of officers available to fill critical positions

identified for those possessing a graduate degree. Therefore, this study looks into the

possible effect the 2005 policy change may have on CE officers by examining their

attitudes toward pursuing graduate degrees in relation to the policy and attempting to

predict their resulting behaviors. Moreover, the perceived values and attitudes of CE

company and field grade officers may illuminate differences in their perceptions

regarding graduate education.

Background

Major Organizational Policy and Employee Attitudes

A policy is an element of organizational culture that is contained within the culture's *formal philosophy*, which comprises "the broad policies and ideological principles that guide a group's actions" (Schein, 1995, p. 372). Leaders of organizations initiate policies to clarify their goals to create a successful organization while influencing the behaviors of their employees (von Solms & von Solms, 2004). In particular, major organizational policies are those that impact a majority of an organization's workforce, such as downsizing and promotion plans (Foote, Seipel, Johnson, & Duffy, 2005).

Leaders initiate policies after investing much time in the policy-making process, which has been differentiated according to the unique situations that leaders face when deciding the appropriate policy to make (Prus, 2003). In particular, after leaders have introduced a policy, employees evaluate its objective and use it as the basis for forming their attitudes and resulting behaviors (Prus, 2003).

Furthermore, the perceived values that employees have for a policy objective have been found to influence their attitudes and behaviors (Foote *et al.*, 2005). Attitudes are psychological tendencies to evaluate a particular object (such as an organizational policy) either favorably or unfavorably (Eagly & Chaiken, 1993) and are developed through experiences with the object (Campbell, 1963). They can be assessed using an attitude survey, which aids in understanding the value and effectiveness of an object (Foote *et al.*, 2005). Furthermore, the personal characteristics of employees can be used to show how employee attitudes and behaviors are related (Steel & Ovalle, 1984), and the perceived values employees hold for an object have been used to predict their attitudes and

behaviors (Koberg & Chusmir, 1987). The next section discusses the attitudes of a particular group of employees toward graduate degrees.

Attitudes of U.S. Air Force CE Officers toward Graduate Degrees

There are several reasons why engineers pursue graduate degrees, to include employment (Bureau of Labor Statistics [BLS], 2006) and improving job skills (Brisley, 1977). Whatever the reason, it appears that engineers may perceive graduate degrees as being important to them since roughly 40% of U.S. engineers will earn graduate degrees at some point during their careers (Sheppard & Silva, 2001). In fact, one group of engineers, U.S. Air Force Civil Engineer (CE) officers, seems to perceive graduate degrees very important since approximately 55% of them possess one (Johnson , 2005), which is a higher rate than that predicted by Sheppard and Silva (2001) above.

Several variables, seen from demographics (AFPC, 2005), may influence the attitudes of CE officers toward graduate degrees: rank, tenure, and position requirements. A relationship appears to exist between rank and graduate degrees, whereby the higher their rank, the greater the percentage of officers with at least a graduate degree (AFPC, 2005). This same relationship is reflected in their time in military service (i.e., tenure), whereby the longer they have served, the greater the percentage of officers with at least a graduate degree (AFPC, 2005). Lastly, certain positions in the CE career field have been identified by senior CE leaders (see Appendix B) to be filled by officers who possess graduate degrees when possible (Robbins, 2001). Therefore, these three variables may impact the attitudes of CE officers toward graduate degrees.

Measuring the Effect of Major Organizational Policy on Employee Attitudes

The relationships between rank, tenure, position requirements and the number of CE officers possessing a graduate degree have become more important since early 2005 when the Air Force initiated a policy change to existing rules used by officer promotion boards – the discontinuation of academic degrees as criteria in officer promotions for the ranks of lieutenant colonel and colonel (Jumper, 2005). However, this policy change was not the first of its kind; a similar policy change occurred in 1997 that affected officer promotions for the ranks of captain and major (U.S. Air Force AFI 36-2506, 1997). A possible result of the 1997 policy change is a marked decrease in number of graduate degrees held by the 1997 and 1998 officer year groups (i.e., their commissioning year) (AFPC, 2005).

Since enough time has not passed to identify any trends among CE officers as a result of the 2005 policy change, their attitudes toward graduate degrees might reveal an indication of their behaviors. Fishbein and Ajzen's (1975) Model of Reasoned Action, which has been used to successfully explain the relationship between perceived values, attitudes, and behaviors, may provide a structure for assessing the effects of a major organizational policy on employee attitudes. It is useful in predicting behaviors based on the perceived values of and attitudes toward both behavioral and goal intentions (Sheppard, Hartwick, & Warshaw, 1988), where the difference between a behavioral and goal intention depends on the degree of external influence involved. For example, a behavioral intention could be simply intending to go eat at a fast food restaurant (Brinberg & Durand, 1983), while a goal intention could be intending to have a child

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within the next three years (Loken & Fishbein, 1980). Although both forms involve external influences, there are many more external influences with goal intentions.

The model also uses two forms of measures depending on the type of intention being assessed - measure of intention and measure of estimate (Fishbein & Ajzen, 1975). The former is used to predict behavioral intentions by simply asking respondents if they intend to perform a certain activity; however, the former is used to predict goal intentions by asking respondents to estimate the likelihood of achieving a certain goal (Sheppard *et al*., 1988). The difference in measures is appropriate because achieving a goal, unlike performing a behavior, is determined by a great amount of external influences that respondents may consider when asked to estimate their likelihood of goal achievement (Sheppard *et al*., 1988).

In addition, under the assumption that one's decision to pursue a graduate degree is a career move comparable to that of changing one's employer, one measure from job turnover that has been shown to influence employee attitudes and behaviors toward quitting their jobs is intent to leave (Mitchell, Holtom, Lee, Sablynski, & Erez, 2001). Hence, it is assumed that intent to leave may possess a moderating effect on the relationship between the 2005 policy change and CE officer attitudes toward graduate degrees. Moreover, need for achievement from motivation theory (Herzberg, Mausner, & Snyderman, 1959), which describes people who "set goals that are challenging, yet can be realistically achieved" (McClelland, 1961, p. 43), may also possess a moderating effect on the same relationship.

Problem Statement

The Air Force initiated a policy change in 2005 that discontinued the use of academic degrees as criteria for officer promotions to the ranks of lieutenant colonel and colonel; however, not enough time has passed to identify any behavioral trends related to this policy change. Therefore, the primary purpose of this research is to assess the perceived values, attitudes, motivational needs, and demographics of CE officers to determine if this policy change has impacted their attitudes toward graduate degrees. Specifically, senior CE leaders are concerned that in the near future many positions that require officers with graduate degrees will increasingly be filled by officers who do not possess one (Staples, 2005). It is also be important to know how CE company grade officers (CGOs) and field grade officers (FGOs) value graduate degrees and the type of degrees, engineering or management-based, they feel are most appropriate for CE officers to pursue.

Hypotheses

To address these concerns seven hypotheses were developed based on theory. These hypotheses consist of four areas of interest: (1) Effect of Air Force's 2005 Policy Change on CE Officer Attitudes and Behaviors; (2) Moderation of Relationship between the Policy Change and Importance of Degrees; (3) Moderation of Relationship between the Policy Change and Degree Search Behavior; and (4) Mediation of Relationship between the Policy Change and Degree Search Behavior. These hypotheses are briefly discussed next.

Effect of Policy Change on Attitudes and Behaviors

The Air Force's 2005 policy change is an example of a major organizational policy since it impacts all employees in the Air Force (Foote *et al*., 2005). With this change, there is a concern that officers may be less motivated to pursue graduate degrees. Therefore, the Model of Reasoned Action's *measurement of estimate* for goal achievement (Fishbein & Ajzen, 1975) was used to design two hypotheses that examine the effects of the policy change on attitudinal (*perceived importance of graduate degrees*) and behavioral (*degree search behavior*) intentions of CE officers toward graduate degrees.

> <u>Hypothesis 1a:</u> *The Air Force's 2005 policy change will negatively influence the perceived importance CE officers hold for graduate degrees.*

> <u>Hypothesis 1b:</u> *The Air Force's 2005 policy change will negatively influence graduate degree search behavior of CE officers.*

Moderation Effects

To further explore these hypotheses, the moderations effect of two variables, intent to leave and need for achievement, were also examined.

Intent to leave as a moderator. Under the assumption that one's decision to pursue a graduate degree is a career move comparable to that of changing one's employer, one measure from job turnover that has been shown to influence employee attitudes and behaviors toward quitting their jobs is intent to leave (Mitchell *et al*., 2001). "Job attitudes combined with job alternatives predict intent to leave, which is the direct antecedent to turnover" (Mitchell *et al*., 2001, p.1102). Since it is assumed that intent to leave may possess a moderating effect on the relationships in Hypotheses 1a and 1b, two hypotheses were designed to examine the existence of this effect.

Hypothesis 2a: *Intent to leave the Air Force will moderate the relationship between the 2005 policy change and the perceived importance of graduate degrees such that the relationship will be weaker as the intent to leave increases.*

Hypothesis 2b: *Intent to leave the Air Force will moderate the relationship between the 2005 policy change and graduate degree search behavior such that the relationship will be weaker as the intent to leave increases.*

Need for achievement as a moderator. Just as employee attitudes can be influenced by the perceived values employees hold for an object (Koberg & Chusmir, 1987), motivation has also been reported to impact employee attitudes (Feldman & Bolino, 2000). According to McClelland (1961), a person who has a stronger motivational need for achievement will "set goals that are challenging, yet can be realistically achieved" (p. 43). Since it is assumed that need for achievement may possess a moderating effect on the relationships in Hypotheses 1a and 1b, two hypotheses were designed to examine the existence of this effect.

Hypothesis 3a: *Need for Achievement will moderate the relationship between the 2005 policy change and the perceived importance of graduate degrees such that the relationship will be weaker as the need for achievement increases.*

Hypothesis 3b: *Need for Achievement will moderate the relationship between the 2005 policy change and graduate degree search behavior such that the relationship will be weaker as the need for achievement increases.*

Mediation Effects

Besides moderation effects, this research also examined a potential mediation effect regarding the policy change. The inclusion of a mediator attempts to explicate a basic relationship (Jose, 2006), such that a mediator carries the influence of an independent variable to a dependent variable, either partially or fully (Preacher &

Leonardelli, 2003). Therefore, Hypothesis 4 was designed to test whether importance for

graduate degrees was causing a mediating effect on the relationship in Hypothesis 1b.

> _Hypothesis 4:_   _Perceived importance of graduate degrees will mediate the relationship between the 2005 policy change and graduate degree search behavior._

Exploratory Issues

In addition to the theory-based hypotheses, a group of exploratory issues were

developed for which no theoretical basis exists. Eight exploratory research hypotheses

comprise of five areas of interest, which include: (1) Intent to Pursue a Graduate Degree

within Five Years; (2) Air Force-Sponsored Degree Program; (3) Engineering versus

Management-Based Graduate Degrees; (4) Distance Education; and (5) Graduate

Education as a Mentoring Topic. These hypotheses are briefly discussed next.

Intent to Pursue a Graduate Degree within Five Years

The _measurement of intention_ from the Model of Reasoned Action for predicting

the performance of a behavior (Fishbein & Ajzen, 1975) was used to design Hypotheses

5, which examines the possible effect the Air Force's 2005 policy change might have

upon the intentions of CE officers to pursue a graduate degree within the next five years.

> _Hypothesis 5:_   _The Air Force's 2005 policy change will negatively influence the intentions of CE officers to pursue graduate degrees within the next five years._

Air Force-Sponsored Degree Program

Although academic degree information of Air Force officers has been removed

from promotion boards, officers who attend an Air Force-sponsored degree program may

have a perceived promotion advantage since their training reports and duty histories,

which are still available, will highlight their advanced academic degree efforts.

Therefore, Hypothesis 6 looks at the possible effect the policy change might have on CE

officer desires to attend an Air Force-sponsored program.

> *Hypothesis 6:* *The Air Force's 2005 policy change will positively influence the desire to pursue graduate degrees through an Air Force-sponsored degree program of CE officers with a low intent to leave the Air Force and who meet the minimum GPA requirements for such a program.*

Engineering versus Management-Based Graduate Degrees

Engineers typically obtain either an engineering-based or management-based

graduate degree (BLS, 2006); however, the consensus on which type of degree is best is

divided between entry-level engineers, who usually prefer an engineering-based degree,

and senior-level engineers, who would encourage these individuals to pursue

management-based degrees (Giegold, 1982). In short, the type of degree engineers

pursue seems to be a matter of perspective. Furthermore, there is a strong inclination

(66%) towards management-based graduate degrees among CE officers, compared to

31% for engineering-based graduate degrees (AFPC, 2005). Since it seems that

managers and entry-level employees do not share the same views toward the type of

graduate degree one should pursue (Giegold, 1982), Hypotheses 7a and 7b examine the

possible differences that exist between the attitudes of CGOs and FGOs toward CE

officers having engineering-based graduate degrees and the importance of having the Air

Force's Force Development team choose the type of graduate degree.

> *Hypothesis 7a:* *CGO preferences for CE officers to have engineering-based graduate degrees are higher than FGO preferences.*

> *Hypothesis 7b:* *CGO perceptions regarding the importance of the Air Force choosing the type of graduate degree an individual pursues are lower than FGO perceptions.*

Distance Education

Another area of interest involves enhancing the Air Force's distance education resources by providing a more viable alternative for CE officers who choose the part-time method to pursue a graduate degree (Astin, 2005). However, this effort could be hampered by the perceptions that CGOs and FGOs have toward online graduate degrees (Astin, 2005). Thus, Hypotheses 8a and 8b explore these attitudes.

> <u>Hypothesis 8a</u>: *CGO preferences for distance education as a learning option are higher than FGO preferences.*

> <u>Hypothesis 8b</u>: *CGO preferences for online engineering-based graduate degrees over classroom non-engineering graduate degrees are higher than FGO preferences.*

Graduate Education as a Mentoring Topic

The final set of models was constructed to look at the behaviors and attitudes of FGOs toward the topic of graduate education, which may now seem less important from a promotion perspective. Thus, Hypotheses 9a and 9b were designed to see how often they used the topic of graduate education when interacting with company grade officers and how important they feel this topic is as a mentoring topic.

> <u>Hypothesis 9a</u>: *The topic of graduate education is the least used by FGOs when interacting with CGOs of nine mentoring topics.*

> <u>Hypothesis 9b</u>: *The topic of graduate education is perceived by FGOs to be the least important mentoring topic when interacting with CGOs.*

Methodology

Since it appears the Air Force did not conduct any surveys before issuing the 2005 policy change, this research intends to bridge that gap with a web-based attitude survey. The intended population includes all CE officers, and it will attempt to capture their attitudes and behaviors toward graduate degrees in regards to the policy change. Other

information, such as demographics, will be collected and used to either evaluate the hypotheses or provide descriptive statistics. The data will be analyzed using SPSS (Statistical Package for the Social Sciences) 13.0 for Windows, with the statistical analyses consisting primarily of linear regression and means comparisons.

Significance of Study

This research effort has the potential to provide very useful information for senior leaders in the CE career field. Specifically, it will provide them insight into the attitudes of CE officers towards graduate degrees and also help them better understand whether a problem exists as a result of the 2005 policy change. It will also compare the views of CGOs and FGOs regarding the most appropriate type of graduate degree for CE officers to pursue. Finally, it will explore the value FGOs attribute to graduate degrees by examining their mentoring behaviors and attitudes.

Purpose of Remaining Chapters

The remainder of this work is organized as follows. Chapter II will provide an in-depth review of relevant literature concerning the relationships involving major organizational policy, engineer attitudes and behaviors, and the attitudes of CE officers toward graduate degrees. Chapter III will discuss the research methodology employed; specifically, it will explain the measures and variables used in building the survey and the analysis techniques used. Chapter IV will provide the results of the data analysis used in calculating descriptive and reliability statistics in addition to the results of testing the theory-based hypotheses and examining the exploratory research issues. Finally, Chapter V will discuss conclusions, recommendations, and suggestions for future research.

Chapter II. Literature Review

This chapter presents a theoretical overview of how major organizational policies can affect employee attitudes toward a policy objective. In this study, the policy objective concerns the discontinuation of academic degrees as criteria in the promotions of one group of Air Force officers, Civil Engineer (CE) officers. The first section focuses on the reasons an organization engages in policy-making and describes how a policy can affect employee attitudes and behaviors through their perceived values of the policy objective. In particular, attitude surveys are presented as one method that organizations can use to gauge employee attitudes toward a policy objective.

The next section discusses CE officers and their attitudes toward graduate degrees. Several variables are presented that may impact CE officer attitudes toward graduate degrees: rank, tenure, and position requirements. The third major section presents an overview of the possible effect on CE officer attitudes toward graduate degrees caused by a major organizational policy change enacted by the Air Force in 2005. Fishbein and Ajzen's (1979) Model of Reasoned Action, which predicts behaviors by assessing perceived values and attitudes, is presented as a method for assessing this effect.

Next, theory-based hypotheses are presented to examine the possible effect of the 2005 policy change on the attitudes and behaviors of CE officers toward graduate degrees. In particular, possible moderating and mediating effects on these relationships are discussed. The chapter then concludes with a presentation of exploratory research questions that were examined in this study.

Major Organizational Policy and Employee Attitudes

Reasons for Policy

A policy is an aspect of organizational culture – "those shared basic assumptions that the group learned as it solved its problems...[and have] worked well enough to be considered valid" (Schein, 1995, p. 373). Organizational culture is "not something an organization has; [it is] something an organization is" (Pacanowsky & O'Donnell-Trujillo, 1983, p.126); in other words, it is where "an organization's identity, personality, and its distinctive values develop and reside" (Ott & Dicke, 2001, p. 333). The *formal philosophy* of organizational culture comprises "the broad policies and ideological principles that guide a group's actions" (Schein, 1995, p. 372). Thus, "organizational policies are specific elements of the work environment that directly impact employees' daily work activities, their interactions with coworkers, and their employer-employee relationships" (Foote *et al.*, 2005, p. 205).

"Policies, whether through directives, rules, [or] procedures, are essential for people to coordinate activities, cooperate with one another, and develop meaningful routines of interchange" (Prus, 2003, p.17). Without formal policies, an organization's activities might stagnate while employees wait for direction from leadership (Schein, 1995). Thus, leaders use policies to clarify their goals for creating a successful organization while influencing the behaviors of their employees to serve their interests (von Solms & von Solms, 2004). Those policies that impact a majority of an organization's workforce are called major organizational policies, which include organizational goals such as "downsizing, relocating, restructuring, technological upgrades, compensation and promotion plans, on-site educational programs, quality-focused initiatives, and employee participation programs" (Foote *et al.*, 2005, p. 205).

Policies, which are "actions that need to be taken or procedures that need to be followed" (von Solms & von Solms, 2004, p. 276), are usually initiated after leaders have spent much time on their creation through the process of policy-making (Prus, 2003). Policy-making has been differentiated according to the unique situations that face an organization's leaders when deciding the appropriate policy to make (Prus, 2003). In the government for example, bureaucrats use policy-making for choosing from among alternative strategies for best guiding a country (Spence, 1997).

Employee Attitudes, Behaviors, and Perceived Values

After leaders have introduced a policy, employees evaluate its objective and use it as the basis for forming their attitudes and resulting behaviors (Prus, 2003). The perceived values that employees have for a policy objective have been found to influence their attitudes and behaviors (Foote *et al*., 2005). Attitudes, which are psychological tendencies to evaluate a particular object either favorably or unfavorably (Eagly & Chaiken, 1993), are developed through experiences with an object (Campbell, 1963), in the case of this study, the object is the policy objective. Furthermore, since employee attitudes toward a policy objective can "play an important role in the employee's present beliefs about the value and efficacy of that policy," leaders must understand that any "negative responses to current or anticipated policies may not simply be an indication of recalcitrance, but may be a natural result of unpleasant past experiences with similar policies" (Foote *et al*., 2005, p. 215). To gauge employee attitudes, leaders can use an attitude survey which aids in understanding the value and effectiveness of a policy objective and can be conducted before policy implementation so leaders recognize and prepare for potential negative reactions, thereby improving the policymaking process (Foote *et al*., 2005).

Understanding employee attitudes is important to organizations because policies intended for employees can "prescribe and prohibit certain behaviors affecting their expectations about the organization and thereby influence their performance" (Siehl & Martin, 1984). Tepeci and Bartlett (2002) stated that attitudes and behaviors could be explained by assessing either an organization's characteristics or the individual characteristics of an employee, but Vandenberghe and Peiro (1999) have suggested that neither method may be sufficient by itself since both an organization and its employees act together to affect employee attitudes and behaviors. In addition, research in job turnover has shown how behaviors are connected to the psychological characteristics of employees (Steel & Ovalle, 1984). Thus, both organizational characteristics and personal characteristics of employees are important in understanding how their attitudes and behaviors are related.

In addition to attitudes and behaviors, another attribute are employee values, which guide one's behaviors in the form of goals or beliefs (Chatman, 1989). Values comprise fairly continuous beliefs that form a standard for "guiding action, developing attitudes, justifying one's own actions, and judging others" (Erdogan, Kraimer, & Liden, 2004, p. 308). While values have been found to remain fairly consistent following the first few years of employment (Schein, 1995), attitudes change depending on employees' perceived values for an object and their demographics (Loken & Fishbein, 1980). Although few researchers have investigated the effects of perceived values on attitudes and behaviors, some studies provide evidence of a relationship (Vandenberghe & Peiro, 1999). For example, Koberg and Chusmir (1987) reported that *perceived innovative culture* and *need for achievement* were positively related to *job satisfaction* and

negatively to *intention to leave*, which is a predictor of job turnover (Mitchell *et al*., 2001). Thus, the perceived values employees hold for an object (or policy objective) may help assess their attitudes toward that object and predict possible resulting behaviors (Koberg & Chusmir, 1987). The next section discusses the attitudes of a particular group of employees toward graduate degrees.

Attitudes of U.S. Air Force CE Officers toward Graduate Degrees

Perceived Importance of Graduate Degrees

A graduate degree is similar to continuing education courses, workshops or technical seminars, and membership in professional organizations in that it is an activity that improves one's job skills (Brisley, 1977). Professionals who are engaged in many development activities can increase their job skills over those pursuing fewer activities (Hazucha, Hezlett, & Schneider, 1993). Although they spend only about five percent of their time pursuing such activities (Saline, 1976), pursuing a graduate degree is not an uncommon practice among one particular group of professionals, engineers.

Engineers may choose to pursue graduate degrees because they are essential for engineering faculty positions and many research and development programs (BLS, 2006); however, it is not required for most entry-level engineering jobs (BLS, 2006). Even so, Sheppard and Silva (2001) predicted that out of the 63,000 American engineering students who graduated with a bachelor's degree in 1996, almost 40% would attain a graduate degree during their career. From these statistics, it would appear that engineers may perceive graduate degrees as being important to them.

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Rank and Tenure

A group of engineers that seems to perceive that graduate degrees are important for advancement and tenure are military engineers. In particular, this study examined a specific group of military engineers, U.S. Air Force Civil Engineer (CE) officers. This group of military engineers consists of over 1,500 officers, all of whom have at least a bachelor's degree from either an engineering discipline (e.g., civil, electrical, mechanical, industrial, etc.) or in architecture (AFPC, 2005). Moreover, approximately 55% of them possess graduate degrees (Johnson , 2005), which is a higher rate than that predicted by Sheppard and Silva (2001) above, suggesting that they perceive graduate degrees more importantly than the larger population of engineers overall. Figure 1 shows the highest level of education for CE officers by rank on a percentage basis (as of November, 2005). As indicated, all colonels (100%), almost every lieutenant colonel (99%), a high percentage of majors (88%), nearly half of captains (41%), and a small percentage of lieutenants (7%) possess a graduate degree. Thus, a relationship between rank and highest degree earned is apparent: the higher the rank (i.e., advancement), the greater the percent of officers with a graduate degree.
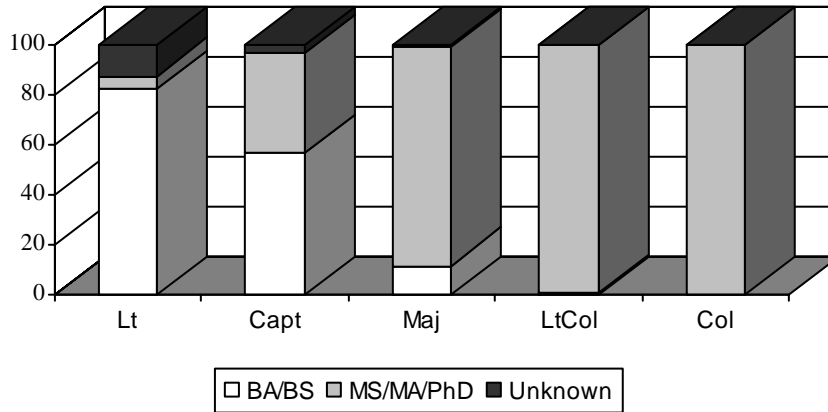
Figure 1. CE Officer Level of Education by Rank (AFPC, 2005)

Furthermore, a similar trend can be seen in Figure 2, which shows the percentage of CE officers who possess a graduate degree according to officer year group (the year they were commissioned). Thus, the more time officers spend in the Air Force, the more likely they possess graduate degrees. Therefore, it would appear the attitudes (i.e., perceived importance) of CE officers toward graduate degrees may be influenced by rank as is suggested in Figure 1 and/or their tenure (i.e., time in military service) as suggested in Figure 2.
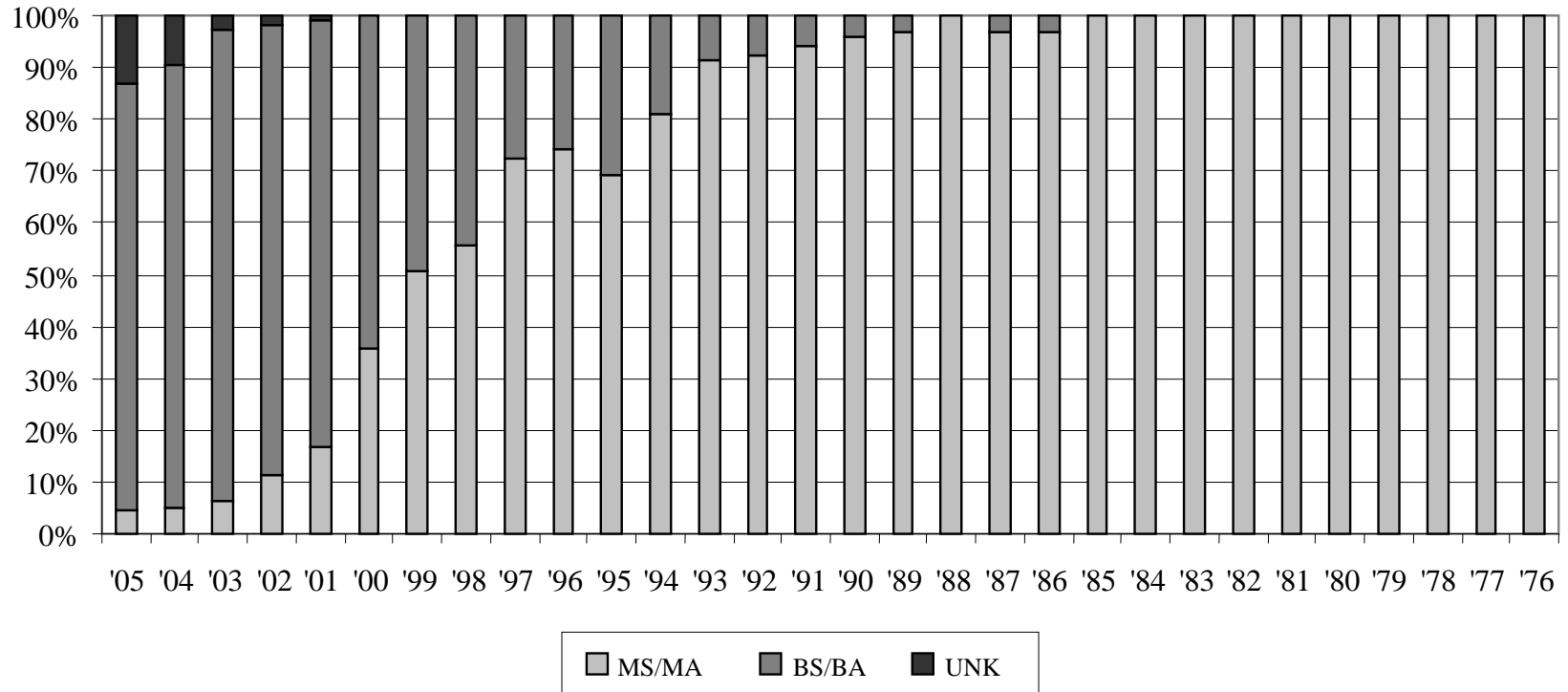
Figure 2. Percentage of CE Officers Who Possess Graduate Degrees According to Officer Year Group (AFPC, 2005)

Positions Requirements

There are numerous paths that can lead to a successful CE career; however, all paths suggest that the attainment of a graduate degree is necessary for the officer to reach his or her full potential in the career field (see Appendix C, CE Officer Career Planning Diagram). Their career starts by building upon their undergraduate education with several years of technical experience; at their four-year point, they usually begin gaining management experience. At about this point, officers may start to consider pursuing a graduate degree since it could help prepare them for the career challenges that lie ahead.

One type of assignment that almost every CE officer faces is a tour of staff duty. This is often a challenging assignment, not only because of the requirement to work closely with many senior CE officers, but also because of the emphasis on gathering information and summarizing it clearly for those same senior officers to make informed decisions. The latter aspect requires skills and education that are usually taught at the graduate level. Therefore, the CE career field has identified certain positions located at the Air Staff Headquarters, the Major Commands, and Field Operating Agencies to be filled by officers possessing at least a graduate degree when possible (Robbins, 2001). Furthermore, graduate degrees are also recommended for one to three positions in every CE squadron, with emphasis on flight chief positions (Robbins, 2001). This arrangement might suggest a further possible influence on the attitudes of CE officers toward graduate degrees, namely, that certain positions are recommended to be filled by officers possessing graduate degrees.

Measuring the Effect of Major Organizational Policy on Employee Attitudes

U.S. Air Force Policy towards Graduate Degrees

The relationships suggested above pertaining to the attitudes of CE officers toward graduate degrees have become more important in recent years. In early 2005, the Chief of Staff of the Air Force told all Air Force personnel that "if you need additional education or training – you will get it" (Jumper, 2005). So beginning in 2005, academic degree information has been removed from the promotion boards of most officers for promotion to the ranks of lieutenant colonel and colonel. The only officers exempted are those in the medical and chaplain career fields since promotion boards still require access to their academic degree information due to certification requirements (Jumper, 2005).

This policy change was not the first of its kind. Historically, promotion boards considered the academic degree information of all officers for promotions to ranks below the general officer level. However, in 1997, the Air Force removed academic information for promotion to captain and major (U.S. Air Force AFI 36-2506, 1997). As mentioned, Figure 2 shows the percentage of CE officers who have completed or are pursuing a graduate degree according to officer year group. Notice the sharp decrease in the percentage of officers who attained or are pursuing a graduate degree from the 1997 to 1998 year groups, from 70% to about 55%. Except for the 2000 and 2001 year groups, this 15% difference appears to be the largest of all differences among adjacent groups. Although causality cannot be inferred, it is interesting that the decrease from the 1997 to 1998 year groups coincides with the policy change.

Fishbein and Azjen's (1975) Model of Reasoned Action

Since enough time has not passed to identify any trends among CE officers as a result of the 2005 policy change, their attitudes toward graduate degrees might be

22

assessed to reveal an indication of their behaviors. The Model of Reasoned Action provides a structure for assessing the effects of a major organizational policy on employee attitudes since it has been used to successfully to explain the relationship between perceived values, attitudes, and behaviors (Fishbein & Ajzen, 1975). According to the model, the intent to engage in a certain behavior is a function of a person's perceived value for an object and their attitude toward the behavior. It has been used successfully in various forms to predict behaviors using perceived values and attitudes for both behavioral and goal intentions (Sheppard *et al*., 1988).

The difference between behavioral and goal intentions is a person's "volitional control over the intention" (Sheppard *et al*., 1988, p. 326). In the case of a behavioral intention, a person intends to perform a behavior that involves a small amount of external influence to accomplish it. For example, simply intending to go eat at a fast food restaurant is a behavioral intention that is within a person's volitional control and has a small degree of uncertainty due to minor obstacles (availability, accessibility, weather, etc.) (Brinberg & Durand, 1983). However, with a goal intention, a person intends to achieve a goal that involves a great amount of external influence. For example, having a child within the next three years is a goal intention that is beyond a person's volitional control and has a larger degree of uncertainty due to major obstacles (lack of partner, not enough money saved, infertility, etc.) (Loken & Fishbein, 1980).

Another aspect of the model is the type of measure used to determine a person's intentions to either perform a behavior or achieve a goal (Fishbein & Ajzen, 1975). A *measure of intention* (e.g., "Do you intend to do X?") is best for predicting performance of a behavior, while a *measure of estimate* (e.g., "How likely are you to do X?") is best

for predicting the achievement of a goal (Sheppard *et al*., 1988, p. 327). The difference

in measures is appropriate because achieving a goal, unlike performing a behavior, is

determined by a great amount of external influences that a person may consider when

asked to estimate his or her likelihood of goal achievement (Sheppard *et al*., 1988).

Effect of Policy Change on Attitudes and Behaviors

The Air Force's 2005 policy change is an example of a major organizational

policy since it impacts all employees in the Air Force (Foote *et al*., 2005). Fishbein and

Azjen's (1975) model seems to offer suitable methods for assessing the effects of the

policy change on CE officer attitudes and behaviors toward graduate degrees. With this

change, there is concern that officers may be less motivated to pursue graduate degrees.

Therefore, the model's *measurement of estimate* for goal achievement (Fishbein & Ajzen,

1975) was used to design two hypotheses that examine the effects of the policy change on

attitudinal (*perceived importance of graduate degrees*) and behavioral (*degree search*

behavior) intentions of CE officers toward graduate degrees.

Hypothesis 1a:　*The Air Force's 2005 policy change will negatively influence the perceived importance CE officers hold for graduate degrees.*

2005 Policy Change	→	Graduate Degree Importance

Hypothesis 1b:　*The Air Force's 2005 policy change will negatively influence graduate degree search behavior of CE officers.*

2005 Policy Change	→	Degree Search Behavior

Moderation Effects

  Intent to leave as a moderator. Under the assumption that one's decision to pursue

a graduate degree is a career move comparable to that of changing one's employer, one

measure from job turnover that has been shown to influence employee attitudes and

behaviors toward quitting their jobs is intent to leave (Mitchell *et al*., 2001). The concept

of turnover says that people become dissatisfied with their jobs, search for alternatives,

compare those options with their current jobs, and leave if an alternative is better than

their current situation (Mobley, 1977). "Job attitudes combined with job alternatives

predict intent to leave, which is the direct antecedent to turnover" (Mitchell *et al*., 2001,

p.1102). Since it is assumed that intent to leave may possess a moderating effect on the

relationships in Hypotheses 1a and 1b, two hypotheses were designed to examine the

existence of this effect.

    Hypothesis 2a: *Intent to leave the Air Force will moderate the relationship*
            between the 2005 policy change and the perceived importance of
            graduate degrees such that the relationship will be weaker as the
            intent to leave increases.

Hypothesis 2b: *Intent to leave the Air Force will moderate the relationship between the 2005 policy change and graduate degree search behavior such that the relationship will be weaker as the intent to leave increases.*

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 ┌──────────┐                    ┌──────────┐
 │  2005    │                    │  Degree  │
 │  Policy  │──────────────────▶ │  Search  │
 │  Change  │            +       │ Behavior │
 └──────────┘         ▲          └──────────┘
                     ┊
                 ┌────────┐
                 │ Intent │
                 │   to   │
                 │ Leave  │
                 └────────┘
```

Need for achievement as a moderator. Just as employee attitudes can be influenced by the perceived values employees hold for an object (Koberg & Chusmir, 1987), motivation has also been reported to impact employee attitudes (Feldman & Bolino, 2000). More specifically, motivation theory as developed by Herzberg *et al*. (1959) states that the needs of employees for satisfaction are divided into two groups: hygiene needs and motivators.

> The needs that lead to dissatisfaction, hygiene needs, include work conditions, salary, security, work relationships, and policies; people do not develop these needs themselves since they lack control over them. On the other hand, the needs that lead to satisfaction, motivators, are developed by people within themselves and include achievement, recognition, advancement, and personal growth (Herzberg *et al*., 1959, p. 114).

Thus, employees strive to achieve their hygiene needs; however, once these needs are attained, the sense of satisfaction is temporary since the impetus for their achievement comes from an outside source. However, employees who strive to achieve their motivational needs (i.e., motivators) experience a more permanent satisfaction since the impetus for their achievement came from within (Herzberg *et al*., 1959). Thus, engineers

might pursue a graduate degree for reasons developed by either themselves (motivators) or others (hygiene needs).

A major organizational policy is an example of a hygiene need since it is initiated by an external source. On the other hand, an individual's need for achievement is an example of a motivator since it is initiated internally, or subconsciously (McClelland, 1961). The need for achievement is one of three types of motivational needs within which most people fit, where the other two are the need for authority and power and the need for affiliation (McClelland, 1961). These three needs vary within each person and researchers have used them to characterize a person's behavior (McClelland, 1961); however, others have found the results of subconscious motives unpredictable and undependable with goal setting (Locke, 1996). According to McClelland (1961), a person who has a stronger motivational need for achievement will "set goals that are challenging, yet can be realistically achieved" (p. 43). Since it is assumed that need for achievement may possess a moderating effect on the relationships in Hypotheses 1a and 1b, two hypotheses were designed to examine the existence of this effect.

> *Hypothesis 3a:*   *Need for Achievement will moderate the relationship between the 2005 policy change and the perceived importance of graduate degrees such that the relationship will be weaker as the need for achievement increases.*

Hypothesis 3b: *Need for Achievement will moderate the relationship between the 2005 policy change and graduate degree search behavior such that the relationship will be weaker as the need for achievement increases.*

Mediation Effects

     The inclusion of a mediator attempts to explicate a basic relationship (Jose, 2006), such that a mediator carries the influence of an independent variable to a dependent variable, either partialli or fully (Preacher & Leonardelli, 2003). The relationship presented in Hypothesis 1b examines a behavior (graduate degree search behavior) that may be influenced by the implementation of the 2005 policy change. Since perceived values have been found to influence attitudes as well as behaviors (Foote *et al.*, 2005), perhaps the attitudinal measure, perceived importance of graduate degrees, might be mediating this relationship. Therefore, Hypothesis 4 was designed to test whether this attitudinal measure was causing a mediating effect on the relationship in Hypothesis 1b.

Hypothesis 4:   *Perceived importance of graduate degrees will mediate the relationship between the 2005 policy change and graduate degree search behavior.*
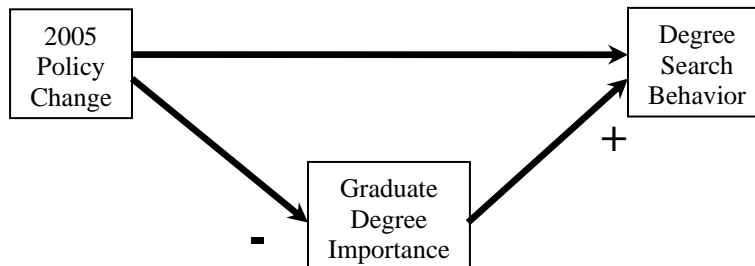
Exploratory Issues

This research included a number of questions of interest not supported by theory. Eight exploratory research hypotheses comprise of five areas of interest, which include: (1) Intent to Pursue a Graduate Degree within Five Years; (2) Air Force-Sponsored Degree Program; (3) Engineering versus Management-Based Graduate Degrees; (4) Distance Education; and (5) Graduate Education as a Mentoring Topic. These hypotheses are discussed next.

Intent to Pursue a Graduate Degree within Five Years

The *measurement of intention* from the Model of Reasoned Action for predicting the performance of a behavior (Fishbein & Ajzen, 1975) was used to design Hypotheses 5, which examines the possible effect the Air Force's 2005 policy change might have upon the intentions of CE officers to pursue a graduate degree within the next five years. Furthermore, this hypothesis used a technique to control for hypothetical bias which occurs when a hypothetical answer rate exceeds a real answer rate for the exact same question (Harrison & Rutstrom, 2004). The way researchers control for this bias is as follows: respondents are divided into two groups according to whether they read a real or hypothetical scenario, then both groups answer the same exact question afterwards using a *yes*/*no* format. However, to control for hypothetical bias, a follow-up question is given to the hypothetical group of respondents to select from two choices (*fairly sure* and *definitely sure*) indicating how certain they are with their answer to the first question (Harrison & Rutstrom, 2004). Afterwards, the *definitely sure* and *fairly sure* responses are considered the "controlled" *yes*/*no* answers for the hypothetical group. By controlling

for this type of bias, a better understanding of the relationship between both groups can be realized (Blumenschein, Johannesson, Yokoyama, & Freeman, 2001).

> *Hypothesis 5:*   *The Air Force's 2005 policy change will negatively influence the intentions of CE officers to pursue graduate degrees within the next five years.*

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┌──────────┐                  ┌──────────┐
│  Policy  │        -         │ Intent to│
│  Change  │─────────────────>│  Pursue  │
│          │                  │  Degree  │
└──────────┘                  └──────────┘
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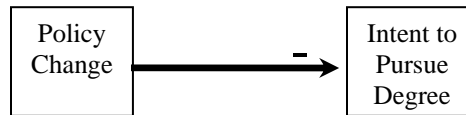
Air Force-Sponsored Degree Programs

   Methods for pursuing graduate degrees. Two methods are available for CE officers to pursue graduate degrees, either fulltime through an Air Force-sponsored degree program or part-time through a civilian university (Davis, 2000). Air Force-sponsored degree programs are managed by the Air Force Institute of Technology (AFIT). Officers accepted by the in-residence program attend classes at AFIT, while those accepted by the civilian institute (CI) program attend classes at a civilian university. A graduate degree through either method usually lasts 12 to 18 months, for which officers must serve an additional commitment of 36 months in the Air Force following graduation. The other way officers can pursue a graduate degree is by attending classes at a civilian university on their own time (e.g., night school, correspondence, or online). The Air Force tuition assistance program is available for these officers whereby they can receive up to 100% of $250 per semester hour if they agree to serve an additional commitment of 24 months in the Air Force following completion of each course (U.S. Air Force Virtual Education Center, 2005).

   Selection to a sponsored degree program. Unlike the part-time method, the number of officers selected by an Air Force-sponsored degree program each year is

limited by manpower and funding constraints, with the in-residence program typically

accepting more officers than the CI program. Figure 3 shows the number of CE officers

who were accepted by an Air Force-sponsored degree program between 1996 and 2006.

An annual average of 32 officers were accepted by both programs with 21 officers by the

in-residence program versus 11 by the CI program for a ratio of 2 to 1 in favor of the in-

residence program. Given the low figures, these programs can be quite competitive for

officers to be selected.
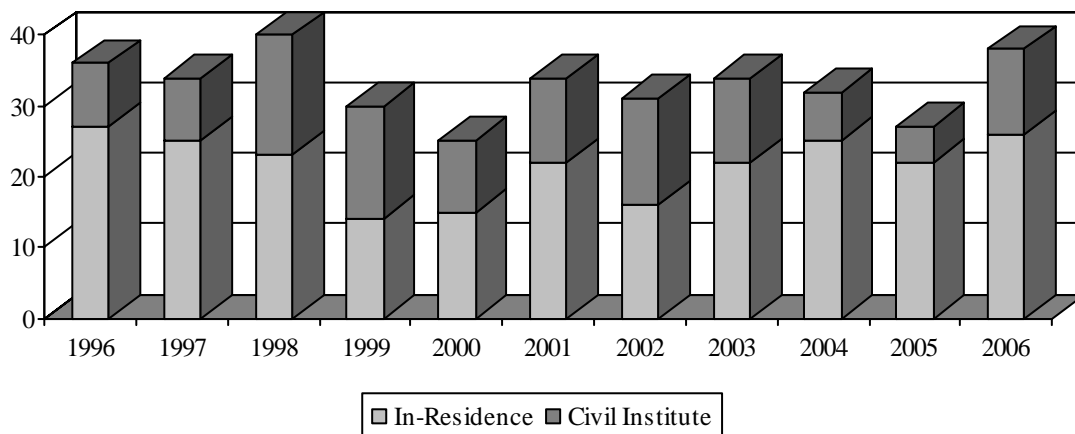
Figure 3. Number of CE Officers Accepted by an Air Force-Sponsored Degree Program
from 1996 to 2006 (Air Force Institute of Technology [AFIT], November 2005)

Furthermore, since 2004, the Air Force has used the Force Development (FD)

team concept to decide which officers need to get a graduate degree from an Air Force-

sponsored degree program (Callander, 2003). The FD team uses an "iterative process of

development involving education, training, and expeditionary operations seasoned with

experience and ongoing mentoring by more experienced leaders" (U.S. Air Force AFDD

1-1, 2006, p. iii). The process melds together Air Force personnel managers and career

field managers who consider an assignment that will make the officer a "more effective

leader" (U.S. Air Force AFDD 1-1, 2006, p. iii). In particular, "[advanced] education…is

intended to enhance [the] professional competence" (U.S. Air Force AFDD 1-1, 2006, p.

31) of officers selected to attend a sponsored degree program. However, these officers

not only increase their competence, but also gain a slight promotion advantage over those

who are not selected.

   Effect of sponsored degree programs on promotion. Although the academic

degree information of Air Force officers has been removed from their promotion boards,

their performance reports and duty histories are still available. This means that an officer

who earned a graduate degree through an Air Force-sponsored degree program will

receive a training report and will have their duty history annotated to reflect their

attendance at an academic institution, while those who earn a graduate degree part-time at

a civilian university will have neither (Matthews, 2005). Since there may be a perceived

promotion advantage for officers who attend an Air Force-sponsored degree program,

Hypothesis 6 looked at the possible effect the policy change might have on the desires of

CE officers to attend such a program.

   <u>Hypothesis 6</u>: *The Air Force's 2005 policy change will positively influence the desire to pursue graduate degrees through an Air Force-sponsored degree program of CE officers with a low intent to leave the Air Force and who meet the minimum GPA requirements for such a program.*
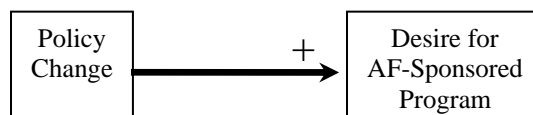
Engineering versus Management-Based Graduate Degrees

For most engineers, graduate degrees are obtained either with an engineering-based or management-based focus (BLS, 2006). For entry-level engineers in the private sector, the overwhelming preference is to pursue a graduate degree in the same area as their undergraduate specialty because it seems to make more sense to them; however, senior-level engineers would rather see them pursue a management-based graduate degree because it is

> … evidence that the engineer or scientist has been exposed to the complexities of such "non-technical" subjects as human resource management, social issues, finance, and marketing, and generally has achieved an awareness of those facets of a business unavoidably bypassed in the over-crowded undergraduate engineering curriculum. Such matters are extremely important if the engineer is to engage in the broad system-orientated decision-making required of managers at all levels (Giegold, 1982, p. 94).

On the other hand, some entry-level engineers in the public sector are encouraged to pursue engineering-based graduate degrees. For example, the career path for research and development engineers in the U.S. Air Force suggests that engineering-based degrees will provide a perception of technical credibility, thus aiding their careers (Cohn, 1999). In addition, the United States is expected to face a growing demand for technically trained workers over the next two decades as the percentage of degrees awarded in engineering decreases (Landgraf, 2003). To counter this trend, many national-level science and engineering organizations have been establishing connections with private industry to tout the benefits of engineering-based graduate degrees. For example, the National Academy of Engineering established the Committee on Engineering Education (CEE) in 1994 to study the issues surrounding engineering education and make recommendations to improve the quality of graduate educational programs offered to

engineers (Commission on Behavioral and Social Sciences and Education, 1999, p. 54).

The CEE has many leaders from private industry on its board, which may indicate a

desire to establish influence with career engineers. In short, the type of graduate degree

an engineer should pursue seems to remain a matter of perspective.

Types of graduate degrees that CE officers pursue. Although CE officers

pursuing graduate degrees under the part-time method choose the type of graduate

degrees they will pursue, those selected for an Air Force-sponsored degree program do

not. The in-residence program offers only one graduate degree which consists of

engineering and management courses tailored to meet the requirements of the CE career

field (Graduate School of Engineering & Management, 2004). However, the CI program

offers many degrees that are limited to specific areas required by the Air Force. For

example, officers who will serve as pavements engineers to evaluate the Air Force's

airfield pavements for repair and replacement projects typically earn a graduate degree in

geotechnical engineering. In addition, CE officers are divided between those who earned

engineering-based degrees and those who earned management-based degrees. Figure 4

shows the percentage of CE officers who have completed their first graduate degree in

either a management or engineering-based degree program according to officer year

group. There is a strong favor towards management-based graduate degrees (66%).
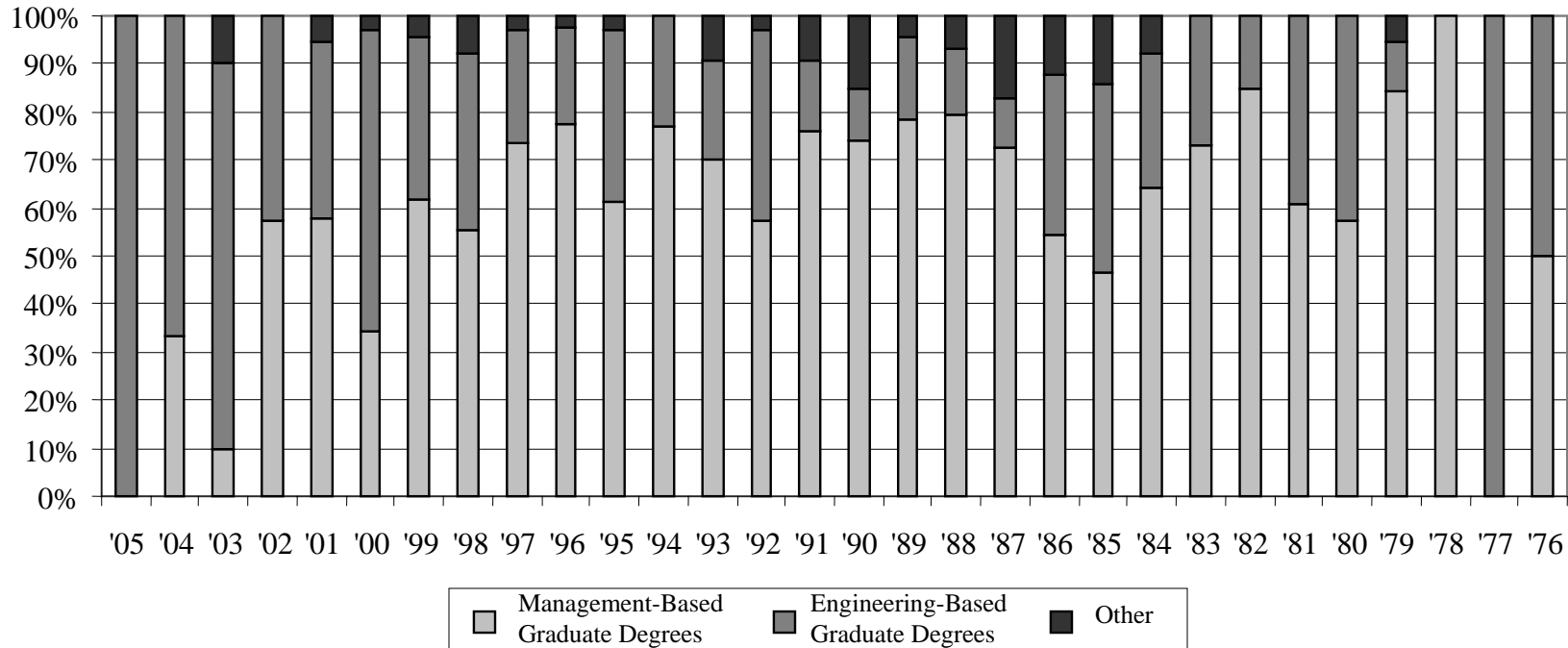
Figure 4. Percentage of CE Officers Who Earned their first Graduate Degree in either a Management or Engineering-Based Degree Program According to Officer Year Group (AFPC, 2005)

Note: The in-residence program's graduate degree, a Master's of Science in Engineering Management, and its predecessors were assumed to be management degrees since their titles imply this type of degree. In addition, a few year groups on the extremities are uniform since there are fewer than half a dozen officers in each group, increasing the likelihood of a uniform representation.

Since managers and entry-level employees may not share the same views toward the type of graduate degree one should pursue (Giegold, 1982), there is an interest to see if this trend prevails among CE officers too (Astin, 2005). Air Force CE officers can be divided roughly into two camps – company grade officers (CGOs) and field grade officers (FGOs). CGOs comprise the ranks of second lieutenant, first lieutenant, and captain; they best represent the entry-level engineers in the career field. On the other hand, FGOs comprise the ranks of major, lieutenant colonel, and colonel; they best represent the managers in the career field. Therefore, Hypotheses 7a and 7b examine the possible differences that exist between the attitudes of CGOs and FGOs toward engineering-based graduate degrees and the importance of having the Air Force's Force Development team choose the type of graduate degree.

Hypothesis 7a: *CGO preferences for CE officers to have engineering-based graduate degrees are higher than FGO preferences.*
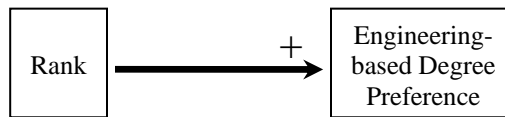
Hypothesis 7b: *CGO perceptions regarding the importance of the Air Force choosing the type of graduate degree an individual pursues are lower than FGO perceptions.*
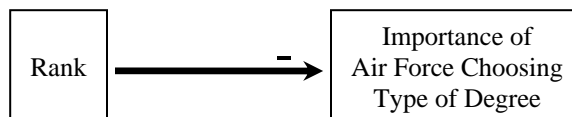
Distance Education

There is an interest in enhancing the Air Force's distance education resources by providing a viable alternative to CE officers who choose the part-time method to pursue a

graduate degree (Astin, 2005). Furthermore, research has indicated that students with

different learning styles learn equally well taking online courses and have very positive

attitudes about the conveniences of distance education, which can allow a student to

control their pace of learning (Shih, 2001). However, this alternative could be hampered

by the perceptions that CGOs and FGOs have toward online graduate degrees (Astin,

2005). Therefore, Hypotheses 8a and 8b were designed to determine if differences exist

in their attitudes toward distance education as a learning option and toward online

engineering-based graduate degrees in particular.

Hypothesis 8a: *CGO preferences for distance education as a learning option are higher than FGO preferences.*
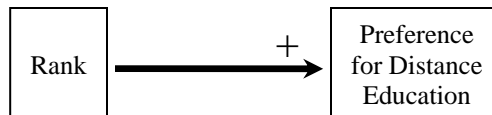
Hypothesis 8b: *CGO preferences for online engineering-based graduate degrees over classroom non-engineering graduate degrees are higher than FGO preferences.*
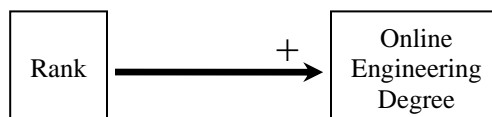
Graduate Education as a Mentoring Topic

The final set of models was constructed to look at the behaviors and attitudes of

FGOs toward the topic of graduate education. The Air Force's 2005 policy change may

have negatively impacted the behaviors and attitudes that FGOs hold toward graduate

education since it may seem less important from a promotion perspective. Therefore,

Hypotheses 9a and 9b were designed to extract behavioral and attitudinal responses from

FGOs to see how often the topic of graduate education is used by them when interacting

with CGOs and how important they feel it is as a mentoring topic.

<u>Hypothesis 9a</u>: *The topic of graduate education is the least used by FGOs when interacting with CGOs of nine mentoring topics.*

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                        -
 ┌──────┐         ┌──────────────┐
 │      │         │   Graduate   │
 │ FGO  │ ───────▶│  Education   │
 │      │         │  Behavior    │
 └──────┘         └──────────────┘
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<u>Hypothesis 9b</u>: *The topic of graduate education is perceived by FGOs to be the least important mentoring topic when interacting with CGOs.*

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                        -
 ┌──────┐         ┌──────────────┐
 │      │         │   Graduate   │
 │ FGO  │ ───────▶│  Education   │
 │      │         │  Importance  │
 └──────┘         └──────────────┘
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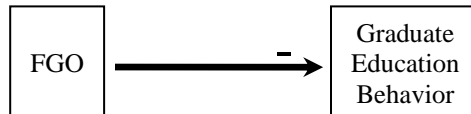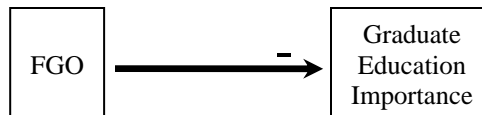
Summary

The literature reviewed in this chapter addressed the reasons for policy-making;

employee attitudes, behaviors, and perceived values; and attitude surveys. It also covered

the attitudes of Air Force CE officers toward graduate degrees and a method for assessing

this relationship. Of particular interest, it dealt with a major organizational policy change

enacted by the Air Force in 2005 and the research questions stemming from this policy.

Further questions of interest were also presented. The methodology that examined both

sets of questions is discussed in the next chapter.

Chapter III. Methodology

This chapter begins by detailing the methodology used to obtain data needed for evaluating the research questions. A web-based survey was used to collect data from U.S. Air Force Civil Engineer (CE) officers regarding their attitudes and behaviors toward graduate degrees. Surveys are instruments used to extract variables from randomly selected members of a sample population to assist in drawing causal relationships between independent and dependent variables (Schwab, 2005). Although surveys do not provide strong evidence for causal relationships, they can be designed to control for nuisance variables (potential biases, mediator, and moderator variables) by using statistical analysis procedures (Schwab, 2005).

The survey respondents were divided between those who had never pursued a graduate degree and those who had. The former were further subdivided between those who read a hypothetical statement (pre-policy subgroup) and those who read a copy of the memorandum announcing the Air Force's 2005 policy change (post-policy subgroup). Descriptive and reliability statistics were calculated along with correlation coefficients. Finally, all hypotheses were tested using comparison tests and linear regression. Topics addressed in this chapter include the survey sample population and procedures, measures and variables, demographics, analysis techniques, and limitations.

Survey Population and Procedures

Since there is no evidence that the Air Force conducted an attitude survey before issuing its 2005 policy change, this research administered an attitude survey to gauge the

effects of the policy change regarding the attitudes of one group of military engineers, Air Force CE officers, toward graduate degrees. The population of interest consisted of 1,538 officers ranging in rank from second lieutenant to colonel, excluding general officers. However, electronic mail (e-mail) addresses could be obtained for only 1,482 of these officers.

A subsequent e-mail was sent to these individuals containing a link to a 106-item, web-based survey (see Appendix D). However, 127 e-mails were returned because of incorrect addresses. Additionally, "out of office" notifications were received from 50 officers indicating that they were deployed on temporary duty beyond the time the survey would be available. After accounting for these e-mail addresses, the total remaining number of officers who could possibly answer the survey amounted to 1,305. The survey, available on the Internet from 6 December 2005 to 18 January 2006, was completed by 732 officers for a 56% response rate.

Rank and Gender Bias

Table 1 presents a summary of the ranks and genders of the survey population and actual respondents. The values in the table appear to indicate that the respondents are representative of the population and are assumed to support the conclusion that response bias based on rank or gender is most likely insignificant.

Table 1. Summary of Respondent Ranks and Gender

Category	Sample Population[a]		Respondents	
Rank	No.	%	No.	%
Second Lieutenant	138	9.0	100	13.7
First Lieutenant	267	17.4	125	17.1
Captain	488	31.7	237	32.4
Major	318	20.7	144	19.7
Lieutenant Colonel	219	14.2	77	10.5
Colonel	108	7.0	49	6.7
TOTAL	1,538	100.0	732	100.0
Gender	No.	%	No.	%
Male	1,324	86.1	619	84.6
Female	214	13.9	110	15.0
Unknown	n/a	n/a	3	0.4
TOTAL	1,538	100.0	732	100.0

Note: [a]Retrieved at http://www.afpc.randolph.af.mil/demographics on Dec 15, 2005.

Data Preparation

SPSS 13.0 for Windows was used to analyze the data. After recoding all reverse-scored items from the survey, the raw data were put into a usable form by first checking for inconsistencies using the SPSS cross tabulation function (Crosstabs), which provides a measure of association for two-way tables. A check of age, rank, and total time in military service (three variables that typically show high correlations with each other for military populations) revealed missing values for three respondents. This low figure is probably attributed to using a web-based survey which can be created to prompt respondents about missing values before continuing to the next page.

Although there are a number of different approaches that address substituting proxy values for missing variables (called imputation), this research used two types of simple imputation methods that are commonly used in the social sciences (Durrant,

2005). The "*deductive method* imputes a missing value by using logical relations between variables and derives a value for the missing item with high probability," while the method of "*mean imputation* imputes the overall mean of a numeric variable for each missing item within that variable" (Durrant, 2005, p. 9). Fortunately, proxy values were available to fill in the three missing values above; for instance, one respondent's age was missing, but since the respondent's rank was known, the mean age for this rank was substituted. Likewise, two respondents' time in military service (TIS) values were missing, but since each respondent's total time in the CE career field was also known, this value was substituted for their TIS values, which has to be equal or greater than the total time in the career field.

Unfortunately, an unexpected feature of web-based surveys was detected – individual surveys can somehow be submitted in duplicate. Two cases of duplicate surveys were discovered by comparing the start times (available to the exact second) for each respondent. The duplicate surveys were removed; however, this method proved rather tedious. An easier method may exist, but nothing in the literature addressed this glitch with web-based surveys.

Another issue involved 35 respondents who incorrectly reported their highest level of education. These respondents chose a bachelor's degree as their highest level of education, but also indicated they were either pursuing a graduate degree (30 cases) or had completed a graduate degree (five cases). As a result, their highest level of education was changed to either *working on a graduate degree* or *completed a graduate degree*. Lastly, one respondent neglected to report a value for undergraduate GPA, so the mean GPA for all respondents was substituted.

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Finally, three separate files were created for testing the hypotheses. The first file was limited to those respondents who fell into the pre-policy and post-policy subgroups which were used in testing Hypotheses 1a through 6. Of the 97 respondents in these subgroups, 51 formed the pre-policy subgroup and 46 the post-policy subgroup. The breakdown of each subgroup by rank is as follows: 23 second lieutenants, 17 first lieutenants, and 11 captains in the pre-policy subgroup; and 16 second lieutenants, 13 first lieutenants, 16 captains, and 1 major in the post-policy subgroup.

The second file was created to test Hypotheses 7a through 8b using company grade officer (CGO) and field grade officer (FGO) subgroups. The respondents were divided into 462 CGOs and 270 FGOs, and then a random sampling of 270 CGOs was paired with the 270 FGOs to reduce variability and allow more precise comparisons with fewer subjects. Pairing has no effect on the way the difference between two sample means is estimated, but reduces the uncertainty in the estimate (Dallal, 2001). The CGO group consisted of 57 second lieutenants, 74 first lieutenants, and 139 captains, and the FGO group consisted of 144 majors, 77 lieutenant colonels, and 49 colonels. Lastly, the third file was created to test Hypotheses 9a and 9b using the FGO subgroup only.

Measures and Variables

The survey instrument used in this research contained scaled measures and variables that utilized two measurement methods, referred to as "normative and ipsative" (Cattell, 1944, p. 294). The normative method has respondents rate the extent to which they endorse a set of items using Likert-type scales, whereby items are assessed independently of one another. The ipsative method assesses preferences between items

by requiring respondents either to rank them or choose one item at the expense of another in a forced choice format.

The survey contained nine scaled measures: perceived importance of graduate degrees, graduate degree search behavior, intent to leave the Air Force, need for achievement, preference for engineering-based graduate degrees, perceived importance of the Air Force choosing type of graduate degree, preference for distance education as learning option, professional development behavior, and professional development attitude. Only one measure, professional development attitude, used an ipsative method while the remaining measures used normative methods. Of the many variables in the survey, the 2005 policy change served as an independent variable and four were used as control variables: time in military service, number of dependents, deployment rate, and gender. Descriptive statistics of the individual survey items that comprise the scaled measures are located in Appendix E.

Dependent Variables

Perceived importance of graduate degrees. This 13-item custom measure asked respondents to state the extent to which they agreed with each item as it pertained to graduate degrees. It was limited to respondents who comprised the pre- and post-policy subgroups. Respondents were asked to indicate their opinion with each statement within the measure on a seven-point Likert-type scale ranging from 1 = *Strongly Disagree* to 7 = *Strongly Agree*; the responses were then averaged to create the proxy measure for the perceived importance of a graduate degree. The higher the value reported, the higher the perceived importance was for a graduate degree. The purpose of this measure was to

serve as the dependent variable for Hypotheses 1a, 2a, and 3a as the mediating variable

for Hypothesis 4.

Graduate degree search behavior. This seven-item custom measure was

developed from a job search behavior measure used for predicting job turnover; it asked

respondents to state the frequency of certain behaviors they may have performed while

thinking about pursuing a graduate degree during the past year (i.e., 2005). It was limited

to respondents who comprised the pre- and post-policy subgroups. Respondents were

asked to indicate the frequency of each statement on a five-point Likert-type scale with 1

= *Never*, 2 = *Once*, 3 = *Twice*, 4 = *A Few Times*, and 5 = *Many Times*. This type of scale

works best when measuring frequencies over a period of time because "it avoids the

problem of different definitions for more ambiguous terms like 'often' " (Fowler, 1995,

p. 158). Responses were averaged to create the graduate degree search behavior variable;

the higher the value reported, the more intense was the search for a graduate degree. The

purpose of this measure was to serve as the dependent variable for Hypotheses 1b, 2b, 3b

and 4.

Independent Variables

The 2005 Air Force policy change. This variable was measured using a randomly

generated coding variable to segregate respondents into three subgroups. First,

respondents were divided between those who had never pursued a graduate degree and

those who had. The former were further subdivided between those who read a

hypothetical statement (pre-policy subgroup) and those who read a copy of the

memorandum announcing the Air Force's 2005 policy change (post-policy subgroup).

The latter were assigned a zero, while the pre-policy subgroup received a one and the

post-policy subgroup a two. The purpose of this variable was to serve as an independent variable for Hypotheses 1a through 4.

  Intent to leave the Air Force. Intent to leave was measured using the three-item version of the scale developed by Mobley, Horner, and Hollingsworth (1978) with a reported Cronbach's alpha of 0.86. This version has been used frequently in job turnover research (Hsu, 2003). Prior to administration, the three items were modified by substituting "Air Force" for "organization." Respondents were asked to indicate their opinion with each statement on a seven-point Likert-type scale ranging from 1 = *Strongly Disagree* to 7 = S*trongly Agree*, and the responses were averaged to create the intent to leave the Air Force variable. The higher the value reported, the higher the intent to leave the Air Force. The purpose of this measure was to serve as an independent variable for Hypotheses 2a and 2b.

  Need for achievement. Need for achievement was measured using the 10-item Achievement-Seeking measure (reported Cronbach's alpha of 0.79) developed by the International Personality Item Pool [IPIP], a scientific collaboratory for the development of personality measures (IPIP, 2005). A collaboratory is "a place where scientists and researchers work together to solve complex interdisciplinary problems, despite geographic and organizational boundaries" (Kouzes, Myers, & Wulf, 1996, p. 40), and it is typically found on the Internet. Respondents were asked to indicate their opinion with each statement on a seven-point Likert-type scale ranging from 1 = S*trongly Disagree* to 7 = *Strongly Agree*, and the responses were averaged to create the need for achievement variable. The higher the value reported, the higher the need for achievement. The purpose was to serve as an independent variable for Hypotheses 3a and 3b.

Control Variables

Four variables were chosen as control variables to account for possible influences that might explain relationships tested in Hypotheses 1a through 4. A control variable can affect the dependent variable, so it is included in statistical tests with the independent and dependent variables in order to account for this influence (Ziner, 2006). Control variables are selected if a relationship might be suspected to be spurious (i.e., explained away by some third factor), so they are included to see if this relationship changes after the control variables are taken into account (Ziner, 2006).

The variables that were suspected to have possible influences on the hypothesized relationships in this study included time in military service (TIS), number of dependents, deployment rate (TDY rate), and gender. TIS was measured in months spent by respondents in the U.S. Armed Forces. It correlated with respondent ages and ranks, so those two variables were not used. The number of dependents, found to be an influential factor in job turnover research, was measured using categories and asked respondents to include their spouses. It correlated with marital status which was not used as a control variable. TDY rate was also measured as a categorical variable and accounted for the time respondents were on extended temporary duty (two weeks or more) or deployed due to contingency operations, exercises, training or other duty reasons (courses, etc.) during the past year (i.e., 2005). Lastly, gender was a binomial variable that measured respondent genders using 0 for males and 1 for females.

Exploratory Research Measures and Variables

This research included a number of issues for which a theoretical basis did not exist. These issues concerned many areas of interest to specific parties involved with

creating the survey instrument. The measures and variables used to capture these interest

areas are discussed next.

Intent to pursue a graduate degree within five years. Two items asked

respondents to state their intent to pursue a graduate degree within the next five years and

how sure they were of this answer. For the first item, respondents indicated their opinion

by selecting either *yes* or *no*; in the second item, they selected *fairly sure* or *definitely*

sure (Blumenschein *et al*., 2001). This two-question construct was adopted to control for

hypothetical bias (Harrison & Rutstrom, 2004), but was unsuccessfully employed (see

limitations below). As a result, the pre- and post-policy subgroup responses from the first

item were summarized into a contingency table without using the second item to control

for hypothetical bias as described in Chapter II. This table served as the tool used for

testing Hypothesis 5.

Air Force-sponsored degree program. This item asked respondents about their

desire to pursue a graduate degree through an Air Force-sponsored degree program.

Respondents indicated their opinions on a seven-point Likert-type scale ranging from 1 =

Strongly Disagree to 7 = *Strongly Agree*; the responses were then averaged to create the

Air Force-sponsored degree program variable. The higher the value reported, the higher

the desire for attending an Air Force-sponsored degree program. This variable was used

in testing Hypothesis 6.

Preference for engineering-based graduate degrees. This seven-item custom

measure asked respondents to state the extent to which they agreed with each item as it

pertained to either engineering-based or management-based graduate degrees.

Respondents were asked to indicate their opinion with each statement on a seven-point

Likert-type scale ranging from 1 = *Strongly Disagree* to 7 = *Strongly Agree*, and the responses were averaged to create the preference for type of graduate degree variable. The higher the value reported, the higher the preference for an engineering-based graduate degree. This measure was used in testing Hypothesis 7a.

   Perceived importance of the Air Force choosing the type of graduate degree. This three-item custom measure asked respondents how they felt about CE officers being able to choose the type of graduate degree they pursued versus it being chosen by a Force Development team. Respondents were asked to indicate their opinion with each statement on a seven-point Likert-type scale ranging from 1 = *Strongly Disagree* to 7 = *Strongly Agree*; the responses were then averaged to create the perceived importance of the Air Force choosing the type of graduate degree construct. The higher the value reported, the higher the perceived importance was for having the Force Development (FD) team choose the type of graduate degree to pursue. This measure was used in testing Hypothesis 7b.

   Preference for distance education as a learning option. Based on special interests mentioned at the end of the previous chapter, this five-item custom measure asked respondents to state the extent to which they agreed with distance education as an acceptable learning option. Respondents were asked to indicate their opinion with each statement on a seven-point Likert-type scale ranging from 1 = S*trongly Disagree* to 7 = *Strongly Agree*, and the responses were averaged to create the distance education preference variable. The higher the value reported, the higher the preference for an online graduate degree as a learning option. This measure was used in Hypothesis 8a.

Preference for online engineering-based graduate degree. This item asked respondents to state how much they might prefer to pursue an engineering-based graduate degree in lieu of a non-engineering degree taught in a classroom. Respondents indicated their opinions on a seven-point Likert-type scale ranging from 1 = *Strongly Disagree* to 7 = *Strongly Agree*; the responses were then averaged to create the preference for an online engineering-based graduate degree variable. The higher the value reported, the higher the preference for an online engineering-based graduate degree over a non-engineering degree taught in a classroom. The purpose of this variable was to serve as the dependent variable for Hypothesis 8b.

Professional development behavior. This nine-item custom measure was limited to respondents who reported their rank as major, lieutenant colonel, or colonel. It measured the frequency of how often they had used each of the nine different mentoring topics listed when interacting with junior officers; the topics were adopted from the Air Force's Mentoring Program guide (U.S. Air Force AFI 36-3401, 2000). The purpose of this measure was to report a statistic for Hypothesis 9a showing where *graduate education* ranked among the other eight topics based on the behaviors of the respondents. This measure used a five-point Likert-type scale to measure frequency with 1 = *Never*, 2 = *Rarely*, 3 = *Sometimes*, 4 = *Usually*, and 5 = *Always*. This scale works best with "proportional questions where two events can vary" (Fowler, 1995, p.158). The higher the value reported, the more the topic had been used.

Professional development attitude. This nine-item custom measure was the only ipsative-type measure used. It was limited to respondents whose rank was major, lieutenant colonel, or colonel, and it asked respondents to rank order (from 1 = *most*

important to 9 = *least important*) the nine mentoring topics in the previous measure by how import they felt each topic was when interacting with junior officers. The purpose of this measure was to provide a statistic for Hypothesis 9b showing where *graduate education* ranked among the other eight topics based on the attitudes of the respondents.

Demographics

Twenty-two items were separated into three subgroups – military experience, academic experience, and background information. Most items were collected for descriptive statistics; however, four were used as control variables.

Military Experience

This section consisted of the following eight items: time in military service (TIS), time in the CE career field, primary area of work responsibility, reason for joining the Air Force, rate of temporary deployments during career, rate of temporary deployments over past year (i.e., 2005), how much temporary deployments make off-duty education difficult to pursue, and rank.

Academic Experience

This section consisted of the following eight items: undergraduate GPA, type of first graduate degree earned, type of first graduate degree being pursued, how first graduate degree was earned, in what year first graduate was earned, how much time did it take to earn first graduate degree, membership in professional organizations, and highest level of education.

Background Information

This section consisted of the following six items: age, gender, marital status, how satisfied their spouse is with military career, number of dependents, and age of oldest dependent.

Analysis Techniques

Initial data analysis included calculation of descriptive statistics of all demographic variables and reliability statistics for all measures to determine their internal consistencies. Correlation coefficients were then calculated for the measures used as dependent and independent variables. Finally, the hypotheses were tested using either regression analysis or comparison tests.

Regression Analysis

Regression analysis tests the relationship between quantitative variables and helps predict the reaction of a dependent variable when an independent variable varies (Bass, 2005). If only one independent variable is being considered, the analysis is called a *simple linear regression*; if more than one independent variable is being considered, it is called a *multiple regression analysis*. Linear regression estimates the coefficients of linear equations that best predict the value of a dependent variable and involve several independent variables (McClave, Benson, & Sincich, 2005, p. 768).

Seven hypotheses (H1a through H4) were designed to use linear regression with both single and multiple independent variables. Additionally, four variables (time in military service, number of dependents, TDY rate, and gender) served as control variables for each regression analysis test. Lastly, a table of results for each regression analysis displayed the standardized beta, test statistic, and significance for each variable

tested. The beta coefficient in linear regression represents the slope of the equation for

the regression line, where a standardized beta is more useful than an unstandardized beta

because its mean is zero (StatSoft, 2006); thus, the magnitudes of the standardized betas

for all variables can be relatively compared (StatSoft, 2006).

Comparison Tests

The one-way analysis of variance (ANOVA) test was used to determine if

significant relationships existed between the means of two groups of respondents for the

same variable. ANOVA tests were used in six hypotheses (H6 through H9a) to test a null

hypothesis that the means of each group were equal for the same variable. The null

hypothesis is rejected if the variation in the variable is due to variation between the group

means and not random errors. The rejection or non-rejection of the null hypothesis

depends on the *F* statistic which represents the ratio of the sum of squares between each

group and the sum of squares of error to their respective degrees of freedom (Bass, 2005).

If the calculated *F* is significantly greater than the critical *F* value (obtained from existing

F distribution tables), the null hypothesis is rejected; if not, it cannot be rejected.

Hypothesis (H5) used a Chi-square test, which is a non-parametric test of

statistical significance for bivariate tabular analysis, such as a contingency table. A non-

parametric test accepts weaker, less accurate data than parametric tests like the one-way

ANOVA. It tests the null hypothesis that two groups are independent; if they are not

independent, there is an association between them (Connor-Linton, 2003) and the null is

rejected. In addition, one hypothesis (H4) was designed to use a Sobel test (Sobel, 1982)

to examine the mediating effects on a relationship between an independent and dependent

variable, such that the mediator transmits part or all of the influence of the independent

variable to the dependent variable (Preacher & Leonardelli, 2003). If the result is significant, a mediation effect is said to have occurred (Jose, 2006). Finally, two hypotheses (H9a and H9b) used another non-parametric test, the Friedman pairwise multiple comparison test, to compare observed and expected rank scores for differences (Lowry, 2006). If significance occurs, the ranks differ and the null hypothesis that they do not differ can be rejected.

Technical Issues

In the course of conducting the survey, several technical problems occurred which may have affected the overall response rate and possibly impacted the results of several hypotheses tests. An explanation of each is presented next.

System Cache Problem

The first problem had a low impact on the response rate and involved a computer system cache difficulty that prevented a small portion of respondents from completing the survey. Most of the known cases (~ 40) successfully recompleted the survey once they cleared their system's cache of all session variables, which were the cause of this problem. Instructions on clearing the system cache were sent to the original sample population (1,305 cases) in case there were unknown respondents with the same problem. Ultimately, only two known cases were unsuccessful on their reattempts and did not complete the survey.

Random Number Problem

The next problem had a high impact on the testing of several hypotheses. As mentioned above, survey respondents were divided into two groups, those officers who reported having a bachelor's degree for their highest level of education and all others.

Exactly 200 respondents fell into the former group, which represented those CE officers who neither possessed a graduate degree nor were pursuing one. In addition, this group, which provided the samples from which Hypotheses 1a through 4 were tested, was further divided into two subgroups using a hidden random number generator contained within the survey's computer code. If they received a number 1, the computer directed them to the page containing a hypothetical policy statement (pre-policy subgroup). Likewise, if they received a number 2, the computer directed them to the page containing the Air Force's 2005 policy change (post-policy subgroup).

However, during the construction of the web-based version of the survey, the webmaster inadvertently left out a line of code used to record the random numbers. This problem went undetected during the first two days the survey was available, with the result that 103 out of the original 200 respondents could not be delineated into either the pre- or post-policy subgroups. Although these respondents had provided valid data, which were used in testing Hypotheses 5 through 8b, they could not be used in testing Hypotheses 1a through 4, which relied upon the policy coding variable that delineated respondents into the subgroups.

Hypothetical Bias Problem

The last problem had a high impact on the testing of Hypothesis 5 and involved another technical issue. It involved the hypothetical bias item mentioned earlier, which asked respondents to indicate how sure they were about their answers to the item just before it, *intent to pursue a graduate degree within the next five years*. However, both choices (*fairly sure* and *definitely sure*) were coded with the same number for the

majority of the period the survey was available. Since this mistake eliminated the usefulness of this variable, hypothetical bias is assumed to exist.

Summary

This chapter has addressed the survey population and procedures, measures, demographics, analysis tools, and limitations that encompassed the collecting of survey data used to support this research. The first section presented a short background of the survey population and a few general procedures used to prepare the raw survey data. The second and third sections presented measures and demographics, respectively, used by the survey and explained their purpose. The fourth section explained the analysis techniques used in testing the hypotheses, while the last section explained some limitations with the survey. The next chapter will present the results of the data analysis.

Chapter IV. Results

This chapter presents the results of the data analysis. The first two sections describe the descriptive statistics, correlation coefficients, and reliability scores of most survey measures along with any observed relationships. The next two sections then present the results of all hypothesis tests for both the theory-based questions and the exploratory research issues. Their results are summarized in Table 20. In particular, only one hypothesis (H7b) was supported and two (H1b and H8b) nearly supported, while the remaining were not supported.

Descriptive Statistics and Correlation Coefficients

Table 2 displays the descriptive statistics and Pearson correlation coefficients for the dependent and independent variables used in testing Hypotheses 1a through 4 for the pre- and post-policy subgroups. Detailed listings of descriptive statistics of all survey measures and demographic characteristics for all respondents ($n = 732$) can be found in Appendixes E and F, respectively.

Table 2. Descriptive Statistics and Correlation Coefficients for Pre-/Post-Policy
Subgroups

Variable	Descriptives		Correlation Coefficients			
	Mean	SD	1	2	3	4
1. Perceived importance of graduate degrees	4.90	1.18	1			
2. Graduate degree search behavior	2.83	1.09	.51**	1		
3. AF 2005 policy change (coding variable)[a]	1.47	.50	.09	.25*	1	
4. Intention to leave the Air Force	4.62	1.70	-.02	-.31**	-.16	1
5. Need for achievement	5.49	0.73	.10	.18	.04	.08

*Note: N=97. SD=standard deviation. *p<0.05 (two-tailed test). **p<0.01 (two-tailed test).*
[a]1=pre-policy subgroup and 2=post-policy subgroup.

Although correlation coefficients represent relationships between two variables that do not prove causality (Cohen and Cohen, 1983), they still can serve as empirical indications of possible relationships between the variables (Yaffe, 1998). Cohen and Cohen's (1983) definitions for describing these possible relationships were used to analyze the variables in Table 2 where zero indicates no relationship, 0.1 to 0.3 a weak relationship, 0.3 to 0.6 a moderate relationship, 0.6 to 0.9 a strong relationship, and 1.0 a perfect relationship. Thus, three possible relationships are indicated in the table. First, a moderate relationship possibly exists between perceived importance of graduate degrees and graduate degree search behavior, suggesting that as perceived importance of graduate degrees increases so will graduate degree search behavior. Second, a weak relationship possibly exists between the 2005 policy change and graduate degree search behavior, suggesting that as the policy is implemented then graduate degree search behavior will increase. Third, a moderately negative relationship possibly exists between intent to

leave the Air Force and graduate degree search behavior, suggesting that as intent to leave increases degree search behavior will decrease. Lastly, no apparent relationships seem to exist between need for achievement and the other variables, possibly supporting research that found this measure unreliable (Locke, 1996).

Reliability Statistics

Table 3 lists the reliability statistics of scaled measures used as dependent and independent variables for Hypotheses 1a through 4. Cronbach's alpha reliability scores, which indicate the internal consistency of a scaled measure based on the average correlation among its survey items (Garson, 1999), are given for each subgroups and their combined scores. Most measures had reliabilities above the recommended minimum level of 0.70 for social science research (Nunnally & Bernstein, 1994).

Table 3. Reliability Statistics of Survey Measures[a]

Measure	Alpha	N
Perceived Importance of Graduate Degree		
Pre-policy subgroup	.94	51
Post-policy subgroup	.88	46
Combined	.92	97
Graduate Degree Search Behavior		
Pre-policy subgroup	.89	51
Post-policy subgroup	.87	46
Combined	.88	97
Intent to Leave the Air Force		
Pre-policy subgroup	.90	51
Post-policy subgroup	.85	46
Combined	.88	97
Need for Achievement		
Pre-policy subgroup	.78	51
Post-policy subgroup	.81	46
Combined	.80	97

Note: N=sample size.
[a]Includes measures used as dependent and independent variables for Hypotheses 1a through 2c.

Hypothesis Tests

The first step in analyzing the hypothesized relationships was to identify possible influential data points by using box plots of the independent and dependent variables. Although a number of outliers were found, diagnostic statistics, such as leverage values and Cook's distance (Cook, 1982), did not point to any particular influential data point. Thus, no data points were removed before or during the testing of the hypotheses.

Seven theory-based hypotheses comprised four areas of interest, which included: (1) Effect of Air Force's 2005 Policy Change on CE Officer Attitudes and Behaviors; (2) Moderation of Relationship between the Policy Change and Importance of Degrees; (3)

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Moderation of Relationship between the Policy Change and Degree Search Behavior; and

(4) Mediation of Relationship between the Policy Change and Degree Search Behavior.

The tests results of these hypotheses are discussed next.

Effect of Air Force's 2005 Policy Change on CE Officer Attitudes and Behaviors

> <u>Hypothesis 1a</u>: *The Air Force's 2005 policy change will negatively influence the perceived importance CE officers hold for graduate degrees.*

The purpose of Hypothesis 1a was to explain the possible influence of the 2005 policy change (independent variable) on the perceived importance of graduate degrees (dependent variable). Using the pre- and post-policy subgroups, a simple linear regression analysis tested this relationship where time in military service (TIS), number of dependents, deployment rate (TDY rate), and gender were used as control variables. The results shown in Table 11 did not indicate a significant relationship between the policy change and the perceived importance of graduate degrees.

Table 4. Results of Regression Analysis for H1a

Model	Variables	Beta[a]	t	Sig.
1	(Constant)		9.64	.00
	TIS	-.020	-.16	.87
	Number of Dependents	.003	.02	.98
	TDY Rate	-.00	-.02	.99
	Gender	.041	.39	.70
2	(Constant)		6.86	.00
	TIS	-.043	-.35	.73
	Number of Dependents	-.008	-.07	.95
	TDY Rate	.004	.03	.97
	Gender	.055	.52	.61
	Policy Change	.112	1.03	.31

Note: Dependent variable: perceived importance of graduate degrees.
t=t-statistic. Significance level of $p \leq 0.05$. [a]Standardized Beta.

The left side of the table lists the two steps of the regression equation. The control variables were entered in the first step and no significant relationships were found. The policy change was entered in the second step and again no significant relationships were found. In addition, the proportion of variance explained (R^2) was only 0.02, indicating a nearly non-existent relationship. Therefore, Hypothesis 1a could not be supported.

> *Hypothesis 1b:* *The Air Force's 2005 policy change will negatively influence graduate degree search behavior of CE officers.*

The purpose of Hypothesis 1b was to explain the possible influence of the 2005 policy change (independent variable) on graduate degree search behavior (dependent variable). Using the pre- and post-policy subgroups, a simple linear regression analysis tested this relationship with the same control variables from Hypothesis 1a. The results shown in Table 5 indicate a significant relationship between the policy change and graduate degree search behavior. The left side of the table lists the two steps of the regression equation. The control variables were entered in the first step and no significant relationships were found. The policy change was entered in the second step and significant relationships were found for TDY rate, gender, and the policy change

Table 5. Results of Regression Analysis for H1b

Model	Variables	Beta[a]	t	Sig.
1	(Constant)		3.54	.00
	TIS	.199	1.75	.08
	Number of Dependents	-.099	-.89	.38
	TDY Rate	.195	1.80	.08
	Gender	.170	1.71	.09
2	(Constant)		1.22	.23
	TIS	.146	1.30	.20
	Number of Dependents	-.122	-1.13	.26
	TDY Rate	.208	1.98	.05
	Gender	.202	2.08	.04
	Policy Change	.257	2.58	.01

Note: Dependent variable: graduate degree search behavior. t=t-statistic. Significance level of $p \leq 0.05$. [a]Standardized Beta.

The proportion of variance explained (R^2) for the second model was 0.18, so about one sixth of the variation in graduate degree search behavior is explained by this model. Furthermore, there were no serious problems with multicollinearity and large collinearity tolerances indicated that only 10 – 20% of the variance could be explained by other predictors. In addition, analysis of variance (ANOVA) tests of the acceptability of the model from a statistical perspective indicated that the variation explained by the model is not due to chance alone. Therefore, a relationship exists between the policy change and degree search behavior such that the degree search behavior of CE officers increases after the 2005 policy change is introduced. Although a significant relationship exists between the policy change and graduate degree search behavior, the direction of this relationship is opposite to the hypothesized relationship; thus, Hypothesis 1b was not supported.

Moderation Effects

> *Hypothesis 2a:* *Intent to leave the Air Force will moderate the relationship between the 2005 policy change and the perceived importance of graduate degrees such that an increased intent to leave will result in a decreased impact of the policy change on the importance of graduate degrees.*

> *Hypothesis 3a:* *Need for Achievement will moderate the relationship between the 2005 policy change and the perceived importance of graduate degrees such that an increased need for achievement will result in a decreased impact of the policy change on the importance of graduate degrees.*

The purpose of Hypotheses 2a and 3a was to explain possible moderating effects of intent to leave and need for achievement on the relationship in Hypothesis 1a. The independent variables (policy change, intent to leave, and need for achievement) were centered to address concerns with multicollinearity (Schwab, 2005), and two interaction terms were created from them to represent the effects of intent to leave and need for achievement interacting with the policy change. Then a multiple regression analysis was run with the same control variables as in Hypothesis 1a, with the centered variables and two interaction terms as the independent variables. The results are shown in Table 6.

Table 6. Results of Regression Analysis for H2a and H3a

Model	Variables	Beta[a]	t	Sig.
1	(Constant)		9.64	.00
	TIS	-.020	-.16	.87
	Number of Dependents	.003	.02	.98
	TDY Rate	-.001	-.02	.99
	Gender	.041	.39	.70
2	(Constant)		9.54	.00
	TIS	-.08	-.59	.56
	Number of Dependents	.018	.15	.88
	TDY Rate	-.027	-.23	.82
	Gender	.051	.47	.64
	Policy Change	.104	.93	.35
	Intent to Leave (ITL)	-.032	-.28	.78
	Need for Ach (N_Ach)	.130	1.18	.24
	Policy Change x ITL	-.09	-.82	.42
	Policy Change x N_ACh	.104	.94	.35

Note: Dependent variable: perceived importance of graduate degrees.
t=t-statistic. Significance level of $p \leq 0.05$. [a]Standardized Beta.

The control variables were entered in the first step and no significant relationships were found. The independent variables (policy change, intent to leave, need for achievement, and the two interaction terms) were entered in the second step and again no significant relationships were found. In addition, the proportion of variance explained (R^2) was 0.04 with Adjusted $R^2 = -0.06$, indicating a nearly non-existent relationship. Therefore, Hypotheses 2a and 3a cannot be supported.

> *Hypothesis 2b:* *Intent to leave the Air Force will moderate the relationship between the 2005 policy change and graduate degree search behavior such that an increased intent to leave will result in a decreased impact of the policy change on degree search behavior.*

Hypothesis 3b: *Need for Achievement will moderate the relationship between the 2005 policy change and graduate degree search behavior such that an increased need for achievement will result in a decreased impact of the policy change on degree search behavior.*

The purpose of Hypotheses 2b and 3b was to explain possible moderating effects of intent to leave and need for achievement on the relationship in Hypothesis 1b. A multiple regression analysis was run with the same independent variables (policy change, intent to leave, need for achievement, and two interaction terms) from Hypotheses 2a and 3a and control variables as in Hypothesis 1a. The results are shown in Table 7.

Table 7. Results of Regression Analysis for H2b an H3b

Model	Variables	Beta[a]	t	Sig.
1	(Constant)		3.54	.00
	TIS	.199	1.75	.08
	Number of Dependents	-.099	-.89	.38
	TDY Rate	.195	1.80	.08
	Gender	.170	1.71	.09
2	(Constant)		4.23	.00
	TIS	.084	.77	.45
	Number of Dependents	-.082	-.78	.44
	TDY Rate	.196	1.90	.06
	Gender	.148	1.56	.12
	Policy Change	.201	2.08	.04
	Intent to Leave (ITL)	-.295	-3.04	.00
	Need for Ach (N_Ach)	.173	1.80	.08
	Policy Change x ITL	-.043	-.45	.66
	Policy Change x N_ACh	.139	1.45	.15

Note: Dependent variable: graduate degree search behavior. t=t-statistic. Significance level of p≤0.05. [a]Standardized Beta.

The control variables were entered in the first step and no significant relationships were found. The independent variables (policy change, intent to leave, need for achievement, and two interaction terms) were entered in the second step and significant relationships were found for the policy change and intent to leave at the 0.05 significance level, with TDY rate almost significant at this level. In addition, the proportion of variance explained (R^2) in the second model was 0.28 with Adjusted $R^2 = 0.20$, so one fifth of the variation in graduate degree search behavior is explained by this model. Furthermore, there were no serious problems with multicollinearity and large collinearity tolerances indicated that only 10 – 15% of the variance could be explained by other predictors. In addition, ANOVA tests indicated that the variation explained by the model is not due to chance alone. Therefore, a relationship exists between the policy change and intent to leave and degree search behavior, such that the degree search behavior of CE officers increases after the 2005 policy change is introduced and as intent to leave decreases. Although significant relationships exist between two independent variables and the dependent variable, Hypotheses 2b and 3b could not be supported since significant relationships were not found for either of the interaction terms used. Therefore, moderating effects are not impacting the relationship in Hypothesis 1b.

Mediation Effects

> *Hypothesis 4*: *Perceived importance of graduate degrees will mediate the relationship between the 2005 policy change and graduate degree search behavior such that impact of the policy change on degree search behavior decreases with the addition of the importance of graduate degrees.*

The purpose of Hypothesis 4 was to explain the possible mediating effects of the perceived importance of graduate degrees (mediator) on the relationship in Hypothesis

1b, where the policy change was the independent variable and degree search behavior was the dependent variable. Before a variable can be considered a mediator, the correlations between all three variables (mediator, independent variable, and dependent variable) must be statistically significant (Baron & Kenny, 1986). Although the correlation coefficients presented in Table 2 indicated significant relationships between the importance of graduate degrees and degree search behavior and the policy change and degree search behavior, respectively, they did not indicate a significant relationship between the importance of graduate degrees and the policy change. Although Hypothesis 4 cannot be supported, a multiple regression analysis was run with the same control variables as in Hypothesis 1a to examine the relationship between the importance of graduate degrees and degree search behavior further. The results shown in Table 8 indicated a significant relationship exists between both variables.

Table 8. Results of Regression Analysis for H4

Model	Variables	Beta[a]	t	Sig.
1	(Constant)		3.54	.00
	TIS	.199	1.75	.08
	Number of Dependents	-.099	-.89	.38
	TDY Rate	.195	1.80	.08
	Gender	.170	1.71	.09
2	(Constant)		-1.39	.17
	TIS	.210	2.17	.03
	Number of Dependents	-.100	-1.07	.29
	TDY Rate	.196	2.14	.04
	Gender	.149	1.78	.08
	Degree Importance	.509	6.13	.00

Note: Dependent variable: graduate degree search behavior. t=t-statistic. Significance level of $p \leq 0.05$. [a]Standardized Beta.

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The control variables were entered in the first step, and no significant

relationships were found at the 0.05 significance level. The importance of graduate

degrees was entered in the second step, and a significant relationship was found between

it and graduate degree search behavior at this significance level. In addition, TIS and

TDY rate were also significant. The proportion of variance explained (R^2) in the second

model was 0.37 with Adjusted $R^2 = 0.34$, so one third of the variation in graduate degree

search behavior can be explained by this model. Furthermore, there were no serious

problems with multicollinearity and large collinearity tolerances indicated that only 10 –

20% of the variance could be explained by other predictors. In addition, ANOVA tests

indicated that the variation explained by the model is not due to chance alone. Therefore,

a relationship exists between the importance of graduate degrees and degree search

behavior, such that the degree search behavior of CE officers increases when the

importance of graduate degrees increases.

Exploratory Issues

This research included a group of exploratory issues for which no theoretical basis

exists. Eight exploratory research hypotheses comprised five areas of interest, which

included: (1) Intent to Pursue a Graduate Degree within Five Years; (2) Air Force-

Sponsored Degree Program; (3) Engineering versus Management-Based Graduate

Degrees; (4) Distance Education; and (5) Graduate Education as a Mentoring Topic. The

test results of these hypotheses are discussed next.

Intent to Pursue a Graduate Degree within Five Years

> *Hypothesis 5:*   *The Air Force's 2005 policy change will negatively influence the intentions of CE officers to pursue graduate degrees within the next five years.*

Hypothesis 5 examined the effect the Air Force's 2005 policy change might have upon the intent of CE officers to pursue a graduate degree within the next five years. The pre- and post-policy subgroup responses were in a yes/no format, so a Chi-square test was conducted using the frequencies created from their responses in a contingency table. Tables 9 and 10 show the results of the observed and expected frequencies and the Chi-square test, which indicated no significant associations between the subgroups and their intent to pursue a graduate degree within the next five years. Thus, Hypothesis 5 was not supported. However, two of the expected frequencies fell just under the five-count minimum required for a valid Chi-square test (University of Newcastle upon Tyne, 2002), which means that there is a possible problem with the assumption of normality. These low frequency counts may not have occurred had hypothetical bias been controlled for as designed (see limitations in Chapter III).

Table 9. Contingency Table of Intent for Graduate Degrees

Subgroup	Counts	Do you intend to pursue a degree w/in next 5 years?		
		Yes	No	Total
Pre	Observed Count	44	7	51
	Expected Count	46.3	4.7	51.0
Post	Observed Count	44	2	46
	Expected Count	41.7	4.3	46.0
Total	Observed Count	88	9	97
	Expected Count	88.0	9.0	97.0

Table 10. Results of Chi-Square Test for Hypothesis 5

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.53[a]	1	.11
N of Valid Cases	97		

Note: df=degrees of freedom. Asymp. Sig.=asymptotic significance. Significance level of p≤0.05.
[a]Two cells (50.0%) have expected count less than five. The minimum expected count is 4.27.

Air Force-Sponsored Degree Program

> *Hypothesis 6*:   *The Air Force's 2005 policy change will positively influence the desire to pursue graduate degrees through an Air Force-sponsored degree program of CE officers with a low intent to leave the Air Force and who meet the minimum GPA requirements for such a program.*

Hypothesis 6 examined the effect the Air Force's 2005 policy change might have upon the desires CE officers hold for pursuing graduate degrees through an Air Force-sponsored program. The pre- and post-policy subgroups were limited to those officers with a low intent to leave the Air Force (<4 on scale of 1-7) and meeting the minimum GPA requirements (GPA≥3.0) for admission to an Air-Force-sponsored degree program (AFIT, 2006). These factors were chosen to reduce the influence of the extended active duty service commitment associated with sponsored degree programs and their admission requirements. In fact, some officers indicated in their comments (see Appendix G) that they were unable to get accepted into a sponsored degree program. For example, a captain indicated, "I was turned down by AFIT for the GEM program based solely on my undergraduate GPA from a very reputable institution." Additionally, a first lieutenant wrote, "I was told that since my GPA was low that I could never get a CI spot. I figured the only way I could get a masters degree would be to do it on my own."

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There were 15 and 14 officers in the pre- and post-policy subgroups, respectively, who met these limitations.   Their responses were based on a single Likert-scale item, where the higher the value, the higher the desire for a sponsored program. A one-way ANOVA tested for significance in the difference between the means of the two subgroups (3.7 for pre-policy and 3.0 for post-policy). The null hypothesis assumed the subgroups would not differ in desire for a sponsored program, while the alternate hypothesis assumed a statistically significant difference. The results in Table 11 indicated the difference between the means was not statistically significant (0.18) and may be due to chance alone. Thus, the null hypothesis could not be rejected and Hypothesis 6 was not supported.

Table 11. Results of One-Way ANOVA for Hypothesis 6

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.56	1	5.56	1.86	.18
Within Groups	80.65	27	2.99		
Total	86.21	28			

Note: df=degrees of freedom. F=F-Statistic. Sig.=Significance. Significance level of $p \leq 0.05$.

Engineering versus Management-Based Graduate Degrees

> *Hypothesis 7a: CGO preferences for CE officers to have engineering-based graduate degrees are higher than FGO preferences.*

Hypothesis 7a examined the preference that CE CGOs and FGOs might hold for engineering-based graduate degrees. A one-way ANOVA tested for significance in the difference between the means of the two groups (4.0 for CGOs and 3.9 for FGOs). The

null hypothesis assumed CGOs and FGOs would not differ in their preference for engineering-based graduate degrees, while the alternate hypothesis assumed a statistically significant difference. The results in Table 12 indicated the difference between the means was not statistically significant (0.14) and may be due to chance alone. Thus, the null hypothesis could not be rejected and Hypothesis 7a was not supported.

Table 12. Results of One-Way ANOVA for Hypothesis 7a

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.419	1	2.419	2.19	.14
Within Groups	595.27	538	1.11		
Total	597.69	539			

Note: df=degrees of freedom. F=F-Statistic. Sig.=Significance. Significance level of p≤0.05.

Hypothesis 7b: CGO perceptions regarding the importance of the Air Force choosing the type of graduate degree an individual pursues are lower than FGO perceptions.

Hypothesis 7b examined the perceived importance that CE CGOs and FGOs might hold toward the Air Force choosing the type of graduate degrees CE officers pursue. A one-way ANOVA tested for significance in the difference between the means of the two groups (3.3 for CGOs and 3.9 for FGOs). The null hypothesis assumed CGOs and FGOs would not differ in their perceptions, while the alternate hypothesis assumed a statistically significant difference. The results in Table 13 indicated the difference between the means was statistically significant (0.00) and not due to chance alone, and the null hypothesis could be rejected.

Table 13. Results of One-Way ANOVA for Hypothesis 7b

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	35.95	1	35.95	26.42	.00
Within Groups	732.15	538	1.36		
Total	768.10	539			

Note: df=degrees of freedom. F=F-Statistic. Sig.=Significance. Significance level of p≤0.05.

Therefore, FGOs perceive a higher importance for the Air Force choosing the type of degree than CGOs do. Although Hypothesis 7b was supported, the reliability of the measure (perceived importance of the Air Force choosing the type of degree) was 0.54 which is below the minimum level of 0.60 for exploratory research (Garson, 1999) and indicates a possible problem with its internal consistency.

Distance Education

>   *Hypothesis 8a:*   *CGO preferences for distance education as a learning option are higher than FGO preferences.*

Hypothesis 8a examined the attitudes that CE CGOs and FGOs have towards distance education as a learning option. A one-way ANOVA tested for significance in the difference between the means of the two groups (3.7 for CGOs and 3.8 for FGOs). The null hypothesis assumed CGOs and FGOs would not differ in their preferences for distance education, while the alternate hypothesis assumed a statistically significant difference. The results in Table 14 indicated the difference between the means was not statistically significant (0.26) and may be due to chance alone. Thus, the null hypothesis could not be rejected and Hypothesis 8a was not supported.

Table 14. Results of One-Way ANOVA for Hypothesis 8a

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.64	1	1.64	1.29	.26
Within Groups	685.01	538	1.27		
Total	686.65	539			

Note: df=degrees of freedom. F=F-Statistic. Sig.=Significance. Significance level of p≤0.05.

Hypothesis 8b: *CGO preferences for online engineering-based graduate degrees over classroom non-engineering graduate degrees are higher than FGO preferences.*

Hypothesis 8b examined the preferences that CE CGOs and FGOs might have for pursuing online engineering-based graduate degrees over non-engineering degrees taught in a classroom. A one-way ANOVA tested for significance in the difference between the means of the two groups (3.2 for CGOs and 2.9 for FGOs). The null hypothesis assumed CGOs and FGOs would not differ in their preferences for online engineering-based graduate degrees, while the alternate hypothesis assumed a statistically significant difference. Although the results in Table 15 indicated the difference between the means was not statistically significant (0.06) at the 0.05 significance level, this may be too close to being attributed to chance alone. However, at the 0.05 significance level, the null hypothesis could not be rejected and Hypothesis 8b was not supported.

Table 15. Results of One-Way ANOVA for Hypothesis 8b

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.15	1	12.15	3.64	.06
Within Groups	1795.87	538	3.34		
Total	1808.02	539			

Note: df=degrees of freedom. F=F-Statistic. Sig.=Significance. Significance level of p≤0.05.

Graduate Education as a Mentoring Topic

> <u>Hypothesis 9a:</u> *The topic of graduate education is the least used by FGOs when interacting with CGOs of nine mentoring topics.*

Hypothesis 9a examined the behavior of FGOs, specifically by looking at how often they used the topic of *graduate education* when interacting with CGOs. The professional development behavior mentoring topics were ranked in descending order in Table 16 according to their frequency of use. Graduate education ranked sixth out of the nine topics.

Table 16. Professional Development Behavior Topic Rankings

Rank	Topic	Mean	SE	SD	Variance
1	Professional Military Education	4.21	.056	.923	.851
2	Assignment Paths	4.11	.052	.853	.728
3	Performance Feedback	4.10	.060	.989	.978
4	Personal Development Actions	4.06	.052	.854	.729
5	Promotion Selection	3.97	.057	.942	.887
6	Graduate Education	3.92	.059	.968	.938
7	Recognition, Awards, and Decorations	3.75	.058	.946	.895
8	Training Requirements	3.65	.059	.975	.950
9	Professional Associations	2.96	.061	1.005	1.009

Note: SE=standard error. SD=standard deviation.

Next, a non-parametric Freidman pairwise multiple comparison test was employed to compare the observed and expected rank scores for all nine topics. The null hypothesis assumed that the ranks did not differ, while the alternative hypothesis assumed they did differ. The results in Table 17 indicated that the Chi-square statistic

was significant (0.00); thus, the null hypothesis could be rejected, which meant that graduate education was not the least used topic. Hence, Hypothesis 9a was not supported.

Table 17. Results of Friedman Test for Hypothesis 9a

Statistic	Value
N	270
Chi-Square	531.866
df	8
Asymp. Sig.	.00

Note: df=degrees of freedom.
Asymp. Sig.=asymptotic
significance. Sig. level of p≤0.05.

Furthermore, two one-way ANOVA tests were run to compare the average means for the graduate education topic among two variables – rank and highest level of education – to determine further relationships of interest. Significance was found for both the rank and highest level of education (0.00 and 0.01, respectively). The usage of graduate education as a mentoring topic increased in both cases. Both Figures 5 and 6 illustrate how rank and highest level of education relate to how often FGOs used the topic of graduate education when interacting with CGOs.
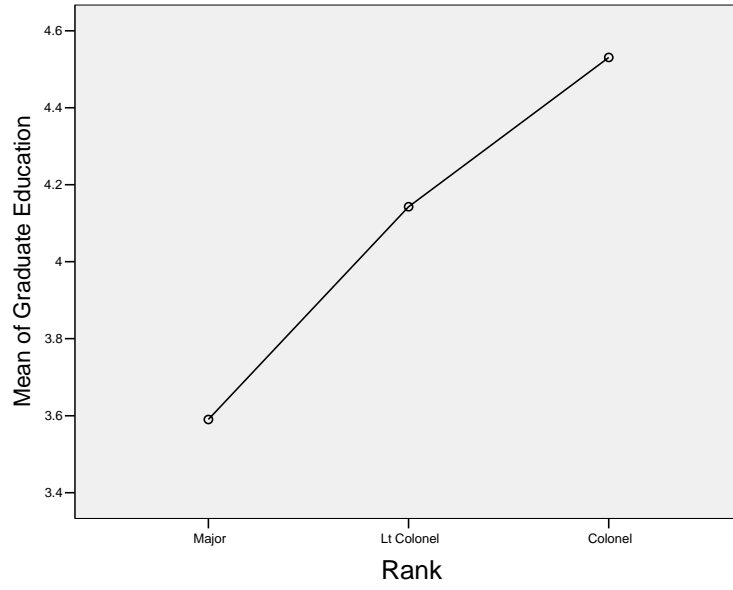
Figure 5. Means Plot of Graduate Education Topic vs. Rank
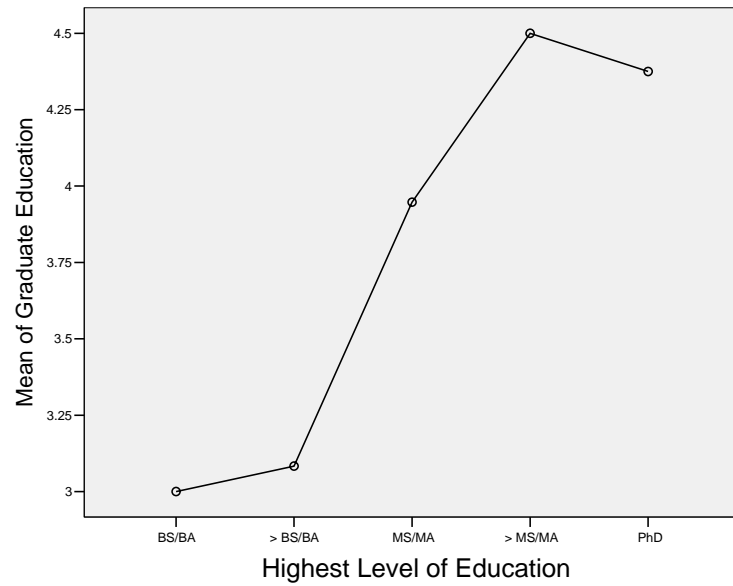
Note: > BS/BA = pursuing MS/MA. > MS/MA = pursuing PhD.

Figure 6. Means Plot of Graduate Education Topic vs. Highest Level of Education

The topic of graduate education is perceived by FGOs to be the least important mentoring topic when interacting with CGOs.

Hypothesis 9b examined the attitudes of FGOs, specifically by looking at how important they viewed the topic of *graduate education* when interacting with CGOs. The professional development attitude mentoring topics were ranked in ascending order in Table 18 according to importance. Graduate education is ranked fifth out of nine topics.

Table 18. Professional Development Attitude Topic Rankings

Rank	Topic	Mean	SE	SD	Variance
1	Performance Feedback	3.81	.167	2.752	7.572
2	Assignment Paths	4.01	.145	2.386	5.695
3	Personal Development Actions	4.27	.149	2.452	6.010
4	Professional Military Education	4.37	.137	2.249	5.058
5	Graduate Education	4.99	.117	1.918	3.680
6	Training Requirements	5.14	.148	2.429	5.901
7	Promotion Selection	5.21	.145	2.387	5.697
8	Recognition, Awards, and Decorations	5.49	.131	2.150	4.623
9	Professional Associations	7.01	.168	2.763	7.635

Note: SE=standard error. SD=standard deviation.

Next, a non-parametric Freidman pairwise multiple comparison test was employed to compare the observed and expected rank scores for all nine topics. The null hypothesis assumed that the ranks did not differ, while the alternative hypothesis assumed they did differ. The results in Table 19 indicate that the Chi-square statistic was significant (0.00); thus, the null hypothesis could be rejected, which meant that graduate education was not the least important topic. Hence, Hypothesis 9b was not supported.

Table 19. Results of Friedman Test for Hypothesis 9b

Statistic	Value
N	270
Chi-Square	301.54
df	8
Asymp. Sig.	.00

Note: df=degrees of freedom.
Asymp. Sig.=asymptotic
significance. Sig. level of p≤0.05.

Furthermore, two one-way ANOVA tests were used to compare the average

means for the graduate education topic among two variables – rank and highest level of

education – to determine further relationships of interest. However, significance was not

found for either rank or highest level of education (0.94 and 0.16, respectively).

Therefore, no relationships of further interest were revealed.

Summary of Test Results

Table 20 presents a summary of the hypotheses tested. Only one (H7b) was

supported and two (H1b and H8b) nearly supported, while the remaining were not

supported.

Table 20. Summary of Test Results

Hypothesis	Test	Sig.	Supported?
1a	Regression	.31	No
1b	Regression	.01	No[a]
2a	Regression	.42	No
2b	Regression	.66	No
3a	Regression	.35	No
3b	Regression	.15	No
4	Sobel	n/a	No
5	Chi-Square	.11	No
6	ANOVA	.18	No
7a	ANOVA	.14	No
7b	ANOVA	.00	Yes[b]
8a	ANOVA	.26	No
8b	ANOVA	.06	No[c]
9a	Freidman	.00	No
9b	Freidman	.00	No

Note: Sig.=Significance. Significance level of p≤0.05.
[a]Direction of relationship opposite of the one hypothesized.
[b]Reliability=.54; possible problem with internal consistency.
[c]Too close to being attributed to chance alone.

Summary

This chapter presented the results of the data analysis. The first part of the

chapter dealt with the descriptive statistics, correlation matrices, and reliability

coefficients of the measures used in the hypothesis tests and explained the significant

relationships that were observed. The results of the hypothesis tests were then presented

along with figures and tables from the SPSS data analysis. In addition, the results were

summarized in Table 21, which showed that only four hypotheses were supported, while

another was nearly supported. The final chapter will present relevant conclusions and

recommendations based on the test results and also suggest areas for future research.

Chapter V. Conclusions and Recommendations

This chapter presents the conclusions and recommendations developed from this research effort. The first section discusses the results of the hypothesis tests and presents conclusions concerning significant trends among Civil Engineer (CE) officers. The next section builds on these conclusions by proposing several recommendations for senior CE leaders. The final two sections explain limitations with the study and suggest areas for future research.

Discussion

The purpose of this study was to use an attitude survey to assess the perceived values, attitudes, motivational needs, and demographics of Air Force CE officers and determine if an Air Force 2005 policy change that discontinued the use of academic degrees as criteria for officer promotions to the ranks of lieutenant colonel and colonel impacted their attitudes toward graduate degrees. Specifically, senior CE leaders were concerned that in the near future many positions that require officers with graduate degrees will increasingly be filled by officers who do not possess one (Staple, 2005). Lastly, it was also important to know how CE company and field grade officers valued graduate degrees, and which type of degrees they felt were best for CE officers to pursue.

Effect of Air Force's 2005 Policy Change on CE Officer Attitudes and Behaviors

Although results indicated that the 2005 policy change did not impact the perceived importance that CE officers have for graduate degrees, the overall mean scores for this measure (see Table E1, Appendix E) suggest that graduate degrees have been important to CE officers both before and after the policy was implemented. Furthermore,

results indicated that the policy change did impact the graduate degree search behavior of CE officers, suggesting that they spent more time researching information about graduate degrees after the policy change was implemented. This is a very interesting result since the hypothesized relationship expected graduate degree search behavior to decrease after graduate degrees were no longer required for promotion (Jumper, 2005). Moreover, the overall mean scores for degree search behavior (see Table E2, Appendix E) indicated that most officers had researched information about graduate degrees more than once during 2005. Assuming that graduate degree search behavior may indicate a desire to pursue a graduate degree, these results suggest that those officers, who have not yet begun pursuing graduate degrees, may be motivated to pursue them for reasons other than promotion as suggested earlier in Figure 2 (see Chapter II).

Although neither the moderating nor the mediating relationships proved significant, two additional basic relationships were revealed during the testing for these two relationships. Results indicated that, in addition to the policy change, intent to leave and perceived importance for graduate degrees also impacted the graduate degree search behavior of CE officers, suggesting that officers who either have low intentions of leaving the Air Force or perceive graduate degrees as being important spend more time researching information about graduate degrees. Assuming again that graduate degree search behavior may indicate a desire to pursue a graduate degree; these relationships are interesting since they suggest that those officers, who have not yet begun pursuing graduate degrees, may be motivated to pursue them for reasons other than to prepare themselves for jobs outside the Air Force, a topic previously unaddressed. Results further suggest that the intrinsic motivational need for achievement of these same officers

may not be a reason why they might pursue graduate degrees since this measure proved insignificant.

In summary, it appears from the results that several reasons why CE officers may pursue a graduate degree can be dismissed. These reasons include promotion, job turnover, and the motivational need for achievement. Next, the exploratory research questions of interest are discussed.

Exploratory Research Issues

Intent to pursue a graduate degree within five years. Although results indicated that the 2005 policy change did not impact the intent of CE officers to pursue graduate degrees within the next five years, the overall mean scores for this measure (86% for the pre-policy subgroup and 96% for the post-policy subgroup) suggest that CE officers, who have not yet begun pursuing graduate degrees, intend to pursue one within the next five years regardless of the policy. However, since hypothetical bias was not able to be controlled as designed, this bias is assumed to obscure the true relationship.

Air Force-sponsored degree program. Results indicated that, contrary to expectations, the policy change did not impact the desires of officers to attend an Air Force-sponsored program such as AFIT. However, the outcome of this relationship could be spurious due to a sample size of under 30 respondents. Research has shown that sample sizes of 30 and higher are needed to satisfy an underlying assumption for normality (McClave *et al.*, 2005). Therefore, this relationship remains to be proven significant or not.

Engineering versus management-based graduate degrees. Although results indicated that the preferences of company and field grade officers (CGOs and FGOs) for

CE officers to pursue engineering-based graduate degrees were not significantly different, their respective mean values for this measure (see Table E5, Appendix E) suggested that neither CGOs nor FGOs prefer one type of degree over the other. It seems officers are evenly divided on this issue. Furthermore, results indicated a significant difference between the perceived importance that CGOs and FGOs hold towards the idea of the Air Force's Force Development team choosing the types of graduate degrees officers will pursue through an Air Force-sponsored degree program, wherein FGOs view this concept as being more important than CGOs. Even though the outcome of this relationship might be spurious due to the low internal consistency of the measure used, the overall mean scores for the measure (see Table E6, Appendix E) suggest that most CE officers do not feel it is important for the Air Force to choose the type of graduate degrees CE officers will pursue. Hence, they may not prefer having choices made for them regarding their educational development.

Distance education. Although results indicated that the preferences of CGOs and FGOs for distance education as a learning option were not significantly different, their respective mean values for this measure (see Table E7, Appendix E) suggested that neither CGOs nor FGOs prefer distance education as a learning option. Apparently, most CE officers are not interested in pursuing graduate degrees online. Furthermore, results possibly indicated a significant difference between the preferences of CGOs and FGOs toward pursuing online engineering-based graduate degrees over non-engineering degrees taught in a classroom, wherein CGOs are more willing than FGOs to consider such a scenario. Although these results were not supported at the 0.05 level of significance, they would have been at the 0.10 level. However, the overall mean scores for this measure

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(3.2 for CGOs and 2.9 for FGOs) indicate that most officers would not prefer to pursue

an online engineering-based graduate degree. Therefore, CE officers appear to hold

online graduate degrees in low regards (also see Final Comments, Appendix G).

Graduate education as a mentoring topic. Results indicated that the topic of

graduate education was neither the least used nor the least important topic according to

FGOs. In fact, FGOs have been talking to CGOs less often about awards and

decorations, training, and professional associations, while they feel it is more important

than these same three topics plus the topic of promotion selection. Therefore, assuming

these two measures combined can indicate the value of graduate education to FGOs, then

the results indicated that graduate education is neither the least nor most valued among

eight other mentoring topics. Lastly, there were significant relationships between how

often the topic of graduate education was used and both the ranks and highest education

levels of FGOs. They suggest that as both the ranks and education levels of FGOs

increase, so does the use of the topic of graduate education when interacting with CGOs.

These observations may indicate that the value of this topic by FGOs increases with time.

Recommendations

Air Force's 2005 Policy Change

The Air Force's 2005 policy change does not seem to make a difference to CE

officers today. Overall, most engineers who do not possess a graduate degree think

graduate degrees are important and intend to earn one within the next five years.

Therefore, senior CE leaders should not be overly concerned that the policy change has

impacted the mindset of CE officers, whose comments reflect this sentiment. For

example, in reference to removing academic degree information for promotion, a captain

said "…by masking them, does it preclude me from getting a master's degree – not at all, because I want a full life after the AF," and a first lieutenant said, "I decided not to allow the Chief's sight picture…change my plan for pursuing a management related degree." These and similar comments may suggest that most CE officers come from a background that encourages them to view graduate degrees favorably; hence, their strong desire to pursue one. In fact, on a scale from 1 to 7, where 1 is *strongly disagree* and 7 is *strongly agree*, the mean value for the item asking each officer *I always intended to obtain a master's degree* was 5.3, possibly suggesting that their desires predate their careers in the Air Force. However, this study did not examine that issue further.

Predictors of Pursuing Graduate Degrees

Assuming that graduate degree search behavior may indicate a desire to pursue a graduate degree, the findings suggest that several reasons (rank, job turnover, and the motivational need for achievement) may be dismissed for explaining why CE officers might pursue a graduate degree. In addition, graduate degree search behavior increased after the policy change was implemented, the perceived importance of graduate degrees increased, and intent to leave decreased. However, since there was little correlation between these predictors, moderation and mediation relationships did not prove fruitful. Furthermore, although intent to leave was significant, its relationship with graduate degree search behavior was opposing, such that those officers who might pursue graduate degrees are most likely intending to stay in the Air Force. In addition, since most officers without graduate degrees have been conducting some level of degree search behavior over the past year and have strong intentions to pursue a graduate degree within the next five years, senior leaders should find this state of affairs welcoming.

Air Force-Sponsored Degree Program

Unfortunately, there were not many respondents to make the outcome of this question more robust. Thus, it remains to be seen whether CE officers will prefer to attend an Air Force-sponsored degree program since promotion boards will see their training reports and duty history. Therefore, additional research is recommended; especially after the experience of officers with this situation increases over the next several years. Perhaps a survey conducted a few years from now would reveal a different outcome.

Engineering versus Management-Based Graduate Degrees

As far as the endless argument over engineering-based versus management-based graduate degrees, it remains a matter of perspective with officers evenly split. Even so, this might reassure leaders who wish to advocate the importance of either type of degree, since their ideas should appeal to a sizable proportion of CE officers.

Distance Education

Most CE officers do not prefer to take an online graduate degree program, especially an engineering-based one. When it concerns an engineering-based degree, many comments regarded distance education (online or correspondence) as inferior to traditional classroom instruction and its accompanying laboratory experiences, which are presumed absent in a distance education degree program. Many comments concerned the individual aspects of distance education and viewed it as a liability while completing an engineering course, which typically involves group work when taught in a classroom.

However, some of the low favor towards online degrees might be attributed to a low experience level with online courses, which can lead to perceived barriers, or

negative assumptions, as suggested in distance education studies (Duvall, 2000; Shih, 2001). Unfortunately, this study only scratched the surface of distance education, which requires further analysis before any major policy decisions are made. Even so, the results indicated that CGOs were more willing than FGOs to pursue online engineering-based graduate degrees; since CGOs represent the target population for initiatives aimed at increasing online graduate degree enrollment, this is positive news.

Graduate Education as a Mentoring Topic

Although FGOs may not value graduate education as highly as other mentoring topics, their high frequency of usage as seen in the mean scores (Table 18) was comparable to every other topic listed. In addition, graduate education apparently has a favorable top-down view as was suggested by the rank and level of education analyses. Even though FGOs reported talking to CGOs about graduation education less than most other mentoring topics, they viewed it with slightly more importance. Therefore, it seems that graduate education is receiving the exposure it deserves commensurate to its level of importance.

Limitations

There are several possible sources of error in this study. An obvious one is method variance where all variables were assessed at the same time with a single questionnaire. However, the difference between variables should remain unaffected since method variance affects all variables similarly (Campbell & Fiske, 1959). In addition, this study uses self-reported data, which relies on the accuracy and perceptions of the respondents (Liang, 1988). These perceptions may include self-serving biases that could affect the results.

Acquiescence (yea-saying/nay-saying) and social desirability are two other potential sources of error in survey research designs (Podsakoff, & Organ, 1986). However, research has found the influence of acquiescence negligible "as a source of systemic invalidity in measures of personality and sentiments" (Nunnally, 1978, p. 669). In addition, the influence of acquiescence may be limited by assuring anonymity to respondents and reducing their apprehension (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In this study, no identifying information was obtained, and few details were provided to respondents about each section of the survey beyond the basic instructional guidance.

Social desirability bias refers to respondents presenting themselves in a good light to the researcher by choosing the responses they perceive as most socially desirable, independent of their truthfulness (Zerbe & Paulhus, 1987). This bias can be reduced by changing the order of the items in study measures (Podsakoff *et al*., 2003). While the order of items for existing measures was not changed, those for custom measures were randomized. In addition, most measures incorporated a number of reverse-scored items designed to reduce the potential effects of both acquiescence and social desirability biases.

Lastly, the survey was approximately 20 minutes long, and respondents can experience temporary mood changes where an artificial, yet consistent bias may be introduced across measures (Podsakoff and Organ, 1986). Although a possible mitigating factor is that respondents can stop and return to the surveys later, this bias may still exist.

Future Research

A purpose of this study was to provide senior CE leaders an advanced warning on worrisome trends that might require further examination at the Air Force Civil Engineer's level; however, none have been found. Despite this outcome, there were quite a few comments indicating that officers viewed the 2005 policy change with skepticism, assuming that it might be reversed in the near future. However, it could be that the effects of the policy have yet to be fully realized. The majority of officers facing promotion to lieutenant colonel within the next five years already have their graduate degrees or are pursuing one. A different outcome might occur if assessments were conducted around 2010 (when those officers currently without graduate degrees may be seriously considering pursuing one) to see what the demographic trends suggest by conducting another survey with similar measures to gauge their attitudes toward graduate degrees. Then again, perhaps merely tracking trends annually using demographics collected at AFPC may also be sufficient.

Regarding distance education, there was a problem with the internal consistency of the measure used for testing Hypothesis 8a (one item was removed); therefore, a better measure(s) should be found or developed for a future attitude survey devoted to this topic before any major initiatives are undertaken by senior leaders. A more rigorous examination of questionnaires used in distance education research may offer more reliable measures.

Appendix A. Air Force's 2005 Policy Change

CHIEF's Sight Picture

2 February 2005

Force Development: Changing the Education Mindset

Over the past few years, we have initiated a number of educational initiatives for Force Development, focusing on changing the way we develop and train our people to meet the challenges of the Expeditionary Air Force. Force Development takes a deliberate approach to providing Airmen the training and experience they need to succeed in delivering air and space power now and in the future. We must make sure Airmen get the training and education required for their specialty or area of expertise. If you need additional education or training -- you will get it.

This mindset is a significant change, especially for officers. For years, Master's degrees had a significant impact on promotion potential. This must change -- our focus should be on deliberate development and not "square filling." Education must be tailored to benefit Airmen in doing their jobs. Promotion is, and will continue to be, determined by your performance and demonstrated leadership potential to serve in the next higher grade.

Beginning January 2005, we will remove all academic education information, including Bachelor's degrees, from all Line of the Air Force (LAF) and Judge Advocate General (JAG) promotion boards through the rank of colonel. The Guard and Reserve components will implement the same procedures beginning with boards convening after January 1, 2006.

All Airmen should receive some form of development to assist them in their duties in higher grades and levels of responsibility. We will provide the right development venues to meet both Airmen and Air Force needs. At the same time, I'm not discouraging you from pursuing an advanced academic degree on your own. We will continue to offer tuition assistance and operate educational support offices at each base. Advanced academic degrees will no longer be a factor in the promotion process -- at any level of the process: rater, senior rater, management-level, or the promotion board. The Air Force's emphasis is on job performance and for providing Airmen the right opportunities for advanced education when it is required.

This new policy will not affect Chaplain and health profession officers. Due to certification requirements, we need to continue showing academic information for these officers.

The goal is clear -- develop professional Airmen who will collectively leverage their respective strengths to accomplish the Air Force mission. You make our Air Force the best in the world. We owe it to you to provide the skills and education you need to continue to excel!

AIR FORCE
Air & Space Power

Appendix B. Guidance for Advanced Academic Degree (AAD) Billets

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

MEMORANDUM FOR ALMAJCOM/CE
                           HQ USAFA/CE
                           HQ AFCESA/CC
                           HQ AFCEE/CC

                                                          2 9 MAR 2001

FROM: HQ USAF/ILE
          1260 Air Force Pentagon
          Washington DC 20330-1260

SUBJECT: Guidance for Advanced Academic Degree (AAD) Billets

      According to draft Air Force Instruction 36-2302, *Professional Development (Advanced Academic Degrees and Professional Continuing Education)*, which is in coordination and expected to be published this spring, commanders are responsible for identifying AAD requirements needed to support the Air Force mission using the guidance provided by AF, FOA and MAJCOM functionals. Attachment 1 is the AAD coded position guidance for the civil engineer community. Please have your training managers apply this guidance when responding to the FY03 Air Force Education Requirements Board (AFERB) data call and AAD validation memo from HQ USAF/DP dated 16 Mar 01 (Attachment 2). We will e-mail the AF/DP memo's five attachments directly to your training managers.

      If your staff needs additional information, please have them contact Maj Anthony Ordner, HQ USAF/ILEXO, DSN 664-4747, e-mail: anthony.ordner@pentagon.af.mil.

                                           EARNEST O. ROBBINS II
                                           Major General, USAF
                                           The Civil Engineer
                                           DCS/Installations & Logistics

Attachments:
1. CE AAD Guidance
2. HQ USAF/DP Memo, 16 Mar 01

Attachment 1. Civil Engineer Advanced Academic Degree (AAD) Guidance

- AFI 36-3202, *Professional Development (Advanced Academic Degrees and Professional Continuing Education)* provides the following instructions:

  -- AAD positions form the basis of the AF funded graduate education program

  -- A position validated as requiring an AAD means the incumbent cannot optimally perform the job without the specific advanced degree

  -- Graduates of the funded graduate education program will normally serve in an AAD position immediately following graduation, but must serve in an AAD position no later than the second tour following completion of the funded education

  -- Officers in the rank of lieutenant colonel and above will not normally be considered for newly established degree requirements

- The Graduate Education Committee developed the following guidance for coding AAD positions for civil engineers:

  -- Squadron level. One to three AAD coded positions would be located in the operations flight (maintenance engineer), environmental flight, and the engineer flight at the lieutenant and captain rank with emphasis on flight chiefs

  -- MAJCOM level. AAD coded positions would be located in the operations, environmental, programming , engineering, and/or housing divisions at the captain and major rank

  -- Air Staff and FOA level. AAD coded positions would be at the captain and major level and recognize unique advanced technical degrees in FOAs

- Use an appropriate Academic Specialty Code (ASC) for each coded position. For example: 1AGE for environmental positions and 1AGA, 1AGY, 4HBY, or 4HJY for the engineering and operations positions. The ASCs will ensure a balanced requirement approach to covering the broad CE functional responsibilities

- Coding AAD positions in this manner will provide consistency and accuracy as well as greater flexibility in managing the career field by generating valid AAD requirements and providing a wide range of assignment opportunities to the graduating officers

Maj Ordner/HQ USAF/ILEXO/664-4747/alo/21 Mar 01

Appendix C. CE Officer Career Planning Diagram

(Office of Civil Engineer Officer Assignments, AFPC, July 2005)

Avg Pin-on
21.6 years

WG/CC
A7
Joint/HAF
MAJCOM
GP CC

SDE
AWC, ICAF, NWC, Fellowships

Prof. Education
MGT 400

Avg Pin-on
16.0 years

Air Staff,
MAJCOM, FOA
Dep GP/CC, Joint

Squadron Commander
Operations Flight/CC
Engineer Flight/CC

Developmental Assignment
Instructor, IG, Plans and Programs

IDE
ACSC, AAD (AFIT, NPS),
NWC, Fellowships

Prof. Education
MGT 585/MGT 430

Avg Pin-on
10.7 yrs

Flight/CC: Readiness, Environmental
Engineering, Resources, EOD

RED HORSE
Chief Maintenance Eng

MAJCOM
NAF
FOA

Developmental Assignment
Instructor, ROTC, FAO

BDE
ASBC, SOS, AFIP,
AAD (AFIT)

Prof. Education
Masters Degree,
PE, AFIT Courses,
MGT 101

Base Level: Engineering, Environmental, Resources,
Maintenance Engineering, Readiness, EOD

Appendix D. CE Officer Education Survey

(As administered 6 Dec 05 – 18 Jan 06)

DEPARTMENT OF THE AIR FORCE
AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

Col Wes Somers
HQ AFCESA/CEO
139 Barnes Drive Suite 1
Tyndall AFB FL 32403-5319

Dear fellow Civil Engineer Officers,

The Air Force Civil Engineer Support Agency (AFCESA) in conjunction with the Air Force Institute of Technology is interested in understanding how the masking of academic degrees at promotion boards affects Air Force civil engineer officer's intentions in the pursuit of advanced academic degrees. As part of the effort to understand the impact, we must clearly comprehend the attitudes, decision making processes, and demographics of civil engineer officers. The attached survey is an effort to collect information specifically targeting the attitudes of these officers toward advanced academic degrees.

Please take 15 minutes to complete this important survey, which has been approved by the Air Force Personnel Center's Survey Program office. Your participation is essential to ensure that we are doing everything we can to support the development of our engineers and will enable informed senior leader decisions. If you have any questions, please contact my OPR, Capt Frank Hughes, at <u>francis.hughes@afit.edu</u>.
<u>Click here</u> to begin.

Lastly, because of limitations with the Air Force Global email address system, I ask commanders to disseminate this survey to their officers.

//SIGNED//

PAUL W. SOMERS, Colonel, USAF
Director Operations Support
Air Force Civil Engineer Support Agency

CE OFFICER EDUCATION SURVEY (web version)
Survey Control Number: USAF SCN 05-128

PRIVACY NOTICE

The following information is provided as required by the Privacy Act of 1974:

Purpose: To understand how the masking of academic degrees for promotions affects the intentions of Air Force civil engineering officers to pursue advanced academic degrees. As part of the effort to reach this goal, the attitudes and behaviors of these officers and their associated demographics must be clearly comprehended. The attached survey is an effort to collect information specifically targeting the attitudes of Air Force civil engineering officers toward advanced academic degrees.

Routine Use: The survey results will be used for academic research and will be published in an aggregate form within a final report, which will be provided to participating organizations. No individual data will be revealed and only members of the Air Force Institute of Technology research team will be permitted access to the data.

Anonymity: ALL ANSWERS ARE STRICTLY ANONYMOUS. Therefore, you should not include your name anywhere within the questionnaire. If you would like to receive a summary of the results of this survey, use the contact information provided below.

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

Contact Information: If you have any questions or comments about the survey, contact Captain Frank Hughes using the information below.

Captain Frank R. Hughes
AFIT/ENV/GEM06M
BLDG 640 Box 4422
2950 Hobson Way
Wright-Patterson AFB, OH 45433-7765
Email: francis.hughes@afit.edu
Phone: DSN 785-3636, commercial (937) 304-7259
Fax: DSN 986-4699, commercial (937) 656-4699

INSTRUCTIONS
Base your answers on your own thoughts and experiences.
Please read and answer each question before submitting your results.

PLEASE ANSWER THE ITEM BELOW TO BEGIN THE SURVEY

What is your current rank?
    O Second Lieutenant   O First Lieutenant   O Captain
    O Major   O Lieutenant Colonel   O Colonel and above
    (IF respondent chose "major, lieutenant colonel, or colonel and above", THEN send respondent to the next page. IF not, THEN continue with the next item below.)

What is the highest level of education that you have completed? (CHOOSE ONE ANSWER)
    O Completed a Bachelor's degree (e.g. BA, AB, BS)
    O Working on a Master's degree (e.g. MA/MS)
    O Completed a Master's degree (e.g. MA/MS)
    O Working on a Doctoral or professional school degree (e.g. PhD/MD/JD/DVM)
    O Completed a Doctoral or professional school degree (e.g. PhD/MD/JD/DVM)
    (IF respondent chose "completed a Bachelor's degree", THEN randomly send respondent to either page 4 or 5. IF not, THEN send respondent to page 8.)

PART I

Considering your interactions with junior officers, please mark approximately how often you have covered each topic with junior officers.

①	②	③	④	⑤
Never	**Rarely**	**Sometimes**	**Usually**	**Always**

1. Assignment Paths ① ② ③ ④ ⑤

2. Graduate Education ① ② ③ ④ ⑤

3. Performance Feedback ① ② ③ ④ ⑤

4. Personal Development Actions ① ② ③ ④ ⑤

5. Professional Associations ① ② ③ ④ ⑤

6. Professional Military Education ① ② ③ ④ ⑤

7. Promotion Selection ① ② ③ ④ ⑤

8. Recognition, Awards, and Decorations ① ② ③ ④ ⑤

9. Training Requirements ① ② ③ ④ ⑤

Please prioritize the following topics from 1 to 9 (with 1 being the most important and 9 being the least important) according to how important you feel they are when interacting with junior officers.

10. Assignment Paths ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

11. Graduate Education ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

12. Performance Feedback ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

13. Personal Development Actions ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

14. Professional Associations ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

15. Professional Military Education ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

16. Promotion Selection ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

17. Recognition, Awards, and Decorations ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

18. Training Requirements ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

What is the <u>highest</u> level of education that you have completed? (CHOOSE ONE ANSWER)
   O Completed a Bachelor's degree (e.g. BA, AB, BS)
   O Working on a Master's degree (e.g. MA/MS)
   O Completed a Master's degree (e.g. MA/MS)
   O Working on a Doctoral or professional school degree (e.g. PhD/MD/JD/DVM)
   O Completed a Doctoral or professional school degree (e.g. PhD/MD/JD/DVM)
   (IF respondent chose "completed a Bachelor's degree", THEN randomly send respondent to either page 4 or 5. IF not, THEN send respondent to page 8.)

PART I

PLEASE READ THE FOLLOWING STATEMENT BEFORE CONTINUING:

Hypothetical Statement
Suppose the new Air Force Chief of Staff reverses the policy of the previous Chief of Staff (General John Jumper) concerning advanced academic degrees. Assume that academic degree information will be seen by promotion boards starting in January 2007 for promotion through the rank of colonel.

We would like to understand your feelings towards Master's degrees assuming that the hypothetical statement above is true. Using the scale below, please fill in the circle for the number that indicates the extent to which you agree with each statement.

①	②	③	④	⑤	⑥	⑦
Strongly Disagree	**Disagree**	**Slightly Disagree**	**Neutral**	**Slightly Agree**	**Agree**	**Strongly Agree**

1. A Master's degree would improve my job performance. ① ② ③ ④ ⑤ ⑥ ⑦

2. Having a Master's degree would make me a better person/officer. ① ② ③ ④ ⑤ ⑥ ⑦

3. Master's degrees are only important for promotion. ① ② ③ ④ ⑤ ⑥ ⑦

4. When I completed my Bachelor's degree, I started to think about getting a Master's degree. ① ② ③ ④ ⑤ ⑥ ⑦

5. Master's degrees aren't worth the trouble of getting them. ① ② ③ ④ ⑤ ⑥ ⑦

6. A successful career includes a Master's degree. ① ② ③ ④ ⑤ ⑥ ⑦

7. My critical thinking skills cannot be fully developed without a Master's degree. ① ② ③ ④ ⑤ ⑥ ⑦

8. I planned from the start of my career to get a Master's degree. ① ② ③ ④ ⑤ ⑥ ⑦

9. A Master's degree is not important for my career development. ① ② ③ ④ ⑤ ⑥ ⑦

10. I think more highly of people who have a Master's degree. ① ② ③ ④ ⑤ ⑥ ⑦

11. Master's degrees are just for "square-filling." ① ② ③ ④ ⑤ ⑥ ⑦

12. I always intended to obtain a Master's degree. ① ② ③ ④ ⑤ ⑥ ⑦

13. A Master's degree would help satisfy my thirst for knowledge. ① ② ③ ④ ⑤ ⑥ ⑦

14. I desire to get a Master's degree through an Air Force sponsored program (e.g. AFIT) since my duty history is seen by promotion boards. ① ② ③ ④ ⑤ ⑥ ⑦

15. Do you intend to pursue a Master's degree within the next 5 years?   O Yes   O No

16. How sure are you with your answer?   O Fairly Sure   O Definitely Sure

(Continue on page 7.)

CHIEF's
Sight Picture

2 February 2005

Force Development: Changing the Education Mindset

Over the past few years, we have initiated a number of educational initiatives for Force Development, focusing on changing the way we develop and train our people to meet the challenges of the Expeditionary Air Force. Force Development takes a deliberate approach to providing Airmen the training and experience they need to succeed in delivering air and space power now and in the future. We must make sure Airmen get the training and education required for their specialty or area of expertise. If you need additional education or training -- you will get it.

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This new policy will not affect Chaplain and health profession officers. Due to certification requirements, we need to continue showing academic information for these officers.

The goal is clear -- develop professional Airmen who will collectively leverage their respective strengths to accomplish the Air Force mission. You make our Air Force the best in the world. We owe it to you to provide the skills and education you need to continue to excel!

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(*Continue on next page*.)

We would like to understand your feelings towards Master's degrees. Using the scale below, please fill in the circle for the number that indicates the extent to which you agree with each statement.

①	②	③	④	⑤	⑥	⑦
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

1. A Master's degree would improve my job performance. ① ② ③ ④ ⑤ ⑥ ⑦

2. Having a Master's degree would make me a better person/officer. ① ② ③ ④ ⑤ ⑥ ⑦

3. Master's degrees are only important for promotion. ① ② ③ ④ ⑤ ⑥ ⑦

4. When I completed my Bachelor's degree, I started to think about getting a Master's degree. ① ② ③ ④ ⑤ ⑥ ⑦

5. Master's degrees aren't worth the trouble of getting them. ① ② ③ ④ ⑤ ⑥ ⑦

6. A successful career includes a Master's degree. ① ② ③ ④ ⑤ ⑥ ⑦

7. My critical thinking skills cannot be fully developed without a Master's degree. ① ② ③ ④ ⑤ ⑥ ⑦

8. I planned from the start of my career to get a Master's degree. ① ② ③ ④ ⑤ ⑥ ⑦

9. A Master's degree is not important for my career development. ① ② ③ ④ ⑤ ⑥ ⑦

10. I think more highly of people who have a Master's degree. ① ② ③ ④ ⑤ ⑥ ⑦

11. Master's degrees are just for "square-filling." ① ② ③ ④ ⑤ ⑥ ⑦

12. I always intended to obtain a Master's degree. ① ② ③ ④ ⑤ ⑥ ⑦

13. A Master's degree would help satisfy my thirst for knowledge. ① ② ③ ④ ⑤ ⑥ ⑦

14. I desire to get a Master's degree through an Air Force sponsored program (e.g. AFIT) since my duty history is seen by promotion boards. ① ② ③ ④ ⑤ ⑥ ⑦

15. Do you intend to pursue a Master's degree within the next 5 years?   O Yes   O No

16. How sure are you with your answer?   O Fairly Sure   O Definitely Sure

(Continue on next page.)

(Page 6)

Please mark approximately how much of your time you spent completing each of the following activities during the past year.

① Never	② Once	③ Twice	④ A Few Times	⑤ Many Times

	①	②	③	④	⑤
17. I discussed my plans about getting a graduate degree with family, friends, or coworkers.	①	②	③	④	⑤
18. I looked into graduate school programs.	①	②	③	④	⑤
19. I prepared for a graduate-level standardized test (GRE, GMAT, etc.).	①	②	③	④	⑤
20. I reviewed academic scholarships for graduate school(s).	①	②	③	④	⑤
21. I read publications (e.g. U.S. News & World Report) on graduate school statistics and rankings.	①	②	③	④	⑤
22. I searched for information about graduate schools (via brochures, Internet, etc.).	①	②	③	④	⑤
23. I made contact with prospective graduate schools.	①	②	③	④	⑤

(Continue on next page.)

PART II

We would like to understand your feelings towards certain types of Master's degrees. Using the scale below, please fill in the circle for the number that indicates the extent to which you agree with each statement.

①	②	③	④	⑤	⑥	⑦
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

1. Field grade CE officers should pursue a management/business Master's degree.   ① ② ③ ④ ⑤ ⑥ ⑦

2. CE officers would benefit from having an engineering Master's degree.   ① ② ③ ④ ⑤ ⑥ ⑦

3. CE officers would benefit from having a management/business Master's degree.   ① ② ③ ④ ⑤ ⑥ ⑦

4. The Air Force needs more CE officers with engineering Master's degrees.   ① ② ③ ④ ⑤ ⑥ ⑦

5. The type of Master's degree a CE officer gets should be based on the Force Development process (i.e. Officer Development Plan (ODP) and possible future assignments).   ① ② ③ ④ ⑤ ⑥ ⑦

6. CE officers would benefit more from an engineering Master's degree, rather than a management/business Master's degree.   ① ② ③ ④ ⑤ ⑥ ⑦

7. The type of Master's degree a CE officer gets should be their personal choice.   ① ② ③ ④ ⑤ ⑥ ⑦

8. It doesn't really matter if a CE officer gets a Master's degree in engineering or in management/business.   ① ② ③ ④ ⑤ ⑥ ⑦

9. The Air Force needs more CE officers with management/business Master's degrees.   ① ② ③ ④ ⑤ ⑥ ⑦

10. Company grade CE officers should pursue an engineering Master's degree.   ① ② ③ ④ ⑤ ⑥ ⑦

We would like to understand your feelings about your intentions to stay in the Air Force. Using the scale below, please fill in the circle for the number that indicates the extent to which you agree with each statement.

①	②	③	④	⑤	⑥	⑦
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

11. I do not think a lot about leaving the Air Force.   ① ② ③ ④ ⑤ ⑥ ⑦

12. I am actively searching for an acceptable alternative to the Air Force.   ① ② ③ ④ ⑤ ⑥ ⑦

13. When I can, I will leave the Air Force.   ① ② ③ ④ ⑤ ⑥ ⑦

(Continue on next page.)

PART II (continued)

We would like to understand your feelings about your motivation for self-achievement. Using the scale below, please fill in the circle for the number that indicates the extent to which you agree with each statement.

①	②	③	④	⑤	⑥	⑦
Strongly Disagree	**Disagree**	**Slightly Disagree**	**Neutral**	**Slightly Agree**	**Agree**	**Strongly Agree**

14. I work too much.	① ② ③ ④ ⑤ ⑥ ⑦
15. I continue until everything is perfect.	① ② ③ ④ ⑤ ⑥ ⑦
16. I do more than what's expected of me.	① ② ③ ④ ⑤ ⑥ ⑦
17. I have a slow pace to my life.	① ② ③ ④ ⑤ ⑥ ⑦
18. I work hard.	① ② ③ ④ ⑤ ⑥ ⑦
19. I am not highly motivated to succeed	① ② ③ ④ ⑤ ⑥ ⑦
20. I do just enough to get by.	① ② ③ ④ ⑤ ⑥ ⑦
21. I excel in what I do.	① ② ③ ④ ⑤ ⑥ ⑦
22. I do too little work.	① ② ③ ④ ⑤ ⑥ ⑦
23. I plunge into tasks with all my heart.	① ② ③ ④ ⑤ ⑥ ⑦

We would like to understand your feelings about different learning environments. Using the scales below, please fill in the circle for the number that indicates the extent to which you agree with the statement.

①	②	③	④	⑤	⑥	⑦
Strongly Disagree	**Disagree**	**Slightly Disagree**	**Neutral**	**Slightly Agree**	**Agree**	**Strongly Agree**

24. I learn best by sitting in a structured classroom environment.	① ② ③ ④ ⑤ ⑥ ⑦
25. I think distance education (on-line, web-based) is an acceptable option to traditional classroom instruction.	① ② ③ ④ ⑤ ⑥ ⑦
26. I learn best with a correspondence course so I can go at my own pace.	① ② ③ ④ ⑤ ⑥ ⑦
27. I've had very few problems using the computer for taking educational courses and tests.	① ② ③ ④ ⑤ ⑥ ⑦
28. I learn best with a web-based course that offers flexibility.	① ② ③ ④ ⑤ ⑥ ⑦
29. I would prefer to take an on-line engineering Master's degree program over a classroom non-engineering program through night school.	① ② ③ ④ ⑤ ⑥ ⑦

(Continue on next page.)

PART III

This section contains items regarding your military experiences. These items are very important for statistical purposes.

Military Experience

1. How long have you been an active duty member of the U.S. military?
    Years *(Drop down menu)* Months *(Drop down menu)*

2. How long have you been in the Civil Engineer (32E) career field?
    Years *(Drop down menu)* Months *(Drop down menu)*

3. Please indicate the category that best describes your current area of work responsibility:
    O Programming   O Design   O Construction Management
    O Environmental   O Operations   O Readiness
    O Maintenance   O Resources   O Staff Officer
    O Commander/Deputy   O Instructor/Student   O Other (specify) *(Text box)*

4. What was your primary reason for joining the Air Force?
    O Education   O Commitment to country
    O Family history   O Job security
    O Good paying job   O Other (specify) *(Text box)*

5. <u>During your military career</u>, about how many times have you been on extended temporary duty (two weeks or more) or deployed due to contingency operations, exercises, training or other duty reasons (PME, AFIT courses, etc.)?
    O None   O 1 time   O 2-3 times   O 4-5 times
    O 6-8 times   O 9-10 times   O 10 times or more

6. <u>During the past year</u>, about how long have you been on extended temporary duty (two weeks or more) or deployed due to contingency operations, exercises, training or other duty reasons (PME, AFIT courses, etc)?
    O None   O 2 weeks or less   O Between 2-4 weeks   O Between 4-6 weeks
    O Between 6-8 weeks O Between 2-4 months   O 4 months or more

7. Please mark how much you agree with the following statement:

Deployments make off-duty education difficult to pursue.

①	②	③	④	⑤	⑥	⑦
Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree

(Continue on next page.)

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Academic Experience

8. What was your undergraduate GPA (rounded to the nearest tenth digit)?
    GPA *(Drop down menu-1 digit)*. *(Drop down menu-1 digit)*

9. If you have already completed your <u>first</u> Master's degree, what type of degree best describes it?
    O N/A   O Engineering/architectural
    O Management/business   O Other (please specify) *(Text box)*

10. If you are currently pursuing your <u>first</u> Master's degree, what type of degree best describes it?
    O N/A   O Engineering/architectural
    O Management/business   O Other (please specify) *(Text box)*

11. Through what type of program did you get (are you getting) your <u>first</u> Master's degree? (Note: To the right of the program type the name of the degree that was (will be) earned, e.g. *MS in Civil Engineering, MBA*, etc.)
    O N/A
    O Air Force Institute of Technology In-Residence Program   *(Text box)*
    O Air Force Institute of Technology Civilian Institute Program *(Text box)*
    O Air Force Tuition Assistance Program   *(Text box)*
    O Independent (paid for degree without Air Force financial assistance) *(Text box)*
    O Other (please specify)   *(Text box)*

12. In what year did you (or expect to) complete your <u>first</u> Master's degree? (Please enter four digits)
    O N/A
    Year *(Drop down menu from 'Before 1990' to '2011')*

13. About how long did you (or expect to) take to complete your <u>first</u> Master's degree?
    O N/A
    Years *(Drop down menu from '1' to '5' years)* Months *(Drop down menu from '1' to '12' months)*

14. Are you (Have you been) a member of any of the following professional organizations:
    American Society of Civil Engineers (ASCE)   O Yes   O No
    American Society of Mechanical Engineers (ASME)   O Yes   O No
    Institute of Electrical and Electronics Engineers (IEEE) O Yes   O No
    Society of American Military Engineers (SAME)   O Yes   O No
    National Society of Professional Engineers (NSPE)   O Yes   O No
    Others (please specify): *(Text box)*

(Continue on next page.)

PART III (continued)

Background Information

15. Select the category that best represents your current age.
    O 20 years old or less   O 21-25 years old   O 26-30 years old
    O 31-35 years old   O 36-40 years old   O 40 years old or more

16. What is your gender?
    O Male   O Female

17. What is your current marital status?
    O Married   O Not married

18. If married, how satisfied is your spouse towards your military career?   O N/A

①	②	③	④	⑤	⑥	⑦
Very Dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neither Satisfied Nor Dissatisfied	Somewhat Satisfied	Satisfied	Very Satisfied

For the next question "legal dependents" will be defined as "anyone in your family (including your spouse) who has or is eligible to have a Uniformed Service identification card (military ID card) or is eligible for military health care benefits and is enrolled in the Defense Enrollment Eligibility Reporting System (DEERS)."

19. How many legal dependents live with you (including your spouse)?
    O N/A   O 1   O 2
    O 3-4   O 5-6   O 6 or more

20. If you have children living with you, what is the oldest child's age?
    O N/A   O Infant, 0-6 months   O Toddler, 6 months-4 years
    O Pre-Teens, 5-11   O Teen, 12-18   O Young Adult, 18-21   O Over 21

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

21. Final Comments: *(Text Box)*

Appendix E. Descriptive Statistics of All Survey Measures

Table E1

Perceived Importance of Graduate Degrees

SURVEY MEASURE Perceived Importance of Graduate Degrees 13 items, 7-point scale (strongly disagree-strongly agree)	DESCRIPTIVE STATISTICS[a]			
	Pre-Policy (n=51)		Post=Policy (n=46)	
	Mean	SD	Mean	SD
1. A master's degree would improve my job performance.	4.7	1.7	4.9	1.6
2. Having a master's degree would make me a better person/officer.	5.2	1.6	5.1	1.5
3. master's degrees are only important for promotion. (R)[b]	5.0	1.9	5.3	1.7
4. When I completed my bachelor's degree, I started to think about getting a master's degree.	5.1	1.9	5.5	1.5
5. Master's degrees aren't worth the trouble of getting them. (R)	5.3	1.6	5.8	1.2
6. A successful career includes a master's degree.	4.6	1.9	4.8	1.6
7. My critical thinking skills cannot be fully developed without a master's degree.	3.0	1.6	3.1	1.5
8. I planned from the start of my career to get a master's degree.	4.9	2.0	5.4	1.6
9. A master's degree is not important for my career development. (R)	5.1	1.5	5.1	1.4
10. I think more highly of people who have a master's degree.	4.4	1.7	3.8	1.7
11. Master's degrees are just for "square-filling." (R)	5.0	1.9	5.3	1.4
12. I always intended to obtain a master's degree.	5.2	1.8	5.5	1.5
13. A master's degree would help satisfy my thirst for knowledge.	4.9	1.7	5.5	1.5
Perceived Importance of Graduate Degrees Measure (overall score)	4.8	1.3	5.0	1.0

Note: SD=standard deviation.
[a]Higher the value, the more important graduate degrees are perceived. [b](R) – reverse-scored item.

Table E2

Graduate Degree Search Behavior

| SURVEY MEASURE | DESCRIPTIVE STATISTICS[a] | | | |
| Graduate Degree Search Behavior | Pre-Policy (n=51) | | Post=Policy (n=46) | |
7 items, 5-point scale (never - many times)	Mean	SD	Mean	SD
1. I discussed my plans about getting a graduate degree with family, friends, or coworkers.	4.0	1.2	4.2	.9
2. I looked into graduate school programs.	3.2	1.4	4.0	1.2
3. I prepared for a graduate-level standardized test (GRE, GMAT, etc.).	1.8	1.4	2.3	1.5
4. I reviewed academic scholarships for graduate school(s).	1.9	1.4	2.1	1.5
5. I read publications (e.g. U.S. News & World Report) on graduate school statistics and rankings.	2.4	1.5	2.8	1.6
6. I searched for information about graduate schools (via brochures, Internet, etc.).	2.8	1.6	4.0	1.2
7. I made contact with prospective graduate schools.	1.8	1.3	2.5	1.6
Graduate Degree Search Measure (overall score)	2.6	1.1	3.1	1.0

Note: SD=standard deviation.
[a]Higher the value, the more often behavior is used.

Table E3

Intent to Leave the Air Force

| SURVEY MEASURE | DESCRIPTIVE STATISTICS[a] | | | |
| Intent to Leave the Air Force | Pre-Policy (n=51) | | Post=Policy (n=46) | |
3 items, 7-point scale (strongly disagree-strongly agree)	Mean	SD	Mean	SD
1. I do not think a lot about leaving the Air Force. (R)[b]	5.2	1.6	4.6	1.7
2. I am actively searching for an acceptable alternative to the Air Force.	5.0	1.8	4.7	2.0
3. When I can, I will leave the Air Force.	4.5	2.2	3.7	2.0
Intent to Leave the Air Force Measure (overall score)	4.9	1.7	4.3	1.7

Note: SD=standard deviation.
[a]Higher the value, the higher the intention to leave. [b](R) – reverse-scored item.

Table E4

Need for Achievement

SURVEY MEASURE	DESCRIPTIVE STATISTICS[a]			
Need for Achievement	Pre-Policy (n=51)		Post=Policy (n=46)	
10 items, 7-point scale (strongly disagree-strongly agree)	Mean	SD	Mean	SD
1. I work too much.	4.5	1.5	4.8	1.4
2. I continue until everything is perfect.	4.8	1.3	5.0	1.3
3. I do more than what's expected of me.	5.4	1.1	5.1	1.1
4. I have a slow pace to my life. (R)[b]	5.5	1.2	5.5	1.6
5. I work hard.	6.0	0.7	6.2	0.8
6. I am not highly motivated to succeed. (R)	5.5	1.6	5.6	1.6
7. I do just enough to get by. (R)	6.2	1.0	6.0	1.1
8. I excel in what I do.	5.7	1.0	5.7	1.0
9. I do too little work. (R)	5.8	1.1	5.7	1.2
10. I plunge into tasks with all my heart.	5.2	1.2	5.5	1.1
Need for Achievement Measure (overall score)	5.5	0.7	5.5	0.8

Note: SD=standard deviation.
[a]Higher the value, the higher the need for achievement. [b](R) – reverse-scored item.

Table E5

Preference for Engineering-Based Graduate Degrees

SURVEY MEASURE Preference for Engineering-Based Graduate Degrees 7 items, 7-point scale (strongly disagree-strongly agree)	DESCRIPTIVE STATISTICS[a]			
	CGO (n=270)		FGO (n=270)	
	Mean	SD	Mean	SD
1. Field grade CE officers should pursue a management/business Master's degree. (R)[b]	3.5	1.6	3.0	1.5
2. CE officers would benefit from having an engineering Master's degree.	5.0	1.5	5.2	1.4
3. CE officers would benefit from having a management/business Master's degree. (R)	2.8	1.3	2.5	1.1
4. The Air Force needs more CE officers with engineering Master's degrees.	4.7	1.6	4.6	1.5
5. CE officers would benefit more from an engineering Master's degree, rather than a management/business Master's degree.	3.9	1.7	3.8	1.8
6. The Air Force needs more CE officers with management/business Master's degrees. (R)	3.8	1.4	3.7	1.4
7. Company grade CE officers should pursue an engineering Master's degree.	4.6	1.5	4.5	1.4
Preference for Engineering-Based Graduate Degrees (overall score)	4.0	1.1	3.9	1.0

Note: SD=standard deviation.
[a]Higher the value, the higher preference for engineering-based graduate degrees. [b](R) – reverse-scored item.

Table E6

Perceived Importance of Air Force Choosing Type of Graduate Degree

SURVEY MEASURE Perceived Importance of Air Force Choosing Type of Graduate Degree 3 items, 7-point scale (strongly disagree-strongly agree)	DESCRIPTIVE STATISTICS[a]			
	CGO (n=270)		FGO (n=270)	
	Mean	SD	Mean	SD
1. The type of Master's degree a CE officer gets should be based on the Force Development process (i.e. Officer Development Plan (ODP) and possible future assignments).	4.1	1.8	4.7	1.7
2. The type of Master's degree a CE officer gets should be their personal choice. (R)[b]	2.2	1.2	2.8	1.5
3. It doesn't really matter if a CE officer gets a Master's degree in engineering or in management/business. (R)	3.7	1.8	4.1	1.8
Perceived Importance of AF Choosing Type of Degree (overall score)	3.3	1.1	3.9	1.2

Note: SD=standard deviation.
[a]Higher the value, the higher the importance of AF choosing degree. [b](R) – reverse-scored item.

Table E7

Preference for Distance Education as Learning Option

SURVEY MEASURE Preference for Online Graduate Degrees 5 items, 7-point scale (strongly disagree-strongly agree)	DESCRIPTIVE STATISTICS[a]			
	CGO (n=270)		FGO (n=270)	
	Mean	SD	Mean	SD
30. I learn best by sitting in a structured classroom environment. (R)[b]	3.5	1.8	3.5	1.7
31. I think distance education (on-line, web-based) is an acceptable option to traditional classroom instruction.	3.8	1.8	4.0	1.6
32. I learn best with a correspondence course so I can go at my own pace. (R)	5.1	1.4	5.0	1.4
33. I've had very few problems using the computer for taking educational courses and tests.	4.2	1.5	4.6	1.5
34. I learn best with a web-based course that offers flexibility.	3.2	1.4	3.2	1.4
Preference for Distance Education (overall score)[c]	3.7	1.2	3.8	1.1

Note: SD=standard deviation.
[a]Higher the value, the higher preference for distance education as a learning option. [b](R) – reverse-scored item. [c]Overall score does not include item 3 because of low internal consistency (see Chapter Four).

Table E8

Professional Development Behavior

SURVEY MEASURE Professional Development Behavior 9 items, 5-point scale (never - always)	STATISTICS[a]	
	FGO (n=270)	
	Mean	SD
1. Assignment Paths	4.1	0.9
2. Graduate Education	3.9	1.0
3. Performance Feedback	4.1	1.0
4. Personal Development Actions	4.1	0.9
5. Professional Associations	3.0	1.0
6. Professional Military Education	4.2	0.9
7. Promotion Selection	4.0	0.9
8. Recognition, Awards, and Decorations	3.7	0.9
9. Training Requirements	3.6	1.0
Professional Development Behavior Measure (overall score)	3.9	0.7

Note: SD=standard deviation.
[a]Higher the value, the more often the topic is used mentoring CGOs.

Table E9

Professional Development Attitude

SURVEY MEASURE Professional Development Attitude 9 items, Ranked from 1 to 9	STATISTICS[a] FGO (n=270)	
	Mean	SD
19. Assignment Paths	4.0	2.4
20. Graduate Education	5.0	1.9
21. Performance Feedback	3.8	2.8
22. Personal Development Actions	4.3	2.5
23. Professional Associations	7.0	2.8
24. Professional Military Education	4.4	2.2
25. Promotion Selection	5.2	2.4
26. Recognition, Awards, and Decorations	5.5	2.2
27. Training Requirements	5.1	2.4
Professional Development Attitude Measure (meaningless)	n/a	n/a

Note: SD=standard deviation.
[a]Lower the value, the more important it is to FGO for mentoring CGOs.

Appendix F. Characteristics of All Respondents (n=732)

Table F1

Background Characteristics of All Respondents (n=732)

Statistic	Frequency	Percentage	Cumulative
Age			
21-25	121	16.5	16.5
26-30	243	33.2	49.7
31-35	143	19.5	69.3
36-40	108	14.8	84.0
> 40	117	16.0	100.0
Gender			
Male	619	84.6	84.6
Female	110	15.0	99.6
Unknown	3	0.4	100.0
Marital Status			
Married	519	70.9	70.9
Not married	213	29.1	100.0
Dependents (incl. spouse)			
0	246	33.6	33.6
1	152	20.8	54.4
2	121	16.5	70.9
3-4	189	25.8	96.7
5-6	19	2.6	99.3
>6	5	0.7	100.0
Age of oldest child			
Infant (0-6 mo.s)	22	3.0	3.0
Toddler (6 mo. – 4 yr)	101	13.8	16.8
Pre-Teen (5-11 yr)	109	14.9	31.7
Teen (12-18 yr)	87	11.9	43.6
Young Adult (18-21 yr)	20	2.7	46.3
Over 21	2	0.3	46.6
Not applicable	391	53.4	100.0

Table F2

Military Characteristics of All Respondents (n=732)

Statistic	Frequency	Percentage	Cumulative
Rank			
Second Lieutenant	100	13.7	13.7
First Lieutenant	125	17.1	30.7
Captain	237	32.4	63.1
Major	144	19.7	82.8
Lieutenant Colonel	77	10.5	93.3
Colonel	49	6.7	100.0
Time in Service (TIS)			
1-4 yr	212	29.0	29.0
4-8 yr	163	22.3	51.3
8-12 yr	115	15.7	67.0
12-16 yr	94	12.8	79.9
16-20 yr	66	9.0	88.9
> 20 yr	80	10.9	99.8
Unknown	2	0.2	100.0
Time in CE career field (32E)			
1-4 yr	242	33.1	33.1
4-8 yr	160	21.9	55.0
8-12 yr	102	13.9	68.9
12-16 yr	89	12.2	81.1
16-20 yr	60	8.2	89.3
> 20 yr	64	8.7	98.0
Unknown	15	2.0	100.0
Nature of current job position			
Engineering (Programming/ Design/Constr Mgt)	199	27.2	27.2
Staff officer	157	21.4	48.6
Operations (Maintenance)	106	14.5	63.1
Commander/Deputy	71	9.7	72.8
Instructor/Student	55	7.5	80.3
Readiness	48	6.6	86.9
Environmental Mgt	37	5.1	92.0
Executive officer	16	2.2	94.2
EOD	13	1.8	96.0
Resources	6	0.8	96.8
Other	22	3.0	99.8
Unknown	2	0.2	100.0

Military Characteristics of All Respondents (n=732)

Statistic	Frequency	Percentage	Cumulative
Reason for joining USAF			
Commitment to country	273	37.3	37.3
Education	240	32.8	70.1
Job security	87	11.9	82.0
Family history	63	8.6	90.6
Good paying job	28	3.8	94.4
Travel	15	2.0	96.4
To fly	10	1.4	97.8
Other	11	1.5	99.3
Unknown	5	0.7	100.0
TDYs during entire career			
None	10	1.4	1.4
1 time	24	3.3	4.7
2-3 times	210	28.6	33.3
4-5 times	191	26.1	59.4
6-8 times	93	12.7	72.1
9-10 times	41	5.6	77.7
> 10 times	160	21.9	99.6
Unknown	3	0.4	100.0
TDYs for past year (2005)			
None	272	37.2	37.2
< 2 wks	54	7.4	44.6
2-4 wks	56	7.7	52.3
4-6 wks	61	8.2	60.5
6-8 wks	31	4.2	64.7
2-4 mo.s	72	9.8	74.6
> 4 mo.s	184	25.1	99.7
Unknown	2	0.3	100.0

Table F3

Academic Characteristics of All Respondents (n=732)

Statistic	Frequency	Percentage	Cumulative
Highest level of education			
PhD/Professional degree	10	1.4	1.4
Pursuing PhD/Prof degree	3	0.4	1.8
Master's degree	387	52.9	54.7
Pursuing master's degree	132	18.0	72.7
Bachelor's degree	200	27.3	100.0
Undergrad GPA			
2.1-2.5	76	10.4	10.4
2.6-3.0	318	43.4	53.8
3.1-3.5	237	32.4	86.2
3.6-4.0	96	13.1	99.3
Unknown	5	0.7	100.0
Type of first master's degree			
Management/business	283	38.7	38.7
Engineering/architectural	203	27.7	66.4
Other	49	6.7	73.1
Not applicable	197	26.9	100.0
First Master's degree program			
Tuition Assist	224	30.6	30.6
AFIT	139	19.0	49.6
CI Program	75	10.2	59.8
Independently paid for degree	54	7.4	67.2
Other	15	2.1	69.3
Not applicable	225	30.7	100.0
Year attained (will attain) first master's degree			
1990 and before	54	7.4	7.4
1991-1995	60	8.2	15.6
1996-2000	114	15.6	31.2
2001-2005	156	21.3	52.5
2006-2011	195	26.6	89.1
Not applicable	153	20.9	100.0

Table F3 (continued)

Academic Characteristics of All Respondents (n=732)

Statistic	Frequency	Percentage	Cumulative
Time taken to attain first master's degree			
1 yr or less	234	32.0	32.0
12-18 mo.	214	29.2	61.2
18 mo. – 2 yr	31	4.2	65.4
2-3 yr	57	7.8	73.2
3yr or more	32	4.4	77.6
Not applicable	164	22.4	100.0
Society membership (current or past)			
SAME	557	76.1	n/a
ASCE	251	34.3	n/a
ASME	63	8.6	n/a
NSPE	49	6.7	n/a
IEEE	31	4.2	n/a
Other	71	9.7	n/a

Appendix G. Survey Final Comments

This appendix contains over 200 comments submitted by survey respondents. They are subdivided into 10 topic areas related to the survey. Topics are arranged in ascending order by the number of comments received. Each topic is then subordered by the respondent's rank and time in military service (years). In addition, the respondent's highest level of education is reported using one of the following designations: BS/BA; pursuing MS/MA; MS/MA; pursuing PhD; and PhD. If the respondent chose to send their comments via email then this information is listed as unavailable (n/a). Furthermore, comments were corrected for spelling and grammar to increase their ease of comprehension. Lastly, Table G1 below lists each topic by their descriptive statistics.

Table G1

Summary of Final Comments

No.	Topic Area	Col	LtC	Maj	Capt	1Lt	2Lt	Comments
1	Engineering vs. Management Degrees	4	10	13	26	9	0	62
2	Masking Degrees	1	5	13	12	7	6	44
3	Air Force Sponsored Degree Programs	1	1	8	11	6	7	34
4	Education Related	1	3	1	4	8	3	20
5	Online Degrees	0	0	6	5	2	2	15
6	Professional Registration (PE)	0	3	2	5	5	0	15
7	Promotion Related	0	2	4	6	0	2	14
8	Deployments (TDY)	0	0	2	6	4	0	12
9	Type of Degree to Pursue	2	1	1	6	1	0	11
10	Intentions to Leave the Air Force	0	1	1	2	1	1	6
	Totals:	9	26	51	83	43	21	233

Engineering vs. Management Degrees

Rank: Col   TIS: 27.8 years   Highest level of education: MS/MA

All AF officers should have a master's degree. There are positions we've coded that should dictate a technical degree--otherwise we should have a masters in business or management--gives you the better broad knowledge base for dealing with the PPBS/POM processes and facilities resource management and marketing to AF leadership.

Rank: Col   TIS: 22.8 years   Highest level of education: MS/MA

My personal belief is that most good engineering curricula have significantly expanded the "business" portion of their curricula over the past 10 years. Consequently, an exposure to more aggressive business concepts, which is a desirable outcome of graduate education, could be realized in either the business or engineering degree programs. Similarly, although the greater understanding of engineering theory and current practice that would come in an engineering program would be of some benefit to any of our officers, the vast majority of us never occupy a truly technical position after we reach the grade of Major. Consequently, for the overwhelming majority of our officers who never work on the AFCESA Pavements Team, or serve as a MAJCOM electrical or pavements manager, the technical degree does not return on its investment. Is an advanced degree a good thing? Yes. Is it worthwhile for the average office? That depends on a combination of the officer's desires, his or her future assignments, and other factors.

Rank: Col   TIS: 20.2 years   Highest level of education: PhD

CE officers need both technical and managerial expertise, but the AF rarely pushes technical expertise.

Rank: Col   TIS: 18.2 years   Highest level of education: MS/MA

The CE community needs officers that have tech masters degrees as well as officers who have business masters as we continue to outsource and privatize more. We need people who understand the business and others who can communicate effectively with experts we hire to ensure we get what we pay for.

Rank: Lt Col   TIS: 27.6 years   Highest level of education: MS/MA

AF civil engineers practice VERY little engineering after becoming O-3, and practice 95% management from O-3 on.

Rank: Lt Col   TIS: 22.8 years   Highest level of education: MS/MA

Field grade officers need a degree that will help them lead people if that is their career path. They need a MS in Engineering if they want to stay in R&D etc. (not leading people). CE officers should be given a choice of career paths just like we are now starting to do for pilots who want to stay in a cockpit.

Rank: Lt Col   TIS: 21.5 years   Highest level of education: MS/MA

We are officers first. Technical master's degrees are most important to sustain the AF CE's capability to train ourselves--AFIT. I rarely explicitly use or ask my officers to use their master-level skills.

Rank: Lt Col   TIS: 20.3 years   Highest level of education: MS/MA

I think it would be preferred to focus engineers on engineering master's programs even if they don't get an opportunity to use the expertise. The master's should provide a tune up to problem solving skills and it will add to the credibility of our engineering corps with master's Degrees. I think we get the equivalent of a master's Degree throughout our career in management through the squadron and headquarters assignments we take. However, I think people should be allowed to study what they want to study if they can. We will benefit more from the educational experience if we are interested in the subject matter. I was not able to take an engineering master's and took the degree that was offered at the base I was stationed at. I learned some things, but frankly never remember applying the education overtly in any subsequent positions.

Engineering vs. Management Degrees (continued)

Rank: Lt Col TIS: 17.0 years Highest level of education: MS/MA
Very few base level jobs require a technical master's. We contract out to IDIQ design firms for these services. But during my time in the design section (1st Lt to Jr Capt); I benefited the most from the 1-4 week(s) focused technical short courses offered by AFIT and civilian firms. After I had my short, focused technical time in design, the vast majority of my skills were drawn upon management, labor issues, contracting, info tech systems, accounting, statistics i.e. the kind of things I learned in my MS in Business Org Mgt.

Rank: Lt Col TIS: 16.6 years Highest level of education: MS/MA
Regarding getting a master's degree, it helps our officers think through problems. Both engineering and management graduate degree programs accomplish this.

Rank: Lt Col TIS: 16.3 years Highest level of education: MS/MA
It is difficult to say which type of master's degree is better, technical or managerial. Technical is good for the first 10 years of ones career, but as the duty requirements change around the 10 year mark a more management related degree would be more beneficial.

Rank: Lt Col TIS: 16.2 years Highest level of education: MS/MA
Mid to senior grade CE officers don't do engineering. They manage engineers and technicians. When technical issues come up, they most often rely on someone else's expertise to make a management decision. For that reason, I'd much rather have an FGO schooled in management principles than highly technical engineering. I'll take an ACSC grad over an AFIT grad any day.

Rank: Lt Col TIS: 16.1 years Highest level of education: MS/MA
There are more opportunities to apply management principles than advanced engineering principles throughout a career. However, I would allow individuals to choose for themselves. Unless the AF wants to fund more advanced degrees I don't see where it matters.

Rank: Lt Col TIS: 11.0 years Highest level of education: MS/MA
Regarding my bias towards management degrees (vice engineering degrees) I believe engineering or construction management degrees are far more applicable and appropriate for CE officers (vice general MBA degrees).

Rank: Maj TIS: 17.0 years Highest level of education: Pursuing PhD
My quote on AAD: "the officer must always be given personal choice; but AF CE should steer the CE officer towards our core competency, namely FACILITIES MANAGEMENT, grounded in ENGINEERING/ARCHITECTURE."

Rank: Maj TIS: 14.4 years Highest level of education: MS/MA
I believe that either a technical or management masters degree is acceptable, supplemented by appropriate continuing education. CE officers should have the opportunity to attend at least 1-2 technical or non-technical seminars or classes each year.

Rank: Maj TIS: 14.3 years Highest level of education: MS/MA
I'm getting my second "non-technical" master's degree at AFIT through the IDE program. I feel the management degree (Strategic Leadership) is more beneficial to the CE Officer. The other program offered is Systems Engineering, which is "technical", but not very useful to the average CE officer.

Rank: Maj TIS: 13.5 years Highest level of education: MS/MA
For most CE officer's, I believe a non-engineering master's is more beneficial given the nature of our work; however, if an engineering master's is to be of use, it should be early in an officer's career vs. later (1st or 2nd assignment).

Engineering vs. Management Degrees (continued)

Rank: Maj   TIS: 13.0 years   Highest level of education: MS/MA
     I do not favor a technical or management degree for Engineers, there is value added in both but I think everyone should pursue continuing education. I also think all senior leaders in the Air Force should have an advanced degree and I think deployments are a fantastic time to make that happen.

Rank: Maj   TIS: 13.0 years   Highest level of education: MS/MA
     I think the AF needs a certain number of technical based CE master's degrees but the majority of officers will never use these on active duty and would be better served with an MBA or engineering management degree.

Rank: Maj   TIS: 12.6 years   Highest level of education: MS/MA
     Technical vs. management degrees - both have a purpose and place, but the party line is we are AF officers first (a leader of troops) and not number crunchers.

Rank: Maj   TIS: 12.3 years   Highest level of education: MS/MA
     Advanced academic degrees are beneficial to everyone. Technical degrees should be completed by those that have an interest in pursuing that arena...not simply by filling Force Development quotas.

Rank: Maj   TIS: 12.3 years   Highest level of education: Pursuing MS/MA
     The type of degree that would be the most helpful for a civil engineer depends on the future of the career field. If we are to become more of a contingency-based organization like RED HORSE, then engineering-related degrees would be best. If we are going to outsource most of our CONUS functions to be managed by a few active duty personnel, then management degrees would be best for field grade officers and above. In either case, company grade officers would be best served by getting an engineering-related degree.

Rank: Maj   TIS: 10.8 years   Highest level of education: Pursuing MS/MA
     As for education, I don't believe having a management or engineering graduate degree matters, but I think having a management degree is more beneficial to the AF. Personal pursuit of a degree which means something to the individual will pay off best for the AF. Having PME count as a master's degree is the smartest way to go, however, as it provides the member with only one obligation to continue education on top of an increasingly complex and full schedule with work demanding more time away from family and personal interests.

Rank: Maj   TIS: 10.8 years   Highest level of education: MS/MA
     I think that CE officers need a good grounding in engineering principles to understand projects and general construction but I feel an advanced degree in engineering does not meet the needs of the CE career field due to the specialized fields in which an engineering master's goes. CE officers are better able to utilize an advanced degree in management as it helps you understand people, projects, and the dynamics that influence our programming and construction actions. It is vital to look at your projects/processes and identify good sound areas for improvement. Advanced engineering degrees better serve AF acquisition and research career fields.

Rank: Maj   TIS: 10.6 years   Highest level of education: MS/MA
     Pursuing an advanced degree should definitely be a personal choice, not coerced with policy or promotion opportunity. That being said, a technical masters degree may not be essential for the jobs I've had, but it gives me personal confidence in decisions. In reality, there are few jobs in CE where an officer gets to use technical skills (pump curves, designing circuitry, etc). A master's degree 3-5 years after working in the field is a good way to maintain proficiency at technical problem solving, and an excellent preparation for P.E., if desired.

Engineering vs. Management Degrees (continued)

Rank: Maj   TIS: n/a   Highest level of education: n/a
As a Lt and Capt I wanted to get an engineering master's but none was available at my duty locations. So after many years of delays I finally settled on a Master of Public Admin, and then eventually finished an MBA. Considering most AF officers are managers and leaders, an MPA/MBA is probably of more benefit to the AF than a technical masters, unless the individual is selected for assignment requiring that degree (USAFA or AFIT instructor, or specialized position at AFIT, AFCESA, etc.).

Rank: Capt   TIS: 17.0 years   Highest level of education: MS/MA
I have two master's degrees; one in engineering and one in business. Our engineers would benefit more from Business since it teaches us how to manage resources.

Rank: Capt   TIS: 16.3 years   Highest level of education: MS/MA
In my ideal Air Force, and time permitting, I feel company grade officers should consider pursuing a technically specific engineering related degree for their first master's degree. This allows them the opportunity to learn more of the engineering skills required for our career field. Once we become field grade officers, we should then pursue the general management or business related master's degree to broaden our perspectives on human resource management. Of course, as an FGO we should get more leadership and management theory through IDE. All of that said...it is not how it works in the field. We don't have time in our CGO jobs to delve as deeply into the details of our jobs as we should. Consequently, we've become managers as CGOs and I would argue that many of us probably don't know as much about the Civil Engineer discipline as our predecessors (i.e. -- officers commissioned pre-1992ish). Since the force drawdown of the early 1990s, we've been taught to be leaders and managers first and Civil Engineers

Rank: Capt   TIS: 10.1 years   Highest level of education: Pursuing MS/MA
Since this survey talks about education, I believe a discussion of the degree requirements for being a 32E needs to be addressed as well. I have wondered why there is such strictness on requiring an engineering degree for a job with limited engineering design. I have met several people with Architect degrees, a Landscape Architect, Environmental degrees, an Industrial degree, and a couple with a non-engineering technical degree. Without a good solid four years of design engineering, I do not believe a person can honestly answer the questions to become a PE. I have met a 32E who stated that it is just a matter of answering the questions and getting your supervisors to support those answers to get a PE. I think that people who do that are missing the whole point on what it means to be an officer and a professional, especially when human lives are put on the line. With that said, what is wrong with allowing people with Construction or Project Management degrees, Math, Physics, or other technical degrees into the

Rank: Capt   TIS: 9.6 years   Highest level of education: MS/MA
MS degrees like I got are mildly helpful to the AF. The reason I chose it was that it was the fastest, easiest, while still interesting thing I could get to check the block. Engineering or Engineering Management degrees are the way to go for our career field. Some AF leaders say it doesn't need us to have polished technical skills, which I somewhat agree with for our peace time base maintenance role. But while deployed, we need to know how to do engineering. My deployment experience has proven this several times. 1998: I poorly designed a bunker and the retaining walls collapse during construction. 2003: I was at Balad when the craters were being repaired and I was largely clueless about how to advise the Army to do the initial repairs properly. Result, RED HORSE had to come back four months later and start re-repairing all the work the Army just did. They spent the better part of their 6-mo rotation doing this. 2005: I'm with RED HORSE and trying to design another crater re-repair at BIAP. I've been to one c

Rank: Capt   TIS: 9.4 years   Highest level of education: MS/MA
My first degree (MBA thru financial assistance) is pretty much useless as an AF Civil Engineer. My second degree (MS in Civil/Environmental thru AFIT/CI) has been invaluable.

Engineering vs. Management Degrees (continued)

Rank: Capt   TIS: 8.5 years   Highest level of education: MS/MA
      For Question 4, my real response would be "Only if the Air Force plans on using me in a particular manner based on my masters degree" I haven't seen the AF appoint too many in CE in specific jobs based on their masters, but I may not have the complete site picture on that. I was surprised that there were no questions based around, "why did you complete your master's degree". For me it was a personal choice, I wanted to get it in something I was interested in, not something the AF told me they wanted me to take, or had a slot for. Unless you're a scientist/analyst you're usually not using your undergrad engineering specialty. I know I didn't use my mechanical engineering degree much. I still believe CE officers need to have some sort of engineering degree because at least then they have some problem solving background and can approach many different situations, hopefully successfully.

Rank: Capt   TIS: 8.5 years   Highest level of education: MS/MA
      I think a CE officer getting engineering degree best benefits the AF. CE officers are engineers and we should be experts in our field. Getting an engineering masters degree and/or getting registered as professional engineers will help us to better serve the AF as CE officers. If you want an MBA or some other type of management degree, go be a Personnelist or Finance officer!

Rank: Capt   TIS: 7.5 years   Highest level of education: MS/MA
      I have only used my CE undergrad degree (technical knowledge) to complete AFIT 101. However, I use my master's of Human Relations degree EVERY day as I manage people (motivate them, organize them, mentor them, understand their problems and difference in perspective). Honestly, I thought it was a square filler when I began, but believe it to be most valid now that I've stepped away from my technical peer group. If the AF wants us to maintain technical skills, then we need to make a corporate decision to stop relying on contract skill. Otherwise, why waste time/dollars in school when that is the only place we crunch numbers.

Rank: Capt   TIS: 7.5 years   Highest level of education: MS/MA
      I think AF CE officer should have a hybrid of both master's degrees, Management and Engineering. That's why SOS should play a more vital role in developing an officer's leadership/managerial skills. If SOS was longer (3 months), it would be like taking 3 or 4 graduate level courses (now it's a complete waste of time and resources) and the AF could structure PME to address the technical aspects of officer development.

Rank: Capt   TIS: 7.4 years   Highest level of education: MS/MA
      I think if the AF is going to pay for a master's degree (AFIT, AFIT/CI, etc) it should be a technical degree for CE folks. While a management/business master's can be useful, I don't think the AF would be getting the most out of the education. For tuition assistance, any degree would be fine.

Rank: Capt   TIS: 7.4 years   Highest level of education: MS/MA
      I think that a master's degree is important. Having said that though, most of our careers will be spent in a management type role versus technical role. I know I indicated that an MBA would not be important, but now thinking about it, a management masters would probably be more applicable for CE Officers. I got a technical degree and would have done it that way with or without the AF. I'm in Red Horse right now and use my master's more than I would if I were at a regular base level or staff job.

Rank: Capt   TIS: 6.5 years   Highest level of education: MS/MA
      I feel a master's degree in either business or engineering is important to a person's career in the AF and out. In both realms it adds credibility to their resume.

Rank: Capt   TIS: 6.5 years   Highest level of education: Pursuing MS/MA
      While there is a technical push towards master's degrees, most of what we do isn't very technical, especially once you move above the grade of Captain. Good or bad, our organization has decided to pay others for that. Most of what is needed can be acquired through existing means.

Engineering vs. Management Degrees (continued)

Rank: Capt   TIS: 6.4 years   Highest level of education: Pursuing MS/MA
       Don't discount International Relations degrees. You talk about engineering and management/business degrees, but I think a case can be made that having at least some officers in the career field with International Relations is exceedingly important. Same goes for language skills...

Rank: Capt   TIS: 6.4 years   Highest level of education: BS/BA only
       I see value to both engineering and management masters' degrees. There should be a balance between the two, rather than over-emphasis on either one. They both have value as we end up being more leaders and managers as the years go on, but technical proficiency and professional development are still important. This is often a personal motivator as we strive to strike a balance being officers and being engineers.

Rank: Capt   TIS: 5.9 years   Highest level of education: Pursuing PhD
       I'd like to clarify a few points. I think all CE officers should eventually have a masters degree. But, not necessarily in engineering. I think most CE officers have the needed engineering background for operating as a CE officer. The bigger benefit would be the management degree. Unfortunately, as a CE officer, we seldom get to practice in our chosen degree field. We tend to be more managers(leadership) than engineers. That's where quite a few CE officers are lacking in experience...even up through the FGO ranks. Therefore, my inclination would be towards a management/leadership-type degree. We could use more PME in leadership, as well. Our troops would be better for it. Currently, I'm working on an on-line PhD in organizational management and leadership. My MS is environmental engineering, and my BS is mechanical engineering. Push the management and leadership studies.

Rank: Capt   TIS: 5.4 years   Highest level of education: BS/BA
       A master's degree in the AF is nothing but a box to fill. The AF doesn't care what your degree is in or whether it improves your abilities. Obtaining a masters (or BS for that matter) in an area with no applicability to your job is ridiculous and a waste of taxpayer money. My engineering degree has been wasted in the AF. I spent 5 years working my tail off to get an engineering degree that I would never be allowed to use. Upon separation, I will have spent 3 of 6 years writing awards, creating briefings, writing staff summary sheets, and doing other secretarial work anyone with a high school diploma could have accomplished. My engineering degree has been of little value to me. I am separating for several reasons. One of which is the fact that I am embarrassed to call myself an engineer, as I no longer have the skills I went to school for and the AF recruited me for.

Rank: Capt   TIS: 4.8 years   Highest level of education: MS/MA
       Overall, I feel my management degree has been directly beneficial to me as a CE officer (especially as a flight commander), more so than my engineering masters will probably be.

Rank: Capt   TIS: 4.6 years   Highest level of education: Pursuing MS/MA
       Engineering Management degrees offer a compromise of technical and non-technical. If an officer wants to attend a school that is above what the AF thinks is an acceptable price, the officer should be able to pay the difference and attend better schools if they can get accepted (MIT, Harvard, etc). Why not? I have seen more than one case when an officer has offered to do this and been turned down... ridiculous.

Rank: Capt   TIS: 4.6 years   Highest level of education: Pursuing MS/MA
       I think engineering master's degrees are obsolete. By my second year on duty I was already leaving the engineering aspect of work and becoming more managerial. Once we start the managerial path, we never go back as 32Es.

Engineering vs. Management Degrees (continued)

Rank: Capt   TIS: 4.6 years   Highest level of education: BS/BA
    The master's degree is technically masked but still visible in the board process. The only time a CGO is able to apply their technical degrees/abilities is during a RED HORSE tour or if they are fortunate at their base level (top 5-10% possibly). The only other option is during a deployment but that creates a different design environment. The CE career field is focused more on contract management with officers still filling the manager/paperwork roles instead of design which is usually contracted out. Also, contingency engineering usually requires accelerated timeframes, so a complete technical design is usually overruled by mission requirements. This creates the best applicable engineering available. Time will dictate contingency design quality. Therefore preferring an engineering master's puts pressure on CGOs to pursue an engineering master's degree that they will likely never apply. The CE environment must change from contract management to actual design to actually foster the need for an engineering master

Rank: Capt   TIS: 4.5 years   Highest level of education: Pursuing MS/MA
    I believe the program is fine the way it is. If emphasis is to be made on using engineering degrees, this needs to start earlier as a LT. I personally have a BSEE, but have yet to truly get the opportunity to apply it in my first 4-years. Being out of practice, I don't believe I could any longer provide anything but basic support from my original degree. Most of the jobs I see officers doing in the AF appear to be management-centric, not engineering.

Rank: Capt   TIS: 4.5 years   Highest level of education: Pursuing MS/MA
    I think that there is quite a dichotomy between AF home station duties/expectations and deployed duties. Usually, CE officers at home station are managers and special projects officers, and then they get deployed and become engineers (with some minor project management). This presents a challenge both in training, schooling (master's degrees), and workload. If we would always be doing the "home station" job, I would suggest that all CE officers get MBA/management degrees. If we were to focus on deployed responsibilities, engineering degrees would be more applicable. I think that the AF has too many managers and too little technical experts and engineers. Why take an officer with an engineering degree, and have him do the same job (project management) as a SSgt in SABER? Couldn't these same officers use their schooling and training to do more engineering, design, design reviews, etc.? I got a degree in CE, but have forgotten much of what I learned due to non-use. That is why I'm going for an engineering mast

Rank: Capt   TIS: 4.5 years   Highest level of education: BS/BA
    Master's programs for CE officers seem limited (far more for Developmental Eng.). I studied Mech/Aero engineering, was assigned to CE, now I push papers. History majors in aircraft maintenance have more technical expertise from their jobs than degreed engineers in CE.

Rank: Capt   TIS: 4.4 years   Highest level of education: BS/BA
    I eventually plan to pursue a master's degree that is non-engineering, non-business/management.

Rank: Capt   TIS: 3.5 years   Highest level of education: MS/MA
    To consider an Engineer's degree a necessity to be in CE is a joke. This is a management position, not an engineer's.

Rank: 1Lt   TIS: 3.9 years   Highest level of education: Pursuing MS/MA
    I think any master's degree is beneficial to a CE officer, whether it be in engineering or business/management. However, in my opinion, on the job experience is more valuable, so the AFIT/CI, GEM, or instructor prep courses do more damage than good because they take the CE officer out of the traditional CE work environment for too long. Therefore, I feel off-duty education (night school) is the best choice for continued education.

Engineering vs. Management Degrees (continued)

Rank: 1Lt   TIS: 3.6 years   Highest level of education: Pursuing MS/MA
       With the current trend of "contracting-out" most design projects, there is no need for a young officer to pursue a technical master's degree program. Within the Air Force today, a MBA or organizational management degree would be much more beneficial. After all, we are trained/groomed in ROTC, OTS, etc to become leaders in our respective professions, so we should tailor our training with that concept in mind vs. becoming more technically sound in one particular area of engineering that we may (but in most cases probably won't) have to work in. In closing, an accredited B.S. degree provides a solid foundation for most AF officers to work from in their first 5-6 years; after that, officers should focus on the bigger picture of managing an organization - a business - which typically doesn't require the officer to be the subject-matter-expert in his particular engineering discipline, but as with everything, there are always the exceptions to the rule.

Rank: 1Lt   TIS: 3.6 years   Highest level of education: BS/BA
       I plan to get both an advanced technical masters degree and an advanced management degree.

Rank: 1Lt   TIS: 3.5 years   Highest level of education: BS/BA
       I have some strong views about these joke degrees like Troy State or Wayland Baptist (or sorry to say it, AFIT) that a lot of people get which I couldn't really address in this survey. I think that these kind of degrees are "check the box" and completely worthless in the real world while a real MBA/ME from a respectable school is much more valuable. Also, all the questions about MBA vs. ME have a problem. I think that our career field needs more "Operational" officers and fewer "Staff Weenies." I think that a management degree hints toward a weenie who has served twelve exec/staff jobs in a row and has never been to the desert. I feel that a real CE guy who has built his share of TEMPER tents would get a real engineering degree. We've got enough weenies, we need a lot more gung ho engineers.

Rank: 1Lt   TIS: 3.1 years   Highest level of education: Pursuing MS/MA
       CE officers should pursue business or management masters because it has been my experience that most CE officer are or will be managers. Unless you're a developmental engineer or planning to get out early, a management degree is more beneficial to a CE officer that plans to make a career of the Air Force.

Rank: 1Lt   TIS: 2.8 years   Highest level of education: Pursuing MS/MA
       I believe that USAF officers get a heavy dose of much of the management education they need from OTS, ROTC, AFA, ASBC, and MGT 101 during pre-commissioning and their LT years. Following that is more leadership study as our careers progress. To have a wealth of CE Captains and Majors that had engineering based masters degrees and the accompanying skills would seem to be to the benefit of the USAF. During my deployment, it was obvious that most officers I met were solid leaders. The ones that stuck out as exceptionally useful to the mission from an engineering standpoint were those that were drawing from a wealth of knowledge in an engineering discipline, be it electrical, mechanical, etc. I am an architectural graduate and thus cannot take many of the ENG masters programs out there, but I do think that those that can, should and those that can't should find something close (Engineering Management, master's in Architecture, etc) to help their career and not just fill a box for a degree.

Rank: 1Lt   TIS: 2.6 years   Highest level of education: Pursuing MS/MA
       I've hardly ever seen an AF officer doing a design or anything that would require an engineering master's (rather a PE, but even those aren't used)...it's all civilians now. Officers are the managers of the CE branch of the AF "corporation". We're all engineers, but engineering judgment comes with experience not another degree...that's why we ask the enlisted for their inputs. Why spend tax-payer money on engineering degrees, when more managers are needed? Also, the jobs I've had haven't required anything above a bachelor's degree.

Rank: 1Lt   TIS: 2.5 years   Highest level of education: BS/BA
       I would like to pursue a master's degree taking online or night classes in Energy Management.

Engineering vs. Management Degrees (continued)

Rank: 1Lt TIS: 2.3 years Highest level of education: Pursuing MS/MA

A business master's and an engineering masters can both be beneficial to the Air Force. The key is matching the person with the right degree with the right position. I would say the MBA is more beneficial to the Air Force than it is to the member. While the member can greatly benefit from both the MBA and the engineering masters, depending on the career he/she chooses to pursue.

Masking of Degrees

Rank: Col TIS: 20.2 years Highest level of education: PhD

Twenty years ago a masters degree was an accomplishment and a bachelor's degree was the minimum requirement for a "professional". Today, a masters degree is becoming the "professional" requirement (for some professions a person cannot get licensed without a masters degree). Therefore, the AF needs to recognize this in both the opportunities it offers to its officers. Also if the AF wants officers that are above the minimum requirement for a professional (a masters), then it needs to fund degrees beyond the minimum also.

Rank: Lt Col TIS: 21.2 years Highest level of education: MS/MA

Professionals worry about the mission, careerists worry about getting promoted. Good officers will get a master's because it improves their ability/skills. The problem in the past is promotion boards had used a masters/PME completion as gates...if it was not done you were in the no-promote pile. So the AF masked a master's due to an ops tempo that was perceived to prevent getting a masters...it should have directed the promotion board to appropriately weigh a masters, not "delete" the requirement. People who truly can't complete masters/PME due to deployments will have OPRs that reflect that...all others are whining. In the end those that can balance complex assignments/deployments and get PME/masters done are those that we need in senior positions...so stop depriving the promotion board the ability to identify those people.

Rank: Lt Col TIS: 20.3 years Highest level of education: MS/MA

I believe that the process of getting a masters degree - regular infusion of structured education - provides us with an officer corps that is better off than one that says I will do only what is the minimum. If we stop structured learning, we might be tempted to think we can stop learning altogether.

Rank: Lt Col TIS: 19.2 years Highest level of education: MS/MA

Masking masters is a pilot issue and may make sense in that career field. MS for engineers are absolutely necessary. Telling our engineers that MS is unimportant until later is similar to the great mistake the AF made in the early 90s when we told officers that remotes were voluntary. They weren't, and an entire generation (those that remained) felt violated. Today, we are telling engineers that undergrad is all you need to be competent: false. Our experiences in OEF/OIF are disproving that to our chagrin. The senior engineer leaders that tolerated the masking policy should be ashamed. Reference ASCE Policy Statement 465: The baccalaureate engineer degree is no longer adequate preparation for the practice of engineering. The knowledge required to support the practice of the profession requires postgraduate study sufficient to attain a master's degree or its equivalent.

Rank: Lt Col TIS: 16.4 years Highest level of education: MS/MA

master's degrees should not be masked from promotion boards.

Rank: Lt Col TIS: 16.3 years Highest level of education: MS/MA

I strongly support the old expectation/requirement that all officers, regardless of career field, obtained advanced degrees. Future leaders of the AF should have advanced degrees.

Rank: Maj TIS: 19.5 years Highest level of education: MS/MA

We need to make a decision on what is important w/ officer development and enlisted development. Enlisted are required to have a CCAF to advance beyond MSgt, but it is masked on officers. This dichotomy is noted by my SNCOs and junior officers and is very hypocritical in my opinion.

Masking of Degrees (continued)

Rank: Maj   TIS: 18.3 years   Highest level of education: MS/MA
    I support masters degrees being reflected on Officer Boards! We worked hard to earn the degree, show the degree for the record!

Rank: Maj   TIS: 15.5 years   Highest level of education: MS/MA
    Making a master's degree mandatory or "expected" would be acceptable if the AF provided the opportunity to obtain one. If you want Military CE officers to have engineering degrees or PE, provide them the ability to use their skills. Most of us are primarily managers of people and attend staff meetings all the time.

Rank: Maj   TIS: 15.3 years   Highest level of education: MS/MA
    Masking of education can have a negative effect during promotion boards as those personnel who pursue it while working have to take time off, or not work as late, to go to classes. Some supervisors who don't believe in education might see this as a detractor against a person's job performance. I've also noticed that during the past promotion board (which masked education) that deployments count for promotion but those of us that weren't deployed and worked on getting an education received no benefits from it at promotion board.

Rank: Maj   TIS: 14.9 years   Highest level of education: MS/MA
    Grad degrees may not be required for promotion up to Lt Col; however, I think that we as a career field need to make that a mandatory requirement to be a CE SQ/CC. It shows an officer's willingness to better improve themselves. It becomes another discriminator during the SQ/CC board.

Rank: Maj   TIS: 14.6 years   Highest level of education: MS/MA
    I am an IMA, so the impact of my answers is probably different than active duty. As an IMA, my wartime mission is to backfill active duty persons deployed. I believe that my personal motivation and drive to pursue a masters degree (in any career field) shows something of my desire to better myself for the Air Force. I am a full time mother of 2 children and run a business from my home. I do not volunteer to deploy for extended amounts of time and I do not feel that should affect my promotion eligibility. I do volunteer for additional days to backfill or assist at my base when needed. I chose an IMA position because of my love for my country and my desire to serve, however, at this point in my life I choose not to leave my small children. It takes many different folks to keep our military running and because I am choosing this path (which was established many years ago) it should not hinder my promotion eligibility. Masking advanced education should not be done for promotion boards. There are those of us who c

Rank: Maj   TIS: 13.5 years   Highest level of education: MS/MA
    Had I known my MBA would be masked for promotion, my degree choice and timing for completing it probably would have been different.

Rank: Maj   TIS: 13.0 years   Highest level of education: MS/MA
    I think it is a poor choice to mask advanced degrees for support officers to O-4 or O-5. It is far too valuable and important to give it zero value. I'd rather see no "requirement" for it and then let those that do get one be rewarded for their initiative accordingly. As an AFIT grad, my degree isn't masked and that is unfair to those that got theirs on their own.

Rank: Maj   TIS: 13.0 years   Highest level of education: MS/MA
    We need to stand firm on the position that degrees should not be masked for promotion, someday the AF position on that will reverse and we need to ensure mentors are continuing to suggest young officers pursue a degree that matches their skills and favors the career path they desire for themselves.

Masking of Degrees (continued)

Rank: Maj   TIS: 12.6 years   Highest level of education: MS/MA

Masking education during promotion boards is a mistake. Ops tempo has increased, but not to the point where individuals can not continue to pursue and complete a master's degree. Many enlisted members have BS AND MS degrees. I would argue they have more demands on their time than do officers. Enlisted must worry about CDCs, promotion testing, CCAF, PME and so on. When officers complain there isn't enough time, they need to look at the individuals they are supposedly leading and set the example.

Rank: Maj   TIS: 10.5 years   Highest level of education: MS/MA

master's degrees are why we have the most educated and successful officer corps in the world! CE officers are expected to have a strong background in one of the engineer/architect fields. However, we are soon expected to be able to run a business. So, the mix of types of degrees between MS and MBA cannot be met. The folks who are able to get one or both of those degrees on their own time (not AFIT or other sponsored program) deserve to have that show on their records, as they have gone above and beyond their duty responsibilities. If the AF shows PME by correspondence, they should ALWAYS show advanced degrees. Those who completed a sponsored degree have it show up as training reports or as assignments, not the ones who do it on their own. Bottom line: each CE officer should have a master's, either in his/her technical field or in management.

Rank: Maj   TIS: n/a   Highest level of education: n/a

Even before the masking was announced, the AF promotion boards clearly did not care whether a master's was in the Greek classics or nuclear physics. If you had a masters in anything (no matter how useless), you got a check in the box.

Rank: Maj   TIS: n/a   Highest level of education: n/a

I am surprised the AF is now masking the advanced degree status for O-5 boards. That tells me the AF no longer cares about education, although education is still the primary discriminator between the officer and enlisted corps. This doesn't make sense. I feel this policy is catering to the few procrastinators who are now under the gun to complete their degree, but are suddenly deployed. Should we also mask whether they've completed PME? With the widespread advent of on-line coursework, this excuse is becoming flimsy. As an alternative, the AF should consider either reducing the board standard to Bachelors-Plus or stating that masking is a temporary change pending reduction in ops tempo.

Rank: Capt   TIS: 18.6 years   Highest level of education: MS/MA

If you mask the masters degree the motivation to obtain one on ones own will vanish, in fact it will become a bad thing...why would anyone waste their time?

Rank: Capt   TIS: 10.9 years   Highest level of education: MS/MA

Masking the graduate degree limits motivation for many CGOs. I believe that many CGOs don't have a masters when they are promoted to Major. If this is true, it will be a LIMFAC when they are up for promotion to Lt Col. There will be less time to pursue and gain a master's degree for those in this category. Will there be enough CE officers' ready for Lt Col (master's degree) to meet the required future needs? I suggest plotting the number of CE officers with a masters against promotion quotas and looking for a disconnect.

Masking of Degrees (continued)

Rank: Capt   TIS: 8.5 years   Highest level of education: MS/MA

    I am annoyed that the AF now masks the masters results for the major's board because now there are no distinguishers left other than SOS for your Education Record that will meet the board. It's sort of like, "why did I bother"? Now it means nothing. I think many people base their master's decision on what they'll do outside of the AF, not what they might do in it. That would have been another question I expected to see on the survey. Any advanced education in my opinion is a plus, whether it's in management or engineering, because it shows a commitment to further your personal development and potentially those around you. I think the AF has turned the earning of advanced degrees into a box checker. Either it's checked or its not. There's no more or less recognition for a degree. I've never seen a published list of what jobs would be available to you based on whether you had a masters and what type of masters you had. That would be pretty cool. Force Development Team: gee, I haven't see all that many comments

Rank: Capt   TIS: 8.5 years   Highest level of education: BS/BA

    I don't think advanced degrees determine one's ability to lead. I agree that we should continue to complete PME and other "military advanced education," but civilian academic institutions don't prepare me on how to go to war or run a large CE squadron. Nor do they make a better man or leader out of someone. I've known officers with degrees that are great, and ones that aren't. No correlation between excelling in the AF having a master's or not in my opinion. With today's ops tempo, I'm expected to work long hours and squeeze in a small amount of time with family and friends now. Add to that the expectation to continue with school during my "free time" and take up more of my time so I can make sure I get promoted even though I could be considered a great officer without a master's degree? I think that's a foul. With the amount of work, TDYs, deployments, and little family time now that we have, I think it's wrong to weigh so heavily on another academic degree. We should be rewarded for pursuing and completing our PME.

Rank: Capt   TIS: 8.5 years   Highest level of education: MS/MA

    If this survey is to address the concept of masking educational status for boards, etc., I would like to comment that I don't agree with the practice. I was once told by a leader in my chain of command that whether a person has completed IDE by correspondence is used as a discriminator for certain evaluations because it shows initiative. It doesn't seem right that completing a course by correspondence that you hope to do in residence anyway is more important than getting an advanced degree. I think getting a master's degree on your own time (not necessarily through AFIT, where you get paid to go to school) shows just as much initiative.

Rank: Capt   TIS: 7.3 years   Highest level of education: MS/MA

    I just want to say that I don't think that educational degrees should be masked at the promo boards. Because I have an AFIT degree, I have a training report. In that way, my master's is not masked. Somebody who gets a master's by another means doesn't receive the same recognition.

Rank: Capt   TIS: 7.3 years   Highest level of education: MS/MA

    It seems there is a serious contradiction between CE leadership and the AF Chief of Staff. The Chief of Staff stated that the master's degree is masked for promotion to Major and should not be considered in the PRF; however it seems that CE leadership is still using this fact as a factor in PRF's.

Rank: Capt   TIS: 6.6 years   Highest level of education: MS/MA

    Unless our role is going to change, I do not see a need for CE officers to have a higher degree. More experience and exposure is going to be better than management classes. If it is not masked on the promotion boards, it will just show if the person is willing to spend the time and effort to benefit themselves and improve their knowledge.

Masking of Degrees (continued)

Rank: Capt   TIS: 6.5 years   Highest level of education: MS/MA

As for masking a master's, many of our 2Lt's have decided to not get started on a master's as it is not viewed they need it for promotion. However, this is the wrong message the AF is sending as it is only a matter of time before some Star up above decides that they should be unmasked and these officers will be left holding a bag of crap saying the AF told them they would send them to school if they needed a master's.

Rank: Capt   TIS: 6.3 years   Highest level of education: Pursuing MS/MA

Even though the education information has been masked, there has been no change. You are still expected to get a master's to be considered for a promotion.

Rank: Capt   TIS: 5.6 years   Highest level of education: Pursuing MS/MA

Bottom line-by masking all master's degrees other than AFIT is not fair to those that didn't have the opportunity to attend and were turned away. Either show them all or none. Furthermore, by masking them, does it preclude me from getting a master's degree...not at all, because I want a full life after the AF. But it still needs to be fair altogether.

Rank: Capt   TIS: 5.5 years   Highest level of education: MS/MA

It really bothers me that the master's degree is masked at the Major's board, but that should not prevent engineers from seeking more education to make them better officers and engineers.

Rank: 1Lt   TIS: 3.3 years   Highest level of education: Pursuing MS/MA

The Air Force message regarding whether or not to pursue a master's degree has gotten very jumbled since I've entered the Air Force. The general message from leadership seems to be "don't waste your time and our money getting a degree you don't need for your future job", but at the same time telling us off line that such a message shouldn't make somebody change their plans to pursue a master's degree on their own using tuition assistance. So I decided not to allow the Chief's sight picture from a couple years ago change my plan for pursuing a management related degree.

Rank: 1Lt   TIS: 3.0 years   Highest level of education: BS/BA

I like the idea that if the AF needs us to have masters that they will pay for it.

Rank: 1Lt   TIS: 2.6 years   Highest level of education: Pursuing MS/MA

I believe it is a poor decision for the Air Force to mask any graduate work from its selection boards. I understand the thought of being the "best CE officer" you can be, but I believe graduate coursework does not hinder one from becoming the "Best CE Officer" we can be, but rather assist those individuals by giving them additional educational avenues to apply the lessons learned in a MBA or Engineering master's Degree Program. These avenues in turn can help to make our Air Force a better and more efficient place to work. Any normal job application in the civilian sector would not ask you to "mask" your educational degrees, and while a graduate degree should not be the deciding factor, it should be a consideration. The more the Air Force continues to mold itself to the proven system of the civilian sector, by outsourcing career fields and jobs that don't require deployments or a "military" in nature function, the leaner and more efficient we will become.

Rank: 1Lt   TIS: 2.5 years   Highest level of education: BS/BA

I don't think the masking of your master's degree will affect anyone deciding for or against getting their master's. Things change often in the AF, and many officers have been told that master's degrees are still as important as ever, so don't let the masking affect your decision. Many officers are anticipating a return to the old way (when they were not masked), so plans aren't changing that much in my opinion.

Rank: 1Lt   TIS: 2.5 years   Highest level of education: Pursuing MS/MA

The masking of Master degrees has no bearing on my desire to obtain a master's. I do think that masking gives those individuals who attend AFIT or an AFIT CI program an advantage because of the fact that you cannot mask that they have gotten a Master degree

Masking of Degrees (continued)

Rank: 1Lt TIS: 2.3 years Highest level of education: MS/MA

       Even though graduate degrees are masked, I wanted to get my MSEE because it would make me more marketable in the private world. I wanted to be prepared in the event that I ever wanted to leave the AF or was force shaped out for some reason.

Rank: 1Lt TIS: 2.2 years Highest level of education: BS/BA

       I believe the simple answer to this question, is that there is no right answer. Everyone has a path that works for them (and if it works for them it will work for the AF in the long run). If we push everyone in one direction, we (as a career field) lose out. I believe the 32E career field should be evaluated on job performance, not what 'blocks are filled'. Though I plan on earning an engineering master's, I don't see why the AF cares. The AF won't let me use those skills anyway. I'm too busy pushing paperwork (email) between 6 pet projects to actually make my base better.

Rank: 2Lt TIS: 3.3 years Highest level of education: BS/BA

       It's only a matter of time before new leaders come to power and once again look at graduate degrees for promotion consideration. We need to get our degrees out of the way so we're ready when the change comes. Graduate degrees are also helpful in the civilian world... we won't be in the military forever.

Rank: 2Lt TIS: 1.8 years Highest level of education: BS/BA

       After working 10-12 hour days I have no desire or energy to pursue a degree that has no impact on my career. Even when the information wasn't masked I had no time for a master's degree. If I were to get one it should be technical in nature.

Rank: 2Lt TIS: 1.6 years Highest level of education: BS/BA

       My short AF career has been extremely disappointing. The AF is a screwed up bureaucracy that does not think all the way through its actions before it enacts another stupid rule. If people aren't dedicated enough to try and further their education, then they are idiots. Do you want a bunch of idiots in the AF? And, if the AF isn't willing to recognize the people that have dedicated themselves to furthering their education in any manner (either before or after they commissioned), then that is pathetic.

Rank: 2Lt TIS: 1.4 years Highest level of education: MS/MA

       The Air Force should take in consideration where a person gets their master's from. It's aggravating to see people get a master's Degree from on-line university that is barley accredited when others go through up to 2 years of a strenuous technical degree at AFIT or a CI. A master's should not be a check mark, what you learn should mean something. The main reason I would leave the AF is due to constant PCSing. Though its fun now, I can see it getting very tiring when I have a family.

Rank: 2Lt TIS: 1.0 years Highest level of education: MS/MA

       Master's degrees should NOT be masked for promotional consideration. I worked hard to put myself through school without any assistance, and I feel that work ethic should be recognized.

Rank: 2Lt TIS: 1.0 years Highest level of education: BS/BA

       Whether or not the promotion boards see my status of having an advanced degree does not factor into my decision to obtain one.

Air Force Sponsored Degree Programs

Rank: Col   TIS: 22.3 years   Highest level of education: MS/MA
        I assume you know that the War Colleges bestow a master's degree to their graduates. I attended ICAF (Industrial College of the Armed Forces), a joint War College. Many of my Army classmates talked about how they never would have had an opportunity to get a master's degree if it wasn't tied to attending War College. You may want to explore this further (Will this become an issue for CE officers? If so, does a War College master's degree provide what AF CE officers need? Etc?

Rank: Lt Col   TIS: 18.0 years   Highest level of education: MS/MA
        The AF needs to establish more CI programs to make the AF educational programs more attractive. For example, just about every Civil Engineer Corps officer in the Navy gets a CI master's degree---this is one incentive to join/remain in the CEC. Why does the AF need a management/engineer school when the rest of the world has plenty of management/engineer degree courses? Seems like an obvious target for outsourcing and encouraging our engineers to get a master's.

Rank: Maj   TIS: 16.9 years   Highest level of education: MS/MA
        CE career field needs to assist officers with taking a technical masters degree through AFIT. GEEM should be made a correspondence or online course instead of full-time. AFIT should make engineering management an online course as well. In today's work climate, there's no time for deployments and advanced education of the quality expected unless online education becomes more available with these options. I would gladly apply for an engineering management masters degree under AFIT online. Also, those lucky enough to attend advanced PME in residence such as ACSC get a masters degree and yet those who don't still have to put in the time and effort to pass the tests. I think ACSC should add research papers to their requirements and make this a correspondence master's degree level course. AFIT should do the same to make education available to all commissioned officers. AFIT Engineering and Services School is a highly professional organization. They should work with the graduate school to make their courses applicable.

Rank: Maj   TIS: 14.8 years   Highest level of education: MS/MA
        My feeling is AF sponsored degrees for civil engineers should focus on engineering and engineering management areas, not business or business management. You get enough of that to get by in the SOS, ACSC, and AWC courses.

Rank: Maj   TIS: 14.3 years   Highest level of education: MS/MA
        The Air Force needs to closely examine the AFIT ACSC program. There is significant room for improvement. First, ensure the officer understands the reasoning the board selected AFIT, and the particular program, perhaps through feedback in the T-ODP. Many of us who arrived here have no idea behind the reason for it - that's not to say we mind being here, but it would be helpful to have an understanding to the logic behind the decision. I was in a "degree-required" position for about a year-and-a-half, and I don't think my CC was overly concerned that I was not an AFIT GEEM recipient.

Rank: Maj   TIS: 13.6 years   Highest level of education: MS/MA
        I am an Operations flight commander for a small/medium squadron with a master's and plenty of deployment experience. I feel the Air Force needs to convert to the Navy's policy of sending EVERY junior officer to Graduate School AFTER they complete four tours (can be combined) (translated to Air Force) (base level, Staff, RED HORSE, & overseas short tour). We would have a much more technically competent force and reduce the need for young officers to stress about obtaining their master's at night, thereby reducing their time available for the AF mission and their families.

Rank: Maj   TIS: 13.0 years   Highest level of education: MS/MA
        Officers should have the choice between AFIT and CI. I did not want a degree from AFIT and pursued my degree through TA so I wouldn't have to go to AFIT. It was worth the cost. IDE is too late for CE officers to get master's degree. We should have our degree before reach 0-4. AFIT is great for CE training courses and should be kept as in-residence TDY training. The real "learning" takes place from personal interaction and "war stories" you can't get from a CD-ROM or web-based learning.

Air Force Sponsored Degree Programs (continued)

Rank: Maj TIS: 12.8 years Highest level of education: MS/MA

The AF would gain much if it told officer candidates early in their undergraduate studies what career path they will follow while on Active duty. Had I known early in my junior year that I was going to be a CE officer, I would have taken more engineering courses geared towards that career field. As it stands, my electrical engineering degree provided absolutely no help for what I do as a CE officer. My undergrad focused on signals and designing computer chips; it had nothing to do with power engineering which is what the Air Force expected me to do.

Rank: Maj TIS: 12.3 years Highest level of education: Pursuing MS/MA

Our system of AAD/PME is flawed. Slots for in-residence AAD/IDE is more about what job you are in and who endorses your OPRs/PRF/Dream Sheet than we all would like to believe. It doesn't matter how hard you work at base level in our career field. The Air Force needs to make time for all its Senior Captains and Majors to go get a master's degree in residence (AFIT, NPS, Civ Institute) without the pressure of managing deployments, the job, family, etc. It's important for junior officer's to be more concerned about learning to lead TROOPS than getting to a MAJCOM job for a good PRF/OPR/IDE push. It's a fact. Leadership is developed by leading troops at the flight level in a squadron. We don't give our LTs and Capts enough leadership opportunities in CE. We spend too much time in Engineering, Environmental working for civilians and leading no one. Give them time to learn and lead. Then send senior Capts and junior Majors to get a master's degree BEFORE they go to a staff job. It would allow for getting IDE done an

Rank: Maj TIS: 12.3 years Highest level of education: MS/MA

Undergraduate GPA should not be so heavily weighted for DoD-sponsored engineering degrees if the officer has a proven record of performance. Most officers will not volunteer for something they cannot handle and when they are ready and willing to pursue an engineering degree they will succeed.

Rank: Capt TIS: 10.4 years Highest level of education: BS/BA

I graduated from The USAFA in 1999 with a BS degree in Structural Engineering, with approximately 2.4 GPA, and did above average on the GRE at that time (however those GRE scores were lost due to the time lapse between 1999 and 2005). I have been investigating AFIT and Civilian Master Degree Programs ever since I graduated from USAFA and have called AFIT on numerous times over the last 6 years. I applied for AFIT under an AFPC sponsored slot this last year to start the GEM program in fall 2005. I was turned down (for the 3rd time) due to my low USAFA GPA and GRE scores which AFIT and I discovered had to be retaken at the last minute. The slot went empty and I was left to make decision on leftover assignments or separating. I am not happy with the Air Force, USAFA, or AFIT for this. I am motivated, love serving in the USAF, went into The USAFA as one of the brightest 18 year olds in America, graduated from USAFA with a difficult degree, would love to go 20 years, and WILL get at least two master's Degree or MS

Rank: Capt TIS: 8.9 years Highest level of education: MS/MA

I pursued a degree during off-duty time because I was not interested in AFIT, and had an accompanied short tour where I could not be deployed. I tried to pursue an Engineering Management degree through KSU, but the time lag to get course materials (videos of class) made it difficult to stay with my class. I then transferred those credits to the University of Oklahoma, who brought professors to our base (Keflavik, Iceland) in their Human Relations program. It was not my first choice, but at the time it was important to have a master's to get promoted to Lt Col, and I did not want to have to juggle PME and a master's along with family and job. Now that AFIT is a possibility through IDE, I am looking into going back and getting a technical masters (management or engineering).

Rank: Capt TIS: 7.9 years Highest level of education: MS/MA

I would argue that we should send folks in-residence for education, either to AFIT, or to a Civilian Institute. We send far too few people to the latter. We could learn a lesson from the Navy educational model on this matter.

Air Force Sponsored Degree Programs (continued)

Rank: Capt   TIS: 7.6 years   Highest level of education: Pursuing MS/MA
    I think more CI management and engineering degrees need to be sponsored to put folks back into the field and not teach at AFIT for 4 years. I think the instructors are put at a disadvantage and have to struggle to stay in tune with what is really happening at base level--and what our young CGOs really need to know. This is a personal deterrent for me to pursue an AFIT CI sponsored degree, and I do not have a desire to get an AFIT MS because I desire the diversity and opportunity to be gained from a civilian university.

Rank: Capt   TIS: 7.4 years   Highest level of education: MS/MA
    I would recommend AFIT over degrees through TA.

Rank: Capt   TIS: 7.0 years   Highest level of education: MS/MA
    There is a Catch-22 with getting a MS in Engineering. On one hand, I don't think I could devote enough off-duty time to successfully complete the degree and career counseling has deterred me from pursuing AFIT because it takes you out of the career field for too long (some would argue that isn't true, but for a CGO, you basically lose one base level job experience, which does hurt). The IDE option seems appealing, but I'm not sure if it would be acceptable in the mainstream Air Force to get this degree versus going to ACSC. I would think the promotion board would be looking for ACSC. Perhaps it is too new of a program to determine how it will be viewed. I personally have done a MS in Management to fill the square and fully intend to go back for my masters in CE at a later point in my life (perhaps even after I retire).

Rank: Capt   TIS: 6.3 years   Highest level of education: MS/MA
    The Air Force should consider funding more in-residence masters programs in management for CE officers. GEM is fine, however environmental science and engineering disciplines are only so useful to officers in CE. We primarily never design, and an advanced environmental degree is unnecessary for CE officers to be commanders in the future. There are currently almost no real opportunities for CE officers to get management masters/MBAs in residence. TA programs lack depth of curriculum, and given our deployment cycles as officers, are very challenging to complete in a timely manner. CE officers are running into the same problems in getting masters degrees as pilots have--they are deployed too much and when they are home station, have too many competing priorities to complete it in their off duty time.

Rank: Capt   TIS: 5.8 years   Highest level of education: BS/BA
    I would like to see more full-time CI slots available for master's degrees. Opportunities are currently limited.

Rank: Capt   TIS: 5.7 years   Highest level of education: BS/BA
    My next career development goal is to get a masters degree sponsored by the AF.

Rank: Capt   TIS: 5.6 years   Highest level of education: Pursuing MS/MA
    Disgruntled view, for I was turned down by AFIT for the GEM program based solely on my undergraduate GPA from a very reputable institution and GRE score. For that I was then forced to continue my education on my own time and balance w/deployments. Not to forget that you now also take time away from family and your day job. Its not easy...but I am doing it because I feel furthering my education is more important to me as a person and not because it is required by the Air Force. But what doesn't make sense is that if we have to get a master's degree, and the one institution to help us won't accept you, then you are now forced to go the TA route and balance a lot of things to complete it. What really doesn't make sense is this notion that one would actually fail out of an Air Force program. Remember most people apply because they want to, not because they have to. That should count for something! What really hurts is when we leave AFIT slots open and they are wasted.

Air Force Sponsored Degree Programs (continued)

Rank: Capt   TIS: 5.5 years   Highest level of education: Pursuing MS/MA

It is very nice to see a survey of this type. Another area that needs to be looked into is the type of degrees that are 'allowed' into the 32E career field. Many qualified folks with Landscape Architecture and Construction Management degrees are turned away every year because the guidance that recruiters and ROTC instructors use to recruit do not list either degree as a valid degree to have in order to enter the 32E career field.

Rank: 1Lt   TIS: 12.0 years   Highest level of education: Pursuing MS/MA

On the master's degree subject, I started my master's program before I received a commission in the Air Force. Now that I am in the CE career field, I would like to change my degree to something more suitable toward the CE career path. I am currently looking at several options to obtain the desired degree, one of those being through an AFIT program. The only thing holding back from applying is that I have only been in the career field for just over a year and would like to explore the squadron level assignments for a few more years. I plan on applying for an AFIT program within the next few years.

Rank: 1Lt   TIS: 6.6 years   Highest level of education: Pursuing MS/MA

Tuition assistance is so minor for a master's degree that it doesn't really help. Most CE degrees will have to be done through distance learning and you have to pay out of state cost even in the military. I looked at 6 different schools to find a CE degree and chose North Carolina State because it was the cheapest. However, it is still a little less then $2500 per class. It is hard to afford that as a 1 Lt. I am limited to taking one class per semester because I can't afford to take 2. I wanted to get a technical degree but I don't want to go to AFIT since I already did the military schooling for my undergraduate degree. I was told that since my GPA was low that I could never get a CI spot. I figured the only way I could get a masters degree would be to do it on my own.

Rank: 1Lt   TIS: 3.8 years   Highest level of education: Pursuing MS/MA

It is very difficult to find programs that will sponsor Architectural master's degree. Mostly all what it is offered in the Air Force is for Civil Engineers.

Rank: 1Lt   TIS: 3.6 years   Highest level of education: Pursuing MS/MA

I am annoyed that AFIT emphasizes management degrees for CE officers - but an AFIT degree is better than no degree.

Rank: 1Lt   TIS: 3.6 years   Highest level of education: BS/BA

I would be inclined to pursue a degree through AFIT; however, I would not wish to attend AFIT simply because it appears on my duty history.

Rank: 1Lt   TIS: 2.6 years   Highest level of education: Pursuing MS/MA

I would like to attend an AFIT sponsored master's program for business, but none are available.

Rank: 2Lt   TIS: 1.9 years   Highest level of education: BS/BA

I love the military, I want it to be my career, but there is a life after the military, and I know I will get paid more for having a master's. I feel prematurely pressed into getting one by the time I am a major, at a time in my life that may be difficult due to the ops tempo. I think it is more important to have a master's in the civilian world than in the military. A good one to get that would be in line with my career and jobs afterward would be Engineering Management. I would not get one from AFIT because an AFIT degree means next to nothing in the civilian world.

Air Force Sponsored Degree Programs (continued)

Rank: 2Lt   TIS: 1.5 years   Highest level of education: Pursuing MS/MA
      I was told recently (by a former military member and current civilian civil engineer who's just returned from 1 year in Iraq as a consultant) that the only reason military members are hired as "engineers" on the outside (civilian sector) is for their contacts; that we don't acquire any skills that are recognized as 'project management.' This concerns me since that is the career I'd like to pursue after my time in the AF. I know that I don't want to be hired for my contacts. I want to be hired for reputable skills and it's disheartening to think that 20 years as a civil engineer in the Air Force wouldn't count for anything after. Although I know that his is one opinion out of many, it still brings up a point that I feel should be addressed in AFIT; how does a young Lt prepare himself to be useful in the military without precluding himself from gainful employment as a civilian. What education is best? (MBA v. engineering degree, military master's v. Civ. Institute) I would like to have an unbiased, no-kidding p

Rank: 2Lt   TIS: 1.5 years   Highest level of education: Pursuing MS/MA
      My preference for a master's degree would be environmental engineering, but that's not really a degree that one can successfully pursue through night school in a reasonable amount of time, so I went with a management degree. If given the chance to pursue a degree in environmental engineering or environmental engineering management through AFIT or AFIT/CI, then I'll jump at it.

Rank: 2Lt   TIS: 1.5 years   Highest level of education: Pursuing MS/MA
There are few officers that have a biomedical or non CE related degrees. A lot of opportunities are given to CE, Mech., Elect., Struct., and Archit; and none to Non-related CE majors, and most of us are not qualified to attend the degrees offered by AFIT. How can we pursue a fulltime CI program with our degrees?

Rank: 2Lt   TIS: 1.4 years   Highest level of education: Pursuing MS/MA
      I do not want to see the AF cut any AFIT GEM or CI slots. I'd like to see more opportunities for technical master's degrees, because I think they are beneficial to officers and to the AF. They develop problem solving skills and critical mentalities that are good for leadership situations, even if the engineering mathematical skills aren't directly utilized. Also, I've learned a great deal about management from my night MBA courses. I would like to see AFIT offer MBA or Engineering Management or Construction Management online courses as a new opportunity to Civil Engineers. There is definitely a benefit to the AF and officers in terms of management and interpersonal skills that can be developed through management courses.

Rank: 2Lt   TIS: 0.1 years   Highest level of education: BS/BA
      I believe every avenue of higher education can make an officer better. That's why I would like to go to AFIT to get a master's degree in mechanical engineering. I chose to pursue an engineering graduate education because it interests me and it will be useful after I retire from the Air Force.

Rank: 2Lt   TIS: n/a   Highest level of education: n/a
      I was wondering if there is a program for those officers who have a biomedical, aeronautical, etc background majors. If there is none, would there be one? Because we all want to have a master's degree, but most of us are not qualified to apply to AFIT since are undergraduate degree are not related to any of the AFIT master degree programs offered.

Education Related

Rank: Col   TIS: 23.9 years   Highest level of education: MS/MA
      Education is important. Knowledge is useful and ways to obtain it are also important. Data automation enables us, but we don't exploit it fully. I recommend continued use of classroom and your recent MILCON expansion will assist. Recommend more classes and continue with defining new topics to teach. Contract management and BMC development is hitting us hard today. Need to focus on this effort.

Education Related (continued)

Rank: Lt Col   TIS: 18.2 years   Highest level of education: MS/MA

Higher education of USAF officers should be a stated goal/expectation for officers of every career field. It is appropriate to consider beneficial higher education (a useful degree relevant to expected future duties) in the promotion process.

Rank: Lt Col   TIS: 16.6 years   Highest level of education: MS/MA

Education needs to be both classroom AND on the job. USAF CE does a great job of educating LTs in the class, but we fail to put them in a programming/design/construction position where they are forced to apply that education to really "learn" how to be an engineer. They fall down during exercises/deployments because there are no contractors around upon which the LTs can rely on for engineering expertise. When I was an LT, everyone did their 2 years in design - DOING design. Now, many never see design; those that do usually just manage a design contract. Bottom line: We need to concentrate as much on the "in the field" education as we do on classroom education by putting LTs in positions that have them actually do design.

Rank: Lt Col   TIS: 16.4 years   Highest level of education: MS/MA

I truly feel the Force Development piece is the right direction. It may take several years to become fully incorporated at all levels of an officer's career; but, in the long-term it will help the capabilities of the Air Force.

Rank: Maj   TIS: 11.5 years   Highest level of education: MS/MA

Master Degrees are very important, just as we mandate PME schooling appropriate to your rank, we need officers to obtain an advanced degree beyond a BS. We encourage our enlisted personnel to get an Associates Degree and then B.S. and yet we don't mandate a tier approach to officers, it sends mixed signals. Bottom line, officers need to pursue advanced degrees. Deployments do make it difficult to complete an advanced degree, but not impossible to purse. Correspondence degrees should be viewed a viable alternative. In my experience, correspondence courses are much harder than residence programs. With correspondence, it is up to the individual to pace themselves with the material and there is little/none student interaction making it that much harder. I completed my ACSC and M.S. via correspondence and find that I had to study much harder because of this limitation. Emphasis should be placed on a Lt/Capt getting the advanced degree during these years, there is enough time and still little responsibility on an of

Rank: Capt   TIS: 7.8 years   Highest level of education: BS/BA

Location has had a part in preventing me from pursuing a master's degree. My last two assignments were overseas and the programs they have were not interesting to me and didn't seem worthwhile except to "fill the square" of having a master's degree.

Rank: Capt   TIS: 6.5 years   Highest level of education: Pursuing MS/MA

For a master's to be worthwhile, especially in management, you need an instructor who is a recognized, published expert in his or her field who fosters discussion and debate. Beyond that, if the Air Force needs officers with master's degrees, it should send them. CE is in dire need of folks who understand Decision Analysis, Organizational structure and behavior, and have a broad understanding of Air Force finance processes.

Rank: Capt   TIS: 6.4 years   Highest level of education: Pursuing MS/MA

Over the past three years I have heard about Force Development. I have heard the generals speak and read the e-mails pertaining to off-duty education. "If you need a master's degree, the Air Force will give it to you!" That is what I always hear. Well, when is it going to start happening? I believe we are sending the wrong message to the brand new CGOs. Many of them are procrastinating on their degrees, MA or MS. I waited four years to start mine, and I regret that. Married, kids, deployments, more responsibility is not making graduate education easier. It makes it harder. When senior leadership (Pilots mostly) come along and preach about not getting your master's degree, BCEs need to make sure their CGOs don't buy into it.

Education Related (continued)

Rank: Capt   TIS: 3.3 years   Highest level of education: MS/MA
        There should be a financial incentive to obtaining a master's degree. In the public sector, people who seek and obtain higher education are often paid more than someone of equal status within the company.

Rank: 1Lt   TIS: 3.9 years   Highest level of education: BS/BA
        Advanced degrees are more than box filler material. A master's is another source of continuing education that complements military training. The engineering degrees are great for learning your trade more in depth and management degrees are great for expanding one's management/business viewpoints...I believe that the AF SHOULD make it mandatory for their officers to get advanced degrees. (Whether the AF should control who gets an engineering degree or management degree is for another topic of discussion.) I am under the school of thinking that we should help people by (for lack of a better term) "forcing" them to improve themselves...I see it helping the AF more-so than letting individuals choose whether or not they want to get the advanced degree...I think less people will choose to get the degree if it is not mandatory...and I see less benefits to the AF from this school of thought. The bottom line is that we should make our officers continue learning to learn...and I personally don't see the negative side to

Rank: 1Lt   TIS: 3.5 years   Highest level of education: MS/MA
        I'd like to give my highest recommendation to the Educational Delay Program and an engineering master's degree. The extra maturity and confidence gained from a thesis-based engineering master's degree has helped me gain the support and respect of my subordinates, and has enabled me to make critical decisions in contingency environments that I wouldn't be otherwise qualified to make. I'd recommend that all qualified new 2Lts apply for master's degrees. The experience of delving into research programs brings further specialization and management capability to the Air Force. And some of the new 2Lts I've seen lately are so green that they're basically useless to us for the first 2 years of their career, and a bit of maturation is definitely in order.

Rank: 1Lt   TIS: 3.5 years   Highest level of education: BS/BA
        If an advanced degree is visible to a promotion board and affects promotion and career progression, then the AF should not require members to obtain this degree on their own time. Instead the AF should make this a PCS assignment to school (not just AFIT...) to complete the degree. This degree should NOT be a box-filler, but should benefit the member's career and goals. With all the AF focus on taking care of your family and yourself while balancing work, it doesn't make sense to add another stress of getting a degree as a requirement to stay in the AF just to continue to be subjected to the many other stressors of increased workload, deployments, and force reduction measures as they impact the remaining Force. As the saying goes, "If the AF had wanted you to have xxxxx, they'd have issued it to you." I think this should hold true; if another degree is required, the AF should provide the time and resources for it. Getting that time becomes difficult if you're still at your permanent duty station and trying to

Rank: 1Lt   TIS: 3.5 years   Highest level of education: BS/BA
        The primary reason I don't pursue a master's on my own is that I can't be good at everything all at once. It just isn't reasonable to expect me to be there for my family, be a good wife, good mother, as well as a good officer and a good student. I can be successful if I combine officer and student into a single role, but then I face multiple moves in a relatively short period of time - I really don't know if I want to put my family (2 kids) through that.

Rank: 1Lt   TIS: 3.0 years   Highest level of education: BS/BA
        People shouldn't be getting master's degree just to get one. People should be highly encouraged to get master's degree and leadership should push that if will benefit not only in the military but in civilian world. Don't tell people get a master's degree just so you can check a box for promotion.

Education Related (continued)

Rank: 1Lt   TIS: 2.9 years   Highest level of education: MS/MA
I agree that the Air Force should allow all members to pursue higher education but at the same time I think that getting any sort of master's degree just to fill in the box is the wrong thing. Should be included on the records what type of master's degree they got.

Rank: 1Lt   TIS: 2.6 years   Highest level of education: BS/BA
Most people get a degree just to check the box. It's a waste of time and money.

Rank: 1Lt   TIS: 2.5 years   Highest level of education: Pursuing MS/MA
While I believe it is very important for each individual to continue education until they die I have not seen significant benefits from it as a military officer. Even earning a bachelor's in engineering has been useless to me as a Civil Engineer. The only thing throughout my college education I believe has helped me in my career was ROTC.

Rank: 2Lt   TIS: 1.9 years   Highest level of education: BS/BA
I agree with the Chief's sight statement about education.

Rank: 2Lt   TIS: 1.5 years   Highest level of education: BS/BA
Some graduate programs afford flexibility in their curriculum. I am currently looking at one that would allow me to pursue an MS in Mechanical Engineering and an MBA simultaneously. I hope the Air Force sees the added benefit of such programs.

Rank: 2Lt   TIS: 0.5 years   Highest level of education: BS/BA
I hope that my answers were clear, but I wanted to state that while I plan on getting a master's Degree, I haven't looked into it since I am only 7 months out of college and I plan on starting one in the DEC 06/JAN 07 time frame.

Online Degrees

Rank: Maj   TIS: 16.3 years   Highest level of education: MS/MA
The most effective education is achieved through active, hands-on learning, in a small group where discussion happens. Whether part of a course is classroom or computer based doesn't matter so much as if there is active learning involved.

Rank: Maj   TIS: 12.8 years   Highest level of education: MS/MA
Location limits the degrees one can take. When I was at Misawa for 4 years, an engineering masters degree was not an option. Online learning for soft sciences is an option because the material is not too complicated; however, I do not know how well individual learning can take the place of complicated engineering courses. I think back to some of my undergrad electrical engineering courses and doubt that I would have learned much had I taken the courses online.

Rank: Maj   TIS: 12.5 years   Highest level of education: MS/MA
You can not get a technical or engineering master's that is worth the paper it is written on by correspondence, distance learning or online. You must attend a physical school with a laboratory. Hands-on lab and field work is an absolute must for any technical degree.

Rank: Maj   TIS: 12.3 years   Highest level of education: Pursuing MS/MA
I believe the best education for military career enhancement comes through full application of learning your current job. On-line degrees are, at best, synonymous to continuing education requirements that many professional registrations require.

Online Degrees (continued)

Rank: Maj   TIS: 10.5 years   Highest level of education: MS/MA
  I started an engineering master's degree by correspondence but found it extremely difficult due to lack of interaction with fellow students.

Rank: Maj   TIS: n/a   Highest level of education: n/a
  The unintended consequence of "on-line" degrees is we start missing the mark on the profession we call Engineering. No one is considering a "on-line" commission program, so we should not be considering a on-line engineering degrees?   There is no profession called MBA, so allowing MBAs on line should not be an issue.

Rank: Capt   TIS: 10.3 years   Highest level of education: MS/MA
  Officers who take time out of what little personal time they have (i.e. deployments, TDY, training, etc) to complete an advanced degree should have the opportunity to complete the degree they feel will help them do their job the best. Requiring engineers to return to school to seek advanced engineering degrees they may never use seems to be working for nothing? Web-based engineering degrees or online training is good for simple general training, but web training for technical subjects really doesn't ensure the member understands/comprehends the material, only that they can pass a test on the material presented. Advanced degrees are supposed to demonstrate proficiency in an individual's profession, not pass a test. That's why master's degrees require a thesis defense. If I can pass a test, does it mean I really understand the material? No, it's been the interaction with other students and faculty that helped me really understand the material.

Rank: Capt   TIS: 6.5 years   Highest level of education: Pursuing MS/MA
  Online degrees are garbage and check box filling. You lose a critical piece of the learning environment without classroom interaction and debate. For that matter, so are local community schools and other sort of "working professional" courses.

Rank: Capt   TIS: 4.8 years   Highest level of education: MS/MA
  I chose to get my management degree with tuition assistance and via an internet program (in case I deployed or PCSed) and the flexibility of the internet was essential to my finishing that degree. I felt like the academic benefits of getting the management degree could be reasonably attained through the internet. Now I am getting a master's in engineering in residence. I do not feel an engineering degree (at the master's level especially) can be attained through the internet with the quality and technical difficulty that is required.

Rank: Capt   TIS: 4.5 years   Highest level of education: BS/BA
  On-line degrees are a joke.

Rank: Capt   TIS: 3.8 years   Highest level of education: MS/MA
  Constant deployments and TDYs make education more difficult if taking courses locally. However, online courses are an easy way to spend time in a deployed area. In my experience, online courses are easier, but lack the academic rigor of a traditional course. I don't think that taking any sort of structured course is the best way for me to learn. I always learn much more on my own. However, I think that structured coursework is better to ensure standards and rigor for validation of knowledge.

Rank: 1Lt   TIS: 3.0 years   Highest level of education: BS/BA
  Although a web-based master's degree program would best avoid conflicts with the current deployment tempo, a non-accredited program does little more than check a box. I would only be interested in pursuing an accredited degree.

Online Degrees (continued)

Rank: 1Lt   TIS: 2.5 years   Highest level of education: Pursuing MS/MA
    I answered many master's degree learning method questions as neutral because I've never taken computer or correspondence courses. I've only studied in a classroom environment. I haven't deployed yet, but I can't imagine trying to continue my master's while in a deployed location. I imagine that would be quite difficult and do not intend on trying it.

Rank: 2Lt   TIS: 1.0 years   Highest level of education: BS/BA
    I look forward to beginning some kind of master's program very soon. I would much prefer to get an advanced degree in Electrical Engineering, but due to my duty location, that will be more difficult than an MBA unless I'm able to find an online program (still searching).

Rank: 2Lt   TIS: 0.5 years   Highest level of education: BS/BA
    It is hard to complete an online master's program in engineering at a good school because the costs are upwards to $1000/ credit hr and we are only offered $250/credit hr.

Professional Registration (PE)

Rank: Lt Col   TIS: 27.6 years   Highest level of education: MS/MA
    I think PE status should be a requirement for the wreath on the badge, as well as a requirement or very important factor to being a CE unit commander and that pursuing a PE should be incorporated into the professional development of engineering officers.

Rank: Lt Col   TIS: 27.3 years   Highest level of education: MS/MA
    We need to push our officers to have PEs and to provide pro-pay if you have a PE. Pilots get it, doctors get it. As we get more Joint, it will be important. And having the PE in contingency operations is important too.

Rank: Lt Col   TIS: 17.5 years   Highest level of education: MS/MA
    I think USAF Civil Engineering should place greater emphasis in Professional Registration. I believe that in order to be a BCE, a candidate must have their professional registration. I would actually go on to say that a PE or RA would trump a master's degree.

Rank: Maj   TIS: 14.4 years   Highest level of education: MS/MA
    CE officers should also be encouraged to pursue registration. Your survey did not mention professional registration at all, but gaining and maintaining that registration is important and helps maintain competency.

Rank: Maj   TIS: 12.3 years   Highest level of education: MS/MA
    Much of my discussion with junior officers depends on their personal career goals. If they are not staying in the military for 20 years, PME is less important than professional development. A technical masters or a PE will be more important on the outside than in the military for the younger officers. Also, if they do not intend to remain in the engineering profession, counseling has a whole different flavor. I'm a bit surprised to not see questions about the PE in this survey, since there are times when it's more valuable than the master's degree, depending on career goals.

Rank: Capt   TIS: 10.0 years   Highest level of education: MS/MA
    I think CE officers should have some required technical development milestones to retain their AFSC or to gain the senior/master rating on their badge. Milestones should include a technical MS degree and professional registration. I think the career field loses credibility (especially with other services) when we lose touch with our technical side as we get more senior in rank. It also allows weak engineers to "hide" and eventually become senior leaders. Results include outsourcing difficult tasks and over-reliance on contractors. Non-engineers in other AFSCs believe they can do our job because we're just a glorified QAE.

Professional Registration (PE) (continued)

Rank: Capt   TIS: 8.9 years   Highest level of education: MS/MA
      I think it's important for our senior leadership to have a technical or engineering management degree, and that we should also place more emphasis on professional licensure for our career field (i.e. Navy CEC officers).

Rank: Capt   TIS: 7.5 years   Highest level of education: MS/MA
      If we desire professional credibility, let's focus on PEs and the experience required to get them....like the engineer corps of the Army and Navy.

Rank: Capt   TIS: 5.9 years   Highest level of education: BS/BA
      Under the current system which downplays an officer's need for a PE there is very little value added for earning an engineering advanced degree. The current system rewards officers that have leadership qualities and a degree in management/leadership seems the best to hone the skills of the next generation of Colonels!

Rank: Capt   TIS: 5.5 years   Highest level of education: MS/MA
      What we really should focus on is getting our officers more engineering experience so they can better pursue a PE.

Rank: 1Lt   TIS: 3.8 years   Highest level of education: Pursuing MS/MA
      I think you are missing another key program for engineers that should be included in this survey. For a CE officer looking at leaving the AF a professional license (PE) is probably more important than getting a master's in engineering. Most officers looking at staying in the AF for 20 years are looking at getting a master's in Management/Public Admin. Most officers looking at leaving the AF and joining the civilian engineering market are looking getting their PE and possibly getting a master's after that if needed.

Rank: 1Lt   TIS: 3.6 years   Highest level of education: Pursuing MS/MA
      I feel like the AF wastes O&M money at bases because CE Commanders do not have enough academic "clout" with the MSG/Wing Commander to convince the higher ranking official that whatever crazy idea they have is not a sound engineering option. I think the BCE would have a better shot at fending off "suggestions" from the boss if they were a PE or had a master's.

Rank: 1Lt   TIS: 3.0 years   Highest level of education: BS/BA
      Also, something else to look at as important as a master's is having your PE. It would be interesting to see what senior leadership has to say about that.

Rank: 1Lt   TIS: 2.9 years   Highest level of education: MS/MA
      I think the Air Force should encourage engineers to get their PE even though it is not counted on your records for promotion it is another form of higher achievement that individuals should be able to show on their records for promotion.

Rank: 1Lt   TIS: 2.9 years   Highest level of education: BS/BA
      Not only should the AF encourage and provide opportunities for CE Officers (especially CGOs) to get an engineering master's degree in their discipline, but also encourage and provide them with time and resources to get their Professional Engineering License and give them the opportunities to get the design experience in there discipline so that they CAN be a competent and seasoned engineer and not just a glorified manager with an engineering degree. Many CGO CE officers enjoy engineering and desire to use their abilities and they should be valued for that and if they don't get what they desire professionally in the AF then they will go to the private sector.

Promotion Related

Rank: Lt Col   TIS: 19.8 years   Highest level of education: PhD

    In the last 2 years, I knew a Lt Col who was a sitting CES commander who got passed over for Colonel. He had a PhD in Engineering. I think he was passed over because he had too much time in academics between school and teaching that it hurt his career. I too had a PhD and was able to over come it to still get a line number for Colonel this past week. Overall, I think the PhD was a detriment to my career.

Rank: Lt Col   TIS: 17.6 years   Highest level of education: MS/MA

    A master's degree and a PE are not AF requirements, but are for the member's benefit once they leave the service. They should take advantage of the opportunities the AF provides. Promotions and most positions do not require a master's or PE to be proficient (exceptions like instructors or certain specialty teams require the degree or PE). Current and past job performance is the most important factors for promotions and position placement, not that you got an extended education.

Rank: Maj   TIS: 18.6 years   Highest level of education: Pursuing MS/MA

    If the Air Force intends to require advanced degrees to enhance officer knowledge and skills more opportunities need to be made to attend this education full-time. If the intent of advanced degrees is to merely be a discriminator for promotion, then the Air Force will have a small group of officers that have advanced skills and knowledge in that specific career path and a larger group with a box-filling degree. I think the Air Force needs to sit back and decide what goal it wants to achieve with advanced education and structure its programs to meet those requirements. The current philosophy does neither.

Rank: Maj   TIS: 16.3 years   Highest level of education: MS/MA

    My impression of our promotion system is it matters most 1) how well your OPRs are written (does the writer know the key words to put in the few spots a board will actually read) 2) what assignments you've had (were you a commander), 3) if you got deployed to an active war zone, 4) if you were a DG in a PME course. Sadly, what your master's is in, or even how well you do your job, have no bearing. I perceive that the only role a master's degree plays is helping the Wing CC or MLR board determine who gets a DP. I doubt those decision makers care what the master's is in, so long as you have one. However, I believe it is beneficial to the performance of the CE mission to have its leadership educated in relevant fields, such as engineering and management.

Rank: Maj   TIS: 15.2 years   Highest level of education: MS/MA

    It is hard to find time to do a master's degree when it isn't "required" for promotion. PME is a much more important requirement. If a master's degree is needed then the AF should send us to get one.

Rank: Maj   TIS: n/a   Highest level of education: n/a

    My advice to Lts and Capts: get a master's in what interests you, but don't wait many years like I did. Also, get registered at first opportunity (I did). If you don't do your PME, you will not be promoted. Interpersonal, communication, and leadership skills will take you far. All these points are relevant whether your future is in the AF or not.

Rank: Capt   TIS: 8.8 years   Highest level of education: MS/MA

    The master's degree should be considered for promotion purposes as well as the P.E. license. By excluding these hard-earned accomplishments from promotion eligibility, the Air Force is not rewarding members based on the whole-person concept that is advertised.

Rank: Capt   TIS: 7.3 years   Highest level of education: BS/BA

    I feel that having or not having a master's degree should not be a consideration at any promotion board for the Air Force. Though a master's degree is extremely important and should be pursued by CE Officers, it should not be used as a promotion determination.

Promotion Related (continued)

Rank:　Capt　　TIS:　6.8 years　　　　Highest level of education:　MS/MA

　　　　If the Air Force CE community is serious about wanting field grade officers with advanced degrees, it needs to provide incentives for achieving an advanced degree. For example, maybe advanced degrees should be considered during promotion boards, beginning with the major's board.

Rank:　Capt　　TIS:　5.8 years　　　　Highest level of education:　BS/BA

　　　　Despite the CSAF memo at the beginning of this survey, there is still a perception among many CGOs that promotion boards for this career field will somehow know whether or not you have a master's degree (by training reports or some other way), and that a degree (or lack of) could make a difference. This perception should be addressed within the career field (whether it's true or not). It would also be nice to know exactly what the senior CE leadership thinks, whether a master's is "highly recommended" (basically mandatory still) or completely irrelevant, or somewhere in between.

Rank:　Capt　　TIS:　5.5 years　　　　Highest level of education:　BS/BA

　　　　A master's is a personal achievement, not a professional stepping stone. I will get a MS, but only for personal reasons. In no way does it promote the growth of officers to prepare us for our future assignments. We all know of master's recipients who couldn't lead a girl scout troop to a snow cone stand. Our focus should be on leadership opportunities to the extent of restructuring the CE SQ to force junior officers to lead. We can hire people with degrees; leaders of men must be forged through experience with responsibility. Taking the education bullets out of our OPRs and shifting the focus to deployments (aka., leadership under stress and the reason the AF has uniformed engineers) is a brilliant move to weed out the dead weight that is found in the officer corps. Those who confuse leadership abilities with the number of blocks they check on their career progression should never be given command. Most 32E CGOs question the reason to get a masters and will probably not pursue it due to the omission in their

Rank:　Capt　　TIS:　4.9 years　　　　Highest level of education:　MS/MA

　　　　I thought ahead and did my MS in CE before becoming LT but still in ROTC. It was tough to pay for it myself but well worth it because after commissioning I could focus on career and family. I think there should be an incentive (with an ADSC) for those who stay in school and get a technical degree. Also, it should be visible if a CGO has a MS when going for promotion to Major. And they should look more favorably on technical degrees because it shows commitment. Plus, we all know the degrees from University of Phoenix and others are pretty much "give-me" degrees. But they do show commitment and did separate the freeloaders from those who worked hard. Now, I think the Air Force is sending the wrong message. MS degrees need visibility in the promotion process as one part of many areas that determine the "level" of candidate.

Rank:　2Lt　　TIS:　4.5 years　　　　Highest level of education:　BS/BA

　　　　I believe that the master's Degree should not have any bearing on a person's promotion. It should be based on a person's job performance and history.

Rank:　2Lt　　TIS:　1.6 years　　　　Highest level of education:　BS/BA

　　　　If I weren't in the AF I'd still want to pursue a master's degree. It's affect on my "promotability" is a mute point when taking into account it's affect on my personal and professional development as an individual.

Deployments (TDY)

Rank: Maj   TIS: 13.5 years   Highest level of education: MS/MA
        You have asked if deployments are making off-duty education difficult. However, I think you have missed the major obstacle, in my opinion. Manning cuts and position vacancies coupled with increased deployment rate has severely accelerated home station OPSTEMPO. In my experience, I am busier while at home station than I am while deployed. Home station OPSTEMPO, again in my opinion, is the principle hindrance to off-duty self-improvement (advanced degrees, PME, etc.)

Rank: Maj   TIS: n/a   Highest level of education: n/a
        Deployments and long TDYs were predictable and did not hinder my off-duty education. Instead, routine TDYs were problematic since it resulted in several absences from evening classes.

Rank: Capt   TIS: 11.7 years   Highest level of education: Pursuing MS/MA
        Ops tempo is the leading detractor from accomplishing a MS.

Rank: Capt   TIS: 7.3 years   Highest level of education: BS/BA
        The current Ops tempo / deployments makes it extremely difficult, almost nearly impossible, to achieve a master's degree either by on-line or off-base. The little time off from work or deployments is used to maintain a much needed balance for FAMILY life and AIR FORCE career.

Rank: Capt   TIS: 6.5 years   Highest level of education: MS/MA
        The reason for my wife being dissatisfied with the AF is due to the number of deployments that I have had while other CE officers in the same amount of time (6 yrs) have not had a single one (we've had 4). OSI goes through a points system where deployment location and time served deployed gives you points. Diego Garcia is not as many points as Iraq. In AFSPC we never go with our team anyways so why not break us up this way?

Rank: Capt   TIS: 5.8 years   Highest level of education: MS/MA
        The AF would benefit from providing more technical development or mentoring for CGOs. When at home station CGOs rarely get any hands-on engineering experience...it is until they are deployed where, civilian engineers don't exist, that they must struggle to first get the knowledge and then the confidence to make decisions. If this does happen its then time to redeploy and the mission is often not as effective as it could be.

Rank: Capt   TIS: 5.3 years   Highest level of education: BS/BA
        Weekly, I consider why I continue to subject myself to countless hours of late nights due to overtaskings due to a shortage of manning/resources and an increase in demands placed on us by our leadership. The majority of my peers that I keep in contact with do not go through the same pains at work as I and my military CE CGO peers go through. For example, deployment reintegration wasn't too difficult for myself and my wife, because when I'm not deployed I'm practically not home as much as when I was deployed.

Rank: Capt   TIS: 4.6 years   Highest level of education: Pursuing MS/MA
        A deployment exchange program would be great for 32Es to allow trading of deployments among officers not assigned to a team. Why should some be forced to deploy while others wait and volunteer for years with no deployment?

Rank: 1Lt   TIS: 3.6 years   Highest level of education: Pursuing MS/MA
        I will have deployed twice before Capt and I have had very little time to pursue any degree - I chose the "easiest/fastest" one (MPA) when I thought it was needed for the boards but I am re-thinking that now that is has been removed.

Rank: 1Lt   TIS: 3.5 years   Highest level of education: Pursuing MS/MA
        Between Deployments, ORE/ORIs, and PCSing, I have only completed 1 master's class in 2 years.

Deployments (TDY) (continued)

Rank: 1Lt   TIS: 2.9 years   Highest level of education: BS/BA
        Frequent PCS' also have an effect on pursuing a master's degree

Rank: 1Lt   TIS: 2.7 years   Highest level of education: Pursuing MS/MA
        My spouse's biggest grief with my military career is the deployments. Since I have joined the Air Force deployments have gone from 3 months to 4 months and now 6 months is common for CE and there are even year long deployments (and I suspect the number of year long ones will rise). Other than that, she is quite happy with the security and benefits of the military.

Type of Degree to Pursue

Rank: Col   TIS: 23.5 years   Highest level of education: MS/MA
        The type of master's Degree is much less important than whether or not an officer gets a master's degree. Getting my master's degree helped me think more critically and analytically -- which helped me and the Air Force during the course of my 23+ year career.

Rank: Col   TIS: 20.2 years   Highest level of education: PhD
        You ask if the officer should be able to study what they want. I think if the AF is paying for the degree, then the AF should be able should be able indicate a range of acceptable degrees (similar to ROTC scholarships). If the AF is not paying, then the student should be able to select their degree.

Rank: Lt Col   TIS: 16.9 years   Highest level of education: MS/MA
        We should encourage all to pursue master's degrees to make us better thinkers, organizers and managers. Any accredited program should provide the rigor and academic "stress" to improve both the individual and career field. The choice of program should be left to the individual, but the career field should provide as many academic opportunities as possible.

Rank: Maj   TIS: 13.6 years   Highest level of education: MS/MA
        If the member is using TA or their own money to pay for their advanced education, then they should choose what degree they want to pursue. If the Air Force is paying for the entire program, then the needs of the Air Force should decide what degree the individual receives. Advanced education is important in a member's broadening and life skills set in general. However, it is the members and their family's decision. They should be aware of any future implications that may occur if a prolonged career enables them to meet future boards that do not mask advanced degrees.

Rank: Capt   TIS: 9.0 years   Highest level of education: MS/MA
        A degree should not correspond to a future job (i.e. ODP) because you are not getting a degree to go do one specific job for the AF. That is, unless you are going to a specific job like Pavements Eval. If you are going to stay in the AF (unless going the academic route), you will have a multitude of jobs post master's degree. A master's degree should not stovepipe an officer into a specific path. We are all officers first. CGOs should not be made to get a degree in a specific discipline. There are typically plenty of takers for specific degree requirements (i.e., geotech). Someone's education should not be for the AF to decide (if there are volunteers to fill specific requirements).

Rank: Capt   TIS: 7.5 years   Highest level of education: Pursuing MS/MA
        Master's are important to create a well rounded person. The type of degree shouldn't matter. If your desire in the AF is to be an academician then by all means get your masters or PhD in engineering. If you want to command then it shouldn't be a requirement because you can still be a great commander and well rounded person by pursing other education.

Type of Degree to Pursue (continued)

Rank: Capt TIS: 4.9 years Highest level of education: BS/BA
        The push for master's degrees seems to be just to check the box for future promotion without consideration for the type of degree. I have many CE friends who did internet MBA degrees to complete theirs. I have no desire to do this because I do not see how it would possibly benefit the Air Force or me. Whether a management or engineering degree is more beneficial is debatable. Regardless, if the AF really considers it pertinent, time should be allotted for these degrees to properly be earned. It is very difficult to pursue any type of master's degree after hours given that many officers have very minimal time after hours already.

Rank: Capt TIS: 4.5 years Highest level of education: BS/BA
        Allowing a person to select the type of degree they'd like to pursue is important. It is encouraging to study a subject you're personally interested in learning.

Rank: Capt TIS: 4.3 years Highest level of education: BS/BA
        Pursuing a master's degree is an important step in the career of a military officer. It makes sense for Engineers to have an in-depth knowledge in the areas we are responsible for, but we do not perform true design work in the AF and never will. Therefore, personnel will benefit from gaining the advanced degree no matter which program they pursue.

Rank: Capt TIS: 4.1 years Highest level of education: BS/BA
        Graduate education is a big commitment. Most people have no master's degrees, or will earn only one within their lifetime. If someone wants to earn a master's, and their current job/career does not require one, it should be up to them as to what they want to study. Highly technical MS or ME degrees that do not fall within the narrow parameters defined by AF/CE should still be encouraged and assistance provided in order for people to pursue. A master's degree is not just something to help you out for the next 10 or 15 years, and get you a DP; it's for your whole life and will impact any careers after life in the Air Force. Field of study should be a personal choice, and for those of us who did not have an ROTC scholarship or attend USAFA, monetary or time assistance would be much appreciated and highly appropriate, whether we choose engineering, technical sciences, or a business degree.

Rank: 1Lt TIS: 7.6 years Highest level of education: Pursuing MS/MA
        Master degrees are important to officer development, but it should be the responsibility of the individual to choose what degree to purse. Career development should have only a minor influence in choosing a degree.

Intentions to Leave the Air Force

Rank: Lt Col TIS: 15.9 years Highest level of education: PhD
        AF Personnel successfully completed advanced degrees should be recognized by the Air Force and treated as a very valuable commodity - especially those completing PhDs. Instead, they are castoffs from the Commander Boards, their academic time isn't valued, and they are doomed to a possible teaching position followed by years of staff positions. It is no wonder that most AF PhDs in CE retire at the 20 year mark - they can't wait to leave the AF for a civilian community that values their personal investment and is willing to give them the respect the so richly deserve. Much like the AF has special assignment boards for Senior Officers, they should consider a special assignment section for military members with advanced degrees (PhDs). This would best utilize the talents of these very educated personnel and ensure they are used most effectively across the Air Force and would likely lead to longer retention timeframes.

Rank: Maj TIS: 10.8 years Highest level of education: Pursuing MS/MA
        I have wavered for about 5 years on whether I would stay in the AF or get out. The question has been over being a BCE and not being able to do what I think is best for the Air Force - staying in the EOD career field.

Intentions to Leave the Air Force (continued)

Rank: Capt   TIS: 5.8 years   Highest level of education: MS/MA
        I believe that a management degree would best suit upcoming civil engineers since it has, at least been in my experience, been a field more geared towards management. I've never really felt that I've used my engineering degrees or PE, unless deployed, and it's because I want to be an engineer that I'm separating. This difference between the job and the title should be made clear to ROTC CE bound officers-- as transparency will lead to less frustration among junior officers.

Rank: Capt   TIS: 5.7 years   Highest level of education: BS/BA only
        Over the course of my military career I've never deployed, been given very little career mentoring (even when requested), and not given the opportunity to lead personnel. Instead I've been stuck in the engineering flight or filled an undesignated position which should have been an NCOs duty. For these reasons and a few other personal ones, I've decided to separate after 5 years of service.

Rank: 1Lt   TIS: 4.3 years   Highest level of education: BS/BA only
        I've enjoyed my career so far as an AF officer, but I don't know if I want to continue this course with all the changes that are happening. Changes are bound to happen with new leadership and visions, but are we changing for the better or the worse. I hope that we don't lose sight of our ultimate goal and that is to protect everyone who needs us.

Rank: 2Lt   TIS: 1.8 years   Highest level of education: BS/BA only
        Why would anyone mask the Bachelor's degree? That does not even make sense. Also, it completely takes away any advantage of going to USAFA. As if all the advantages weren't already taken away. What a waste of those four years. At this point it feels like it was all for nothing. No wonder people are thinking of getting out.

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Vita

      Captain Frank R. Hughes was born in Bristol, Pennsylvania. He graduated from Bishop Egan High School in 1987, and enlisted in the Air Force the same year. In 1989, he was assigned as a Russian linguist at Tempelhof Air Base located in West Berlin, Germany. After receiving an honorable discharge, Captain Hughes earned a Bachelor of Science degree in Civil Engineering from the University of Texas at Austin in 1996. He was commissioned upon completing Air Force Officer Training School in 1997.

      Upon commissioning, he was assigned to the 14th Civil Engineer Squadron at Columbus Air Force Base, Mississippi. Next, he served with the Range Management Office and then the 98th Range Wing at Nellis Air Force Base, Nevada. In August 2004, he entered the Graduate School of Engineering and Management, Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio. Upon graduation, Captain Hughes will begin a joint assignment with Combined Forces Command at Yongsan, South Korea.

REPORT DOCUMENTATION PAGE

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1. REPORT DATE (DD-MM-YYYY)	2. REPORT TYPE	3. DATES COVERED (From - To)
23-03-2006	Master's Thesis	August 2004 – March 2006

4. TITLE AND SUBTITLE
The Effect of Major Organizational Policy on Employee Attitudes toward Graduate Degree

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
Hughes, Frank R., Capt, USAF

5d. PROJECT NUMBER
n/a

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Air Force Institute of Technology
Graduate School of Engineering and Management (AFIT/EN)
2950 HOBSON WAY
WPAFB OH 45433-7765

8. PERFORMING ORGANIZATION REPORT NUMBER
AFIT/GEM/ENV/06M-05

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
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DSN 523-6370, Comm: 850-283-6370

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

13. SUPPLEMENTARY NOTES

14. ABSTRACT
Leaders initiate policies not only to improve the success of their organizations, but to influence employee performance, whereby employee attitudes toward a policy objective can influence their resulting behaviors. One group of employees, Air Force officers, experienced a policy change in 2005 that discontinued the use of academic degrees as criteria for officer promotions. With this change, there is a concern that the number of Air Force officers with graduate degrees might decrease. In particular, senior leaders in the Civil Engineer (CE) officer career field are concerned that this policy change might reduce the number of officers available to fill critical positions identified as requiring a graduate degree. This study used a web-based survey to assess the attitudes of CE officers toward pursuing graduate degrees and revealed that their attitudes were not impacted by the policy change. In fact, their perceptions regarding the importance of graduate degrees remain high. In addition, the lower their intentions to leave the Air Force, the more effort they expended researching the pursuit of a graduate degree. Most of them reported researching graduate degree information at least once during 2005 and intending to earn one by 2010. Therefore, senior leaders should not expect to see a decline in the number of CE officers possessing graduate degrees in the near future.

15. SUBJECT TERMS
Major Organizational Policy, Civil Engineer Officer, Survey, Regression Analysis

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			Alfred E. Thal, Jr., Ph.D. (ENV)
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