



**A STUDY OF FORMAL AND INFORMAL MENTORING IN  
THE UNITED STATES AIR FORCE**

THESIS

Russell H. Gheesling, Captain, USAF  
AFIT/GEM/ENV/10-M03

**DEPARTMENT OF THE AIR FORCE  
AIR UNIVERSITY**

***AIR FORCE INSTITUTE OF TECHNOLOGY***

---

---

**Wright-Patterson Air Force Base, Ohio**

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

The views expressed in this thesis are those of the author and do not reflect the official policy or position of the United States Air Force, the Department of Defense, or the United States Government.

AFIT/GEM/ENV/10-M03

A STUDY OF FORMAL AND INFORMAL MENTORING IN THE  
UNITED STATES AIR FORCE

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

Russell H. Gheesling, BS

Captain, USAF

March 2010

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

A STUDY OF FORMAL AND INFORMAL MENTORING IN THE  
UNITED STATES AIR FORCE

Russell H. Gheesling, BS  
Captain, USAF

Approved:

- SIGNED -

8 Feb 10

\_\_\_\_\_  
Daniel T. Holt, Lt Col, USAF (Chairman)

\_\_\_\_\_  
Date

- SIGNED -

8 Feb 10

\_\_\_\_\_  
Sharon G. Heilmann, Lt Col, USAF (Member)

\_\_\_\_\_  
Date

- SIGNED -

8 Feb 10

\_\_\_\_\_  
Robert D. Fass, Lt Col, USAF (Member)

\_\_\_\_\_  
Date

## **Abstract**

Mentoring has been identified as a significant contributor to employee performance and development. Debate has come about as result of implementation of formal mentoring programs where mentors are assigned to protégés as opposed to informal relationship formed out of mutual respect and liking. Secondary data, including measures of leader member exchange, similarity, contact time, and others, were used from a 1998 survey of company grade officers (protégés) and their formal and informal mentors. Analysis of Variance compared mean values between formally and informally mentored protégés. Additionally, a logistic regression was used to understand the impact that different measures had on the protégé's decision to identify an informal mentor. Leader Member Exchange, Similarity, Contact Time, and Military Status (active duty versus civilian) all were identified as having a significant impact on a protégés decision to identify an informal mentor. Since the United States Air Force has implemented a formal mentoring program this study offers suggestions of ways which formal relationships can be improved. By focusing on leader member exchange concepts supervisors can become more successful formal mentors. Additionally, Air Force members should also be encouraged to engage in informal mentoring relationships in order to fully capitalize upon the benefits of mentoring.

## Acknowledgments

First I would like to offer my sincere thanks to my advisor Lt Col Daniel Holt for his support and guidance over the past year and a half. Without his advice, insight and early deadlines this thesis effort would have consumed exponentially greater amounts of time and effort. With his help I was able to complete my thesis effort while also learning a great deal about how all graduate level research should be conducted. I would like to thank Lt Col Sharon Heilmann not only for providing her data set for my use but also for her inputs into the research and final report. Her expertise in the field of mentoring was invaluable in guiding the direction of this research effort. I would also like to thank Lt Col Dave Fass for serving on my committee and offering his perspective on my research. Finally, I would like to thank my wife who not only delivered our first child, but also continually supported me and kept our home running during my countless hours of research and writing.

Russell H. Gheesling

***Note: It is prohibited to include any personal information in the following categories about U.S. citizens, DoD Employees and military personnel: social security account numbers; home addresses; dates of birth; telephone numbers other than duty officers which are appropriately made available to the general public; names, locations and any other identifying information about family members of DoD employees and military personnel..***

## Table of Contents

	Page
Abstract.....	iv
Acknowledgements.....	v
List of Tables.....	viii
I. Introduction and Literature Review.....	1
Formal Mentoring Programs.....	7
Mentor-Protégé Relationship.....	10
Leader member exchange and mentoring.....	10
Work related contact time and mentoring.....	12
Similarity and mentoring.....	13
Protégé Characteristics.....	15
Protégé performance and mentoring.....	15
Proactive personality and mentoring.....	17
Organizational Characteristics.....	18
Barriers to mentoring and mentoring.....	18
Time under supervision and mentoring.....	19
II. Method.....	21
Participants and Setting.....	21
Procedures.....	22
Measures.....	23
Measures Included in all Surveys.....	24
Work related contact time.....	24
Similarity.....	24
Measures Included in the Junior Officer and Mentor Surveys Only.....	24
Barriers to mentoring.....	24
Measures Included in the Supervisor Survey Only.....	25
Performance rating.....	25
Measures Included in the Junior Officer Survey Only.....	26
Leader member exchange.....	26
Proactive personality.....	27
III. Results.....	28
Mentor-Protégé Relationship.....	29
Protégé Characteristics.....	30
Organizational Characteristics.....	31

	Page
Supplementary Analysis.....	34
Summary.....	36
IV. Discussion.....	37
Mentor-Protégé Relationship.....	37
Leader member exchange.....	37
Work related contact time.....	38
Similarity.....	40
Protégé Characteristics.....	42
Protégé performance.....	43
Proactive personality.....	43
Organizational Characteristics.....	44
Barriers to mentoring.....	44
Time under supervision.....	45
Recommendations for the Air Force.....	46
Limitations.....	48
Future Areas of Study.....	50
Methodological concerns.....	50
New studies.....	51
Summary.....	52



## List of Tables

Table	Page
1. Summary of current government and corporate mentoring programs.....	9
2. Measures Collected for Each Respondent Group.....	27
3. Descriptive Statistics and Correlations for Study Data.....	33
4. T-test and Analysis of Variance ( ANOVA) Results for Measures.....	34
5. Summary of Logistic Regression Analysis Predicting Identification of Informal Mentor....	35
6. Likelihood Ratio of Selecting Informal Mentor based on Supervisor’s Military Status.....	36
7. Overview of Test of Hypotheses Results.....	37

# A STUDY OF FORMAL AND INFORMAL MENTORING IN THE UNITED STATES AIR FORCE

## Introduction & Literature Review

The etiology of the term “mentor” has traced its roots back to the days of Greek Mythology in Homer’s *Odyssey*. Mentor, friend of King Odysseus, was left in charge of the king’s household, and his son Telemachus, as Odysseus went off to battle (Homer, 1999). Mentor served as a role model and educator for the young Greek. To this day, the word “mentorship” describes a similar relationship between two people. The mentor is an older individual dedicated to helping a younger individual, the protégé, find satisfaction and success in the adult world. Mentors in modern times serve their protégés in the roles of coach, sponsor, protector, role model, counselor, and friend (Allen, Eby, Poteet, Lentz, & Lima, 2004).

Within the workplace, mentoring describes a similar relationship between individuals of greater and lesser experience, having similar backgrounds, career paths, and ambitions (Kram, 1988). The development and positive effects of the mentoring relationship have been a topic of research and study for the better part of the last three decades (Allen, et al., 2004; Chao, 1997; Kram, 1988; Levinson, Darrow, Klein, Levinson, & McKee, 1978). Mentors, often by their own initiative, find a protégé within the corporate environment and begin to invest themselves into the future success of that individual. Kram documented that these relationships can be mutually beneficial to each member of the dyad and to organizations as a whole. For mentors, satisfaction

is to be gained in aiding someone junior to them in whom they see a reminder of themselves (Kram, 1988). Additionally, mentors feel that their identification and support of up and coming stars will increase their own chances for further advancement (Kram, 1988). For protégés, mentoring has been positively related to increased job satisfaction, greater promotion possibilities, opportunities for increased pay, sense of professional competence, and higher self-esteem (Allen et al., 2004). In light of these positive outcomes, many organizations encourage the development of mentoring relationships in order to capitalize on their benefits. By increasing the skill and confidence of junior employees organizations can ensure their greater future success. The positive feelings from playing a key role in a protégé's development will also lead to more productive work and greater commitment from senior employees.

While mentoring relationships vary in length, Kram (1983) found that they typically unfold in four distinct phases. These include the initiation phase, cultivation phase, separation phase, and redefinition phase. The initiation phase is the period of time during which time the relationship begins and is defined in terms of what each member expects out of the relationship and the other member. The cultivation phase is the time in which time the support provided by the mentor expands to include even more mentoring functions. The separation phase is the phase when the relationship changes due to organizational or individual changes, including promotion or restructuring. Finally the redefinition phase is the time during which the relationship takes a new form or formally dissolves. Each of these phases takes different amounts of time. Kram (1983), for instance, found that the initiation phase of the mentoring relationship can last anywhere from six months to a year in order to build the trust necessary for a quality relationship. Each of the two members have initial desires and expectations of what the relationship could become, and it is during the initiation phase that these expectations often

become reality. The more time a mentor and a protégé spend together the, quicker that trust and confidence can be built and the relationship will move beyond the initiation phase to the cultivation phase. The cultivation phase of the relationship generally lasts anywhere from two to five years, and it is during this part of the relationship that each member discovers the real value they receive from the other member (Kram, 1983). The cultivation phase is the part of the relationship that most people would identify with actual mentoring. The separation phase of the relationship is normally brought about as the result of a structural or geographical move within the organization for either member. It is generally during this time that the protégé begins to fully appreciate the benefits he or she received from working with the mentor as opportunities to excel on his or her own are presented. Separation does not have to bring about the end of the relationship, however, as it may just provide an opportunity to redefine what mentoring functions are provided by the mentor. The redefinition phase generally comes about as the two members become peers and the relationship turns into more of a friendship than a developmental relationship. Of course the potential is still there for the redefinition phase to include a complete lack of contact if the separation produces too much friction between the members.

The study of mentoring in the past two decades has revealed that there are two primary groupings of functions provided to the protégé by the mentoring relationship, career-related support and psychosocial support (Kram, 1988; Noe, 1988). Career-related or instrumental (Ensher & Murphy, 1997) support functions are those focused on developing protégés' abilities to successfully accomplish their job and career specific tasks. Activities included in the career-related function consist of sponsorship, exposure and visibility, coaching, protection, and offering challenging assignments (Kram, 1988). Career-related support has generally been related to objective career outcomes for protégés like advancement, increased pay, and greater

organizational socialization (Kram, 1988; Chao, Walz, & Gardner, 1992). Psychosocial support functions are those dedicated to the development of the protégé's sense of self-confidence, identity, and self-worth (Allen et al., 2004). The primary activities associated with psychosocial support include role modeling, acceptance and confirmation, counseling, and friendship (Kram, 1988). Subjective career outcomes, which are generally thought to come about as result of psychosocial support, include job satisfaction, career satisfaction, and intention to remain with the organization (Koberg, Boss, & Goodman, 1988). These outcomes affect how protégés feel about themselves, about their job, and about their ability to be successful. Research has loosely linked these two sets of mentoring functions to their respective outcomes (Allen et al., 2004). To the end of operationalizing these two sets of mentoring functions, Noe (1988) created a mentoring effectiveness scale in order to determine the level of support a mentor provided his or her protégé, specifically within the categories of career related and psychosocial support. The reliability and validity of the mentoring effectiveness scale was confirmed by Tepper, Sheffer, and Tepper (1996) and has been the basis of a great deal of mentoring work in the last twenty years (e.g., Ensher & Murphy, 1997; O'Neil, 2005; Tepper, Brown, & Hunt, 1993)

The positive effects of mentoring lead many corporations and governmental agencies to establish formal mentoring programs in order to facilitate developmental relationships and capture some of these benefits. Corporate-level mentoring programs generally establish guidelines outlining roles and responsibilities for those involved in the relationship in an effort to better facilitate their success (Burke & McKeen, 1989). In many corporations, mentors are assigned to new members in hopes of cultivating a meaningful developmental relationship. These relationships are defined as formal mentoring relationships because their formation came about as part of a corporate policy. In order to facilitate mentoring relationships within its force,

the United States Air Force has published Air Force Instruction 36-3401, *Air Force Mentoring* (AFI 36-3401, 2000), which establishes guidance for the execution of a mentoring program. The instruction identifies a mentor as “a trusted counselor or guide” and places the primary responsibility for this activity on supervisors. Thus the instruction states that all officer, enlisted, and civilian employees should be mentored by those directly above them in the chain of command, and should be serving as a mentor to all those directly below them. At the same time the instruction indicates that junior members are not restricted from identifying an informal mentor outside of their supervisor. Additionally, the guidance specifies the information that should be shared to help the junior member succeed. In addition to basic job knowledge and career progression, mentors should be building their protégé’s knowledge of Air Force heritage, history, and doctrine (AFPD 36-34, 2000). It would seem that, whether unknowingly or not, the Air Force has focused its mentoring efforts on career related functions while putting little emphasis on the psychosocial portion of the relationship. While assigning each supervisor the responsibility of mentoring their subordinates is one way of facilitating the desired interactions, there is some concern that assigned mentors may not fully meet the needs of junior members as any number of barriers might stand in the way of establishing a trusting relationship. While a civilian supervisor may certainly be effective in providing career related support to an active duty member their lack of military experience could hinder effective psychosocial mentoring. Likewise a military supervisor could perform the role modeling function and meet psychosocial needs of a military protégé but fail in providing the career related support needed to build objective career outcomes in the military member. Due to the nature of Air Force assignments, usually lasting three years or less, a formal mentor with which the protégé shares little background may not even have time to establish the trust necessary to influence the protégé.

Indeed, empirical findings have suggested that formalized mentoring relationships might not be as successful as those informal relationships that develop voluntarily out of some mutual attraction, similar background, or shared interest (Chao et al., 1992). Multiple studies (e.g., Burke, 1984; Ensher & Murphey, 1997; Noe, 1988; Thomas, 1990) have suggested that personal characteristics like race and gender play a key role in the development and subsequent success of these informal mentoring relationships. These results are consistent with Byrne's (1971) similarity-attraction paradigm, which states that people who have a great deal in common report stronger feelings of attraction for one another. Thus, informal mentors generally see a little of themselves at that particular stage in life in their protégés. In a formal or assigned mentoring relationship, perceived differences between the mentor and protégé could negatively affect the potential outcomes of the relationship (Ensher & Murphy, 1997). Chao et al. (1992) suggest that in a formal mentoring relationship the initiation phase would be more drawn out than in a relationship started out of mutual admiration increasing the time required to become a benefit for the protégé. Additionally, some participants, specifically the mentors, in mandatory mentoring programs report less motivation to fully invest their time and effort into the relationship. Johnson and Anderson (2009) indicate that the more formalized a mentoring program becomes the less likely mentors will be to fully participate. While a formal mentor might be more likely to be recognized for their efforts than their informal peers the mentor in a formal relationship likely fails to receive intrinsic benefit of helping the younger member (Ragins, Cotton, & Miller, 2000).

The purpose of this study is to examine mentoring relationships in the active duty Air Force in order to determine what characteristics might lead a junior protégé to look for an informal mentor in addition to or in place of their assigned, supervisory mentor. Research to this

point has been inconclusive as to whether a formal relationship can be as effective as an informal relationship (Chao et al., 1992; Ragins et al., 2000). No work, however, has been done to determine why a protégé with a formal mentor might look to supplement that relationship by finding his or her own informal mentor. The environment within the U.S. Air Force provides a unique opportunity to examine that decision. Mentoring roles are not assigned to formal mentors as part of a specific mentoring program; rather they are the inherent duties of the supervisor. Since the subordinate officer has not joined a mentoring program looking for guidance he or she should be more likely to seek out additional informal mentors than those in a voluntary formal program. Therefore, the Air Force provides a population in which a large number of formal and informal relationships are available for study. In this study, junior officers who have identified an informal mentor will be studied in order to better understand what led to their decision. In the end the results of the study will serve to assist in bridging the gap between the effectiveness of formal and informal mentoring. At the same time, findings will be used to recommend ways in which the Air Force's mentoring program might be more effectively implemented as well as formal mentoring programs within the civilian sector.

The previous pages have provided a broad overview of mentoring research and theory up to this point in time. In the following pages the literature review will narrow down into specifically discussing the concept of formal mentoring programs, their implementation in private and public American organizations, and a discussion of what factors determine their level of success. Specific research hypotheses will then be presented along with the theory behind their development.

### *Formal Mentoring Programs*



As the benefits of the mentoring relationship are increasingly published the focus on mentoring within the workplace will likely continue to grow. Chances are that a formal mentoring will be the method selected for facilitating these relationships as great numbers of major American corporations have implemented formal programs in the past few years (Allen, Eby, & Lentz, 2006). Even if implemented programs do not include required formal mentoring relationships, they will likely still implement an overarching program responsible for building a “mentoring culture” within an organization. Not surprisingly, 71% of companies listed in the Fortune 500 indicate that they facilitate a mentoring program for managers within their respective corporations (Bridgeford, 2007). A summary of several governmental and corporate mentoring programs can be found in Table 1. The programs detailed are formal and informal in nature. As noted, formal programs establish guidelines outlining roles and responsibilities for those involved and often include the assignment of a mentor to new members. Informal programs generally detail the importance for mentoring in order to establish a “mentoring culture” within the organization but seek to allow specific relationships to develop on their own.

Like the Air Force’s mentoring program, the U.S. Navy has sought to capitalize upon the benefits of the mentoring relationships by introducing a formal program. In a 2003 message to the service the Chief of Naval Operations, Admiral Vern Clark directed the creation of a mentoring culture within the United States Navy (Johnson & Anderson, 2009). The Admiral’s direction resulted in most fleet commanders implementing a formal and often supervisory mentoring program. The assigned nature of the program, however, led to mentors seeing their

Table 1. *Summary of current government and corporate mentoring programs*

Organization	Details of Program
U.S. Army	<ul style="list-style-type: none"> <li>- Mentoring is a voluntary developmental relationship</li> <li>- Responsibility of Army leaders to mentor young leaders</li> <li>- Protégé should seek mentor</li> </ul>

	- Leaders should ensure processes are in place for ensuring mentoring within unit
U.S. Coast Guard	- Mentoring is voluntary - Protégé should seek out mentor, outside of chain of command (supervisory chain) - Web-based program available for matching mentors and protégés - Web-based program offers guidance to mentors on effective strategies
U.S. Navy	- Formal program implemented by Department of Navy - Fleet Commanders are responsible for ensuring all members have a mentor - Responsibility often falls to the supervisor to mentor as well
ExxonMobil	- Formal program has been established within corporation - Goals of program identified as increasing job satisfaction and self-esteem
Wal-Mart	- Formal “MentorMe” program - Mandatory for managers but available for associates at all levels
General Electric	- Several levels of formal Mentoring and Leadership development programs

mentoring responsibilities as just one more required duty expected of them in their already busy schedule. In studying the Navy’s mentoring program, Johnson and Anderson (2009) indicate that formal mentoring programs often result in “marginal mentoring” practices instead of the developmental relationships intended. They noted that as programs become more formal the level of interaction decreases as well as the quality of information shared. In cases where formal mentoring is less than fully effective, protégés will ideally seek out an additional informal mentor to supplement those benefits of the mentoring relationship not being realized as part of the formal exchange. In this case, the formal relationship may become completely irrelevant and a waste of each member’s time. A better understanding of the reasons protégés seek out informal mentors, especially when they already have an assigned mentor available, could help leaders of military and commercial organizations more effectively facilitate high-quality mentoring programs. Accordingly, the following research question is posed:

*RQ 1: What factors contribute to protégées selecting an informal mentor in addition to or in place of a formal mentor?*

There are several factors that might influence whether or not a protégé is likely to select an informal mentor. Most of these factors can be grouped into one of three broad categories including the Mentor-Protégé relationship, protégé characteristics, and organizational characteristics. The Mentor-Protégé relationship will deal with aspects of the way in which each member interacts with the other as part of the overall mentoring process. Mentor and Protégé actions towards one another and their relationship will be considered in addition to how the two specifically relate to one another. The protégé characteristics are those which are inherent to the protégé regardless of the mentoring relationship and those which could potentially be impacted by mentoring. Finally organizational characteristics will examine how the organizational structure of the U.S. Air Force might have some impact on the way relationships are carried out and the success they might potentially find.

#### *Mentor-Protégé Relationship*

Within the mentor-protégé relationship, the concepts of leader member exchange, work related contact time, and mentor-protégé similarity will be considered. All of these concepts relate directly to the interactions between the two members of a relationship.

*Leader member exchange and mentoring.* Leader member exchange theory posits that a supervisor's working relationship with each of his or her individual subordinates is measured based upon the level of interactions between the two individuals. It is one of the first leadership theories to suggest that a leader does not necessarily exhibit the same leadership characteristics and style toward all subordinates. In the early development of the theory, then referred to as Vertical Dyad Linkage theory (Dansereau, Graen, & Haga, 1975), each subordinate belonged to either the "in-group" or "out-group" based upon the strength of their "linkage" to the leader. As the theory evolved into its current form as leader member exchange the "in-group" and "out-

group” labels were replaced with the terms “high-quality exchanges” and “low-quality exchanges” (Graen & Uhl-Bien, 1995). High-quality leader member exchange indicates the subordinate is working with the supervisor to take on greater roles and responsibilities than are required by contract. These high-quality leader member exchanges come about as a result of high levels of performance by the subordinate that facilitate trust, motivation, and mutual respect from the supervisor (Liden & Graen, 1980). This high-quality relationship results in reduced turnover, increased performance, higher organizational commitment and better career progression (Graen & Uhl-Bien, 1995). When leader member exchange is high, the supervisor is also more apt to “take care” of the subordinate as far as offering more challenging assignments and assisting in their career growth, in short, mentoring. On the other hand, low-quality leader member exchange does not necessarily come about as a result of poor work performance. Instead, low-quality leader member exchange occurs when subordinates only fulfill the exact obligations of their contract with no interest in expanding their roles. Generally there are low levels of trust and mutual respect as a part of the relationship between the employee and supervisor. When leader member exchange is low, subordinates may disconnect from their supervisor and therefore never fully realize their potential (Graen & Uhl-Bien, 1995). In fact, low-quality leader member exchange can often result in the leader viewing the subordinate as nothing more than a cog in the machine he or she manages (Dansereau et al., 1975)

Because high-quality leader member exchange shares many elements of mentoring, it should come as no surprise that mentoring has been studied as a potential augmenting force to leader member exchange. The reverse affect of mentoring being augmented by leader member exchange has been considered as well. Examining supervisor-subordinate dyads between mid-level and upper-level managers in a high-technology manufacturing firm, Scandura and

Schriesheim (1994) studied the effects of leader member exchange and supervisory mentoring. The results suggested that supervisory mentoring augmented the effects of leader member exchange as measured in positive career outcomes for the subordinates, namely, increased pay and promotion opportunities. Likewise, in terms of the performance rating of the protégés in the execution of their duties as managers, leader member exchange augmented supervisory mentoring increasing their success. Additionally, Scandura and Schriesheim (1994) indicated that there was no perceived difference between the supervisory career mentoring and leader member exchange constructs, especially from the subordinate's point of view, suggesting the link between mentoring and leader-member-exchange would be expected to be high. Gibson (1998) also discovered a significant correlation between leader member exchange and mentoring effectiveness specifically between those members who identified their supervisor as their mentor. Based on these findings and the theoretical underpinnings of leader member exchange theory, the following is hypothesized:

*Hypothesis-1: Low leader member exchange scores (as reported by the junior officer, or protégé) between supervisor and junior officer will result in junior officers identifying informal mentor.*

*Work Related Contact Time and Mentoring.* As mentoring in the current lexicon refers to a relationship between two organizational members, it stands to reason that the time spent cultivating the relationship would have an effect on the satisfaction with the relationship as well as the potential outcomes that are associated with the relationship. As was previously noted by Kram (1988), the initiation phase of the relationship builds trust and confidence between the two members. The more time a mentor and a protégé spend together, the quicker and stronger that trust and confidence can become. Ensher and Murphy's (1997) study of summer interns and

their assigned mentors found that the amount of time the two individuals spent together had a significant impact on the protégés perceived satisfaction with his or her mentor. Additionally, the amount of contact time was significantly correlated to protégés' and mentors' intentions to continue their relationships. Additional studies (e.g., Dansereau et al., 1975; Liden & Graen, 1980; Turban & Jones, 1988) indicated that amount and frequency of contact time between members of supervisory and mentoring relationships have positive impacts on their professional relationships, perceived similarity, and on the junior member's performance. It should follow then that if too little time was spent with a protégé by a supervisor then the junior individual would be more likely to seek mentoring elsewhere. Gibson (1998) found a strong correlation between a company grade officer's reports of work related contact time and their reports of mentoring effectiveness. In addition, she found a significant increase in the mean amount of contact time in formal mentoring relationships as opposed to informal relationships. Based on this previous research, the following is hypothesized:

*Hypothesis-2a: Low reports of work related contact time (as reported by junior officers, or protégés) between supervisor and junior officer will result in junior officers identifying an informal mentor.*

*Hypothesis-2b: Low reports of work related contact time (as reported by supervisors) between supervisor and junior officer will result in junior officers identifying an informal mentor.*

*Similarity and mentoring.* Traditionally the informal mentoring relationship comes about as part of a shared attraction between a potential protégé and mentor. Often members recognize that they share similar qualities and characteristics which lead to the initiation of their relationship. One great concern with formal or supervisory mentoring programs is that a quality

relationship might not be created without a certain amount of similarity between assigned members. Two specific areas of concern are race (Thomas, 1990) and gender (Noe, 1988). In studying black and white managers from a major northeastern utility company, Thomas (1990) examined their mentoring opportunities and the results of their relationships. His results indicated that while there were certainly mentoring opportunities for black managers they were much more likely to find a relationship from outside their department and therefore not from their primary supervisor. Additionally, Thomas discovered that same-race mentoring partnerships provided a higher level of psychosocial support for protégés than cross-race relationship. Ensher and Murphy (1997) examined dyads of the same and differing races, finding that perceived similarity was significantly correlated to liking, satisfaction, contact time, intention to continue the relationship, and mentoring functions delivered from the mentor and protégé's point of view. Considering gender, Noe (1988) found that female protégés paired with male mentors actually utilized their mentors more effectively than their male counterparts. However, Thomas (1990) reported that same-sex mentoring pairings produces higher levels of career and psychosocial mentoring functions than did cross-sex pairings. While these results are obviously mixed, the overall success of cross-gender mentoring relationships must always be tempered by the fact that inappropriate relationships, or the perceptions thereof, could flourish as a result (Clawson & Kram, 1984; Fitt & Newton, 1981).

Similarity within the subordinate-supervisor relationship has been positively linked to subordinate job satisfaction and relationship satisfaction with his or her supervisor (Turban & Jones, 1988). It would therefore stand to reason that these effects would transfer to a formal mentoring relationship with the supervisor serving as the mentor. Within the military, an additional similarity factor comes to play within the mentoring relationship. In the current force

structure, it is common for Department of Defense civilians to supervise military members and due to current mentoring instructions, to mentor these military members. Similar to concerns about gender or ethnicity, a supervisor's military status (i.e., military or civilian) might have a considerable impact on the trust established and strength of the relationship between the mentor and protégé. Based on this theoretical framework, the following is hypothesized:

*Hypothesis-3a: Low reports of similarity (as reported by junior officers, or protégés) between supervisor and junior officer will result in junior officers identifying an informal mentor.*

*Hypothesis-3b: Low reports of similarity (as reported by supervisors) between supervisor and junior officer will result in junior officers identifying an informal mentor.*

*Hypothesis-3c: Protégés with a civilian supervisor will be more likely to report an informal mentor than those with military supervisors.*

#### *Protégé Characteristics*

Protégé characteristics studied will include those things inherent to the junior officers including their job performance levels and a measure of the proactive component of their personalities.

*Protégé performance and mentoring.* The relationship between the job performance of a protégé and type of mentoring is one of the most studied aspects of mentoring. In many studies, however, performance is viewed only as the outcome variable (Allen et al., 2004; Dreher & Ash, 1990) rather than a possible predictor of mentoring. Rarely considered is how subordinate performance, or potential performance, might affect the level or type of mentoring support provided. As mentoring can be a time consuming and intensive process, it reasons that an informal mentor would want to be highly selective of whom he or she chooses as a protégé



(Green & Bauer, 1995). Intuitively, a high-performing subordinate would certainly command the attention of a supervisor who would desire to serve as a mentor to the individual. This notion is consistent with Kram's theory of mentoring (1988). Kram noted that informal mentoring brings a sense of self worth and accomplishment to senior organizational members as they feel they contribute to the organization by identifying and developing talented new members. Meanwhile, a poor performing subordinate might represent a risk to the reputation of a supervisor; with this in mind, the supervisor might distance him or herself from the subordinate. Similar to the leader member exchange theory discussed earlier, the lack of perceived performance by a subordinate would not be conducive to a high quality relationship with a supervisor.

Previously, perceptions of risk have been used to gauge how a potential mentor feels his or her relationship with a particular protégé might negatively impact his or her own career (Ragins & Scandura, 1994). Results showed a significant negative correlation between costs, or risks, of mentoring and intention to mentor. Green and Bauer (1995) tested the relationship of protégé performance or ability and mentoring functions realized among a sample of doctoral candidates and their assigned academic advisors. In their longitudinal study, Graduate Record Examination (GRE) scores were used to indicate the students' potential. Those students with higher GRE scores were found to realize greater mentoring from their advisors than those with lower scores. The question then turns to how actual job performance will affect the mentoring provided to protégés. Gibson (1998) reported a strong correlation between protégé performance and supervisory mentoring effectiveness. It would then seem to reason that protégés with poor performance ratings and, therefore, lower mentoring interactions would feel the need to seek an

additional mentor if they wished to improve their performance level. Accordingly the following is hypothesized:

*Hypothesis-4: Low performance scores (as reported by the supervisor) for the junior officer will result in junior officers identifying an informal mentor.*

*Proactive personality and mentoring.* In an ideal situation, a mentoring relationship, as suggested by the research examining similarity, will spawn out of a mutual attraction between a senior and junior organizational member. In many cases, however, a protégé might have to go out of his or her way to locate a potential mentor. Recognizing and acting upon this need could be seen as the output of a proactive personality. The proactive trait refers to an individual's propensity to take action in order to impact their own situation or environment (Bateman & Crant, 1993) as opposed as having the environment dictate his or her response. Proactivity has been strongly related to mentoring intentions of protégés and mentors (Hu, Thomas, & Lance, 2008). When presented with the option of mentoring or being mentored by different individuals, the majority of participants selected partners with highly proactive behavior. In studying mid-level managers, Grant, Parker, and Collins (2009) discovered that proactivity on the part of the subordinate manager was strongly correlated ( $r = .63$ ) to positive performance ratings from the supervisor. Additionally, Gibson (1998) discovered a significant relationship between a protégés' proactive personality and the level of mentoring support he or she received from a supervisory mentor.

When potential mentors are not readily available or not actively looking for a protégé, the responsibility for initiating the relationship may fall to the protégé. Additionally, when a formal mentor is not meeting the developmental needs of a protégé, that individual must take the initiative to find a mentor that will meet his or her needs. Those protégés, unconstrained by their

working environments and willingness to make things happen for themselves, should be more likely to initiate a relationship for themselves. Meanwhile, an individual that only reacts to their environment with no intent to change it would likely be forced to wait for a mentoring opportunity to present itself. It would then stand to reason that those potential protégés with low perceptions of proactive personality would not only have less opportunity for successful formal mentoring but less opportunity to become involved in a mentoring relationship with an effective informal mentor. Therefore, the following is hypothesized:

*Hypothesis-5: Low reports of proactive personality (as reported by junior officer) will result in junior officers not identifying an informal mentor.*

#### *Organizational Characteristics*

Finally characteristics and attributes of the organization in question, in this study the U.S. Air Force, will be considered. The impact of barriers to mentoring and time under supervision for protégés will be evaluated.

*Barriers to mentoring and mentoring.* Within a formal mentoring program, mentors are assigned or selected as part of the program's foundation. In these programs, mentors are made readily available to the protégés, even if they are not completely devoted to the program. In an organization where no formal mentoring program exists, mentors and protégés are responsible for seeking out their own relationships. While this should be no problem for the more senior mentor, a protégé could face difficulties in trying to seek out a mentor. Researchers have long hypothesized that a number of factors are present that preclude junior members from approaching a potential mentor (Ragins and Cotton, 1991). As suggested, some of these barriers may be due to actual or perceived differences between the mentor and protégé (i.e., gender,

Clawson & Kram, 1984; or race, Ensher & Murphy, 1997). Other barriers include lack of experience and organizational tenure (Hunt & Michael, 1983).

In creating their barriers to mentoring scale, Ragins and Cotton (1991) identified five different factors that were barriers to mentoring. These include access to mentors, fear of initiating a relationship, willingness, or unwillingness, of the mentor, approval of others, and misinterpretation. In two separate studies of professional accountants (Kaplan, Keinath, & Walo, 2001; Viator, 1999) discovered that that with regard to two of the factors, access to mentors and willingness of mentors, formal mentoring programs reduced the perception of those variables compared to cases where no mentoring relationship existed. It stands to reason that the more perceived barriers a protégé feels, the less likely he or she will be to initiate a mentoring relationship. In the case of the Air Force, barriers could prevent a protégé, not satisfied with his or her formal mentor, from seeking an informal mentor that would supplement his or her professional development. Based on this argument the following is hypothesized:

*Hypothesis-6: Low reports of Barriers to Mentoring (as reported by the junior officer) will result in junior officers identifying an informal mentor.*

*Time under supervision and mentoring.* The amount of time any subordinate spends working for a particular supervisor would be expected to have an impact on the depth or success of the relationship. As has been previously discussed, Kram (1988) suggested that the mentoring relationship is very intimate; thus, some level of trust and comfort must be established between the supervisor and subordinate if a supervisor is to serve as an effective member. This trust is usually built during the initiation phase of the mentoring relationship (Kram, 1988). It has been suggested that the amount of time spent in the initiation phase of the mentoring relationship is longer for formal than for informal mentors (Choa et al., 1992). Obviously formal mentors, who

may not have as much in common with their protégés might take longer time building a solid relational foundation. Kram suggests that the initiation phase of the normal mentoring relationship can take anywhere from six months to one year (1988). This would suggest that for formal mentoring relationship that time could come closer to two years. Due to the nature of Air Force assignments, which are generally three to four years, or less, many formal mentoring relationships may not be given the time to effectively begin. Accordingly, Air Force members arriving at a new duty assignment might be inclined to seek out an informal mentor with whom a relationship comes about easier than with their supervisor. Based on these arguments, the following is hypothesized:

*Hypothesis-7: Low reports of time under supervision (as reported by the junior officer) will result in the junior officers identifying an informal mentor.*

## Method

### *Participants and Setting*

The data used for this study were collected in 1998 as part of a broader study on mentoring effectiveness (Gibson, 1998). Three groups of individuals participated. They included a sample of junior Air Force members who were all company grade officers (i.e., Lieutenants or Captains) who were considered the protégés, their supervisors, and individuals they identified as mentors. All participants were assigned to Aeronautical Systems Center (ASC), which is one of the Air Force's largest acquisition centers dedicated to the design, development, and procurement of aeronautical weapons systems for the U.S. Air Force and its allies. Due to the technical nature of the mission of ASC, the majority of respondents were expected to have academic backgrounds in the sciences and engineering. In all, data were collected from 224 company grade officers, the protégés. Additionally 338 supervisors participated along with 75 individuals who were identified by the company grade officers as their mentors. Of the protégés responding, the typical participant was a white male, married, with a little over one year in his or her current position, and three and a half years working within his or her current Air Force occupation (Gibson, 1998). Supervisors were active duty military members or civil service employees. The representative military supervisor was a 41-year-old, white male with the rank of lieutenant colonel. These military supervisors had worked in their occupation for approximately eight years and supervised nearly 50 personnel. The typical civilian supervisor was a 49-year-old, white male with 14 years in his current position. These supervisors were normally GS-15s with supervisory responsibilities over 25 individuals. The common military mentor was more senior in rank (i.e., major or lieutenant colonel) than the

supervisor. On average, these officers had greater than seven years working in their current occupation and were 40 years old. Of those civilian employees who were identified as mentors, the typical respondent was a senior civil servant (i.e., grade of GS-14) with 12 1/2 years experience. Further demographic information is available in Appendix A. Demographic information such as age, rank, Air Force occupational specialty and number supervised were collected through fill in the blank questions. Gender, race, and academic credentials were basic “check the box” measures.

### *Procedures*

Three different questionnaires were distributed to gather the information for this study\*. The junior members or protégés (i.e., the company grade officers) completed a 111-item survey regarding their professional mentoring relationships. Supervisors completed a 73-item survey, and mentors completed a separate 116-item survey. Prior to the distribution of the questionnaires, the project was reviewed and approved by the ASC Vice-Commander (a brigadier general). After this approval, packages were distributed through an organizational mail system and participants were asked to return their completed questionnaires within two weeks. Survey packages were sent to supervisors of company grade officers and were addressed to “The supervisor of [Name of the junior officer].” These packages included (a) cover letter, (b) a copy of the supervisor’s questionnaire, and (c) a sealed package that was to be forwarded to junior officer. The cover letter explained the purpose of the research, assured the supervisor of confidentiality, and then requested that the supervisor complete the survey based on their relationship with the junior officer listed and then forward the remaining package on to that officer. Each junior officer’s package included a separate cover letter, his or her survey, and a package that he or she could forward to whomever he or she considered a mentor. Like the

cover letter to the supervisors, the letter to the junior officers explained the purpose of the study and assured them of the confidentiality of the data. Moreover, it assured the officers that their supervisors were not aware of the mentor survey in order to ensure there was no pressure to identify supervisors as mentors.

This approach diverges from many mentoring studies. When examining informal relationships, mentors are typically identified through an interview with a protégé (e.g., Kram, 1988). After being identified, mentors are interviewed with regard to the research question. In contrast, those examining formal mentoring relationships rely on the dyads that are specified with the program (e.g., Ensher & Murphy, 1997). Since current Air Force policy identifies the supervisor as the mentor for each service member, this method was appropriate for capturing the formal and informal aspects of Air Force mentoring.

If the junior officer did not identify a mentor, they were requested to mark that accordingly and to return the entire package to the researcher. To facilitate higher response rates, pre-addressed return envelopes were included with each of the questionnaires. Additionally, during the survey period, reminders encouraging participation were sent throughout the organization.

### *Measures*

Supervisors completed one survey. Junior officers, or protégés, answered another and mentors identified by junior officers answered a third, slightly different survey. While all three surveys were similar, each was created based upon a slightly different grouping of measures to be determined from each group's unique perspective. A summary of the variables that were measured with each group is provided in Table 2.



### *Measures included in All Surveys*

*Work related contact time.* Work related contact time refers to the average amount of time mentors or supervisors spend in direct contact with their protégés or subordinates within a normal week. The measure was used in all three surveys and was completed by asking the member to answer nine open-ended items (Gibson, 1998). An example supervisor item is “In an average week, how much time do you spend coming in contact with this subordinate at work?” The score was created by summing the response for each item. Coefficient alpha was .88 for the junior officers ( $n = 224$ ) and .84 ( $n = 338$ ) for the supervisor.

*Similarity.* Similarity reflected the extent to which participants felt that they were similar to their supervisor, subordinate, mentor, or protégé. Respondents were asked to indicate which of 13 particular items they believed they shared with the other member of the relationship (Gibson, 1998). Potential items were age, marital status, and anticipated career path. Supervisors completed the similarity scale for their subordinate officers. Junior officers completed the similarity scale for their mentor or supervisor if no mentor was identified. Mentors completed the scale with regard to their protégés. The results of the similarity index were computed by summing the number of the 13 items each member selected (Gibson, 1998). Similarity for the junior officer had a coefficient alpha of .82 ( $n = 224$ ) while the measure for the supervisors was .46 ( $n = 338$ ).

### *Measures included in the Junior Officer and Mentor Surveys Only*

*Barriers to mentoring.* Barriers to mentoring measured a mentor and protégé’s perceptions with regard to factors preventing or inhibiting an effective mentoring relationship. The scale was originally developed by Ragins and Cotton (1991) in order to test their hypothesis that women faced more barriers in gaining a mentoring relationship. Items from the scale were

also incorporated into the research of Viator (1999) and Kaplan, Keinath, and Walo (2001). The scale measured two types of barriers. The first, measured with 12 items, reflected barriers to obtaining mentoring which focused on the factors which protégés perceived kept them from having a relationship. These factors include absence of potential mentors and potential mentors being too busy to serve as a mentor. A 7-point likert-type scale with choices ranging from “Strongly Disagree” to “Strongly Agree” was used to measure these items. One example question was, “In the past, I have been prevented from obtaining a mentoring relationship because potential mentors don’t notice me.” The coefficient alpha for barriers to obtaining mentoring was .88 ( $n = 175$ ).

The second scale measured, with 9 items, barriers to initiating a mentoring relationship, focusing on factors which might discourage a protégé from approaching a potential mentor. A 7-point likert-type scale was also used for this measure with answers ranging from “Strongly Disagree” to “Strongly Agree.” An example item was “In the past, I have been prevented from initiating a mentoring relationship because I believe that it is up to the mentor to make the first move.” The coefficient alpha for barriers to initiating mentoring was .86 ( $n = 177$ ).

Scores for each type of barriers, as well as overall barriers, were completed by averaging the responses for the appropriate items. The combined coefficient alpha for all barriers to mentoring was .92 ( $n = 173$ ).

*Measure included in the Supervisor Survey Only*

*Performance rating.* Supervisors rated the performance of their subordinates along three distinct dimensions (Gibson, 1998). First, interpersonal effectiveness was assessed relative to the subordinate’s peers within the unit. Interpersonal effectiveness was measured using a 7-point likert-type scale with 4 items. The scale ranged from “Much Below Average” to “Much Above

Average.” An example item was “Compared with other Company Grade Officers, how effective is this officer in helping others who need it?” The interpersonal effectiveness score was an average of the responses to the four items. Coefficient alpha was .93 ( $n = 331$ ).

Next, supervisors rated their subordinate’s dedication to their job as compared to peers. Similar to interpersonal effectiveness, job dedication was measured with 4 items rated on a 5-point likert-type scale ranging from “Not at All Likely” to “Exceptionally Likely.” An example item is “Compared with other Company Grade Officers, how likely is it that this officer would persist to overcome obstacles to complete a task?” The dedication score was an average of the responses to the four items. Coefficient alpha was .92 ( $n = 331$ ).

Finally, overall job performance was measured. The overall job performance scale had three items measured on a 7-point likert-type scale. The scale is anchored with a “High” (7-6), “Medium” (5-3), and “Low” (2-1). Overall performance items included “Contributes to unit effectiveness.” The overall performance score was an average of all three scores. The coefficient alpha was .95 ( $n = 332$ ).

An overall performance rating was created by averaging the responses of all three sub scales. Coefficient alpha for the overall scale was .96 ( $n = 327$ ).

#### *Measures included in Junior Officer Survey Only*

*Leader member exchange.* Leader member exchange was measured with six items that were originally developed by Scandura and Graen (1984) as part of their LMX-7 measure. The leader member exchange measure was only provided to the junior officers in order to gauge how strong they felt their relationship with their supervisor was. Responses were measured on a seven point likert-type scale ranging from “Strongly Disagree” to “Strongly Agree.” An example item was “My supervisor recognizes my potential.” The leader member exchange scale

was an average of the six item's responses and had a coefficient alpha of .87 ( $n = 191$ ) for this sample.

*Proactive personality.* Proactive personality refers to an individual's tendencies towards actively seeking opportunities, taking initiative, and demonstrating perseverance. Junior officers rated themselves with regard to this trait. It was measured using a 4-item scale selected from a 17-item instrument developed by Bateman and Crant (1993). Bateman and Crant (1993) validated their scale through three rounds of factor analysis with three different samples in order to create the final instrument. Junior officers responded using a 7-point likert-type response anchored at "Strongly Disagree" and "Strongly Agree." An example item from the scale is "When I have a problem, I tackle it head on." The proactive personality score was calculated based on averaging the four items. Coefficient alpha for the scale was .74 ( $n = 192$ ).

Table 2. *Measures Collected for Each Respondent Group*

Measure	Participating group		
	Supervisor	Protégé	Informal Mentor
Leader Member Exchange		√	
Work Related Contact Time	√	√	√
Similarity	√	√	√
Performance Rating	√		
Proactive Personality		√	
Barriers to Mentoring		√	√

## Results

The research hypotheses were evaluated through a series of statistical tests. Descriptive statistics of the applicable measures, as well as a correlation table, are available in Table 3. It is interesting to note the strong correlations between the work related contact time index and the measures of leader member exchange, similarity, supervisor status, proactive personality, and protégé performance (mean  $r = .24$ ). Additionally strong correlations between the similarity index and the measures of supervisor status and protégé performance (mean  $r = .24$ ) will be further enumerated in the discussion. Also, the mean levels for protégé performance were relatively high ( $M = 5.67$ ;  $SD = 1.06$ ;  $n = 327$ ) indicating that on average all junior officers are reported as performing at a higher level than their peers. It might seem intuitive that a supervisor rates his or her employees high on performance, especially if they also consider themselves the officer's mentor, as that rating will be a reflection on their abilities as a supervisor as well as a mentor. However, these "inflated" ratings might prevent full examination of the degree to which performance affects or is affected by mentoring. Additionally, the mean level of leader member exchange reported for the entire sample was 5.29 ( $SD = .99$ ;  $n = 191$ ), indicating that most protégés feel that they have a high-quality exchange relationship with their supervisor. Again this possible "over-reporting" of exchange quality could have some impact on the accuracy of leader member exchange's interaction with mentoring.

The results of the analysis will be presented in the form of the three categories identified in the literature review. Those hypotheses regarding the measures related to the mentor-protégé relationship will be presented, followed by those testing individual protégé characteristics and the characteristics inherent to the organization.

### *Mentor-Protégé Relationship*

Analysis of Variance (ANOVA) was used with two groups, junior officers with a formal mentor (i.e., their supervisor was identified as the mentor) and those with an informal mentor, to test all hypotheses except Hypothesis 3c, which was related to the military status of the supervisor. T-Tests were also performed to compare the means (Table 4). As was hypothesized (Hypothesis 1) leader member exchange levels from the two groups were significantly different ( $F = 10.11, p < .01$ ). While all of the officers reported a high-quality exchange relationship on average, those officers who recognized their supervisor as their mentor appeared to have a more positive exchange relationship with him or her ( $M = 5.72$ ) than those officers who had identified an informal mentor ( $M = 5.21$ ) had with their respective supervisors.

Work related contact time between the supervisor and subordinate was hypothesized (Hypothesis 2a and 2b) to be positively related to a junior officer identifying his or her supervisor as a mentor. Essentially, it would be more likely that an officer would choose his or her supervisor as a mentor if he or she had greater contact time with that supervisor. From the junior officer and supervisor perspectives, the data supported these hypotheses, although only the junior officer number yielded significant results. From the protégés perspective, those who identified a formal mentor reported significantly higher ( $F = 20.41, p < .001$ ) contact time with their mentor ( $M = 57.21$ ) than did their peers with informal mentors ( $M = 20.90$ ). From the supervisor's perspective, those supervisors who were identified by their subordinates as a mentor reported higher contact time ( $M = 54.12$ ) with their subordinate than did their fellow supervisors whose subordinates had identified an informal mentor ( $M = 38.72$ ) although these results were not significant at a  $p < .05$  level ( $F = 2.94, p = .09$ ). It should be noted that the work related contact time reported by protégés only captured the contact time they had with their identified

mentor, whether that be his or her supervisor or someone else (i.e., informal mentor), and not their relationship with their supervisor. The implications of this methodological issue will be detailed in the discussion.

Similarity between the supervisor and protégé was hypothesized (Hypotheses 3a and 3b) to have a positive effect on the selection of the supervisor as a mentor. Tests indicated significantly higher similarity between supervisors and subordinates who were in a formal mentoring relationships (junior officer  $M = 4.25$ ; supervisor  $M = 4.02$ ) than for pairs where an informal mentor was identified (junior officer  $M = 3.02$ ; supervisor  $M = 3.08$ ) (junior officer  $F = 7.50, p < .01$ ; supervisor  $F = 6.84, p = .01$ ). As was noted with Hypothesis 2a, Hypothesis 3a could not be fully tested. Like the work related contact time variable, protégés were asked to indicate the extent to which they felt they were similar to whomever they considered their mentor (supervisor or otherwise). In an attempt to rectify the discrepancy, a third similarity index was created. Termed Similarity (Actual) it was based upon demographic information and measured what demographic characteristics each junior officer had in common with his or her supervisor (e.g., Gender, Ethnic Background, Source of Commissioning, and Marital Status). The results for the Similarity (Actual) index were in the direction hypothesized as supervisors and subordinates also in a mentoring relationship tended to have more in common ( $M = 2.48$ ) with one another than those that were not in a mentoring relationship ( $M = 2.25$ ) although these results were not significant ( $F = 1.76, p = .19$ ). The impact of this discovery and the creation of the actual similarity index will be further examined in the discussion.

#### *Protégé Characteristics*

Hypothesis 4 theorized that the level of protégé performance, as reported by the supervisor, would be positively related to the selection of the supervisor as the mentor. Results

of the ANOVA discovered that the junior officer's performance ratings did not differ whether they had a formal or informal mentor ( $F = 0.54, p = 0.47$ ). Specifically, officers who identified their supervisor as their mentor had an average performance level ( $M = 5.89$ ) while those who had an informal mentor had a performance level ( $M = 5.73$ ). The results for Hypothesis 5, which posited that the proactive personality of the protégé would be positively related to the selection of an informal mentor, were actually counter to the direction expected. Officers who had identified their supervisor as a mentor reported higher levels of proactive personality ( $M = 5.41$ ) than did the officers who had actually sought out an informal mentor ( $M = 5.29$ ) although the means were not significantly different ( $F = 0.63, p = .43$ ).

#### *Organizational Characteristics*

The effects of barriers to mentoring within the organization were hypothesized (Hypothesis 6) to be negatively related to the selection of an informal mentor. Actual results were opposite of the hypothesized relationship. For each subscale, and the overall measure, those junior officers who had identified an informal mentor actually reported higher barriers to mentoring than those who recognized a formal mentor in their supervisor. For the barriers to initiating mentoring scale officers with formal mentors reported lower barriers ( $M = 2.42$ ) than did informal protégés ( $M = 2.79$ ). Likewise, for the barriers to obtaining mentoring scale the junior officers with formal mentors reported lower barriers ( $M = 2.52$ ) than their counterparts with informal mentors ( $M = 2.77$ ). Finally, in the overall barriers scale formally mentored junior officers reported lower ( $M = 2.45$ ) barriers to mentoring than those junior officers with informal mentors ( $M = 2.76$ ). While all three of these results are counter to the hypothesized relationship, none of the differences were significant ( $p = 0.06, p = 0.20, p = 0.09$ , respectively).



With regards to time under supervision (Hypothesis 7) having an impact on a protégé's decision to identify an additional mentor, it appears that it actually makes very little difference in the selection process. Junior officers with formal mentors ( $M = 10.84$ ) had nearly equal reports of time under supervision as did those with informal mentors ( $M = 10.56$ ).

Table 3. *Descriptive Statistics and Correlations for Study Data*

Factor	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Leader Member Exchange	5.29	0.99	(.87)	.16*	.25**	.13	.19*	-.01	.14	.29*	.26**	-.08	-.13	-.11	-.02
2. Work Related Contact Time (reported by CGO)	23.33	44.78		(.88)	.25**	.40**	.03	.01	.07	.12	.10	-.10	-.12	-.12	-.04
3. Work Related Contact Time (reported by Supv)	40.29	44.63			(.83)	.16*	.24**	.06	.20**	.27**	.19*	.04	-.04	.01	.07
4. Similarity (CGO)	2.37	2.76				(.82)	.23**	.09	.06	.12	.02	-.02	-.11	-.08	-.02
5. Similarity (Supv)	3.44	1.83					(.46)	.32**	.26**	.22**	.12	.05	-.02	.03	.04
6. Similarity (Actual)	2.40	0.86						--	.14	.07	.02	.03	.04	.05	.03
7. Supervisor Status <sup>1</sup>	0.46	0.50							--	.08	.01	.12	.01	.08	-.17**
8. Performance	5.67	1.06								(.96)	.20*	-.17*	-.10	-.15	.19**
9. Proactive Personality	5.31	0.84									(.74)	-.14	-.18*	-.16*	-.10
10. Barriers to Initiating	2.65	1.04										(.86)	.70**	.91**	.03
11. Barriers to Obtaining	2.73	1.05											(.88)	.94**	.22**
12. Overall Barriers	2.67	0.96												(.92)	.13
13. Time Under Supervision	10.34	7.27													--

*Note.* Alpha coefficients for multi-item scales are reported in parentheses along the diagonal.

\*  $p < .05$ ;

\*\*  $p < .01$

1. 0= Civilian, 1=Military

Table 4. *T-test and Analysis of Variance (ANOVA) Results for Measures*

<i>Measure</i>	Formal Mentor		Informal Mentor		ANOVA Test Statistics	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Leader Member Exchange	5.72	0.73	5.21	1.04	10.11*	.002
Work Related Contact Time (CGO <sup>1</sup> )	57.21	55.48	20.90	42.65	20.41*	<.001
Work Related Contact Time (Supv <sup>2</sup> )	54.12	55.83	37.53	37.53	2.94	.089
Similarity (CGO <sup>1</sup> )	4.25	2.01	3.02	2.99	7.50*	.007
Similarity (Supv <sup>2</sup> )	4.02	2.05	3.08	1.69	6.84*	.01
Similarity (Actual)	2.48	0.85	2.25	0.88	1.76	.19
Performance	5.89	0.92	5.73	0.94	0.54	.47
Proactive Personality	5.41	0.76	5.29	0.92	0.63	.43
Barriers to Initiating	2.42	0.98	2.79	1.19	3.58	.06
Barriers to Obtaining	2.52	1.09	2.77	1.13	1.69	.20
Overall Barriers	2.45	0.97	2.76	1.05	2.97	.09
Time Under Supervision	10.84	6.24	10.56	7.66	0.04	.84

\*. Correlation is significant at the 0.05 level (2-tailed)

1. CGO is Company Grade Officer, or the Junior Officer (protégé)

2. Supv is the Supervisor of the Junior Officer

### *Supplementary Analysis*

Additionally, a Logistical Regression was used in order to evaluate how the change in reported levels or categories of each independent variables (i.e., the levels or categories of variables) might affect a change in the dependant variable (i.e., whether the officer chose an informal mentor). Logistical regression is an effective tool when the outcome variable is dichotomous in nature (Formal Mentor versus Informal Mentor). Results of the regression analysis are found in Table 5. In the regression analysis, only the level of leader member exchange and the military status of the supervisor had significant impacts on the selection of non-supervisory mentors. The odds ratios (0.44 and 0.16) respectively indicate that any unit

increase in leader member exchange or supervisor status (from 0= Civilian, to 1= Military) will decrease the chances of a junior officer identifying an additional, non-supervisory mentor.

Leader member exchange is the only variable of these two that is within the supervisor's discretion and ability to change if he or she hopes to become a more effective mentor. No other measures revealed a significant odds ratio for this dependant variable.

Finally, a  $\chi^2$  test was conducted in order to test Hypothesis 3c on the effect of military status of the supervisor. It was hypothesized that a military supervisor would be positively related to the selection of that supervisor as a formal mentor. As noted in Table 6 having a civilian supervisor was significantly related to the junior officer's selection of an additional mentor ( $\chi^2 = 9.51, p < 0.01$ ).

Table 5. *Summary of Logistic Regression Analysis Predicting Identification of Informal Mentor*

Variable	$\beta$	SE	Odds ratio	$P$
Leader Member Exchange	-0.83	0.35	0.44*	.02
Work Related Contact Time (Supv)	0.00	0.01	1.00	.96
Similarity (Supv)	-0.23	0.15	0.79	.79
Supervisor Status	-1.86	0.57	0.16*	.001
Performance	0.24	0.30	1.27	.42
Proactive Personality	0.01	0.32	1.00	.97
Barriers to Initiating	0.06	2.34	1.06	.98
Barriers to Obtaining	-1.29	2.78	0.28	.64
Overall Barriers	1.70	5.13	5.48	.74
Time under Supervision	-0.02	0.04	0.98	.64

\*. Correlation is significant at the 0.05 level (2-tailed)

*Table 6. Likelihood Ratio of Selecting Informal Mentor based on Supervisor's Military Status*

Variable	Supervisor is Civilian	Supervisor is Military	$\chi^2$	<i>p</i>
Formal Mentor	14	31	9.51	.002
Informal Mentor	38	24		

*Summary*

While not all hypotheses resulted in statistically significant results, some very interesting areas of discussion and future consideration came about as a result of this work. Table 7 provides an overview of statistically significant results. The significant results, as well as the implications of the negative and non-significant findings will be further discussed in Chapter Four.

*Table 7. Overview of Test of Hypotheses Results*

Hypothesis	Measure	Supported
Hypothesis 1	Leader member exchange	Yes
Hypotheses 2a and 2b	Work related contact time	Yes, No
Hypotheses 3 a, 3 b, and 3c	Similarity	Yes, Yes, Yes
Hypothesis 4	Protégé Performance	No
Hypothesis 5	Protégé Proactive Performance	No
Hypothesis 6	Barriers to Mentoring	No
Hypothesis 7	Time Under Supervision	No

## Discussion

This study examined mentoring relationships in the active duty Air Force to determine what characteristics might lead protégés to select informal mentors in addition to or in place of their assigned, supervisory mentors. The Air Force provided a unique setting to study this issue because mentoring roles are part of the formal requirements of supervisors; yet, junior members are encouraged to develop informal mentoring relationships with others who they find helpful. Since the subordinate officer has not joined a mentoring program, he or she should be more likely to seek out additional informal mentors than those protégés participating in a voluntary formal program. Due to the nature of this mentoring program a substantial number of formal and informal relationships within the same organization were available for comparison. Generally, the findings indicated that there are certain relationship characteristics (i.e., the leader member exchange level, similarity, and contact time) that were related to a member selecting an informal mentor. While the results yielded only a few statistically significant findings, there are several interesting findings that have the potential to change the way mentoring is thought about and studied in the future.

### *Mentor-Protégé Relationship*

As previously asserted, the Mentor-Protégé relationship deals with the interactions between the formal mentor and protégé and how those interactions affect the relationship and the selection of an additional mentor.

*Leader member exchange.* As hypothesized, the level of leader member exchange reported between a supervisor and subordinate was negatively related to the subordinate's decision to identify an informal mentor. That is, when leader member exchange was low the subordinate was much more likely to find an additional mentor. The finding is consistent with

Gibson (1998) who found that leader member exchange was significantly correlated to mentoring effectiveness within formal mentoring relationships. With regards to leader member exchange theory, this may have significant implications. It is likely that the protégés who recognize their supervisor as their mentor are members of the “in group” or have attained a “high level exchange.” These individuals would likely realize the benefits of a greater level of influence with and from their supervisor through the mentoring activities that they receive (Graen & Uhl-Bien, 1995). In contrast, those subordinates that have poor exchange relationships, likely became part of the “out group” with their direct supervisor and their supervisors have not found reason or time to more fully develop them as workers. Due to the “low quality exchange”, these subordinates have with their supervisor they seem to have found other places to receive the mentoring support that they desire. While being part of the out group would generally be viewed negatively, this finding is still somewhat positive in that these Air Force members do still find support. Moreover, it does suggest that supervisors and leaders can improve their mentoring relationships by engaging in positive leader member exchange behaviors such as working with subordinates on areas in which they could expand their job-related contributions. In fact, Scandura and Graen (1984) found that supervisors could improve their leader member exchange skills and significantly improve the job satisfaction, supervisor satisfaction, job performance, and member availability of employees with whom they previously had low quality exchanges. Therefore, formal mentoring can be improved in relationships where it has not previously been successful.

*Work related contact time.* Work related contact time between the supervisor and junior officer was expected to be negatively related to the selection of an informal mentor by the protégé. The reasoning was straight-forward. Greater work related contact time with a

supervisor would increase liking of the supervisor, satisfaction with the supervisor as a mentor, and, therefore, lead to retaining him or her as a formal mentor (Ensher & Murphy, 1997; Gibson, 1998; Turban & Jones, 1988). While the hypotheses tests for contact time each yielded results in the predicted direction, there were certain methodological issues that prevented a definitive conclusion regarding this hypothesis. The instrument used for this study had the junior officer report the contact time with whomever he or she currently considered a mentor, whether that be his or her supervisor or an informal mentor. Because the relationship between the supervisor and subordinate was not tested for each group the findings were not really relating what the different level of contact time means for formal mentoring intentions. Despite this methodological challenge, one interesting note is the difference in the amounts of time spent participating in “mentoring functions” by informal mentors and formal mentors. For those in a formal mentoring relationship, the amount of time spent with the formal mentor was greater than those in an informal mentoring relationship. This might suggest that informal mentoring is either taking place unknown to the protégé or that much less time is required in order for an informal mentor to accomplish effective mentoring. Protégés reported spending nearly 60 hours per week ( $M = 57.21$ ;  $SD = 55.48$ ;  $n = 57$ ) of work time with a formal mentor. While this number would average out to over ten hours per day the way in which the data were collected did allow for counting contact time in several different ways making up an overall time score. Protégés in informal mentoring relationships reportedly spent less than half that amount of time with their mentors ( $M = 20.9$ ;  $SD = 42.65$ ;  $n = 94$ ). Of course, this difference could be an outcome of the greater amount of time available to a supervisor with a protégé than is available to an informal mentor from another part of the organization.



In addition, supervisors reported less contact time with those subordinates that had informal mentors than they did with the subordinates who also considered them as a mentor ( $p < .10$ ). This finding suggests that those supervisors who are not spending as much time with their subordinates may not be allowing time for a good mentoring relationship to evolve and develop. This assertion is supported by the strong negative correlation ( $r = -.35$ ;  $n = 151$ ) between work related contact time and the selection of a formal versus an informal mentor, meaning junior officers who are not generally spending time with a formal mentor will also likely identify an informal mentor.

Interestingly, a strong correlation was found between work related contact time from the junior officer's report and similarity with the mentor as reported by the junior officer ( $r = .40$ ;  $n = 224$ ). This finding is consistent with Turban and Jones (1988) who suggested that contact between junior and senior members in any developmental relationship leads to greater perceptions of similarity between the two. The implications of that perceived similarity will be discussed next.

*Similarity.* Similarity between the junior officer and supervisor, like contact time, was hypothesized to be negatively related to the decision of the junior officer to identify an informal mentor. Like contact time, when similarity was measured from the junior officer's perspective, it did not properly address the research questions (Hypothesis 3a). Again, the junior officers indicated how similar they were to their mentor, whether he or she was formal or informal. Still, like contact time, looking at the results from the junior officer and supervisor offered support to the hypothesis. From the supervisor's perspective, it seemed that a higher level of similarity with a subordinate was related to the subordinate considering their supervisor their mentor. From the junior officer perspective, it seemed that an informal mentor could be effective despite

having a lesser degree of similarity than was required of a formal mentor. This might also suggest that informal mentoring pairs had things in common which were not measured by the survey instrument.

While the findings from the supervisor's standpoint would seem to refute the notion that a formal mentoring program that does not consider similarity could be as successful, there could be ways to improve that problem. As suggested by Turban and Jones (1988), the frequency and duration of contact time between members of a supervisory relationship can increase perceptions regarding similarity. Moreover, data indicate that perceived similarity is actually a stronger force in a work relationship than actual similarity (as measured demographically) or perceptual congruence, which is a measure of perceptions about important behaviors and norms (Turban & Jones, 1988). To test this link, a similarity index was created from the data and a supplemental test was conducted. This similarity index was related in an expected direction but was not significant, indicating that perceived similarity between members might have a greater impact of a protégés selection of an informal mentor. When mentoring is confined to a strict formal relationship, it could easily be viewed as a required action on the part of the supervisor, causing the protégé to expect a greater amount of mentoring from the mentor. However, if a junior member in a mentoring dyad considers the mentoring actions of a supervisor to be informal, then the same supervisor might prove more successful as a mentor. In short, supervisors might be encouraged to develop an "informal relationship" with their formal protégé. This could be accomplished by making the effort to ensure mentoring time does not always take place within the confines of the supervisory relationship, or even at the place of work.

These findings should offer some hope to practitioners. Demographic similarities cannot be changed (with the exception of marital status). If increased contact with a supervisor can

increase perceived similarity, however, and perceived similarity is important to keeping a formal mentor then formal mentors can seemingly bolster their similarity to their protégé. Thus, a supervisor (or non-supervisor for that matter) could simply increase the amount of quality time spent with a protégé, especially if that time was focused on the things each member did have in common, to become a more effective mentor.

The final portion of similarity to be considered in this study dealt with the military status of the supervisor and its effect on the decision to find an informal mentor. As expected, protégés who had military members (as opposed to civilians) as supervisors were much more likely to consider that member their mentor as well. This finding should be something considered when organizational leadership decides how formal supervisory and rating structures are established within a military unit. At the same time, potential civilian supervisors should have mentoring duties detailed as part of their job descriptions in order to remind them of the importance of that duty. Civilian supervisors of military members would also do well to spend a good deal of time with their protégés early on in the relationship in order to overcome any potential perceived similarity differences. In this particular case, the importance of a mentoring culture throughout the Air Force becomes very important. If all service members recognize the importance of mentoring junior organizational members then it stands that either a civilian supervisor will perform better as a mentor or at the least a military member would be available to supplement the mentoring provided by the civilian formal mentor.

### *Protégé Characteristics*

Protégé Characteristics focused on how traits and skills inherent to the protégé effect one's decision to look for an informal mentor.

*Protégé performance.* The job performance rating of the protégé, by his or her supervisor was hypothesized to relate negatively to the protégé's decision to seek an informal mentor. It was reasoned that as a protégés performance improved, or was initially recognized as high, the supervisor of that protégé would be more inclined to continue offering mentoring to that individual. If a protégé were a poor performer then the supervisor would be expected to offer less support causing the protégé to seek informal mentoring. While the results of analysis did offer some confirmation of this theory, the relationship between performances was not significant. This result may be a side effect of an inflated reporting standard throughout the Air Force. As supervisors normally provide positive evaluations of subordinates, it is difficult to differentiate what might have been an otherwise subpar performer. If formal mentoring is to remain the favored way of implementing Air Force mentoring, supervisors need to understand their increased responsibility to offer even more mentoring to their underperforming subordinates. As was previously discussed, there is a perception that mentoring an underperforming protégé possibly represents a risk to the supervisor. A supervisor who keeps detailed feedback information for his or her subordinates has little to fear in terms of being judged based upon to poor performance of a subordinate. This finding could also indicate that Air Force supervisors are already doing a good job of recognizing which underperforming subordinates need to most attention and are therefore offering increased mentoring opportunities to that protégé.

*Proactive personality.* The self-reported proactive personality of the protégé was hypothesized to be positively related to the selection of an informal mentor. As a protégé was more proactive the odds should increase that they would not be opposed to seeking out their own mentor, especially if not satisfied with the formal mentoring relationship. The data, however,

showed very small differences in proactive levels for those junior officers in formal or informal relationships. In fact, those protégés from informal relationships actually had a lower mean measure of proactive personality. The fact that these differences were small is good news for Air Force leaders and human relations experts in the private sector. Just because a subordinate does not have a highly proactive component to his or her personality does not mean that he or she will not take the opportunities to seek out the most effective mentoring relationship for him or herself. This also means that leaders in any organization can focus on teaching the benefits of mentoring and what it takes to facilitate effective mentoring and then have a little more leeway in letting protégés find the best potential mentor for themselves. One interesting fact to note is the rather high mean value for proactive personality for the entire sample ( $m = 5.31$ , on a 7-point likert-type scale) as well as the low standard deviation, which at .08 was smaller than any of the other constructs measured. This suggests that the military, in general, seems to attract and value self-confident, proactive individuals. As such, an overall high level of proactive traits within the Air Force might be affecting the difference in means between groups. Thus, the generalizability of this finding into other settings may be more tenuous when greater variation in personalities is present.

### *Organizational Characteristics*

Organizational characteristics referred to different practices and beliefs within the organization that impact the mentoring relationship. Barriers to mentoring from the protégés perspective and the time under supervision were examined to determine what impact these factors might have on the protégé's decision to identify an informal mentor.

*Barriers to mentoring.* Barriers to mentoring within the organization were hypothesized to be negatively related to a protégé's decision to find informal mentors. If other opportunities

were difficult to come by, then a protégé would feel more reason to remain with a formal mentor even if that relationship was not meeting all of their developmental needs. Surprisingly, the results were counter to this hypothesis. Those individuals who had identified an informal mentor actually reported higher barriers to mentoring than did their counterparts with formal mentors as measured by subscales (barriers to initiating and barriers to obtaining) as well as the overall barriers measure. The simple explanation for this may be due to the time data were collected. The Air Force introduced its formal mentoring policy in 1997, less than a year before these data were collected. With a large organizational push towards formal mentoring, it may have been more difficult to find an informal mentor because supervisors would have felt that they should be fulfilling mentorship roles. Likewise, because formal mentoring was in its early stages, those protégés who identified their formal mentor as the primary mentor might have felt fewer barriers because that was the expectation of the supervisor.

*Time under supervision.* Time under supervision was hypothesized to have a negative relationship with a protégés decision to identify an informal mentor. With only a short time available to a supervision dyad (three years or less in most Air Force situations) it was expected that a formal relationship, which was hypothesized (hypotheses 2 and 3) to take longer in forming, could not grown to fully meet the need of the protégé. Means from the two groups (formal and informal mentoring dyads) did differ in the expected direction although the results were insignificant. This might lead us to believe that time under supervision plays a very minimal role in a protégés intentions, meaning work related contact time might only really impact the mentoring decision as it impacts similarity and leader member exchange.

### *Recommendations for the Air Force*

As the U.S. Air Force has committed to a program of formal, supervisory mentoring, the recommendations will focus on ways in which to better build upon those relationships. Additionally, the results will be used to offer advice on how to foster a better mentoring culture outside of the formal program to encourage the informal mentoring that often supplements a formal relationship. One of the most important discoveries of the analysis was the strong relationship between leader member exchange and mentoring. While mentoring is often conceptualized as a somewhat confusing conglomeration of coaching, role modeling, friendship, sponsorship, and counseling (Kram, 1988), leader member exchange is a more easily understood model of improved interactions. Supervisors seeking “higher level” exchanges with their subordinates can make an effort to influence their employees by increasing “job latitude, influence in decision making, open and honest communications, support of the member’s actions, and confidence in and consideration for the member” (Dansereau et al., 1975, 50). Supervisors and informal mentors alike who focus on high quality exchanges between themselves and their protégés can effectively facilitate strong “mentoring” relationships as well. Often mentoring in the Air Force’s officer corps seems to take the form of a supervisor or commander telling a protégé what steps they need to accomplish in order to reach the next level of the organization, as opposed to working with the protégé to understand their specific goals and be able to reach them. The Air Force should certainly consider the possible benefits of teaching the concept of leader member exchange to all levels of leadership within the force. Likewise, civilian firms looking to implement or improve their own mentoring program would be wise to consider the link between mentoring and leader member exchange. With an appreciation of what

leader member exchange can offer, a stronger mentoring culture could easily be built in a corporate or a military environment.

One important aspect of good leader member exchange and mentoring is the frequency, quality, and amount of contact time between the members of a particular mentoring relationship. The amount of contact time certainly plays an important role in establishing high quality exchanges and opportunities for effective mentoring. Additionally, increased contact time has shown to be an important factor in increasing perceived similarity between individuals. These increased perceptions of similarity play an important role in satisfaction with a supervisor or mentor, as well as increased clarity of work roles for subordinates (Turban & Jones, 1988). However, it should be noted that simply spending time together may not always be enough to encourage effective mentoring. The time spent between a leader and subordinate, or mentor and protégé should focus on the junior member's job performance, expanded roles, and place within the organization.

Another area for improvement in the service's mentoring program is the recognition of the benefits of supplemental informal mentoring relationships in addition to the formal relationship. By establishing a more robust "mentoring culture" instead of focusing solely on a single formal relationship, the Air Force can take advantage of formal and informal mentoring opportunities. In work based in the healthcare industry, Perrone (2003) stated that establishing a strong mentoring culture was more important to mentoring success than the administration of any specific program. As the mentoring culture becomes more prominent, the barriers to mentoring reported by protégés in informal relationships should be greatly reduced leaving junior officers with access to both forms of mentoring. As indicated by the research results, it might actually take less time to informally mentor a protégé and still achieve the desired results



of the relationship. Informal mentoring can often take place without the mentor or protégé knowing it. Coaching, counseling, and role modeling opportunities often present themselves throughout the course of an average day. At this point, the Air Force's mentoring culture seems to be limited to the instructions provided in AFI 36-3401, and to whatever level a commander chooses to push his or her organization towards its establishment. Currently the concept of mentoring is not being taught at any level of officer or enlisted professional military education. If the Air Force wants to establish a strong mentoring culture based not upon feelings of obligation but on a desire to improve the service it is imperative that all members understand their opportunities to serve as both formal and informal mentors.

In this light it seems that the Air Force might want to consider how the best use its civilian members as mentors. While it may be difficult in some cases for a protégé to establish a strong bond with a civilian mentor, the civilian members of the service certainly have a great deal to offer potential protégés. Civilian supervisors need to fully understand their duties as formal mentors to protégés and understand how the concepts of leader member exchange and contact time can help overcome similarity issues they may face with a subordinate. In the same light, any public or private corporation looking to establish a more robust mentoring culture needs to understand what issues might stand in the way of trusting relationships between potential mentors and protégés in their organization. Whether that issue is location, gender, race, or anything else it should be identified and accounted for in order to fully reap the benefits of mentoring.

### *Limitations*

Before considering the results of this study for generalization for the civilian sector, it is important to note that the distinctive culture of the U.S. Air Force might differ greatly from

common corporations. Within the Air Force population, several measures (e.g., leader member exchange, protégé performance, proactive personality) seem to have high mean scores in relation to the scale on which they were measured (e.g., greater than five on a seven point scale). While these ratings may come as no surprise to members within the service, their presence does highlight a potential difference in the Air Force and typical American populations, limiting the generalizability of these findings to other groups. Performance reporting within the Air Force tends, in general, to rate all but the poorest performers highly. While there are several specific phrases and forms of stratification that can be used to separate the truly exemplary performers on an officer or enlisted performance report, there is generally little difference in the majority of the reports' text. Since this rating system is somewhat second nature to most Air Force members, and supervisors, it stands to reason that the habit of reporting high performance has carried over somewhat to this study. With regard to leader member exchange, the overall mean rating was also very high ( $M = 5.30$  on a 7-point scale) especially when compared to other studies (Scandura & Schriesheim, 1994) where mean scores were closer to 3.80. Again the Air Force culture may have something to do with this finding. The Air Force promotes an active, and interactive form of leadership. Leaders are encouraged and even required to conduct performance feedbacks at various points throughout the year. An effective Air Force leader is told that he or she should constantly be communicating with his or her subordinates about expectations for that subordinate, whether or not those expectations are being met, and how the subordinate can improve their future performance. If a leader is actively participating in these "exchanges", it would stand to reason that they are rated high as a group in leader member exchange. As this entire sample is comprised of Air Force members (active duty and civilian), the results should still be valid within the context of the military service.

It is also important to note that the goal of this study was not to discover which type of mentoring was the most effective within the Air Force. The point was to examine what factors might lead protégés to seek out informal mentors. As such these findings should not be used to support the elimination of formal mentoring. The results should simply be used to evaluate what might be the most effective way to build a true culture of mentoring within an organization.

Finally, it is important to again note that this data was collected as part of another thesis effort in the 1997-1998 timeframe, shortly after the implementation of the Air Force formal mentoring program. As such, the mentoring culture within the Air Force may have already changed leaving some of these results in question. A new study with new data would certainly be advised in order to more fully understand all the dynamics currently at play within the service.

#### *Future Areas of Study*

While this study has been effective in closing some of the recognized knowledge gap between formal and informal mentoring, it has also led to the identification of several future areas of study. Two key categories of future ideas will be presented. First, is the consideration of methodological issues which should be dealt with in order to improve future mentoring research. Second, new relationships for study will be presented that have to possibility of substantially increasing the knowledge base on the subject of mentoring

*Methodological concerns.* One noted weakness within the field of mentoring research is in the measurement of its true effects. In their meta-analysis of mentoring outcomes for protégés, Allen et al. (2004) found a positive correlation between mentoring and career outcomes although their effect sizes were notably small (e.g.,  $M_{wr} = .12$  for compensation). Part of this is likely due to the fact that a majority of the people who are serving as mentors to protégés also in some way determine their career related outcomes like pay and advancement. At some point,

mentoring might simply be a self-fulfilling prophecy with those individuals who are mentored by senior organizational members being rewarded by the same senior members. One improvement might be to measure career related outcomes longitudinally with pre-mentoring and post-mentoring measures provided by an impartial evaluator. To more fully examine the relationship, a better career related outcomes measure might also need to be developed. Instead of generally considering the benefits to the protégé of his or her participation in mentoring, perhaps a better way to measure a protégé's impact on the organizations successful mission accomplishment should be considered.

In addition, the field of subjective career outcomes still provides a great deal of potential future studies. If mentoring, especially formal mentoring, can be linked strongly to career and job satisfaction, reduced turnover intentions, and organizational commitment, then the field has a great opportunity to continue in creating new and effective practitioner knowledge.

*New studies.* One of the most interesting relationships to present itself throughout the course of this study is the similarity and relationship between the constructs of mentoring and leader member exchange. Future work should seek to further clarify how the two concepts work together as part of overall developmental relationships within the work place.

Obviously the relationship between similarity and contact time has vast possibilities for study and application throughout the corporate and military world as the two concepts have been linked to positive outcomes for mentors, protégés, and organizations (Turban & Jones, 1988; Ensher & Murphy). Future studies should focus on this relationship especially as it relates to the concepts of formal and informal mentoring as well as other professional relationships. An interesting investigation might also come from further studying the outcomes of contact time and

similarity as they pertain to performance, organizational commitment, and satisfaction from the perspective of junior organizational members.

Finally, as this research effort has identified many protégés recognize, or are provided, more than one mentor within their organization. It would be interesting to further investigate the dynamics between protégés and their multiple mentors, especially as it relates to what roles are filled by each mentor and how each mentor might feel about the presence of an additional mentor.

### *Summary*

As research on the subject has proliferated in the last 30 years, it should come as no surprise the amount of attention mentoring has received. As its success has been positively linked to employee performance, satisfaction and intention to stay it makes sense that organizations look to capitalize upon the benefits of the mentoring relationship. As this movement has grown the use of formal, or assigned, mentoring relationships has also increased. Formal mentoring relationships seek to foster positive development by matching a protégé with a mentor within the organization. Researchers, to this point, have differed on if formal mentoring can achieve the same levels of success as traditional informal mentoring. Whether they can or not there are certain factors that organizations should consider in order to establish an effective mentoring culture throughout their structure. First, is the strong relationship between mentoring and leader member exchange. By teaching the concepts of leader member exchange to all potential formal and informal mentors a corporation might foster better interactions between junior and senior members in the organization opening up a much larger pool of potential mentors for protégés. Additionally, the concepts of contact time and similarity are fundamentally linked to one another as well as successful mentoring. By establishing a

mentoring culture instead of focusing on the specifics of a formal program, an organization can more effectively foster beneficial mentoring relationships for all of its members.

## References

- Air Force Instruction 36-3401. (1 June 2000). Air Force Mentoring.
- Air Force Policy Directive 36-34. (1 July 2000). Air Force Mentoring Program.
- Allen, T. D., Eby, L. T., Lentz, E. (2006). The relationship between formal mentoring program characteristics and perceived program effectiveness. *Personnel Psychology, 59*, 125-153.
- Allen, T. D., Eby, L. T., Poteet, M. L., Lentz, E., & Lima, L. (2004). Career benefits associated with mentoring for protégés: A meta-analysis. *Journal of Applied Psychology, 89*, 127-136.
- Bateman, T. S. & Crant, J. M. (1993). The proactive component of organizational behavior. *Journal of Organizational Behavior, 14*, 103-118.
- Bridgford, L. C. (2007). Mentoring programs still have a place in the 21st century. *Employee Benefit News, 21*, 16.
- Burke, R. J. (1984). Mentors in organizations. *Group and Organization Studies, 9*, 253-272.
- Burke, R. J., & McKeen, C. A. (1989). Developing formal mentoring programs in organizations. *Business Quarterly, 53*, 76.
- Byrne, D. (1971). *The attraction paradigm*. New York: Academic Press.
- Chao, G. T. (1997). Mentoring phases and outcomes. *Journal of Vocational Behavior, 51*, 15-28.
- Chao, G. T., Walz, P. M., & Gardner, P. D. (1992). Formal and informal mentorships: A comparison on mentoring functions and contrast with nonmentored counterparts. *Personnel Psychology, 45*, 619-636.
- Clawson, J. G., & Kram, K. E. (1984). Managing cross-gender mentoring. *Business Horizons, 27*, 22.

- Dansereau, F., Graen, G., & Haga, W. J. (1975). A vertical dyad linkage approach to leadership within formal organizations: A longitudinal investigation of the role making process. *Organizational Behavior and Human Performance*, *13*, 46-78.
- Dreher, G. F., & Ash, R. A. (1990). A comparative study of mentoring among men and women in managerial, professional, and technical positions. *Journal of Applied Psychology*, *75*, 539-546.
- Ensher, E. A., & Murphy, S. E. (1997). Effects of race, gender, perceived similarity, and contact on mentor relationships. *Journal of Vocational Behavior*, *50*, 460-481.
- Fitt, L. W., & Newton, D. A. (1981). When the mentor is a man and protégé is a woman. *Harvard Business Review*, *59*, 56-60.
- Gibson, S. (1998). An evaluation of characteristics and practices associated with effective mentoring within the United States Air Force (Master's Thesis, Air Force Institute of Technology, 1998).
- Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly*, *6*, 219-247.
- Grant, A., Parker, S., & Collins, C. (2009). Getting credit for proactive behavior: Supervisor reactions depend on what you value and how you feel. *Personnel Psychology*, *62*, 31.
- Green, S., & Bauer, T. (1995). Supervisory mentoring by advisers: Relationships with doctoral student potential, productivity, and commitment. *Personnel Psychology*, *48*, 537-562.
- Homer. (1999). *The Odyssey* (New Ed ed.). London: Penguin Classics.



- Hu, C., Thomas, K. M., & Lance, C. E. (2008). Intentions to initiate mentoring relationships: Understanding the impact of race, proactivity, feelings of deprivation, and relationship roles. *Journal of Social Psychology, 148*, 727-744.
- Hunt, D. M., & Michael, C. (1983). Mentorship: A career training and development tool. *The Academy of Management Review, 8*, 475.
- Johnson, W. B., & Anderson, G. (2009). How to make mentoring work. *Proceedings, April 2009*, 26-32.
- Kaplan, S. E., Keinath, A. K., & Walo, J. C. (2001) An examination of perceived barriers to mentoring in public accounting. *Behavioral Research in Accounting, 13*, 195-220.
- Koberg, C. S., Boss, R. W., & Goodman, E. (1998). Factors and outcomes associated with mentoring among health-care professionals. *Journal of Vocational Behavior, 53*, 58-72.
- Kram, K. E. (1983). Phases of the mentor relationship. *Academy of Management Journal, 26*, 608-625.
- Kram, K.E. (1988). *Mentoring at work: Developmental relationships in organizational life*. Lanham, Md: University Press of America.
- Levinson, D. J., Darrow, D., Klein, E., Levinson, M., & McKee, B. (1978). *Seasons of a man's life*. New York: Knopf.
- Liden, R. C., & Graen, G. (1980). Generalizability of the vertical dyad linkage model of leadership. *Academy of Management Journal, 23*, 451-465.
- Noe, R. A. (1988). An investigation of the determinants of successful assigned mentoring relationships. *Personnel Psychology, 41*, 457-479.
- O'Neil, R. M. (2005). An examination of organizational predictors of mentoring functions. *Journal of Managerial Issues, 17*, 439-461.

- Perrone, J. (2003). Creating a mentoring culture. *Healthcare Executive, 18*, 84.
- Ragins, B. R., & Cotton, J. L. (1991). Easier said than done: Gender differences in perceived barriers to gaining a mentor. *Academy of Management Journal, 34*, 939-951.
- Ragins, B. R., Cotton, J. L., & Miller, J. S. (2000). Marginal mentoring: The effects of type of mentor, quality of relationship, and program design on work and career attitudes. *Academy of Management Journal, 43*, 1177-1194.
- Ragins, B. R., & Scandura, T. A. (1994). Gender differences in expected outcomes of mentoring relationships. *Academy of Management Journal, 37*, 957-971.
- Scandura, T. A., & Graen, G. B. (1984). Moderating effects of initial leader-member exchange status on the effects of a leadership intervention. *Journal of Applied Psychology, 69*, 428-436.
- Scandura, T.A., & Schriesheim, C. (1994). Leader-member exchange and supervisor career mentoring as complementary constructs in leadership research. *Academy of Management Journal, 37*, 1588-1602.
- Thomas, D. (1990). The impact of race on manager's experiences of developmental relationships (mentoring and sponsorship): An intra-organizational study. *Journal of Organizational Behavior, 11*, 479-492.
- Turban, D.B., & Jones, A.P. (1988). Supervisor-subordinate similarity: Types, effects, and mechanisms. *Journal of Applied Psychology, 73*, 228-234.
- Viator, R. E. (1999). An analysis of formal mentoring programs and perceived barriers to obtaining a mentor at large public accounting firms. *Accounting Horizons, 13*, 37-53.

## **Vita**

Captain Russell Gheesling hails from Ellijay, GA where he graduated from Gilmer High School in 1999. After graduation he attended the United States Air Force Academy. In 2003 he graduated with a Bachelor of Science Degree in Civil Engineering. Captain Gheesling has served for seven years as an Air Force civil engineer officer with assignments in Georgia, Wyoming and one deployment to Kyrgyzstan. He has served in various positions with CE squadrons with his last being the Readiness and Emergency Management Flight Commander at F.E. Warren AFB in Cheyenne, Wyoming. Upon graduation from AFIT Captain Gheesling will be awarded his Master of Science Degree in Engineering Management. Following graduation he will be assigned to the Air Combat Command Staff at Langley AFB, VA.

## REPORT DOCUMENTATION PAGE

*Form Approved*  
OMB No. 074-0188

The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

**PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

<b>1. REPORT DATE (DD-MM-YYYY)</b> 25-03-2010		<b>2. REPORT TYPE</b> Master's Thesis		<b>3. DATES COVERED (From - To)</b> Sep 2009-Mar 2010	
<b>4. TITLE AND SUBTITLE</b>  A Study of Formal and Informal Mentoring in the United States Air Force			<b>5a. CONTRACT NUMBER</b>		
			<b>5b. GRANT NUMBER</b>		
			<b>5c. PROGRAM ELEMENT NUMBER</b>		
<b>6. AUTHOR(S)</b>  Gheesling, Russell, H., Capt, USAF			<b>5d. PROJECT NUMBER</b>		
			<b>5e. TASK NUMBER</b>		
			<b>5f. WORK UNIT NUMBER</b>		
<b>7. PERFORMING ORGANIZATION NAMES(S) AND ADDRESS(S)</b>  Air Force Institute of Technology Graduate School of Engineering and Management (AFIT/EN) 2950 Hobson Way WPAFB OH 45433-7765			<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>  AFIT/GEM/ENV/10-M03		
<b>9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b> Intentionally left blank			<b>10. SPONSOR/MONITOR'S ACRONYM(S)</b>		
			<b>11. SPONSOR/MONITOR'S REPORT NUMBER(S)</b>		
<b>12. DISTRIBUTION/AVAILABILITY STATEMENT</b> Approved for public release; distribution unlimited					
<b>13. SUPPLEMENTARY NOTES</b> This material is declared a work of the U.S. government and is not subject to copyright protection in the United States					
<b>14. ABSTRACT</b> Mentoring has been identified as a significant contributor to employee performance and development. Debate has come about as result of implementation of formal mentoring programs where mentors are assigned to protégés as opposed to informal relationship formed out of mutual respect and liking. Secondary data, including measures of leader member exchange, similarity, contact time, and others, were used from a 1998 survey of company grade officers (protégés) and their formal and informal mentors. Analysis of Variance compared mean values between formally and informally mentored protégés. Additionally, a logistic regression was used to understand the impact that different measures had on the protégé's decision to identify an informal mentor. Leader Member Exchange, Similarity, Contact Time, and Military Status (active duty versus civilian) all were identified as having a significant impact on a protégés decision to identify an informal mentor. Since the United States Air Force has implemented a formal mentoring program this study offers suggestions of ways which formal relationships can be improved. By focusing on leader member exchange concepts supervisors can become more successful formal mentors. Additionally, Air Force members should also be encouraged to engage in informal mentoring relationships in order to fully capitalize upon the benefits of mentoring.					
<b>15. SUBJECT TERMS</b>  Mentoring, Leader member exchange, Similarity, Contact time					
<b>16. SECURITY CLASSIFICATION OF:</b>		<b>17. LIMITATION OF ABSTRACT</b>	<b>18. NUMBER OF PAGES</b>	<b>19a. NAME OF RESPONSIBLE PERSON</b>	
a. REPORT	b. ABSTRACT			Daniel T. Holt, Lt Col, USAF ENV	<b>19b. TELEPHONE NUMBER (Include area code)</b>
			58	937-255-3636	

**Standard Form 298 (Rev. 8-98)**  
Prescribed by ANSI Std. Z39-18

*Form Approved*  
OMB No. 074-0188