DISSERTATION

MENTORING DYNAMICS: ROLES, PERSONALITIES, MODERATORS AND OUTCOMES IN MILITARY AND CIVILIAN ACADEMIC TRAINING SETTINGS

Submitted by
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In partial fulfillment of the requirements
For the Degree of Doctor of Philosophy
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ABSTRACT OF DISSERTATION

MENTORING DYNAMICS: ROLES, PERSONALITIES, MODERATORS AND OUTCOMES IN MILITARY AND CIVILIAN ACADEMIC TRAINING SETTINGS

The present study investigated mentoring processes and outcomes across two diverse settings including a short-term formal mentoring program at an undergraduate military training institution between military officers and young military leaders, and longer-term relationships between students and faculty in a graduate school environment at a civilian university. Using data from 272 mentor and protégé respondents referring to 200 mentoring relationship dyads, satisfaction and performance outcomes were linked to mentor and protégé personality dimensions, mentor roles, time spent in mentoring, and mentoring setting. Results suggest that personality dimensions and mentor roles exhibit separate main effects on mentor and protégé satisfaction with mentoring relationships and with protégé performance outcomes, and that time spent in mentoring moderates several of these relationships. Protégé conscientiousness was the most noticeable personality variable in the overall model, relating positively to protégé performance, protégé and mentor satisfaction with mentoring, time invested in mentoring and mentor roles. Mentor openness yielded positive relationships with protégé performance, mentor roles, and time invested in mentoring. Protégé extraversion was positively linked to protégé satisfaction with the department and to mentor roles, but mentor extraversion negatively related to time invested in mentoring. In spite of large contextual differences between mentoring

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programs in the two settings, including differences in specific roles played by mentors, the relationships between overall mentor role strength and positive mentoring outcomes did not vary by setting. Implications for mentoring practice and research are discussed.

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CHAPTER I

INTRODUCTION

Mentoring has become increasingly popular over the last 20 years in corporate, military, academic, and other organizational settings. The prevalence and perceived success of informal mentoring relationships is likely responsible for the expansion of mentoring relationships into formal mentoring programs. By the late 1980's, mentoring programs existed in a third of major corporations in the United States (Bragg, 1989). The increasing number of research articles on mentoring programs in business settings further attests to the popularity of this type of learning (Russell & Adams, 1997).

Nonetheless, mentoring research has not kept pace with the increasing use and changing nature of mentoring relationships in various settings. Most mentoring research designs have been applied to only one setting, limiting their transferability and application. Important differences in mentoring outcomes and processes may exist in other types of mentoring relationships in different locales.

Mentoring relationships may be informal and develop spontaneously, or they may be part of a formal mentoring program, where relationships are arranged and overseen by an organization, usually the employer (Arnold, 1997). Formal mentoring programs may exhibit important differences from informal mentoring relationships; however, mentoring

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research has not sufficiently addressed this and many other questions of increasing importance given the growing amount of time and money invested in these endeavors.

A typical informal mentoring relationship is a relatively isolated exchange over time based on mutual attraction, relationship forming, and informal processes that may bring benefits to both parties over the course of an entire career. Formal mentoring programs attempt to delineate these benefits to a large number of people in a somewhat organized fashion over a shorter period of time. Return on investment and assessment of important outcomes from formal mentoring relationships become important issues. Additionally, decisions have to be made regarding who is to be mentored, who is to mentor, how mentors and protégés are to be paired, and what guidance is to be given (if any) regarding the processes they will follow. Research needs to address how these issues can be managed in order to bring positive outcomes that are worth the time, money, and emotional involvement of those in mentoring relationships and their sponsoring organizations.

This study attempted to address some of these questions. A visual model of the current study is included (see Figure 1). Specifically, this study compares a formal, short-term mentoring program in a military training setting to a longer term, somewhat less formal (but still programmatic) mentoring setting of graduate students and their advisors. This study also addresses the issue of how mentors and protégés might best be selected and paired, proposing personality profiles as one possible approach. The current study explored 11 roles commonly played by mentors, as one way to make limited inferences about the processes and behaviors that occur within mentoring relationships.

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Literature Review

Mentoring definition and major facets

Mentoring has been defined as "…a relationship between a younger adult and an older, more experienced adult that helps the individual learn to navigate in the world of work" (Kram, 1985, p. 32) and "…an intense, professional relationship that is mainly devoted to developing the protégé's career" (Chao, 1998, p. 333). The term "protégé" usually refers to a junior or middle member of the organization who can benefit from guidance and support from a more experienced member. The mentor is generally a more senior member of the organization who is in position to provide this support in order to advance the career of the junior member (Baugh & Scandura, 1999).

For this study, the definition of mentoring must reflect training and education settings where protégés may not currently reside in the formal world of work and careers. Further, protégés in these settings may sometimes interact with mentors who are not their senior in terms of age (e.g., a middle-aged graduate student paired with a younger professor). The younger partner can nonetheless provide important mentoring functions given their relevant expertise, experiences, and their connection to resources that may benefit the protégé. Therefore, for purposes of this study mentoring is defined as a concentrated professional relationship in which one member (the protégé) receives encouragement and support from another who possesses expertise, experiences, resources, knowledge, social networks, or other personal assets that are sought by the protégé and are relevant to the protégé's development.

Years of research have confirmed the existence of two major facets of mentoring (career development and psychosocial support), which were originally proposed by Kram

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(1985). Career development focuses on advancement of the protégé's career through professional growth. Many dimensions of career development have been studied, to include coaching, sponsorship, exposure, visibility, protection, and providing challenging assignments. Psychosocial support is more specifically aimed at the protégé's intrapersonal and interpersonal relationships, to include a focus on the protégé's self-esteem, self-image, and social competence. Dimensions of psychosocial support include acceptance, friendship, confirmation, counseling, and role modeling (Chao, Walz, & Gardner, 1992; Seibert 1999; Ragins & Cotton, 1999).

Mentoring outcomes

Mentoring research has examined many outcome variables, both objective and subjective. Amount of mentoring received has been tied to career attainment, perceived career success (Turban & Dougherty 1994), higher subjective and objective career success (Peluchette & Jeanquart 2000), promotions, compensation, career mobility, work satisfaction (Chao, 1997; Dreher & Ash, 1990; Fagenson, 1989; Scandura, 1992; Turban & Dougherty, 1994; Whitely, et al., 1991), internalization of organizational values (Chatman, 1991), higher levels of organizational socialization (Chao, Walz, & Gardner, 1992), and attitudinal outcomes of job satisfaction, career satisfaction, pay satisfaction, career expectations, and organizational commitment and retention (Chao, 1997; Chao, Walz, & Gardner, 1992; Dreher & Ash, 1990; Seibert, 1999).

Although the subject of much less study, mentoring programs may have important benefits for mentors as well as protégés. Serving as a mentor may correspond to a critical stage in a professional's career development (Dalton, Thompson, & Price, 1997; Kram, 1985), and may serve as an important generative developmental task for the senior person (Levinson, et al., 1978). Mentors may possess various motives for seeking this role, to

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include an opportunity to provide developmental assistance, re-energize their own careers, gain social recognition, and obtain personal satisfaction (Young & Perrewe, 2000).

The first ever (to the author's knowledge) meta-analysis of mentoring outcomes was only recently conducted (Allen, Eby, Poteet, & Lentz, 2002). After a thorough search and review of the relevant literature, the analysis was restricted to 30 studies that were amenable to meta-analysis (e.g., they had outcome variables in common). The meta-analysis included workplace relationships and excluded many studies of mentoring in academic settings.

This meta-analysis yielded significant (low to moderate) correlations between mentoring participation and a variety of important protégé outcome variables, both affective (job satisfaction, career satisfaction, career commitment, organizational commitment, and perceived upward career mobility) and objective (compensation). The mentoring subcomponent of "career development" was related to several objective protégé outcomes (compensation, salary growth, and promotions) as well as affective outcomes (including career satisfaction, job satisfaction, and perceived career success).

In comparison to career development, the other major mentoring facet of "psychosocial support" was related to more affective protégé outcomes (self-esteem at work, satisfaction with the mentor, perceived career success, job involvement, and job satisfaction). A few studies were analyzed separately as "composite mentoring studies," because career development and psychosocial support were collapsed in the study and could not be distinguished for purposes of meta-analysis. These studies collectively

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yielded significant relationships between mentoring support and one objective outcome (managerial rank) and one affective outcome (job satisfaction).

Career development displayed stronger outcomes than psychosocial support, especially with objective career success indicators. The authors interpreted this via social exchange theory, proposing that career development may be associated with more tangible outcomes than psychosocial support. Career development may also enhance the task-related aspects of work to a greater degree than psychosocial support.

The authors of the review and meta-analysis recognized some important gaps to be filled in future mentoring research. In particular, it was argued that mentoring research needs more studies with pre- and post- data instead of snapshots of cross-sectional data, and more longitudinal studies in general. Mentoring research could also benefit from studying additional outcome variables, and examining how all outcomes relate to more distinct mentoring functions and behaviors, as compared to simple "mentoring participation" (Allen, Eby, Poteet, & Lentz, 2002).

Limitations of mentoring research

Most mentoring research utilized correlational analyses without longitudinal or experimental design. Therefore we must question the causal nature of mentoring relationships on outcomes. It could be, for instance, that another variable (e.g., ambition) causes one to both pursue mentoring relationships and also to achieve other positive outcomes. For example, Ashford & Black (1996) reported that individual differences in desired personal control during organizational entry may lead to a different occurrence of behaviors (e.g., feedback seeking and relationship building, both relevant to mentoring) that may also be related to future work performance and satisfaction. However, one's

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motives and personal assets that may support success do not necessarily preclude the role of mentoring as an important function in that process.

Similarly, in informal mentoring programs, it is possible that mentors spontaneously select in advance the protégés who are clearly going to be successful (Arnold, 1997; Allen, Poteet, & Russell, 2000), and this may confound the study of outcomes in mentored versus non-mentored groups. It may be that the success of mentored individuals is predetermined by other factors, and mentoring is merely a by-product or a part of the process. Perhaps those who are destined for success receive mentoring, but those who may most need mentoring are afforded fewer mentoring opportunities or may be less likely to seek out such relationships.

However, this legitimate concern does not address two arguably more important issues. One, did this allegedly privileged group of protégés and their employers benefit from the existence of mentoring relationships in the organization, regardless of the protégés' previous status or how they were selected? Two, given that this concern mainly addresses informal mentoring relationships where the availability of these developmental opportunities may be nonsystematic, what different conclusions might we draw with respect to formal mentoring programs where relationships can be systematically targeted at a larger number of organizational members?

In contrast to formal mentoring programs that can be designed systematically, informal mentoring relationships will probably continue to be initiated privately by individual organizational members in diverse ways of their own choosing regardless of the preferences of researchers or the organizations' decision makers. Informal mentoring relationships are certainly not without benefit to those who are afforded these

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opportunities. However, mentoring researchers must consider whether they want to rely upon countless individuals to each apply science on their own accord to their private professional relationships. It seems a much more effective approach to target mentoring research towards those who will be applying it in a standard way across entire organizations over time. Further, standard mentoring programs may afford better research opportunities with less random variation than might be experienced when studying thousands of individually-designed mentoring relationships.

To continue to address concerns about the possible "select nature" of mentoring opportunities for protégés, this is neither unique to informal mentoring, nor is it necessarily a fault. Even formal mentoring programs are most often applied to those with great potential who are already "likely to be successful" (e.g., young executive leaders) because this approach may provide the best return on investment for mentoring programs, and the best retention of their added value, considering failure rates and turnover rates.

Personality and Mentoring

In mentoring relationships, the mentor and protégé each bring aspects of themselves to the relationship. One important domain of personal attributes is one's personality. The Five-Factor Model of personality (Costa & McCrae, 1992) may be a useful tool for the career development of organizational members via a variety of developmental endeavors (Lee, Johnston, & Dougherty, 2000).

In the Five-Factor Model, conscientiousness involves orderliness, thoroughness, and follow-through, and the importance the individual places on working hard to succeed and achieve results (Costa & McCrae, 1992). In mentoring relationships (either in formal or informal mentoring programs), there is generally little guidance, oversight, or accountability regarding the frequency, duration, or content of mentoring sessions. This

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is what Mischel (1977) would describe as a "weak situation," where situational constraints are fairly weak and therefore the effects of personality (or other personal attributes) may play a stronger role. Given the unstructured environment and low accountability, the dutiful coordination and attendance of regular mentoring sessions may therefore depend in part on the conscientiousness of both mentor and protégé. The content of mentoring sessions probably varies widely as well, from lighthearted social visits to directed discussion and feedback and perhaps homework assignments. Conscientiousness of mentors and protégés may therefore play an important role in mentoring relationships, contributing to attendance to mentoring tasks, attendance, and roles played by mentors and protégés that may contribute in turn to mentoring outcomes.

Agreeableness refers to behaviors of friendliness, altruism, and interpersonal flexibility, as contrasted with interpersonal rigidity and contentious behavior (Costa & McCrae, 1992). The formation of good relationships is vital to mentoring programs. In mentoring relationships, protégés and mentors alike are afforded an opportunity to meet privately and discuss personal history, strengths, weaknesses, concerns, goals, and insights in ways that transcend conventional modes of comfortable self-presentation between junior and senior members. General interpersonal friendliness may also prove useful in relationship formation. Finally, it seems likely that persons who contend with nearly everything that other people say (i.e., those very low in agreeableness) may have difficulty in forming and benefiting from good mentoring relationships. It therefore seems probable that agreeableness will play an important role in the formation of relationships with this degree of trust and interpersonal connection. Relationship

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formation may be regarded as an important proximal mentoring function that may be linked to the more distal outcome variables included in this study.

For some of the same reasons, openness may play an important role in mentoring relationships. Openness is described as a preference for variety, breadth of interests, imagination, and tolerance of a range of values (Costa & McCrae, 1992). If two people are to connect in a developmental mentoring relationship, it may be important to remain open to a variety of perspectives, as the mentor and protégé are unlikely to match on such a diverse collection of relevant issues. From the protégé's perspective, it may seem important to have a mentor who is open to listening to a wide variety of the protégé's concerns and providing a balanced perspective even when the protégé and the mentor possess disparate personal values, interest, goals, strengths, and challenges. From the mentor's perspective, it may seem desirable to be paired with a protégé who is open to a variety of the mentor's past experiences, and is also open to exploring and addressing difficult developmental issues via a variety of processes. Additionally, previous research on openness indicates that it is important for interpersonal compatibility, a factor that is likely to be relevant for close dyadic relationships in this developmental context (McCrae, 1996). Therefore it seems likely that openness will play an important role in mentoring relationships and may be linked to the proposed mentoring outcomes of mentor and protégé satisfaction with mentoring relationships and protégé performance.

Neuroticism refers to the degree to which people experience negative emotions including anxiety, anger, depression, and self-consciousness (Costa & McCrae, 1992). Considered in the context of mentoring relationships, it seems likely that those who score extremely high on neuroticism may have some difficulty in initially forming and

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benefiting from good mentoring relationships, but that these individuals might be the ones most in need of mentoring and the ones most likely to benefit. Individuals high in neuroticism may feel dissatisfied with their current state of affairs and therefore seek benefits from developmental processes, or instead they may become defensive regarding their own needs and challenges. Those who score extremely low on neuroticism may form relationships more easily, but may also feel well adjusted even without engaging in developmental processes and relationships. Given this mixed rationale, it seems that neuroticism may play an important role in developmental relationships, but that no systematic trends with clear implications are likely to emerge in the present research paradigm.

Extraversion refers to one's level of activity, sociability, and assertiveness (Costa & McCrae, 1992). In weak social situations (Mischel, 1977) such as unstructured social groups, it is likely that extraverts may more easily connect with others and form initial relationships. However, in a mentoring relationship two people (mentor and protégé) are specifically assigned with the purpose of scheduling one-on-one time together for the purpose of forming a developmental relationship. In this "strong situation" extraversion may play less of a role; all participants will probably engage in mentoring processes and form relationships in this setting, regardless of their scores on extraversion. Similarly, the assertiveness component of extraversion may exhibit itself to a lesser degree in this strong situation. Even in relaxed mentoring environments, the interplay of assertive behavior between the senior mentor and the junior protégé are likely to be somewhat prescribed by behavioral norms.

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Personality similarity

In mentoring relationships, the importance of personality is not limited to a consideration of the individual personalities of mentor and protégé alone. Mentoring is a concentrated relationship whereby two individuals interact. Accordingly, the interaction of the personal attributes of mentor and protégé are fundamental to this relationship. One way to examine this interaction is to consider the degree of similarity between mentor and protégé on various personal attributes.

Prior research has examined outcomes of similarity on numerous personal attributes (e.g., values, attitudes, beliefs, motives, personality) in different contexts with varying results. Two major competing theories have influenced the study of attribute similarity. The Similarity-Attraction theory proposes, with some supporting evidence, that similarity in personal attributes is positively related to interpersonal attraction (Byrne, 1971). Interpersonal attraction may be an important aspect of mentoring, particularly in the formative stage of these relationships. Therefore there is some reason to believe that personality similarity may contribute to positive mentoring relationships and their outcomes.

The Perceived Attributes model argues, with some supporting evidence, that the *desirability* of the other person's trait (rather than the similarity) is what drives interpersonal attraction (Ajzen, 1974, 1977). There is also limited evidence to support the idea that individuals sometimes value complementary, rather than similar, traits in others (Seyfried, 1977).

Additionally, the importance of personality similarity to mentoring relationships is not limited to interpersonal attraction alone. For example, personality similarity may

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also play a role in shared or complementary understanding and motives, interpersonal and work styles, confirming or expanding one's perspective, and the development of the relationship and its outcomes over time.

Because of the conflicting evidence with respect to these two major theories, and the numerous ways in which personality similarity might be related to mentoring processes and outcomes, it is difficult to develop specific hypotheses regarding personality similarity based on theories of interpersonal attraction alone. Fortunately there have been other studies in various contexts tying similarity in personality profiles to numerous positive outcomes; for example, members' in-group status with the leader (Phillips & Bedian, 1994), higher amounts of mentoring received (Scandura & Schriesheim, 1994), higher levels of protégé benefits (Barr, 2000), lower levels of relationship conflict, and higher ratings of contextual performance (Antonioni, 2001).

Similarity on other dimensions has also been tied to positive outcomes. Protégés have reported higher satisfaction in past studies when matched with their mentor by gender and culture (Hellman, 2000), and protégés have reported dissimilar attitudes, values, and beliefs with their mentor in their most negative mentoring relationships (Eby et al., 2000). Taken as a whole, research on the similarity of personal attributes in a variety of contexts seems to support the idea that similarity in personality profiles and other personal attributes may be beneficial.

Relationships over time

This study also examined differences between mentoring participants who invested high vs. low levels of time in mentoring sessions. One important part of this distinction is an exploration of how relationships change over time, and how this might

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relate to mentoring outcomes. There is at least some preliminary evidence for the idea that protégé benefits from mentoring seem to increase after the initial stages of the relationship (Pollock, 1995).

Perceptions of relationship quality are likely to form over time through repeated personal interactions that provide information on individual values, attitudes, interpersonal styles, and goals (Hinde, 1979). One way that individual characteristics interact over time is through the development of role identities that fit the relationship, the individuals, and the situation at hand, and that mutually reinforce the individuals' self-concept and self-esteem within the relationship (Swann, 1987). Therefore, it seems likely that the amount of time invested in mentoring relationships is an important moderator of other dynamics in mentoring relationships. For example, the role of personality may become more clear as relationships develop past initial formalities, and mentor roles may change over time as relationships grow and protégés develop.

Mentor roles

The theoretical background discussed thus far has addressed relationships between personality predictors and mentoring outcomes. In the previous section, it was stated that individual characteristics may interact over time through the development of role identities appropriate to the situation (Hinde, 1979; Swann, 1987). Based on this model it seems an appropriate hypothesis that mentor roles will mediate the relationships between personality predictors and outcome variables. Personality predictors as main relationship effects (on the proposed mentoring satisfaction and performance outcomes) may exhibit their effects via the differing roles that develop over time in individual dyadic relationships between mentors and protégés. These relationship roles, as

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measured by the Mentor Role Instrument in this study, may then be linked to important mentoring outcomes.

Eleven roles commonly played by mentors in mentoring relationships are described by Ragins and McFarlin (1990). The 11 mentor roles are organized under the two major mentoring functions, career development and psychosocial support. Mentor roles associated with career development include coaching, sponsorship in the organization, increasing visibility and exposure in the organization, providing challenging assignments, and protecting the protégé from adverse organizational forces. Mentor roles subsumed under psychosocial support include role modeling, providing general respect and support (friendship), helping protégés accept a professional identity (acceptance), problem solving and counseling, the parent role, and social interactions. These 11 mentor roles are assessed via protégé reports on the Mentor Role Instrument (Ragins & McFarlin, 1990).

Military vs. Graduate School Setting

A full discussion of differences and similarities between research participants in the two populations is given in the Method section. Mentoring relationships are likely to take on different characteristics in different settings, with different populations, and with different types of mentoring programs. One way that these differences may exhibit themselves is through roles played by mentors. Military mentors, as role models for young trainees, directly and saliently represent what the military cadets are soon to become (military officers) right down to prescribed behavior and values of the organization, rank, title, and style of dress. Therefore, it seems likely that military

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mentors will engage in higher levels of "role modeling" (one of the 11 roles from the Mentor Role Instrument) than will graduate school mentors/professors.

Graduate school advisors are probably more likely than military mentors to engage in the mentor roles "sponsorship", "exposure (or visibility)", "protecting", and "social interaction" due to their dual role as both mentors and supervisors/work partners of the protégés. In contrast, the military mentors resided outside of the protégés' chain of command and social network and therefore are probably less likely to engage in these four mentor roles. However, regardless of differences in roles played, it seems likely that some aspects of mentoring are robust enough to withstand differences in participants and settings. Therefore, it is hypothesized that mentoring setting (military or graduate school) will not moderate main effect relationships of personality (and personality similarity) with outcome variables.

The Present Study

A visual model of the study is included in Figure 1. In this study we examined the relationships of mentor and protégé personality (and personality similarity) with the outcomes of "satisfaction with the mentoring relationship" as rated by both mentors and protégés, and (for the graduate student sample only) "satisfaction with graduate school program" (as rated by protégés) and "advisor ratings of graduate student performance." Satisfaction with the relationship may be an important proximal outcome variable that is necessary to achieve the other more distal outcomes (e.g., job satisfaction or career advancement) used in many previous studies (Eby, et al., 2000; Ragins, Cotton, & Miller, 2000). Satisfaction with the graduate school program may also be an important outcome variable related to mentoring, because advisors play a close and important role in the experiences of many graduate students. To address these possibilities, it will be

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hypothesized that the outcome variables (advisor ratings of performance, protégé and mentor satisfaction with mentoring relationships, and graduate student satisfaction with the academic program) will positively relate to one another.

Advisor ratings of graduate student performance were chosen as an outcome for several reasons. Using the same rating instrument across departments allowed for a standard comparison of performance among various graduate school programs with disparate indigenous performance evaluation systems. Additionally, advisors may be best equipped to rate their graduate students due to their involvement throughout the graduate students' tenure. Further, supervisor ratings may display a more holistic approach to graduate student performance than other "objective" ratings such as GPA, number of publications, or classroom evaluations. Finally, advisor ratings reflect the advisor's legitimate role in the evaluation of their graduate student advisees.

This study also proposes "time invested" in mentoring sessions and "mentoring setting" (military or graduate school) as moderators of relationships between personality and outcome variables. As delineated in the literature review, we have reasons to believe that mentoring relationships may function differently in different settings, and also at different phases of the relationship. Mentor roles are proposed as mediators because they may reflect the process through which mentoring dynamics occur.

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Hypotheses

Hypothesis One: The outcome variables (advisor ratings of performance, protégé and mentor satisfaction with mentoring, graduate student satisfaction with the program) will relate positively to one another.

Hypothesis Two: The amount of time spent in mentoring sessions will relate positively to the outcome variables (advisor ratings of performance, protégé and mentor satisfaction with mentoring, graduate student satisfaction with the program).

Hypothesis Three: The outcome variables will bear a positive relationship with mentor and protégé conscientiousness, agreeableness, and openness; but not with neuroticism or extraversion.

Hypothesis Four: The outcome variables will be more positive when mentors and protégés have similar scores on personality dimensions.

Hypothesis Five: The relationships of personality and personality similarity with the outcome variables (i.e., Hypotheses Three and Four) will be moderated by time spent in mentoring sessions, with stronger positive outcomes as time increases.

Hypothesis Six: The relationships of personality and personality similarity with the outcome variables (i.e., Hypotheses Three and Four) will not differ by mentoring setting (civilian vs. military academic training settings).

Hypothesis Seven: The outcome variables will relate positively to the net strength of roles played by mentors, as measured by aggregate protégé ratings on the Mentor Role Instrument.

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Hypothesis Eight: The relationships between mentor roles and the outcome variables (i.e., Hypothesis Seven) will be moderated by time spent in mentoring sessions, with stronger positive outcomes as time increases.

Hypothesis Nine: Military mentors will display a higher degree of role modeling but a lesser degree of sponsorship, providing exposure in the organization, protecting from adverse organizational forces, and social interaction when compared with civilian mentors on the Mentor Role Instrument.

Hypothesis Ten: Despite the differences in mentor roles by setting proposed in Hypothesis Nine, the overall relationships between the outcome variables and the net strength of roles played by mentors (i.e., Hypothesis Seven) will exhibit no substantive differences by mentoring setting (civilian vs. military academic training settings).

Hypothesis Eleven: The relationships of personality and personality similarity with the outcome variables (i.e., Hypotheses Three and Four) will be mediated by the net strength of roles played by mentors.

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CHAPTER II

METHOD

Participants

Research participation was solicited in two separate locations, a military and a civilian institution of higher education. Response data was obtained from 272 respondents; 195 protégés and 77 mentors. At least some data (e.g., a response from the mentor or the protégé in one relationship but not both) were available on 200 mentoring relationships. Among those 200 relationships, fully matched data (i.e., a response from both the mentor and the protégé in the same relationship) were available on 116 mentoring relationships.

Military sample. Participants in the military sample consisted of 66 senior officer candidates in training in an undergraduate military training institution serving in the role of protégé. The cadet protégés were also serving in the setting's highest leadership positions in command of approximately 100 to 4000 other trainees depending on the position. The average participant's age was 21 years, reflecting their junior, developmental status as protégés. Consistent with the setting's demographics, protégé participants were mostly white (88%) and male (76%).

Protégés entered the mentoring relationships as part of an advanced academic course, which was designed for top leaders among the officer trainees. This course required the trainees to participate in a mentoring relationship outside of class in order to gain additional support, guidance, and role-modeling while serving in top leadership

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positions and developing into military officers. While some trainees may have been able to select from the volunteer pool a mentor whom they previously knew, most were not previously familiar with their mentors. This fact, and the mandatory, systemic nature of mentor/protégé assignment qualifies this arrangement as a formal mentoring program (as opposed to informal mentoring relationships). However, unlike some mentoring arrangements, these mentors and protégés are less likely to end up working side by side in the same operating unit, although they do share both a history and a future in the overall organization and culture of their branch of the military.

Protégé participants were paired with their mentors (N=29; some had more than one protégé) for data gathering purposes. Mentors consisted of active duty officers serving a tour of duty as command staff, faculty, or in a variety of other functions in other organizations at this military training base. Mentors were selected from a pool of officers who had volunteered to serve in this role. The average age of the mentors was 42, reflecting their middle-to-senior status with a wide variety of previous career experiences. With respect to other major demographic variables, mentors were very similar to protégés - predominately male (76%) and white (93%).

Civilian sample. Participants included faculty (N=48) and graduate students (N=129) in five different academic departments at a state-sponsored civilian university. Protégés were mostly female (68%) and white (85%), whereas mentors were mostly male (77%) and white (85%). The average age of protégés was 34 (some academic departments had different age profiles than others). The average age of mentors in the civilian setting was 54.

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Graduate students in general may be described as select young professionals or pre-professionals in training with existing master's and/or bachelor's degrees. Most graduate students have formally assigned mentors, usually their advising professor. However, mentoring processes and pair assignment may vary between departments.

Not all faculty/graduate student advising relationships qualify as mentoring relationships. Participants were selected based on the following criteria: relationship duration of at least six months with relationship content including supportive personal interaction based on the mentor's knowledge, experience, abilities, resources, or other characteristics in the interest of the protégé's development. "Development" was broadly defined to include career or personal development as well as development through the processes inherent in graduate school (e.g., developing skills in research and practice in the chosen field), if those processes extended beyond mere instruction, evaluation, or administrative requirements (e.g., planning academic schedules). The interpretation of these guidelines for inclusion in the study relied somewhat on the judgment of the faculty member. However, in practice these decisions were often made in discussions between the researcher and the faculty member, and numerous faculty/graduate student relationships were excluded from the study based on these criteria.

As compared with the military sample where nearly all participants were commissioned as officers within six months, graduate students were at varying degrees of progress towards starting or continuing their careers. Average tenure with the current mentor was 48 months; no data was available on career or program status, or amount of time in the academic program.

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In the graduate student sample, mentoring relationships are tied to other socio-cultural aspects of the academic department (e.g., departmental politics, social events, administrative decisions, specific task involvement, evaluation of students by their advisors). This is an important difference; in the military sample the mentors are taken from outside of the cadets' chain of command and there is little task or social involvement outside of mentoring. While mentoring of graduate students might involve specific content and progression through a program of research, exams, teaching and applied scientific work, mentoring with military cadet leaders is more likely to involve general leadership development, specific leadership problems or issues, military career mentoring, and role modeling professional identity within an established culture.

Procedure

Military sample. Protégés and mentors began their mentoring relationships near the beginning of the academic semester in August 2001. The formal aspect of this mentoring program did not extend past a formal requirement to engage in mentoring, and the assignment of mentors and protégés. That is, as in most mentoring programs or informal mentoring relationships, mentors and protégés were relatively free to engage in whatever mentoring process they desired. In most cases this consisted of several (usually between five and fifteen) informal one-on-one private advisory mentoring sessions of approximately one hour in length.

The mentoring program was presented to mentors and protégés as an opportunity for protégés to interact with experienced role models who are in a position to offer advice and support on general leadership issues, on personal and career development, and on specific leadership problems that the cadet commanders may currently be facing. However, because the sessions were private we do not know precisely what transpired in

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the mentoring sessions. The Mentor Role Instrument was provided as one way to assess what roles mentors played in these mentoring relationships.

Near the end of the semester (in December), mentors and protégés completed an assessment package to be used in a mentoring database for a variety of follow-on studies. Assessment packages were distributed to cadet protégés in their classroom environment with instructions; most cadets required additional time outside of class to complete the somewhat lengthy data packages. Assessment packages with instructions were distributed and collected from mentors via local distribution.

The assessment package included measures of perceived mentoring effectiveness, as rated on the Mentoring Satisfaction Questionnaire by both mentors and protégés. The package also included the protégé's assessment of roles played by the mentor in the Mentor Role Instrument. Personality self- and other-ratings were completed by both mentor and protégé (on themselves and on their protégé/mentor). Demographic information and mentoring program information (e.g., number and duration of mentoring sessions) were collected in the same package. Finally, a proxy for organizational commitment was obtained when protégés anonymously reported the intended duration of their future military career.

Graduate student sample. Participation was solicited from faculty members via email, phone, and personal contact. Faculty members who agreed to participate received data packets and were asked to verify which of their advisees from the list were still current and would meet the following criteria for a "mentoring relationship": relationship duration of six months or more with at least some interaction in the interest of the

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protégés' development based on the faculty members' expertise, experience, knowledge, background or other characteristics.

Once a list of viable mentoring relationships was established, data packages were delivered to both mentors (faculty) in person and protégés (graduate students) via campus mail, graduate student mailbox, or via postal mail. Mentor-protégé paired data was tracked via a confidential advisor and advisee pairing number. Packages were filled out on the participants' time and were returned via campus mail, mailbox, or postal mail.

Measures

Demographic and contextual information. Copies of all measures may be found in Appendix A. Table 1 reports sample sizes, means, standard deviations, and alpha reliabilities for major variables. In addition to the study variables, certain demographic information was obtained to assess subgroup differences. Gender, race, and age data were gathered from both mentors and protégés. Protégés were also asked to report their academic department (in case mentoring functions vary by setting and program type), the amount of time with this advisor, the frequency and duration of meetings with the advisor, whether they had ever changed advisors, and what factors may have influenced their choice of or assignment to this particular advisor. Protégés were also asked to report their satisfaction with the academic department.

Mentoring satisfaction questionnaire. This 12-item, seven-point Likert scale questionnaire was replicated from use in a previous study. Items in this questionnaire are directed at general satisfaction with one's mentor or protégé. Sample items include "My protégé/mentor has been effective in his or her role" and "If I could switch mentors/ protégés, I would" (reverse scored). One of the 12 items was removed from the final

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analysis; namely "I am comfortable discussing personal or professional issues with my mentor/protégé" (item 9). This item was removed for several reasons: it was poorly worded (assessing two dimensions), some respondents wrote two numbers to reflect the two different questions, and factor analysis of the items revealed two factors: one factor reflecting 11 of the 12 questionnaire items, and a second factor reflecting this problematic item. After removing the item, the alpha reliability coefficient of this scale was .95.

Mentor role instrument. Roles mentors played in the mentoring relationships were reported by protégés on the 37-item Mentor Role Instrument (MRI) on a seven-point Likert scale. The MRI assesses 11 lower-order roles associated with the two higher-order mentoring functions, career development and psychosocial support. The broad career development function encompasses the MRI mentor role scales of sponsorship, coaching, protecting the protégé from adverse forces, providing challenging assignments, and increasing visibility and exposure. The broad psychosocial support function subsumes the MRI mentor role scales of helping protégés accept a professional identity (acceptance), problem solving and counseling, providing general respect and support (friendship), role modeling, parent role, and social interactions (Ragins & McFarlin, 1990). Sample questions included "My mentor suggests specific strategies for achieving career aspirations" (the coaching role) and "My mentor provides support and encouragement" (the friendship role). Alpha reliability coefficients of each of the 11 lower order role scales ranged from .60 to .90 (most were .80 or above).

Advisor ratings of graduate student performance. Mentoring advisors completed eight items on a five-point Likert scale for this instrument (designed for this study) to report their protégés' graduate student performance. Scale anchors were written in a

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normative fashion ("rate this advisee's performance in comparison to all your current and past advisees" scaled from "bottom 20% of advisees" to "top 20% of advisees") in an attempt to reduce the range restriction often associated with rating inflation on performance measures. Mean protégé performance ratings (in Table 1) were 3.9 on a five-point scale, indicating that rating inflation was probably not extreme especially given that mentored individuals may outperform non-mentored individuals (Allen, Eby, Poteet, & Lentz, 2002), and not all graduate student relationships with advisors qualified as mentoring relationships. Further, as reported in Table 1, the performance measures displayed adequate variance for purposes of analysis.

The eight questions pertained to graduate students' performance as a classroom student, as a teacher, as a researcher, in their applied/practicum work, their formal exam performance, citizenship in the department, career preparedness, and overall performance. Sample items include "My advisee's classroom performance (as a student)" and "My advisee's teaching performance." The "not applicable" response was presented because not all graduate programs utilize all of these performance dimensions. A factor analysis of the items revealed strong loadings onto only one factor; the scale's alpha reliability coefficient was .95.

Mentor and protégé personality. Mentors and protégés both completed self-ratings of their personality profile via the NEO-FFI 60 item short form (on a five-point Likert scale). The NEO-FFI is based on the "Big Five" personality dimensions, which have been generally accepted and widely used to measure personality profiles. The short form was chosen because it is less time consuming for participants and displays similar results to the long form. The five major personality dimensions measured by the NEO-

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FFI include conscientiousness, agreeableness, extraversion, openness, and neuroticism (Costa & McCrae, 1992). Alpha reliabilities of the scales for the five personality dimensions ranged from .76 to .85 for this study.

Personality similarity. Similarity of mentor and protégé personality dimensions were computed as the absolute value of differences between mentor and protégé "Big Five" scores on each dimension at the scale level. A global similarity index was computed as the summed differences across the five dimensions. Reliabilities for similarity or difference scores are a function of the reliabilities of each of the individual measures (i.e., of mentor and protégé personality scale reliabilities), of the standard deviations of those scales, and of the correlations between the two scales, in this case the correlations between mentor and protégé scores on personality scales. The use of difference or similarity scores can sometimes create problems with reliability, especially if the original scales are correlated or if they have low reliabilities (Crocker & Algina, 1986). However, in this study personality scales between mentors and protégés had very low correlations and they also had reasonable reliabilities. Reliabilities of personality similarity scores for the personality dimensions used in this study ranged from .76 to .81.

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CHAPTER III

RESULTS

Descriptive Statistics

Descriptive statistics are reported in Table 1. On a seven-point scale, mentors ($\bar{X}$ =5.67, s.d.=1.27) and protégés ($\bar{X}$=5.74, s.d.=1.15) across the entire data set (military and civilian combined) were generally satisfied with their mentoring relationships. Protégés in the civilian sample on average rated their satisfaction with the academic program as between "neutral" and "somewhat satisfied" ($\bar{X}$=3.83, s.d.=1.23 on a 5 point scale).

The hours invested to date in the mentoring process varied widely ($\bar{X}$=28.7, s.d.=65.4), particularly when comparing time invested in the military setting ($\bar{X}$=5.3, s.d.=3.9) to time invested in the civilian setting ($\bar{X}$=47.6, s.d.=83.3). The military mentoring program was only for one semester but some civilian graduate students had worked with the same advisor for years. This wide disparity in mentoring time invested justified an extra consideration for the military vs. academic samples, lest any subsequent analyses involving time invested reflect only the split between the two samples.

Initial analyses also indicated the possibility of other functional mentoring differences between the two settings (military and civilian). Therefore, additional analyses, reported below, were conducted throughout in order to look for differences by setting. Further, the definition of "setting" was extended beyond the originally proposed

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comparison between military and civilian samples, adding a consideration of two major academic department settings which yielded the majority of the civilian data.

Mentoring satisfaction levels and personality profiles were at comparable levels across settings. Advisor performance ratings were only available in the civilian sample, but did not vary by department. Time invested in mentoring did vary by setting and varied more in the civilian sample where mentoring relationship tenure was not restricted to one semester (military $\bar{X}$=5.3 hours, s.d.=3.9; civilian $\bar{X}$=47.6 hours, s.d.=83.3).

Mentors scored highest on the mentor roles of coaching and role modeling (especially in the military sample); counseling, friendship, acceptance, and providing challenging assignments (mainly in the civilian sample); all above 5.0 on a 7-point scale. Generally lower levels of parenting and social interaction roles (less then 3.0 on a 7-point scale) were reported with these two samples taken as a whole. Descriptive statistics in Table 1 also give the appearance that role prevalence in the civilian sample was reported in a varied and continuous way across roles. In contrast, in the military sample mentors apparently played more discrete roles. In the military sample, mean scores on five of the roles (coaching, friendship, role modeling, counseling and acceptance) were reported at well above 5 (on a 7-point scale), but the other six roles were all reported around the 3.0-3.5 range.

Advisor ratings of graduate student performance averaged ($\bar{X}$=3.9, s.d.=.91) right around the scale anchor of "above average", or in the 61-80 percentile relative to all of the advisor's past and current advisees. This could reflect typical rating inflation on performance measures or other method bias, or could be related to some other more interesting systemic variance associated with mentored vs. non-mentored graduate

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students (which is not addressed in this study). Nonetheless, the standard deviation scores amongst the performance measures indicate adequate variance between subjects for our purposes in this study.

Reported neuroticism for protégés ($\bar{X}$=16.2, s.d.=8.7) and mentors ($\bar{X}$=12.2, s.d.=7.1) was well below national norms for adults ($\bar{X}$=19.1, s.d.=7.9) and college students ($\bar{X}$=24.6, s.d.=7.7). This was the only one of the five personality dimensions in this sample that differed noticeably from national norms.

Correlations

The initial correlation indices include only the global indices of proposed outcome, moderator and mediator variables (see below for analysis of the subscales of these outcome variables and for the major independent variable - personality). Results for different sample groups are reported in Tables 2 through 4.

Correlations among outcome variables (Hypothesis One). Protégé and mentor satisfaction with the mentoring relationship were significantly related ($r=.51$, $p<.001$) indicating general agreement among mentors and protégés regarding the quality of the relationship and partial support for Hypothesis One. However, the protégés' satisfaction with the academic department (available in the civilian sample only) did not significantly relate to the other satisfaction indices.

Correlational analyses were also conducted to compare satisfaction indices with each of the graduate student performance dimensions as reported by the mentor. Significant relationships were found between protégé satisfaction and aggregate protégé performance as rated by the mentor ($r=.25$, $p<.05$), protégé performance on research ($r=.26$, $p<.05$), practicum ($r=.40$, $p<.01$), and program citizenship ($r=.31$, $p<.01$).

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Protégé satisfaction with the academic department did not significantly relate to any performance dimensions. Mentor satisfaction was very strongly and significantly related to each of the eight graduate student performance dimensions as rated by the mentor, and to aggregate performance ($r=.80$, $p<.001$). These significant relationships provide additional support for Hypothesis One.

Time invested and mentoring outcomes (Hypothesis Two). To address Hypothesis Two, and as a precursor to other hypotheses proposing time invested as a moderator, time invested was correlated with all major outcome variables and with aggregate mentor roles as a measure of the strength and intensity of roles played by mentors in the relationship. All analyses involving time invested were conducted separately on the military and civilian samples due to large quantitative (and possibly qualitative) differences between the two samples on time invested in mentoring. Results for different samples are reported in Tables 2 through 4.

Hypothesis Two proposed that time invested in mentoring would relate positively with the outcome variables. Time invested in mentoring correlated significantly ($r=.23$, $p<.01$) with protégé satisfaction, but not with mentor satisfaction, nor (in the civilian sample) with protégé satisfaction with the department, nor with performance at the composite level, and only with one specific performance dimension. In the civilian sample where performance data was available, time invested related significantly only to practicum performance ($r=.36$, $p<.01$), and Hypothesis Two was only given limited support.

Time invested and mentor roles. Time invested also was significantly related ($r=.24$, $p<.01$) to mentor roles at the global level, which was not hypothesized *per se*.

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However, this result begins to justify proceeding with Hypothesis Eight, which proposes time invested as a moderator of the relationships between mentor roles and the outcome variables. Protégé reports of mentor roles (at the global level) also related to the protégé performance composite as rated by advisors ($r=.26$, $p<.05$), providing further justification for the moderation analysis.

At the level of specific mentor roles (rather than aggregate), time invested in mentoring related to protégé reports of the strength of roles played by mentors in the sponsorship role ($r=.25$, $p<.01$), the protecting role ($r=.22$, $p<.01$), providing challenging assignments ($r=.37$, $p<.001$), providing exposure in the organization ($r=.26$, $p<.01$), and the friendship role ($r=.16$, $p<.05$).

Personality and outcomes (Hypotheses Three and Four)

To address Hypotheses Three and Four, analyses of the main independent variables (personality of mentor and protégé and personality similarity between mentor and protégé) was started by computing correlation indices between each of the personality dimensions and all of the outcome, mediator or moderator variables (time invested, setting, global mentor roles and 11 role subscales, global protégé performance and eight protégé performance dimensions). Sixteen personality dimensions were used: five protégé personality dimensions, five mentor personality dimensions, five similarity comparisons and one net similarity index (total similarity summed across the five personality dimensions). For analyses involving time invested in mentoring, analyses were conducted separately on the military and civilian samples due to the large differences in timeframes for mentoring relationships in the two settings. The entire series was also conducted on various subsets of the data based on setting (military only,

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civilian only, and two departments in the civilian setting) to see if personality correlates to mentoring outcomes varied by setting and program. Because of the volume of data only significant results (by setting) that are different from the overall data set are reported in the text.

Main protégé personality effects. Among the satisfaction indices for the entire sample (at both settings combined), protégé conscientiousness and extraversion provided the only significant links to outcome variables. Protégé conscientiousness was positively related to protégé satisfaction ($r=.20$, $p<.05$) and mentor satisfaction ($r=.20$, $p<.05$), and also to time invested in mentoring ($r=.21$, $p<.01$). Protégé extraversion was positively related to the protégés' satisfaction with the academic department ($r=.23$, $p<.05$). In the civilian sample only, protégé extraversion related to protégé satisfaction ($r=.23$, $p<.05$). In one department only in the civilian setting, protégé openness was related to mentor satisfaction ($r=.41$, $p<.05$).

Scores on performance indices did not differ noticeably between departments in the civilian sample (and were not available for the military sample). For protégé personality the most salient of the personality dimensions was conscientiousness. Protégé conscientiousness bore significant relationships with global protégé performance ($r=.28$, $p<.05$), performance in teaching ($r=.36$, $p<.05$), research ($r=.35$, $p<.01$), program citizenship ($r=.29$, $p<.05$), and career preparedness ($r=.26$, $p<.05$). The other protégé personality dimensions were less salient. Protégé openness was significantly related only to classroom performance ($r=.29$, $p<.05$). Protégé neuroticism related to career preparedness ($r=.29$, $p<.05$). Protégé agreeableness and extraversion did not significantly correlate with any of the performance dimensions.

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Main mentor personality effects. The mentor's personality related to mentor satisfaction with the mentoring relationship, but not to protégé satisfaction with mentoring nor with the academic department. Mentor satisfaction was positively related to mentor conscientiousness ($r=.23$, $p<.05$) and negatively related to mentor neuroticism ($r=-.23$, $p<.05$). Interestingly, despite this negative relationship mentor neuroticism was positively related to time invested in mentoring. In fact, most of the five mentor personality dimensions were related to time invested in mentoring (recall that among protégé personality dimensions, only conscientiousness was related to time invested in mentoring). Time invested in mentoring positively related to mentor neuroticism ($r=.21$, $p<.05$), mentor openness ($r=.29$, $p<.01$), mentor conscientiousness ($r=.19$, $p<.05$), and negatively related to mentor extraversion ($r=-.27$, $p<.01$).

Among the protégé performance indices, mentor openness had by far the most significant relationships; lacking a significant relationship with only teaching and practicum performance (of the eight performance dimensions). Mentor openness related to the protégé performance composite ($r=.26$, $p<.01$), protégé classroom performance ($r=.27$, $p<.01$), research performance ($r=.22$, $p<.05$), exam performance ($r=.19$, $p<.05$), program citizenship ($r=.27$, $p<.01$), career preparedness ($r=.26$, $p<.01$), and overall performance as rated by the advisor ($r=.27$, $p<.01$). Mentor extraversion yielded negative relationships with protégé performance, significantly correlating with classroom performance ($r=-.19$, $p<.05$) and overall performance as rated by the advisor ($r=-.20$, $p<.05$). Mentor neuroticism related (negatively) only to teaching performance ($r=-.24$, $p<.05$), mentor conscientiousness related only to practicum performance ($r=.25$, $p<.05$),

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and mentor agreeableness did not relate significantly to any of the protégé performance variables.

As a whole, these relationships of outcome variables with mentor and protégé personality variables provide mixed support for Hypothesis Three. As hypothesized, mentor and protégé conscientiousness and openness both yielded positive relationships with outcome variables (satisfaction and performance indices). However, contrary to the hypothesis neither mentor nor protégé agreeableness displayed significant relationships with outcomes. Also contrary to the hypothesis, there were some relationships between neuroticism and mentoring outcomes (where it was hypothesized that there would be none), although they were fairly limited. Extraversion also contradicted the hypothesis by showing relationships with outcome variables (and, notably, for mentors and protégés these were opposite relationships - protégé extraversion having positive (marginal) relationships with outcomes, and mentor extraversion having negative relationships with outcomes).

Personality similarity main effects. The degree of personality similarity (on each personality dimension, and globally) between protégé and mentor did not relate to time invested in mentoring. For the satisfaction indices, similarity on conscientiousness was significantly related to protégé satisfaction with the academic department ($r=.30$, $p<.01$).

For the performance scores, significant results by personality similarity were scarce. The net similarity, and similarity on conscientiousness, agreeableness, openness, and extraversion yielded no significant relationships with protégé performance. Similarity on neuroticism related negatively with protégé career preparedness ($r=-.29$, $p<.05$). As a whole, Hypothesis Four was not only poorly supported, but was

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contradicted in one case. Only similarity on conscientiousness related to any positive outcomes, as hypothesized. Similarity on neuroticism yielded a negative relationship with one outcome variable, contrary to the hypothesis which proposed positive relationships.

Mentoring setting

Given the differences in mentoring setting between the two samples, a few preliminary analyses are in order before addressing specific hypotheses regarding mentoring setting (military vs. academic training setting). Mentoring setting has been proposed as a moderating function of main relationships between mentoring outcomes (satisfaction and performance) and their proposed correlates of mentor and protégé personality (and personality similarity) and mentor roles. Prior to testing this model, preliminary correlations were analyzed for mentoring setting with other variables of interest. We have already identified from previous analyses that performance ratings and mentor and protégé personality did not vary by mentoring setting (with the exception of neuroticism being below national norms in both samples, which is likely the result of social desirability faking on the scale).

Personality similarity was also compared across settings by running simple correlations between setting and the personality comparisons. In the military sample mentors and protégés were more similar on extraversion ($r=.31$, $p<.001$), agreeableness ($r=.18$, $p<.05$) and net similarity across the five personality dimensions ($r=.27$, $p<.01$).

Comparing across the satisfaction indices, military mentors reported slightly (but significantly) more satisfaction with their mentoring relationships than did mentors in the

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civilian sample ($r=.17$, $p<.05$) even though there was much less time invested in mentoring relationships in the shorter term military mentoring relationships.

As indicated by the descriptive statistics, time invested in mentoring varied widely by mentoring setting with more time invested in the civilian sample. This effect was highly significant ($r=.32$, $p<.001$) . This is not surprising as (at the time of data collection) the military sample had engaged in a one-semester mentoring commitment with a previously unknown mentor; whereas in the civilian sample many graduate students had been working with their advisor in a mentoring capacity for months or years during their academic program.

Protégé satisfaction did not vary significantly by mentoring setting (military vs. civilian), and data on protégé satisfaction with the academic department was only available in the civilian sample so no comparisons were possible on this variable. Mentoring setting comparisons were also made across the two major departments where the majority of the data was gathered in the civilian sample. There were no significant differences on personality, satisfaction indices, time invested, performance or roles by civilian academic department; therefore, no results are reported here.

Time invested in mentoring by setting. One more series of analyses is in order before continuing to address the hypotheses. Time invested in mentoring was tested as a moderating function in subsequent hypothesis tests. Due to the differences in time invested in mentoring in the two major settings (military vs. civilian) and possible qualitative differences between the settings, correlations between time invested and all major variables were conducted separately in each setting and also separately in the two

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major departments in the civilian setting in order to provide context for these analyses. Due to the volume of data, only significant results will be reported here in the text only.

In the military sample, time invested in mentoring did not relate significantly to any personality variables at the .05 level. Performance variables were not available in this sample, and relationships between time invested and satisfaction indices did not vary significantly by setting.

In the civilian setting the relationships between personality and time invested were more significant. In contrast to the military sample, protégé extraversion did not relate to time invested, and a significant relationship between time invested and mentor neuroticism was only found in one academic department ($r=.43$, $p<.05$). In the civilian sample the relationship between protégé conscientiousness and time invested was more significant ($r=.28$, $p<.01$) than in the military sample. Two additional relationships were found that did not exist in the military sample: time invested in the civilian sample related to mentor openness ($r=.24$, $p<.05$), and to mentor conscientiousness ($r=.32$, $p<.01$).

Performance scores were only available in the civilian sample, and did not vary by academic department. In the civilian sample, time invested in mentoring related positively to practicum performance ($r=.36$, $p<.01$).

Time invested was also checked against mentor roles in all settings. Time invested correlated significantly, with moderate to strong positive relationships, with the global role score ($r=.43$, $p<.001$ in the overall sample) and nearly all of the specific mentor roles. These relationships are investigated further (below) when time invested is analyzed as a moderator of relationships between mentor roles and outcome variables (Hypothesis Eight). The existence of numerous relationships between mentor roles and

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time invested helps provide justification for analyzing time invested as a moderator. Having analyzed mentoring setting and time invested from various approaches to provide context relevant to the remainder of the model (and having established some of the necessary links for moderated models), we can resume with hypothesis testing.

Personality outcomes moderated by time invested (Hypothesis Five)

All subsequent moderation and mediation analyses were conducted on multiple levels (global and specific) of independent, dependent, and moderator (or mediator) variables and in multiple settings (military, civilian, and two civilian departments). Due to the large number of analyses only significant results will be reported here. We already know from previous results that many of the possible analyses do not fit the initial criteria for moderation or mediation - i.e., where the independent and dependent variables do not relate to each other, or the moderator variables do not relate to the independent variables, results are not reported. However, the discussion section will reflect the overall context of both significant and null results.

The first moderation analysis proposed that time invested in mentoring moderates relationships between personality variables (protégé, mentor, and similarity) and outcomes (protégé and mentor satisfaction with mentoring, protégé satisfaction with the department, and protégé performance). Performance data were only available for the civilian sample. For all analyses proposing time invested as a moderator, the military and civilian samples were analyzed separately due to large differences in time invested (between a one-semester formal mentoring program in the military sample and a graduate student's tenure in the civilian sample) that would make moderation by time little more than a proxy for mentoring location. Moderation tests were conducted by multiple

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regression with the outcome variable: in Step One, the independent variable and the proposed moderator were entered; in Step Two the interaction term (independent variable x moderator variable) was added, and if this term is significant in Step Two we have evidence of moderation. Because moderators are generally difficult to detect, an alpha of .10 on the interaction term may be regarded as significant (Pedhazur, 1997).

In the military sample, none of the personality variables related to time invested in mentoring, therefore with no further tests we can state that the proposed moderated model (by time invested) is not supported in this sample. In the civilian sample, several moderation tests are possible, having met the initial criteria for moderation (relationships between independent and dependent variables, and between the moderator variable and both the independent and dependent variables). Protégé and mentor conscientiousness, and mentor openness all have significant relationships with time invested and one or more protégé performance dimensions.

The test for time invested in mentoring as a moderator of the relationship between protégé conscientiousness and protégé performance is reported in Table 5. When the interaction term was added to the equation, it did reach significance (ΔR^2=.044, $\underline{p}$=.072) by Pedhazur's (1997) .10 criterion, indicating that the relationship between protégé conscientiousness and protégé performance is moderated by time invested in mentoring. However, when the moderating effect was plotted at different levels of time invested, no apparent moderating trends could be detected at this level of analysis, likely due to a suppression effect among variables in Step 2 of the model. Therefore we cannot conclude support for Hypothesis Five based on this result.

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The test of time invested in mentoring as a moderator of the relationship between mentor conscientiousness and protégé practicum performance is reported in Table 6. The interaction term was significant (ΔR^2=.098, p=.02), indicating that time invested moderates the relationship between mentor conscientiousness and protégé practicum performance.

The nature of moderating relationships can be reported graphically as linear functions at different levels of the moderator, in this case at the mean value of the moderator, at one standard deviation above the mean, and at one standard deviation below the mean (Aiken & West, 1991). A plot of the interaction is reported in Figure 2. Among high-conscientiousness mentors, protégé practicum performance was higher when low amounts of time were invested in mentoring. Among low-conscientiousness mentors, protégé practicum performance was higher when high amounts of time were invested in mentoring. As portrayed in the graph, this was a crossover interaction where protégé practicum performance went up as mentor conscientiousness went up in the low time-invested group, and protégé practicum performance went down as mentor conscientiousness went up in the high time-invested group. The directionality of this moderating effect contradicts Hypothesis Five, which proposed that main relationships between personality and outcome variables would exhibit themselves more strongly with higher amounts of time invested in mentoring.

The last time-invested moderation test in this series involves the relationship between mentor openness and aggregate protégé performance. Results are reported in Table 7. The interaction term was not significant (ΔR^2=.007, p=.467), indicating no moderation and no support for Hypothesis Five from this result.

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Personality outcomes moderated by mentoring setting (Hypothesis Six)

Similar moderation tests were conducted on the relationships with personality and the outcome variables, with mentoring setting proposed as the moderating variable. Hypothesis Six proposed that personality main effects would not vary by setting (tested as moderation with a null hypothesis). The only outcome variables that were common to the entire data set (i.e., both the civilian and military sample) were mentor and protégé satisfaction with the mentoring relationship, and neither met the initial criteria for moderation tests, supporting Hypothesis Six with the null result. However, to extend the original hypothesis to tests within the civilian sample, two relationships met the initial criteria for moderation tests by mentoring setting, where mentoring setting is defined as two different academic departments within the civilian university.

The relationship between protégé conscientiousness and aggregate protégé performance was tested for moderation by mentoring setting in the civilian sample. Results are reported in Table 8. Moderation was not significant (ΔR^2=.007, p=.522). This indicates that the relationship between protégé conscientiousness and protégé performance was not moderated by academic department setting, and provides further support for Hypothesis Six.

The relationship between mentor conscientiousness and protégé practicum performance also fit the criteria for moderation tests by mentoring setting in the civilian sample. Results are reported in Table 9. The interaction term was not significant (ΔR^2=.010, p=.504), indicating no moderation and support for Hypothesis Six. Overall Hypothesis Six was supported, as none of the relationships between personality and outcomes were moderated by mentoring setting.

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Mentor roles and outcomes (Hypothesis Seven)

Hypothesis Seven proposed that aggregate mentor roles would relate positively to the outcome variables. Protégé satisfaction with mentoring bore a strong significant relationship with the net intensity of mentor roles played in the relationship ($r=.74$, $p<.001$) as reported by protégés, providing support at the global level for Hypothesis Seven. Protégé satisfaction with the academic department (data available in the civilian sample only) yielded no significant relationships with the global role score and none with any of the 11 specific mentor roles.

Mentors' reported satisfaction with the mentoring relationship was also highly related to aggregate protégé reports of roles ($r=.43$, $p<.001$) played by mentors in the relationship (again supporting Hypothesis Seven), though less strongly than those roles related to protégé satisfaction as reported above.

To extend the hypothesis from the aggregate mentor role score to specific role dimensions, protégé satisfaction bore moderate to strong (and highly significant) relationships with protégé reports of each of the 11 mentor roles played (or not played) in the relationship. Mentor satisfaction also related significantly to most of the specific mentor roles as reported by the protégé, with only "providing challenging assignments", and "social interaction" roles not relating significantly to mentor satisfaction. These relationships between specific mentor roles and satisfaction extend and provide further support for Hypothesis Seven.

Moving from satisfaction to performance, the global mentor role score correlated significantly with four of the graduate student performance dimensions including their performance in research ($r=.28$, $p<.05$), performance in practicum ($r=.38$, $p<.01$), as a

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good citizen in the program ($r=.32$, $p<.01$), and overall performance as rated by the advisor ($r=.27$, $p<.05$). These relationships between mentor roles and specific performance dimensions further support Hypothesis Seven.

At a different (reversed) level of analyses from the previous results, the *global* performance index was correlated with each of the specific mentor roles, and significant correlations were found for several of the 11 mentor roles. Aggregate advisor ratings of graduate student performance were positively related to protégé reports of the mentor's amount of sponsorship ($r=.23$, $p<.05$), coaching ($r=.26$, $p<.05$), and acceptance ($r=.27$, $p<.05$) roles played in the relationship, further supporting Hypothesis Seven.

Finally, the full correlation index of each of eight performance items and 11 mentor roles was computed to look at the lowest level of analysis to be used in this series. The mentor role of "coaching" bore the most relationships and was significantly or marginally significantly correlated with six of the eight performance dimensions; mentor roles of sponsorship, protecting, counseling, acceptance, friendship and exposure also yielded significant relationships with at least some of the performance dimensions. Only the mentor roles of social interaction, parent role, role modeling, and providing challenging assignments yielded no significant relationships with performance dimensions in the overall sample. These specific relationships extend and provide further support for Hypothesis Seven.

Looking from the other direction in the same analysis, the most prevalent performance dimensions in this analyses were performance in practicum, citizenship in the program, and research and classroom performance; each of which yielded significant or marginally significant relationships with several of the 11 mentor roles. Only

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performance in terms of career preparedness bore no significant relationships. For this entire series, it is important to note that the significant relationships were obtained from different individuals on different measures - protégés reported the mentor roles, and mentors reported the protégés' performance, perhaps ameliorating some concerns regarding halo and method bias in these measures. As a whole, the last several paragraphs (reporting numerous significant relationships between mentor roles and satisfaction or performance outcomes) support Hypothesis Seven and extend the hypothesis beyond the global scale to the dimensional level.

Role outcomes moderated by time invested (Hypothesis Eight)

Hypothesis Eight proposed that the relationships between the global role score (as a measure of the net strength and intensity of roles played by mentors) and the outcome variables would be moderated by time invested in mentoring. The military and civilian samples were analyzed separately because (as previously discussed) there were large differences in time invested in the two samples.

In the military sample, both available outcome variables (mentor and protégé satisfaction with the mentoring relationship) met the initial criteria for the moderation test. Results for protégé satisfaction are reported in Table 10. The moderator term was significant although the effect size was not large (ΔR^2=.034, p<.05). The strong significance despite the small effect size was likely due to the fact that all of the links (among independent, dependent, and moderator variables) in model were highly significant in the first place and less variance was remaining to contribute to the an increased effect size, as measured by additional variance accounted for in the second part of the model test.

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A plot of the nature of the interaction is reported in Figure 3. The graph may be described as minor crossover effect. The line slopes are not noticeably different and in all groups (low, mean, and high time invested) the slope was positive, indicating a positive relationship between mentor roles and protégé satisfaction in all groups. The relationship between aggregate mentor roles and protégé satisfaction was slightly stronger in the low time-invested group, contradicting Hypothesis Eight which proposed larger effects among groups that had invested more time in mentoring.

For mentor satisfaction, results are reported in Table 11. The interaction term was significant at (ΔR^2=.073, p<.05). This indicates that time invested in mentoring moderated the relationship between mentor roles and mentor satisfaction. The interaction is plotted in Figure 4, representing a more noticeable crossover effect among mentors' satisfaction as compared to the minor crossover effect observed with protégé satisfaction in the previous analysis. The crossover effect indicates a positive relationship between aggregate mentor roles and mentor satisfaction in the low time-invested group, but a negative relationship between aggregate mentor roles and mentor satisfaction in the high time invested group, contrary to Hypothesis Eight which proposed stronger positive effects among groups which had invested more time in mentoring.

For the civilian sample, time invested moderation tests were conducted on relationships between mentor roles and two outcome variables - protégé satisfaction and the protégé performance composite. For protégé satisfaction, results are reported in Table 12. The moderator term was significant (ΔR^2=.042, p<.05) indicating time invested as a moderator of the relationship between mentor roles and protégé satisfaction, although the effect size was fairly weak. A plot of the interaction is reported in Figure 5,

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representing a minor crossover effect similar to previous results. The relationship between aggregate mentor roles and protégé satisfaction was positive at low, medium, and high levels of time invested, but this relationship was slightly stronger in the low time-invested group. This contradicts Hypothesis Eight which proposed stronger positive effects among groups that had invested more time in mentoring.

For the protégé performance composite, results are reported in Table 13. The interaction term was not significant, indicating no support for Hypothesis Eight from this particular result.

Specific mentor roles in different settings (Hypothesis Nine)

It was hypothesized due to proposed cultural and mentoring program differences in the two settings that military mentors would engage in higher levels of role modeling but lesser degrees of social interaction, sponsorship, protection from adverse organizational forces, and providing exposure as compared to the civilian sample. With the exception of social interaction (where the hypothesis was not only unsupported, but was contradicted) and acceptance (marginally significant), this hypothesis was supported with highly significant results (although the correlations were small to moderate). Military mentors engaged in significantly higher levels of social interaction ($r=.25$, $p<.01$), role modeling ($r=.17$, $p<.05$), coaching ($r=.24$, $p<.01$), and the parent role ($r=.27$, $p<.001$). Mentors in the civilian sample demonstrated higher levels of the sponsorship role ($r=.42$, $p<.001$), protecting from adverse organizational forces ($r=.29$, $p<.001$), providing exposure in the organization ($r=.28$, $p<.001$), and providing challenging assignments ($r=.52$, $p<.001$). Only the friendship and counseling roles did not differ by setting. The global role score did not vary significantly by setting ($r=.12$, $p=.15$) likely

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due to the opposing differences across the 11 roles canceling each other out. This might be interpreted to mean that while the nature of mentor roles varies by setting (or perhaps by program or organizational culture), the net strength and intensity of roles provided by mentors did not differ significantly by setting as reported by protégés.

Role outcomes moderated by setting (Hypothesis Ten)

Hypothesis Ten proposed a null moderation result that followed from Hypothesis Nine. Hypothesis Nine proposed a few specific roles that would be played to different levels by mentors in military vs. academic settings. Hypothesis Ten proposed that despite the different types of roles played in different settings, the proposed superseding mentoring dynamic of net role strength on the outcome variables still would not vary by setting. This is tested as a moderating function by mentoring setting with an expected null result. Recall that for Hypothesis Nine, several roles were specific to each mentoring setting, generally as hypothesized. However, at the level of net role strength (the global role score), these differences in specific roles apparently cancelled out and there was no effect of net role strength by mentoring setting. Therefore, we already know that moderation is not possible, and the relationship between net role strength and the outcome variables is not moderated by setting. Stated another way, specific role differences by setting do not appear to impose on the overall relationship between net role strength and outcomes, and Hypothesis Ten is supported.

Personality and mentor roles

As a precursor to Hypothesis Eleven (which proposes mentor roles as a mediating function between personality and outcome variables), significance tests of correlations between personality variables and mentor roles were conducted. Among the mentor

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roles, several links were found to protégé personality. The global role score related positively to protégé extraversion ($r=.19$, $p<.05$) and protégé conscientiousness ($r=.22$, $p<.01$). Similarly, these two personality dimensions bore the most significant relationships with specific mentor roles on the subscales. Protégé extraversion bore significant positive relationships with mentor roles of coaching ($r=.37$, $p<.001$), social interaction ($r=.23$, $p<.01$), parent role ($r=.27$, $p<.001$), role modeling ($r=.16$, $p<.05$), and acceptance ($r=.19$, $p<.05$). Protégé conscientiousness related to coaching ($r=.17$, $p<.05$), friendship ($r=.17$, $p<.05$), role modeling ($r=.17$, $p<.05$), and acceptance ($r=.31$, $p<.001$).

Mentor openness was the most salient variable with respect to mentor roles, yielding significant positive relationships with the global role score ($r=.19$, $p<.05$), and the specific mentor roles of sponsorship ($r=.21$, $p<.05$), protecting ($r=.21$, $p<.05$), challenging ($r=.31$, $p<.001$), and exposure ($r=.18$, $p<.050$). Mentor extraversion correlated negatively with the sponsorship role ($r=-.21$, $p<.05$ and to providing challenging assignments ($r=-.34$, $p<.001$). Mentor agreeableness yielded negative relationships with the protecting role ($r=-.19$, $p<.05$) and the counseling role ($r=.18$, $p<.05$). Mentor neuroticism related (negatively) only to the coaching role ($r=-.28$, $p<.01$). In spite of the overall importance of conscientiousness in this study, none of the mentor roles related to mentor conscientiousness (somewhat surprising given the relationship between mentor conscientiousness and both time invested and mentor satisfaction, and the close relationships of those variables to protégé satisfaction and mentor roles).

Personality similarity played a slightly more noticeable role among the mentor roles (as compared to previous results where personality similarity displayed few

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significant results). In spite of a paucity of significant results on agreeableness in the overall study, and even for mentor and protégé agreeableness on mentor roles, agreeableness similarity did relate to at least some of the mentor roles. Similarity on agreeableness related positively to role modeling ($r=.22$, $p<.05$) and to the friendship role ($r=.24$, $p<.01$).

Similarities in conscientiousness related positively to the coaching role ($r=.22$, $p<.05$) but negatively to the protecting role ($r=-.19$, $p<.05$). Similarity on openness related (negatively) to the parent role ($r=-.18$, $p<.05$). Net personality similarity related (negatively) only to the role of "protecting from adverse organizational forces" ($r=-.21$, $p<.05$). The existence of several significant relationships between personality variables and mentor roles provides some contextual justification for proceeding with analyses of mentor roles as mediators of relationships between personality and outcomes.

Personality outcomes mediated by mentor roles (Hypothesis Eleven)

Hypothesis Eleven proposed that the relationships between personality variables (mentor and protégé personality dimensions and personality similarity) and the outcome variables would be mediated by net mentor role strength. Three steps are required to establish mediation; A) establishing a significant relationship between the dependent variable and the proposed mediator, B) establishing a significant relationship between the independent variable and the dependent variable, and C) establishing a significant relationship between the dependent variable and the mediator when the dependent variable is regressed onto both the mediator and the independent variable simultaneously. Mediation exists if the significance of the relationship between the independent variable and the dependent variable drops from Step B to Step C, i.e., when comparing the simple

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independent/dependent variable relationship to the same relationship but with the mediator added to the equation (Baron & Kenny, 1986).

With these requirements for mediation, we can already rule out many of the numerous proposed mediating relationships that did not meet requirements A or B based on previously reported results. Due to the volume of analyses, multiple regressions (for Step C) are reported below only for relationships that met the initial criteria A and B.

For the full data set (civilian and military data combined), two proposed mediating relationships met the initial criteria; net role strength as a mediator of relationships of protégé conscientiousness with both protégé and mentor satisfaction. Results for protégé satisfaction are reported in Table 14. As previously reported, the initial criteria (Regressions A and B) were already found to be significant. That is, we have already established that the dependent variable (protégé satisfaction) relates significantly to both the independent variable (protégé conscientiousness) and the mediator (aggregate mentor roles). When these two variables were regressed simultaneously onto protégé satisfaction (the dependent variable), the significance of the independent variable (protégé conscientiousness) dropped from .01 to .07, indicating very limited mediation and very limited support for Hypothesis Eleven based on this result.

Also for the entire data set, mentor role strength was tested as a mediator of the relationship between protégé conscientiousness and mentor satisfaction. Results are reported in Table 15. When the mediator (mentor roles) and the independent variable (protégé conscientiousness) were regressed simultaneously onto the dependent variable (mentor satisfaction), the significance of the independent variable dropped from .03 to .13, again indicating limited mediation and limited support for Hypothesis Eleven.

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For one department in the civilian university setting, one proposed mediating relationship met the initial criteria. Net role strength was therefore tested as a mediator of the relationship between protégé extraversion and protégé satisfaction in this setting. Results are reported in Table 16. When the simultaneous regression was conducted (i.e., protégé satisfaction regressed simultaneously onto protégé extraversion and mentor roles), the significance of protégé extraversion dropped from .01 to .18, indicating that this relationship was mediated by mentor roles and support for Hypothesis Eleven based on this one particular result.

For another department in the civilian setting, one proposed mediating relationship also met the initial criteria; therefore net roles is tested as a mediator of the relationship between protégé openness and mentor satisfaction. Results are reported in Table 17. When the simultaneous regression mediator test was conducted, the relationship between protégé openness and mentor satisfaction lost significance from p=.03 to p=.18, indicating mediation and support for Hypothesis Eleven for these dimensions.

Exploratory analyses

In addition to study hypotheses, to provide contextual information in the study measures protégés were asked if they had ever changed advisors (and were given the opportunity to write in reasons for the change) in this program. Protégés in the civilian sample were also asked to endorse one or more of the following reasons if it influenced their choice or assignment of advisor: had little or no input, research interests, teaching style, areas of expertise, work style, career or applied interests, previous contact with the professor, personality, ethnicity, gender, age, or other (with space to write in the reasons).

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As an additional item of contextual interest (not originally hypothesized) these dimensions were explored as descriptive variables and with a few significance tests.

Eighteen percent of protégés report having changed mentors during their program. Twelve percent of graduate student protégés reported having little or no input into their choice of advisor. The most commonly endorsed item for reasons of advisor choice were research interests and area of expertise, with 62% of respondents endorsing each of these items. Personality was endorsed by 41% of protégés as a reason for advisor choice, an interesting result given the major hypotheses for this study. Work style, career or applied interests, and previous contact with the professor were each cited respectively by 30%, 31%, and 36% of the protégés. On the lower end of the scale, only 16% endorsed the professor's teaching style, 14% endorsed "other" reasons (with content related to relationship conflict, departure of previous professor or other reasons), 22% endorsed the mentor's gender, and less than 2% endorsed the mentor's age or ethnicity.

The frequency tables were explored further by splitting the data file by "advisor change" to see if protégés who had changed advisors cited different reasons for their choice or assignment of this particular advisor as compared to other protégés who had not changed advisors. The most notable differences were that protégés who had changed advisors were considerably more likely to endorse the following reasons for advisor choice: teaching style (37% of those who changed advisors endorsed; only 14% of those who kept the same advisor), work style (74% vs. 25%), previous contact with the professor (63% vs. 38%), and age (30% vs. 2%). Protégés who changed advisors also more commonly endorsed personality as a reason for advisor choice (63% vs. 46%).

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Similarly, we explored frequencies by splitting the data file by "little or no input for advisor choice" to see if protégés cited different reasons for advisor assignment/ choice depending on whether they had inputs to that assignment/choice. This analysis is limited and reported as descriptive statistics only because only 10 protégés who were asked reasons for advisor selection (i.e., in the civilian sample) also reported having no input to their advisor. The most noticeable differences were that 83% of protégés who had advisor choice endorsed "research interests" as a reason for being paired with that advisor, where only 2 of the 10 protégés (or 20%) who reported no advisor choice endorsed research interests. Similarly, 82% of protégés with an advisor choice endorsed "area of expertise", whereas only 30% of the protégés without advisor choice endorsed this item. Similar results were found for work style (42% of those who had advisor choice endorsed; 0% of those who had no choice), career or applied interests (43% vs. 0%), personality (56% vs. 10%), and teaching style (22% vs. 0%). These results may also be taken to mean that when a protégé has no choice of advisor, they are less likely to cite any reasons for their assignment to this advisor.

Finally, correlations were computed to verify the significance of any relationships between the outcome variables and whether protégés had changed advisors, whether they had inputs to their assignment to an advisor, and whether they endorsed various reasons for choosing/being assigned to an advisor. Because of the volume of analyses on these non-hypothesized dimensions, and because of the limited data it was conducted on, only significant results are reported here in the text in a cursory fashion. Those protégés who changed mentors scored higher on the personality dimension of openness ($r=.17$, $p<.05$). When protégés changed advisors, mentors were less satisfied ($r=.20$, $p<.05$).

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The correlational analyses of “no choice of advisor” are again limited by the fact that only 10 protégés reported no choice of advisor, while 72 protégés appeared to have some input. Some significant results were found, which indicates consistency among such a small pool of respondents with small statistical power, but also warns against the influence and transferability of conclusions drawn mainly from 10 respondents. Those protégés who reported no choice of advisor were less satisfied with their mentoring relationships ($r=.23$, $p<.05$). Not quite reaching significance were several negative relationships between “no advisor choice” and various other satisfaction or performance indices and several of the mentor roles. Two other mentor roles did reach significant negative relationships with “no choice of advisor”; the coaching role ($r=-.30$, $p<.01$), and sponsorship ($r=-.28$, $p<.01$).

Advisor choice by career or applied interests was related to time invested in mentoring ($r=.22$, $p<.05$), the global role score ($r=.27$, $p<.01$) and mentor roles of counseling and acceptance (both $p<.05$). When personality was cited as a reason for advisor choice, practicum performance was higher ($r=.35$, $p<.01$), social interaction was higher ($r=.27$, $p<.01$), as were the protecting and parent role (both $p<.05$). When gender was cited as a reason for advisor choice, protégé satisfaction was higher ($r=.16$, $p<.05$); role modeling was significantly higher ($p<.01$), as were mentor roles of coaching, social interaction and acceptance ($p<.05$).

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CHAPTER IV

DISCUSSION

Satisfaction with mentoring

Protégé and mentor satisfaction with mentoring relationships were both high and mentors and protégés generally agreed with one another regarding the quality of their relationships. These results were robust across all the settings in this study, providing general support for the value of mentoring, at least in terms of mentor and protégé satisfaction with their relationships.

It was somewhat surprising that protégé satisfaction with their academic department (in the civilian sample where data was collected on this dimension) did not relate to the same protégés' satisfaction with mentoring, given the strong role that most faculty advisors play in a graduate student's experience in an academic program. Perhaps this indicates that protégés are skilled at separating their advisor concerns from those relating to the department as a whole. The existence of numerous relationships between mentoring variables and outcome variables also suggests that the importance of the advisor's role in a graduate student's experience, satisfaction, and performance may supersede some other departmental concerns. This idea was further supported by the total lack of significant links between student satisfaction with the department and student performance.

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However, a graduate student's mentoring experience with their advisor and their departmental experience may not be totally distinct, as a faculty advisor is in fact a part of the academic department in which he or she resides. Indeed, with at least one result, these two dimensions may even become confused by the protégé. Recall that similarity on conscientiousness (between protégé and mentor) significantly related to the student's satisfaction with the academic department rather than to the student's satisfaction with the mentoring relationship.

Relationships among outcome variables (Hypothesis One)

Hypothesis One was generally supported, as numerous links existed between the outcome variables (satisfaction indices and performance indices), with the notable exception of student satisfaction with the academic department for the civilian sample. The significant links between protégé satisfaction and protégé performance are difficult to describe in a causal fashion without a longitudinal or experimental design (not used in this study). As such, we do not know whether student satisfaction leads to good performance, or good performance leads to satisfaction, or some other variable leads to both satisfaction and performance, or any other number of possibilities including interacting causal chains with feedback loops between satisfaction and performance. However, the presence of significant relationships among mentoring outcome variables is at least consistent with the supposition that satisfaction with mentoring may be an important proximal variable related to more distal mentoring outcomes such as job satisfaction or career advancement (Eby, et al., 2000; Ragins, Cotton, & Miller, 2000).

The highly elevated (and highly significant) relationship between student performance and mentor satisfaction might be interpreted in a number of different ways.

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With $r=.80$, ($p<.001$) we can expect that at least some of this relationship is due to halo error or method bias. Admittedly, since mentors rated both of these dimensions (the mentor's own satisfaction with the relationship, and the mentor's assessment of the protégé's performance), and because these two measures were close to each other in the measures package delivered to mentors, almost certainly at least some method bias exists for these measures.

However, it may not be wise to entirely dismiss this result for several reasons. First, we have already reported several significant (small to moderate) relationships between *protégé* satisfaction and protégé performance, and in those cases the measures are being rated by two different people. Further, we know that protégés and mentors are in fairly high agreement with regard to satisfaction with mentoring. Finally, we can at least speculate that a relationship between mentor satisfaction and protégé performance may arise from real mentoring (and other) processes rather than merely from methodological artifacts. For example, it is hard to imagine that a mentor could work alongside a protégé over the months and years and help that protégé become a high performer and not experience increased levels of satisfaction from working together. Conversely, it is hard to imagine that a mentor could invest their time and effort into trying to help a student succeed, and then when that student fails (or performs poorly) that the mentor would not experience some frustration with the process.

Admittedly these speculations are tenuous and there are many possible interpretations; perhaps initial satisfaction or attraction to a particular relationship leads to the interactions that create success, or even to false impressions and inflated ratings of success. It is also possible that we tend to like those who succeed, or that students who

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are highly regarded by their advisor tend to succeed, or any other number of possibilities including third variables or multiple causal loops. However, the current study design did not addresses these possibilities.

It is also interesting to note the performance items that related most strongly to protégé satisfaction with mentoring. Protégé satisfaction is more strongly related to performance dimensions that might be described as "optional" or "less structured" or less time-sensitive, such as research and practicum performance, career preparedness, and being a good citizen in the department. In contrast, weaker (or nonexistent) relationships were found between protégé satisfaction and other performance dimensions that might be described as "must do" items on a more time sensitive basis. For example, students generally must show up to perform in class, to teach, and to take formal exams. This might be interpreted to mean that satisfied students tend to perform across the board even with less immediate concerns (with no implied causal link), whereas dissatisfied students tend to perform on the required, time sensitive items but to not perform as well in areas that can be put off. Stated another way, perhaps any active student will generally exhibit some degree of performance on the minimum aspects of daily work, but the highly satisfied students perform even on more peripheral performance dimensions. The daily expectations of graduate students on "must do" items might be interpreted as a "strong situation" where the range of behavior is somewhat restricted. In contrast, the less structured aspects of graduate student performance might be interpreted as a "weak situation" where other variables (including mentoring dynamics) may come into play (Mischel, 1977).

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Time invested and mentoring outcomes (Hypothesis Two)

Time invested in mentoring was significantly linked to only one performance dimensions (practicum performance) and not to mentor satisfaction with the mentoring relationship nor to protégé satisfaction with the department. The link to practicum performance may reflect the time faculty members and their student protégés spend together working on these kinds of projects in a developmental capacity for the protégé.

Time invested did relate significantly (but with a small correlation of .23) to protégé satisfaction; apparently the time spent was more important to the protégé than to the mentor. Time invested is also apparently an important functional variable with respect to mentoring processes as reflected in its relationship to mentor roles at the global level and several of the specific mentor roles. These effects are interesting (and will be covered in more detail in the discussion of moderating effects of time invested) but limited and in general Hypothesis Two was only weakly supported. Time invested in mentoring did not have as robust a relationship as expected to mentoring outcomes; however its relationship to protégé satisfaction and mentoring processes (i.e., mentor roles) suggest that it may still be an important mentoring variable with relationships to other items of inherent value.

Personality and mentoring dynamics

The personalities of mentors and protégés do appear to make a difference in mentoring processes and outcomes. Protégé vs. mentor personalities did not relate in identical ways to the other variables of interest. This seems to suggest that in this study we have captured more than merely typical relationship personality dynamics between any two human beings (e.g., between coworkers or friends or mates). Rather, mentoring

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relationships (and perhaps other somewhat similar types of relationships such as coaching, counseling and supervision) may emphasize the use of their own set of personality dynamics.

The fact that mentors and protégés in all settings scored well below national norms for neuroticism was interesting even if it was (likely) an artificial result based on social desirability faking on the scale. Perhaps members in these groups are well-equipped or well-motivated to fake on the neuroticism scale. It may be considered socially desirable for military officers and trainees in particular to present the image (to themselves and to others) of low neuroticism.

Interestingly, extraversion displayed opposite effects between protégés and their mentors. Protégé extraversion related positively to some outcomes (satisfaction with the department and satisfaction with mentoring in the civilian sample only; also marginally to program citizenship). In contrast, mentor extraversion related negatively to time invested in mentoring, and also negatively to several protégé performance dimensions (although these effects were marginal). One interpretation is that in these kinds of relationships (in the interest of the protégés' development), to some degree protégés need to talk and mentors need to listen. Establishing this type of relationship might require more effort and awareness when the extraversion of the mentor is high and/or the extraversion of the protégé is low. Although we must be very cautious about presuming causal implications, it certainly seems unlikely that this is due to a reverse causal effect - it is unlikely that high levels of time invested in mentoring would cause mentors to score more highly on extraversion in self-rated personality instruments. Since the effect is in the opposite direction of what might be expected (i.e., we might expect extraverted

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mentors to want to spend more time interacting with others - including in mentoring meetings), it seems likely that some real effect is occurring here.

Some personality dynamics were different by setting. In addition to extraversion differences by setting (reported above), another relationship that was specific to only one setting was that between protégé openness and mentor satisfaction (only in one department within the civilian university sample). Perhaps the relationship between protégé openness and classroom performance is reflective of the role of openness specifically in a developmental school environment. Perhaps openness is a valuable asset in university environments where intellectual development and social diversity are prevalent. This presumption is consistent with the fact that mentor openness was also a salient dimension in this school context; in fact, it was the most salient mentor personality dimension with respect to protégé performance, with significant positive relationships with six of the eight protégé performance dimensions.

While these kinds of results (specific to a setting) may endanger the transferability of some of the results of this study, it seems hardly reasonable to expect that mentoring functions will operate in precisely the same ways in all settings. For example, a successful mentoring relationship between a junior and senior software engineer in a large corporate setting might require something different from a successful mentoring relationship between two social workers in a small volunteer organization.

However, some mentoring dynamics may supersede most contextual variables. Several of the hypotheses proposed in this study were intended to address this possibility. Among the samples studied here, for example, conscientiousness of both mentors and protégés pervasively related to positive outcomes and was one of the most salient

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variables in the overall model. This was apparently not merely a function of the generally important role of conscientiousness in work settings among people who work together, as the effect also occurred in the military sample where there was no typical "work" content. That is, as opposed to the civilian settings where students and their advisors were likely to share work tasks such as research, the effect also occurred in the military mentoring program where there was no shared task other than meeting solely for the purposes of the protégés' development via mentoring.

Specifically, in all settings protégé conscientiousness related to protégé satisfaction, mentor satisfaction, time invested in mentoring, the protégé performance composite and five of the eight protégé performance dimensions (although the performance data was only available in the civilian settings). Similarly, mentor conscientiousness related to time invested in mentoring, protégé practicum performance, and mentor satisfaction (but interestingly, not to protégé satisfaction nor to protégé satisfaction with the department). Finally, (as previously discussed) similarity between mentor and protégé on conscientiousness was related to protégé satisfaction with the academic department (in the civilian sample where department satisfaction data was available).

The role of conscientiousness among performance dimensions may be at least partly related to work content and work style between students and their faculty mentors. However, the role of conscientiousness among some of the other dimensions (especially in the military sample where there was no pure work content) may be of a slightly different nature. Admittedly, the relationship between conscientiousness and time invested in mentoring may still be nothing more than a general work style that

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encourages doing one's duty and meeting the needs of those assigned to one's care. However, the content of mentoring relationships may be qualitatively different from typical work content, and conscientiousness may play a different role in different settings. Presumably, the world of work may be rife with dutiful conscientious workers who are well qualified to focus on typical work content, but who nonetheless may not be as fit for mentoring relationships where the role of conscientiousness would be applied to aspects such as attending to developmental and emotional needs in a dyadic relationship. In any case, in this study conscientiousness proved to be an important mentoring variable across various settings and outcome variables.

Other personality variables displayed slightly surprising results in the context of mentoring. Protégé neuroticism actually displayed a positive relationship with one outcome, career preparedness. With the lack of any strong theoretical explanations, two related possibilities for this result come to mind. Perhaps this was due to experiment-wise error or other artifact. For example, it is possible that the way the question was worded may have had an artificial impact. The mentor was asked to rate "my advisee's progress towards general career readiness (e.g., informed, capable, professional)". It may be that mentors focused on the "progress" aspect of that question and rated highly the protégés who came into the program and managed to eventually adjust and make progress (as a beloved "underdog" from a low starting point) in spite of personal challenges driven by neuroticism.

It may also be that performance is sometimes driven by desperation rather than inspiration. That is, in general neurotic individuals are not entirely satisfied with who and where they are and presumably may therefore be driven to develop beyond that state.

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Those who start with personal challenges may be those in the best position to benefit from mentoring, which is generally supposed to be a supportive relationship where protégés are given opportunities to develop not afforded elsewhere. The performance gains in these cases may exceed gains that are possible among those who don't start with deficits (or this could be regarded as regression towards the mean). Comfortable mentoring relationships may be, among other things, a rare opportunity for those with personal challenges to open up and develop themselves in a less risky environment.

These are both admittedly speculative attempts to explain the positive relationship between protégé neuroticism and protégé career preparedness. However, if true this would be an encouraging result. As indicated in the literature review, sometimes those who receive mentoring are those who are already successful and may need it less. In any case, the fact that any performance links at all were found in this model is very encouraging given that cognitive ability, the major driver of performance across many contexts, was not partialed out of the model.

This was not the only surprising result with respect to neuroticism. Mentor neuroticism related negatively to mentor satisfaction (not too surprising) but (more surprisingly) positively to time invested in mentoring. This is at least consistent with the idea that neurotic individuals may sometimes be driven to push themselves to develop beyond their current state of dissatisfaction. In fact, since (as discussed in the literature review) mentoring relationships bring important benefits to mentors as well as protégés, this may be an opportunity for neurotic mentors as well as protégés to develop and build esteem in a relatively safe environment.

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Another unexpected result was that none of the mentors' personality dimensions related to protégé satisfaction with mentoring nor to protégé satisfaction with the academic department. One of the hoped-for implications of this study was that mentors could be selected based partly on personality, or that they could be trained to adapt their behavior (regardless of personality tendencies) to act in ways beneficial to mentoring relationships. However, all is not lost with respect to mentor personality. All mentor personality dimensions except agreeableness were related to time invested in mentoring (whereas for protégé personalities, only conscientiousness related to time invested). These effects between mentor personality and time invested in mentoring were positive, with the exception of mentor extraversion which was negatively tied to time invested in mentoring.

In general, then, Hypothesis Three received mixed support. The most salient variables in this part of the model behaved as hypothesized; conscientiousness and openness of both mentors and protégés were related to positive mentoring outcomes. Contrary to the hypothesis, agreeableness did not relate to outcomes, neuroticism was linked positively to one outcomes where a null effect was hypothesized, and extraversion was linked (in opposing directions by mentor and protégé) to outcomes where a null effect was hypothesized.

Personality similarity. The moderate, significant relationship between conscientiousness similarity and protégé satisfaction with the academic department is interesting given that the protégé apparently displaced an aspect of the relationship with the mentor onto satisfaction with the department. It could be that the work styles of mentor and protégé (as defined by conscientiousness) interact with other dynamics within

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the department. Based on previous research, similarity on conscientiousness may also be tied to task or relationship conflict and with the way we evaluate the behaviors of others in our work group. Individuals may tend to rate the contextual work behaviors of coworkers higher when scores on conscientiousness are similar (Antonioni, 2001). Perhaps contextual work behaviors (or lack thereof) of the mentor have an impact on the protégés' experience with the department, especially when the mentor is interacting with the protégé or in the interests of the protégé. Antonioni's study also controlled for interpersonal affect, suggesting that these differences in the way coworkers are rated are based on actual behavioral differences rather than interpersonal affect and related halo or other similar biases.

With respect to the performance indices (available in the civilian sample only), significant results by personality similarity were scarce. No significant results were discovered (for performance indices) based on similarity on conscientiousness, agreeableness, openness, or extraversion; neither for the net personality similarity as summed across the five personality dimensions. Neuroticism similarity related (negatively) only to protégé career preparedness. In general, personality similarity displayed few significant results and Hypothesis Four was poorly supported.

Mentoring setting

Small to moderate (but significant to highly significant) differences were found between the military and civilian samples on personality similarity. In the military sample, mentors and protégés were found to be more similar on extraversion, agreeableness, and net similarity across the five personality dimensions as compared to the civilian sample. This result was not hypothesized but certainly does not seem

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surprising. In a civilian university mentors and protégés likely come from a wide variety of backgrounds, interests and profiles that may have lead them to this endeavor. Once in the graduate school setting, civilian mentors and protégés exist in what might be described as a relatively diverse environment where they are relatively free to pursue their own interests and work styles without extremely rigorous and continual socialization, especially once they have met initial hurdles such as selection or tenure.

In contrast, the type of people who are attracted, selected, heavily socialized and trained and retained into a military environment may meet more specific profiles in the first place and are thereafter socialized into a more specific culture with more strongly prescribed behaviors and prototypical profiles. The specificity of the military culture may be even more exaggerated in a training environment where strong initial socialization is expected to occur.

The prototypical or prescribed military officer profile (as a leader of others in this culture) might be described as extraverted, conscientious, stable, and more likely to exhibit prescribed conformance to strong norms rather than high levels of openness, although this does not perfectly match what was discovered here. The prevalence of more specific profiles within the military might be based on selection or self-selection into this strong culture. Alternatively, it might be based on situationally-specific conforming behavior in this culture (regardless of "underlying" personality scores), or based on socialization over the course of one's career whereby members' profiles actually drift towards the norms in this culture.

The significantly higher satisfaction scores of military mentors was surprising even given a small correlation ($r=.17$, $p<.05$). Military mentors had a much shorter

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relationship (and no real work content) with their protégés as compared to civilian mentors, and we might have expected higher satisfaction scores among civilian mentors instead. Protégés exhibited no differences in mentoring satisfaction across the two settings, where we might have expected higher satisfaction levels among civilian protégés.

Several possible interpretations come to mind. First, military members likely share a strong common set of norms, values, behaviors, appearances (right down to uniforms and appearance standards) and experiences (all have survived military socialization and training) as compared to the civilian school population. They also share a common future in the same general organizational culture. Perhaps these dimensions contribute to qualitatively different types of mentoring relationships among military members and other strongly socialized organizational cultures. Secondly, in the (admittedly short) military mentoring program the sole purpose was to meet for the purpose of the protégés' development, without distraction due to shared work content. It is possible that this may help explain a slightly higher satisfaction level of military mentors, where the opposite might have been expected given the lower amount of time available for mentoring in the military setting.

Time invested by mentoring setting. The role of time invested in mentoring differed by setting in more than just quantity. In common between the two samples were positive relationships between time invested and both protégé conscientiousness and mentor neuroticism. One difference was that time invested related to protégé extraversion in the military sample (where assertive social behavior is socialized as a desirable value) but not in the civilian sample.

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Mentor openness related to time invested only in the civilian sample; a school setting where openness related to several other outcome variables (as previously discussed), and where openness is likely fit the culture more closely than in a military environment. Mentor conscientiousness related to time invested in mentoring among civilian mentors but not for military mentors. Time invested in mentoring may be less sensitive to mentor conscientiousness in the military setting for two reasons. First, the military program was a formally arranged mentoring program where dyads were assigned to meet for mentoring, creating a strong situation (Mischel, 1977) with prescribed behavior as compared to civilian relationships where the number and flavor of meetings (pure mentoring vs. work content with mentoring) may be less prescribed. In the military case it is likely that to some degree mentors and protégés would follow the norms prescribed by the strong situation regardless of the mentor's conscientiousness. In contrast, the civilian mentoring may be a weaker situation where mentor conscientiousness may play a stronger role.

To generalize this concept beyond mentoring programs, the military culture prescribes highly elevated levels of conscientiousness behaviors among its members regardless of their underlying personality tendencies, again contributing to a strong situation. Another possible explanation is that conscientiousness (as a generally important variable in work settings) may play a stronger role in the civilian setting where there is shared work content such as research tasks shared between the faculty member and the advisee. This idea is supported by significant relationships (in the civilian sample where these variables were assessed) between time invested in mentoring and protégé research performance and practicum performance.

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In all settings, time invested in mentoring bore a highly significant relationship (with a reasonably strong correlation) with mentor roles at the global level ($r=.43$, $p<.001$) and nearly all of the specific mentor roles. We do not know the specific process that is operating here; perhaps more relationship time leads to higher role prevalence. It is also possible that good initial mentor roles lead to more time being invested in the relationship, or perhaps there is some other dynamic such as a third variable or multiple causal loops (e.g., where roles and time feed back on one another and increase together). Having discussed the general roles of time invested and mentoring setting in the overall model, let us now turn to the consideration of these variables as moderating functions of other relationships in the model.

Personality outcomes moderated by time invested (Hypothesis Five)

This aspect of the model was not at all supported in the military sample, as none of the personality variables related to time invested in mentoring. Recall that variance in time invested was much lower in the military sample; also that we have proposed time invested in mentoring in the military sample as a "strong situation" that may be driven by program and cultural norms more than aspects of the model. Perhaps some interesting effects may have surfaced if the mentoring program had been in place for more than one semester, but we have no evidence of that here. It is also important to note that performance variables were not available in this sample, and interesting moderating functions were observed in the civilian sample with performance dimensions. Perhaps moderation would exist in the military sample with performance data, but we have no evidence of that based on available data.

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In the civilian sample, agreeableness was not a salient variable and neuroticism displayed few effects. Therefore, for these two dimensions, the moderated model was not supported, as there were few significant effects in the first place to test for moderation. With extraversion, there were significant main effects (reported earlier), interestingly in opposite directions between mentor and protégé extraversion (although the protégé effect was marginal). However, extraversion did not relate to time invested in this sample, not supporting the hypothesis of moderation by time invested for this dimension.

The most interesting tests in the civilian sample were among conscientiousness and openness, both of which were salient variables with important outcomes in previous analyses. The relationship between mentor conscientiousness and protégé practicum performance was indeed moderated by time invested. However, the result was not in the hypothesized direction. It was hypothesized that higher levels of conscientiousness would be linked to increased positive outcomes of mentoring (in this case, to increased protégé practicum performance), and that these effects would increase as time invested in mentoring increased. Instead, in the high time-invested group protégé practicum performance actually decreased as mentor conscientiousness increased. Conversely, in the low time-invested group protégé practicum performance increased as mentor conscientiousness increased.

This crossover interaction might be interpreted in several ways. Perhaps mentor conscientiousness brings initial benefits in the working relationship between graduate students and advisors, resulting in increased protégé practicum performance with highly conscientious mentors in the low time-invested group. However, perhaps at some point during their tenure graduate students need to, but don't always, accept increased

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responsibility for their work and rely less on the working style of their (in this case) highly conscientious advisors, resulting in lower student practicum performance at high levels of time invested and high levels of mentor conscientiousness. Stated another way, perhaps sometimes graduate students ride the coattails of the harder-charging faculty members rather than performing well on their own merits, or perhaps the harder-charging faculty members overwhelm the student's performance and development with the faculty members' own goals.

It could also be the case that conscientious mentors expect higher standards of their students, and that over time, perceived deficits among their students (as compared to the mentors' own high standards) become apparent in student performance ratings by advisors. Differences in conscientiousness have been tied to lower ratings of others in the work setting in previous research (Antonioni, 2001). It could also be that protégés require more time working with low conscientiousness mentors in order to be effective, as compared to perhaps more efficient work patterns that students may experience with high conscientiousness mentors, requiring less time. Finally, perhaps low conscientiousness mentors do not press their students to invest more time even when they are performing poorly, but high conscientiousness mentors do.

For mentor openness, moderation of relationships with outcomes by time invested was not significant. This might indicate that the importance of openness in the model is more of an absolute effect that plays out fairly immediately in mentoring relationships. It may be that protégés recognize openness qualities early in the relationship and that this brings more immediate benefits as compared to some of the other effects in the model.

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Considering moderation (of relationships between personality and outcomes) by time invested in the context of all hypothesized relationships, in most cases the proposed result was not found or was contradicted in its proposed directionality. Perhaps in some cases, significant mentoring dynamics depend less on interaction over time to exhibit their effects. In a few other cases, sometimes initial mentoring effects appear to diminish or even reverse over time, perhaps as expectations, roles, and the natures of a graduate student's responsibilities (in the civilian sample) change over time, shifting from the importance of the relationship with the advisor to the importance of protégé self-reliance. However, these results were few when considered in the overall context.

Personality outcomes moderated by mentoring setting (Hypothesis Six)

The total lack of any relationships that fit the initial criteria for moderation by setting (military vs. civilian samples) supports Hypothesis Six, which proposed that mentoring dynamics would not differ by setting despite differences in setting. Admittedly comparisons across these two samples were only available on two outcome variables that were measured in both settings (mentor and protégé satisfaction with mentoring), although numerous other variables were tied to those two outcomes.

The previous comparison (between military and civilian settings) was the only one that was hypothesized. However, for the sake of interest and to test other possible moderating effects by setting, moderation tests were extended to test for differences by setting within the civilian sample (between the two major departments where the majority of the civilian data was obtained). Even after extending the hypothesis, no significant moderating effects by setting were found and Hypothesis Six was further supported. It appears that mentoring outcomes by personality do not vary by the settings studied here,

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supporting the idea that some mentoring dynamics are robust even across settings as diverse as undergraduate military trainees in a short term military mentoring program in a tight culture vs. civilian graduate students and faculty in a long term somewhat informal mentoring relationships in a more diverse culture.

Mentor roles and outcomes (Hypothesis Seven)

One of the strongest relationships in the entire study was that between protégé satisfaction and aggregate mentor roles ($r=.74$, $p<.001$). Admittedly, these two items were both rated by the protégé and may be subject to some halo or other method biases. However, a similar effect between aggregate mentor roles and mentor satisfaction was also fairly strong and highly significant ($r=.43$, $p<.001$) and these two items were rated by two different people. Hypothesis Seven was strongly supported among the satisfaction indices as outcomes. It appears that the intensity of mentor roles is an important function strongly relating to satisfaction with mentoring relationships.

The hypothesis was also extended from the aggregate mentor role score to specific role dimensions and similar strong, significant relationships were found between satisfaction and nearly all of the mentor roles. Notably absent was any relationship between mentor roles and protégé satisfaction with the academic department. However, as discussed previously protégé satisfaction with the academic department displayed few relationships in the entire study and may not have been a very salient variable for mentoring relationships in general in this context.

Mentor roles also related significantly (with small to moderate correlations) to several important performance outcomes, particularly research, practicum, and overall performance, and program citizenship. Many significant relationships were found

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between specific mentor roles and performance dimensions. The mentor role that related to the highest number of performance dimensions was "coaching". This might be taken as preliminary evidence that some of the mentoring dynamics found in this study may also apply to other similar kinds of relationships such as executive coaching. Future research should address these possibilities with other kinds of developmental relationships (particularly dyadic relationships such as coaching, counseling, and individual supervision). The significant relationships in this series are probably fairly robust against some methodological biases because mentor roles and performance dimensions were rated by two different people on two different measures.

Role outcomes moderated by time invested (Hypothesis Eight)

In the military sample, the relationships between aggregate mentor roles and both possible outcomes - protégé and mentor satisfaction - were significantly moderated by time invested with small to moderate effect sizes (ΔR^2 of .034 and .073, respectively). In the civilian sample, mentor satisfaction did not meet the initial criteria, but for the relationship between mentor roles and protégé satisfaction, moderation by time invested was significant with a small effect size (ΔR^2=.042). The relationship between mentor roles and protégé performance was not moderated by time invested. Overall we have some mixed support for time invested as a moderating function of relationships between mentor roles and at least the satisfaction outcome variables, but the nature of the moderation effects were not as hypothesized. Recall from Figures 3-5 that minor crossover effects were observed whereby the relationship between mentor roles and satisfaction outcomes were actually (only slightly) stronger among low time-invested groups. This was contrary to the hypothesis that these effects would increase over time.

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For the outcome of mentor satisfaction only (see Figure 4), in the high time-invested group mentor satisfaction actually slightly decreased as mentor roles increased. Perhaps this is reflective of mentors who tend to "give too much" time and play too many roles in relationships for their own eventual comfort or satisfaction. Alternatively, perhaps mentors are dissatisfied with problematic protégés who require inordinate amounts of mentor support, mentor roles, and mentors' time.

Overall, it appears that mentor roles are tied to important mentoring outcomes. However, contrary to Hypothesis Eight, we do not have evidence that these effects increase over time in these settings. In fact, in some cases mentor roles are slightly more strongly related to satisfaction outcomes in the early phases of the relationship when first impressions are made and the initial "thrills" of relationship formation are experienced. Similar "honeymoon effects" have been discovered among job outcomes in other settings (Helmreich, Sawin, & Carsrud, 1986). Future research should address whether this holds true in longer term mentoring relationships or in different (e.g., non-institutional) settings.

The lack of moderation over time of the performance scores could be explained in various ways. As discussed in the literature review, dyadic relationships may display various processes that develop over time with respect to how two individuals regard each other. However, for performance dimensions perhaps a plateau is reached. For example, it may become apparent relatively early in the relationship how two individuals will work together and how that will affect performance; nonetheless affective variables (such as relationship satisfaction) may continue to change over time as the nature of mentor and protégé roles and relationships change. On the other hand there may be many other

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variables that could limit the development of performance over time, such as ability, work motivation, program constraints, and ceiling effects on performance (and performance ratings).

Mentor roles and moderation by setting (Hypotheses Nine and Ten)

Throughout this discussion we have described actual or suspected quantitative or qualitative differences between the two major settings (military vs. civilian). Because of cultural and programmatic (especially work content) differences between the two populations, Hypothesis Nine proposed that military mentors would engage in higher levels of role modeling and civilian mentors would engage in higher levels of social interaction, sponsorship, protection from adverse organizational forces, and providing exposure in the organization.

With highly significant results (and small to moderate correlations), nearly every aspect of this hypothesis was supported. As proposed, military mentors scored higher on role modeling, likely due to the shared background, culture, and future between military officers and military officer candidates in training. Perhaps for similar reasons, military mentors also scored higher on the parent role and the acceptance role; also on the coaching role. The latter may have been related to leadership and career coaching, which is a fairly common topic of conversation between military officers and young military trainees. Military protégé participants in this study were in command positions and were also months away from beginning their careers as commissioned military officers, making leadership and career coaching topics very relevant.

Most likely due to shared work content, and shared membership in a specific local organizational setting, civilian mentors scored higher (as hypothesized) on mentor roles

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of sponsorship, protecting from adverse forces, and providing exposure in the organization. It was not hypothesized, but probably for similar reasons civilian mentors also scored higher on the role of "providing challenging assignments." Only the friendship and counseling roles did not differ by setting.

Interestingly, in spite of these differences in role content, aggregate role scores did not differ significantly by setting. The opposing directionality of the differing role scores apparently cancelled each other out when roles were considered at the aggregate level. It appears that the net intensity of mentor roles and outcomes does not vary by setting even if the content of specific roles is different by setting.

The similarity in aggregate role strength is interesting given the large differences in time invested in mentoring between the two samples. This could be explained in various ways, some actual and some artificial. A possible artificial explanation is that military protégés are unlikely to rate their military mentors poorly on mentor roles even given short program length. This could be due to rating inflation, or due to a different referent comparison used by military vs. civilian protégés. Perhaps civilian protégés rated their mentors' roles against what could have been expected in a relationship that lasted months or years, or against their experience with other faculty members. In contrast, perhaps the military protégés rated their mentors' roles against what could have been expected in a four-month mentoring relationship, or against similar experiences with other military staff.

A less artificial possible explanation is that perhaps the civilian mentoring relationships are diluted by work tasks, supervision, and other concerns between graduate students and their advisors. In contrast, the military mentoring relationships existed

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outside of typical work content and outside of the chain of command; these relationships were assigned solely for the purpose of mentoring and were not diluted by other concerns.

Based on the lack of variance by setting for aggregate mentor roles, we know with no further tests that the relationship between aggregate mentor roles and mentoring outcomes is not moderated by setting. Differences in specific mentor roles by setting do not appear to have much of an effect on the overall relationship of mentor roles on outcomes. The key might be that *some* type of supportive mentor roles are provided in appropriate amounts. Although it was not addressed in this study, another key might be identifying which mentor roles are most relevant to the particular setting or even the particular protégé.

Personality and outcomes mediated by mentor roles (Hypothesis Eleven)

Relationships between personality variables and mentor roles were considered before proceeding with the final analyses of mentor roles as a mediating function of relationships between personality variables and outcomes. Small but significant correlations were discovered between aggregate mentor roles and protégé scores on conscientiousness and extraversion. Perhaps dutiful, outgoing protégés elicit higher degrees of mentor roles from their mentors.

For mentor personalities, several relationships were found with mentor roles. Mentor openness was most salient, relating positively to the aggregate mentor role score and several of the specific mentor roles, most strongly and significantly with "providing challenging assignments." Mentor extraversion related negatively to the sponsorship role and to "providing challenging assignments" (highly significant at $r=-.34$, $p<.001$), adding

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to the earlier evidence of negative effects of mentor extraversion (which were reported for time invested and several performance outcomes).

Mentor neuroticism related negatively to the coaching role, and mentor agreeableness related negatively to the "protecting from adverse organizational forces" and counseling roles. The latter result was surprising, as agreeableness might be expected to relate positively rather than negatively to supportive roles such as protecting and counseling. After consideration, these effects may make sense after all. "Protecting from adverse organizational forces" may require that the mentor take an assertive stance against other people in the organization on behalf of the protégé, and a highly agreeable mentor might prefer to get along rather than to confront those other people. Similarly, the counseling role may sometimes require firm and direct feedback to the protégé even when the protégé's feelings might be hurt, a feat which highly agreeable mentors may be poorly equipped (or poorly motivated) to achieve.

Finally, mentor conscientiousness did not relate to any of the mentor roles. This was somewhat surprising given the importance of conscientiousness in this study. Conscientiousness of mentor and protégé were related to many other important variables ranging from satisfaction to performance to time invested in mentoring. Moreover, many of these other variables related significantly to mentor roles. Apparently the important role of conscientiousness in this model does not extend to the roles played by mentors.

Personality similarity, generally a fairly weak variable in this study, did display some relationships with mentor roles. Agreeableness (which has been almost completely beyond notice so far in this study) similarity related positively to role modeling and friendship. Conscientiousness similarity related positively with coaching but negatively

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to the protecting role. The latter negative relationship was somewhat surprising; perhaps when mentor and protégé are matched with low conscientiousness less protecting is exhibited (i.e., the mentor not doing his or her job), or when mentor and protégé are matched with high conscientiousness less protecting is necessary because the protégé has already taken care of business.

Openness similarity related negatively to the parent role and marginally negatively to protecting and to the global role score. Net personality similarity (across all five personality dimensions) correlated (negatively) only with "protecting from adverse organizational forces." Perhaps "two peas in a pod" have enough in common to work well together without needing as much protecting from other forces, or perhaps within their relationship they already agree on how things should be handled and therefore less protecting role is required.

Now that we have discussed main relationships between personality variables and mentor roles, let us continue with the final analyses of mentor roles as a mediating function of relationships between personality variables and the outcome variables (Hypothesis Eleven).

Of all the many possible mediating functions in the overall model (that is, all the personality variables with all the outcome variables; or at least all of the numerous significant effects that were discovered within that basic model), only four relationships met the initial criteria for mediation. Two of those relationships had to be discovered by extending the original hypotheses from the combined data set to specific settings. Based on this fact alone we can already say that Hypothesis Eleven is poorly supported and mentor roles are not in general good mediators of relationships between personality and

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outcome variables in mentoring relationships. However, each of those four relationships displayed at least partial mediation and we will consider each in turn.

For the combined data set, the relationship between protégé conscientiousness and protégé satisfaction was indeed mediated by aggregate mentor roles. Significance of the main effect dropped from $p=.01$ to $p=.08$ when the mediating effect was considered, indicating very limited mediation. Similarly, the relationship between protégé conscientiousness and mentor satisfaction displayed partial mediation, with a drop in significance from $p=.03$ to $p=.13$.

These two fairly small mediating effects (of mentor roles mediating relationships between protégé conscientiousness and mentor and protégé satisfaction) indicate only limited support for mentor roles as a mediating function. Perhaps protégé conscientiousness (dutiful, attentive behavior to work tasks) to a small degree elicits role support from mentors who recognize the protégés' work ethic. However, the role of conscientiousness in work settings is not unique to mentoring relationships, as conscientiousness has been tied to many important work outcomes including performance and peer review (Barrick & Mount, 1991; Antonioni, 2001). Perhaps the superseding role of conscientiousness across work settings helps explain why mentor roles were not salient as a mediating function in this model.

In one department in the civilian setting, partial mediation by mentor roles was discovered for the relationship between protégé extraversion and protégé satisfaction with mentoring. When the mediation test was conducted, significance of the main relationship between protégé extraversion and protégé satisfaction dropped from $p=.01$ to $p=.18$. This mediating effect may indicate that protégé extraversion helps elicit mentor role support in

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some settings. We would not, of course, recommend including or excluding protégés from mentoring opportunities based on their extraversion. However, perhaps protégés can be trained to behave as "proactive followers" in ways that elicit role support from mentors, regardless of underlying personality dimensions and behavioral preferences. With extraversion in this setting, perhaps the relevant protégé behaviors include seeking relationship connections and asserting one's needs in a social exchange.

In another department in the civilian setting, aggregate mentor roles partially mediated the relationship between protégé openness and mentor satisfaction. When the simultaneous regression mediation test was conducted, the main effect of protégé openness on mentor satisfaction lost significance from p=.03 to p=.18. This partial mediation supports the idea that the link between satisfied mentors and high openness protégés in this setting occurs via the roles played by mentors. Perhaps the openness of protégés (to learning and development, among other things) in some school settings elicits certain role behaviors from mentors that provide satisfaction to the mentor. As discussed previously, protégés are not the only ones who can benefit from mentoring relationships. The fact that mentor satisfaction can be tied in some cases to both the protégés' personalities and to the mentor's roles is a testament to the complex dyadic nature of mentoring relationships. Satisfaction with a relationship probably does not depend exclusively upon our regard for the other person in the dyad, but also upon what one's self contributes to the relationship or even who one "becomes" as a result of roles one takes in the relationship.

However, overall mentor roles were poor mediators of main effects between personality and outcome variables in mentoring relationships. Only a small number of

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the large number of relationships among variables that were considered even met the initial criteria for mediation by mentor roles. However, the importance of mentor roles in the overall model is still noteworthy. Mentor roles (specifically and in aggregate) have shown important relationships with various satisfaction and performance indices and with time invested in mentoring. The overall proposed study model might then be revised to consider mentor roles as a main effect rather than as a mediator. The resultant model, then, may be described as main effects of personality variables and mentor roles on outcomes of performance and satisfaction, with time invested in mentoring as an important moderator of these relationships (in some cases), and with mentoring setting as a non-mediator (see Figure 6). The latter point is an important result. It appears that despite marked differences in mentoring setting, duration, and content, some mentoring dynamics are robust.

Exploratory analyses

The extra analyses considered whether civilian protégés had changed advisors and the reasons they cited for their choice or assignment to a particular advisor. Due to the exploratory and limited nature of these analyses we will only discuss a few of the most interesting results. It was not surprising to find that graduate students who reported having no choice in their assignment to an advisor were somewhat less satisfied. It was also not too surprising that when protégés had no choice of advisor, reported mentor roles were lower (coaching, sponsorship, and marginally the aggregate mentor role score).

However, what was surprising was that mentors were less satisfied when protégés had changed advisors. Presumably in most cases a change of advisor would be initiated

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as an attempt to improve the situation rather than to make it worse (although in some cases it may be due to other reasons such as departure of the previous advisor).

Two speculative interpretations come to mind. First, perhaps protégés who change advisors do so because of their own deficits; for example perhaps these advisees are lacking in relationship or teamwork skills and change advisors due to mutual dissatisfaction. If this were the case, the protégé may fare no better with the second advisor. Second, perhaps those protégés who changed advisors did not have as much time to develop an effective relationship with the new advisor; however this idea was not supported by any apparent differences in reported time invested between protégés who had an had not changed advisors.

Finally, due to the importance of personality in the study model, it was interesting to note that when personality was cited as a reason for advisor choice, several other outcomes were related. Among these protégés, practicum performance was higher, as were the mentor roles of social interaction, protecting, and the parent role. Perhaps protégés already possess some implicit knowledge regarding what mentor personalities might be supportive of their needs and their work performance.

Implications, limitations, and future research

One of the limitations of this study is that the links to mentor personality in the model were not as strong nor as pervasive as hoped for. Other than mentor extraversion and openness, few links were found to important outcomes other than time invested in mentoring. A possible implication of this study that was for the most part not realized related to mentor selection and training. It was hoped that important protégé benefits from mentoring could be achieved by either selecting mentors on personality dimensions

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or by training mentors to adapt their behavior (which can be accomplished regardless of underlying personality tendencies). Even these implications are not totally lost, however. The negative effects of mentor extraversion imply that mentoring relationships may be an important arena for introverted leaders (who by virtue of being introverted may perhaps have their own set of leadership challenges) to shine and make a difference for themselves and others in the world of protégés. Conversely, mentors of any profile (but especially extraverted ones) can be trained to behave in less extraverted ways when interacting with protégés, for example by developing active listening, counseling, and feedback skills. Similarly, the role of mentor openness (at least in some settings) may imply that some types of potential mentors should be encouraged or recruited; also that behavioral training on openness behavior may bring benefits.

The implications of protégé personality are more delicate. Obviously it would behoove none to include or exclude protégés from mentoring opportunities on the basis of their personality; in fact those who may initially struggle to profit from mentoring relationships may be the ones most in need of it. For example, it would not seem appropriate based on the results of this study to include only protégés who are conscientious and extraverted just because these types of protégés may perform better overall or even may "perform" better in mentoring relationships. We have some evidence (as cited in the literature review) that the protégés who are more likely to receive mentoring are the ones who are already most likely to succeed and may need mentoring less than others. This is likely due to a desire on the mentors' part to be connected to what is likely to be an enjoyable and profitable relationship for both parties; also likely due to a proclivity for successful protégés to proactively seek their own

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success in mentoring among other endeavors. There is certainly no harm in this, as mentoring for any protégé is more likely to bring benefit than harm.

However, there is harm in excluding potential protégés from opportunities (even if this is done unconsciously or unintentionally) because of their deficits; these are the individuals who may most need and most benefit from developmental opportunities such as mentoring. This set of dynamics may imply some advantages to formal mentoring programs rather than (or in addition to) informal mentoring relationships. When informal connections alone are relied upon, it is likely that those who are already successful at forming valuable social connections will be the ones who benefit and others will be left behind. In contrast, formal programs can be designed in such a way that none are excluded.

The functions of protégé personality may have other implications as well. For example, an examination of protégés' personalities may enhance developmental awareness for both mentors and protégés and help tailor mentoring efforts to the needs of the protégé on an individual basis. This may be particularly true when the personality of the protégé is considered in the context of the work environment. Some personality profiles may fit the particular job, task, or organizational culture better than others, and an awareness of this may bring to light important developmental opportunities.

The importance of context has other implications related to this study as well. In this research we witnessed differences by setting on specific mentor roles, and even the amount of time invested in mentoring had different correlates by setting (and time invested was highly related to mentor roles). An understanding of the context in which a mentoring relationship resides may improve mentoring relationships and their outcomes.

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However, one of the most important results of this study was that in spite of fairly large contextual differences between the samples, some mentoring dynamics remained much the same. In all settings, mentor roles contributed to important mentoring outcomes regardless of different roles that were played in different contexts. Apparently, as long as the mentor is playing supportive roles, some benefits are likely to develop. Perhaps these benefits will increase even further if they are tied to an understanding of relevant context. Further, mentor roles were highly related to time invested in mentoring, satisfaction of both mentor and protégé with mentoring relationships, and several performance outcomes. Time invested in mentoring was also important; in mentoring relationships additional time may increase the benefits.

In combination these results are encouraging for the transferability of the study. Future research should address whether these dynamics occur in other settings. The two major settings covered by this study were fairly diverse, which is promising for transferability. However in both settings the protégés were fairly young (not unusual for protégés) and were in training and education environments rather than career environments (although not all graduate students or even young military trainees were without career experience).

Future research should also address whether some of the discoveries in this study may apply to other similar developmental endeavors, especially among dyadic relationships such as individual counseling. We have at least some preliminary evidence that the results may apply to similar dyadic developmental relationships such as supervision and coaching, as evidenced by the importance of the coaching role in the

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results and the dual role of civilian faculty advisors as mentors and supervisors of graduate students.

Another limitation is that there may have been some halo or method bias among some of the measures in this study, particularly when the rater on two measures was the same (e.g., advisor satisfaction and advisor performance ratings; also protégé satisfaction and protégé ratings of mentor roles, although this concern was lessened by a corresponding relationship between mentor satisfaction and protégé ratings of mentor roles). Another desirable extension in future research would be to assess performance with hard external measures rather than via mentor ratings.

Other limitations of this study include the cross-sectional design, which made causal interpretations difficult. For example, we cannot be certain that time invested and mentor roles lead to the proposed benefits of mentoring as measured by satisfaction and performance indices. It is also possible that good performance lead to increased interaction via mentoring, or that satisfaction or attraction to a mentor or protégé lead to increased time invested or increased mentor roles. It seems likely that both causal paths may be in operation, but we have no evidence of that based on this study. Mentoring research in general has suffered a paucity of longitudinal or experimental designs that may bring stronger evidence of mentoring outcomes. A comparison of mentored vs. non-mentored groups was not made in this study (although amount of time invested in mentoring varied widely) and would be an important extension to the research.

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APPENDICES

APPENDIX A - FIGURES

APPENDIX B - TABLES

APPENDIX C - MEASURES

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APPENDIX A

FIGURES

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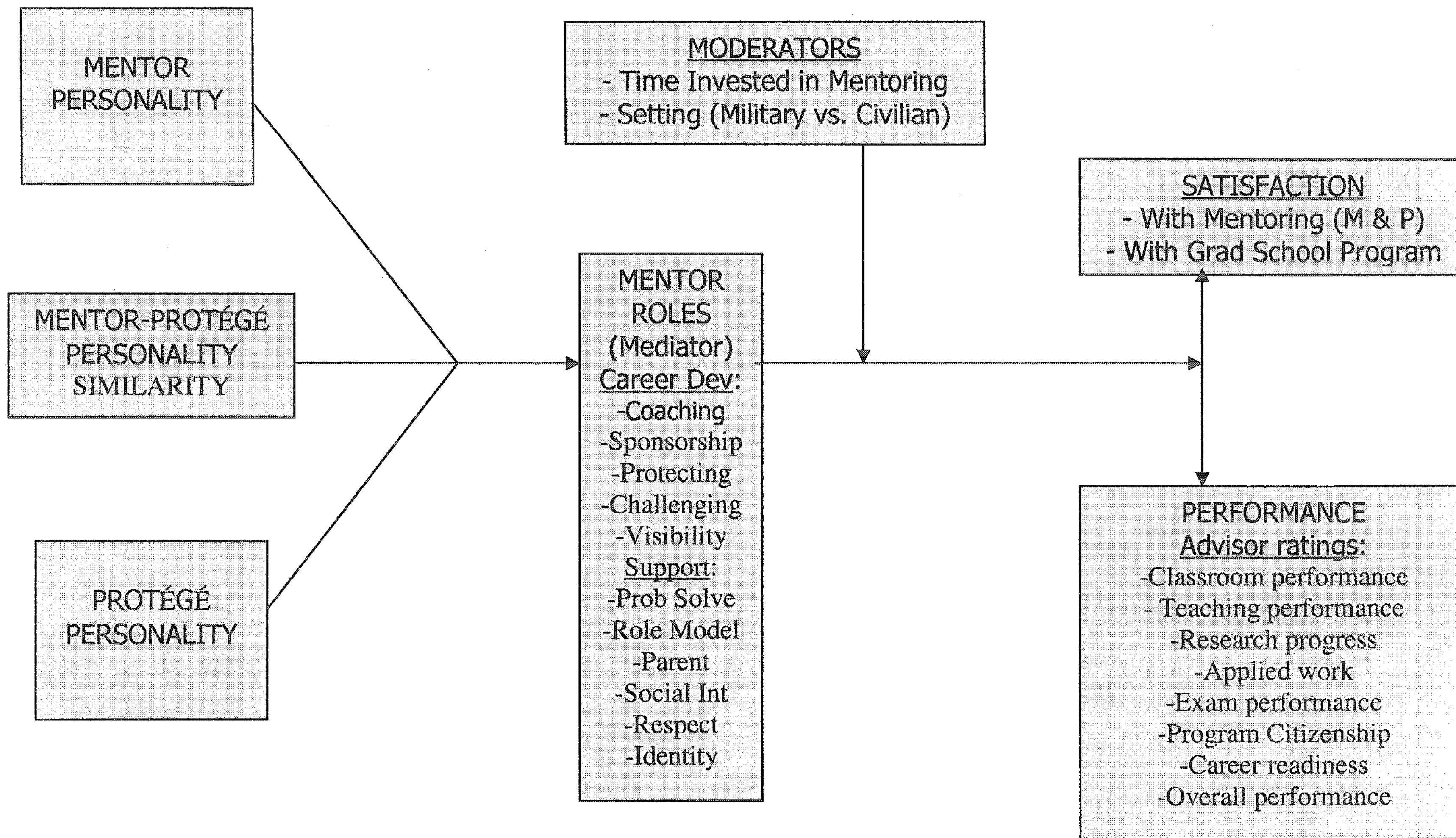

Figure 1 – Proposed Study Model

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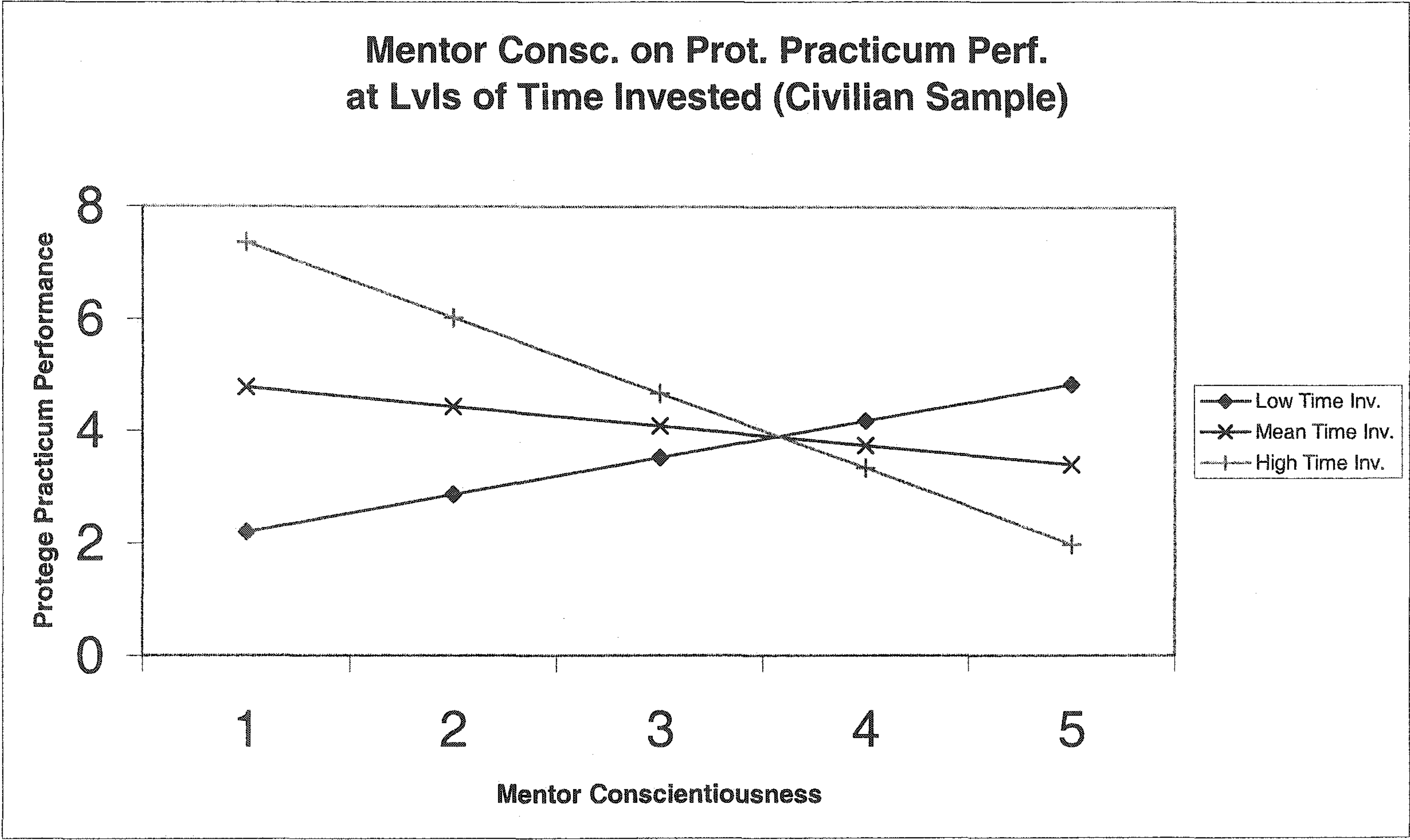

Figure 2

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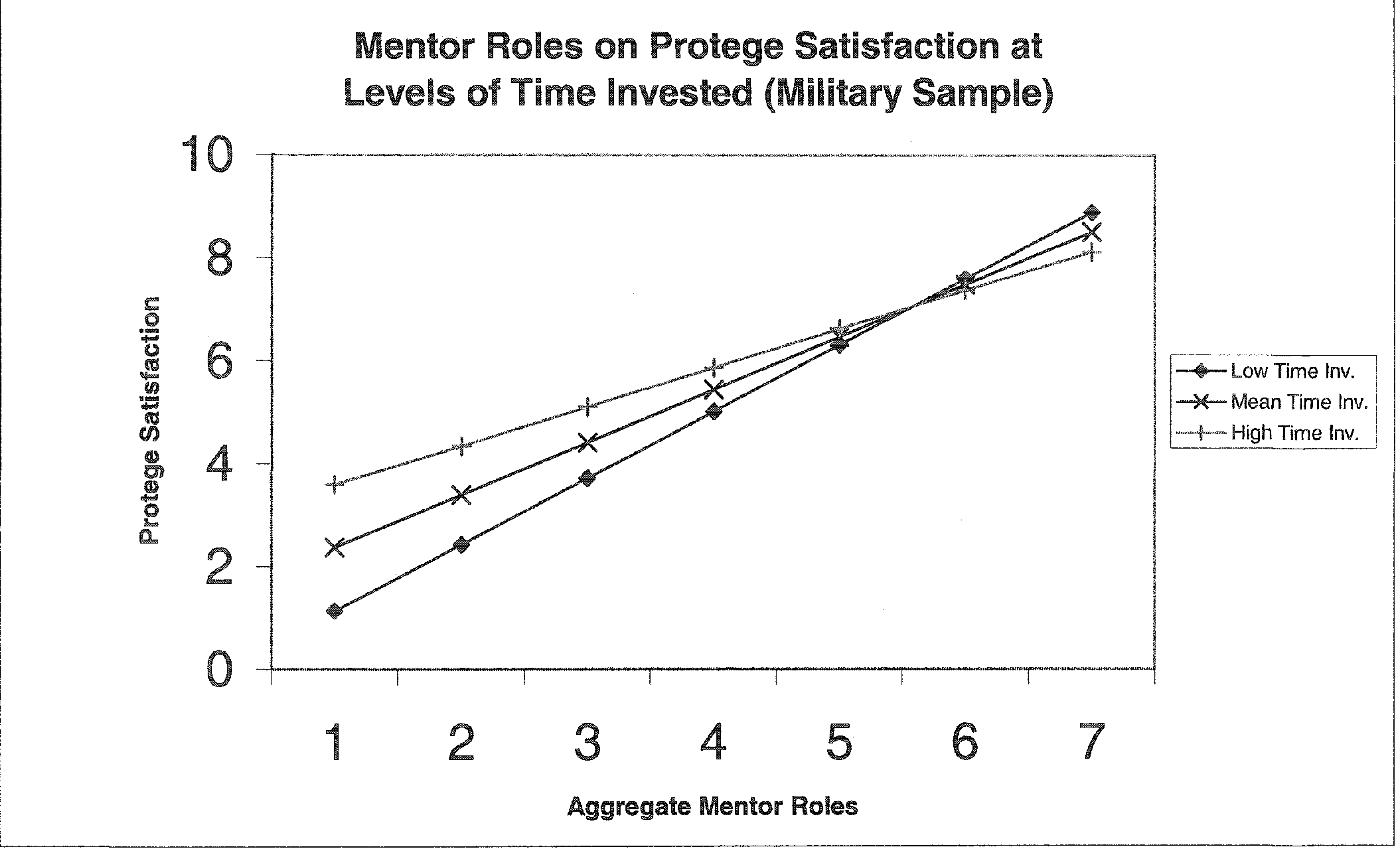

Figure 3

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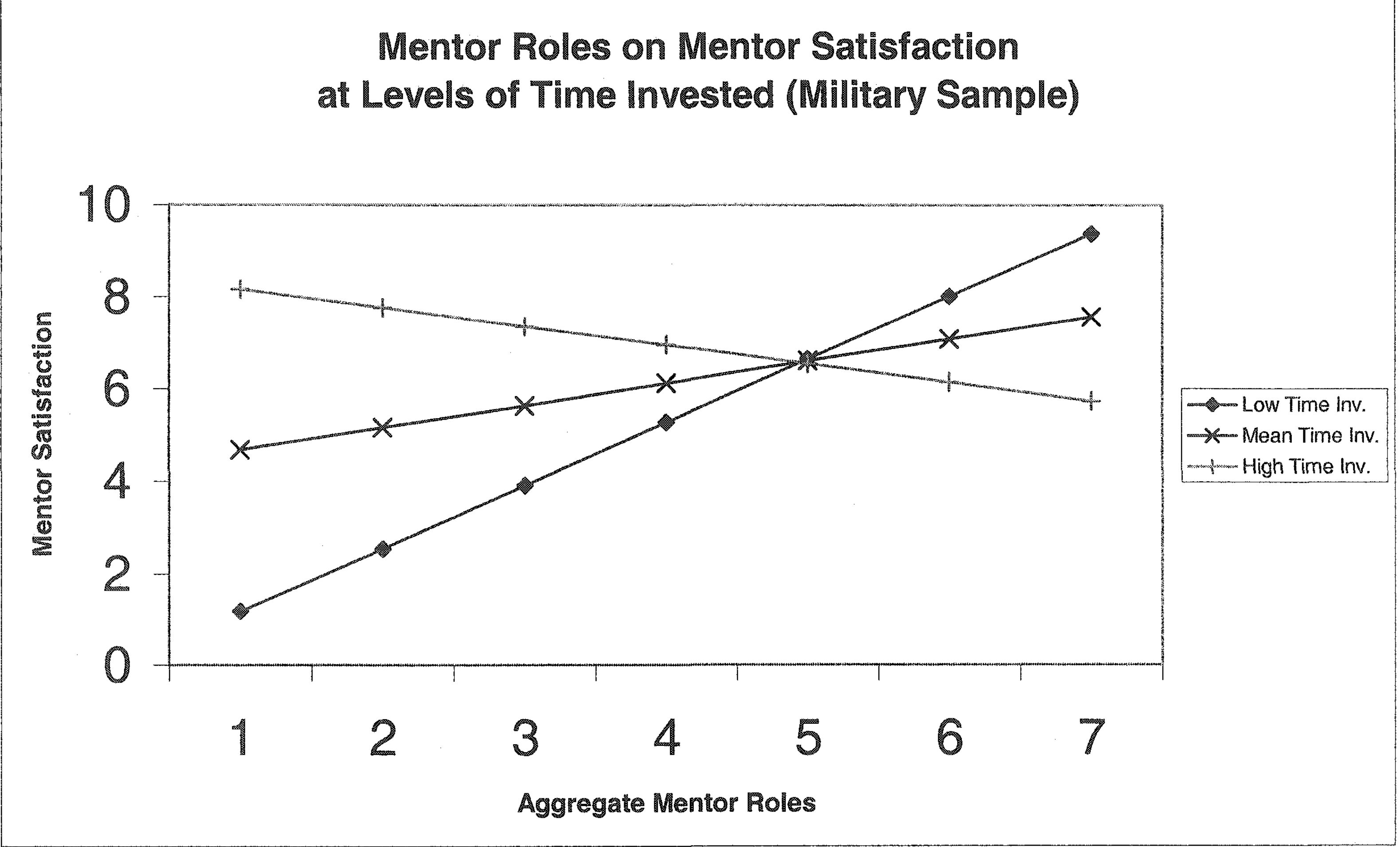

Figure 4

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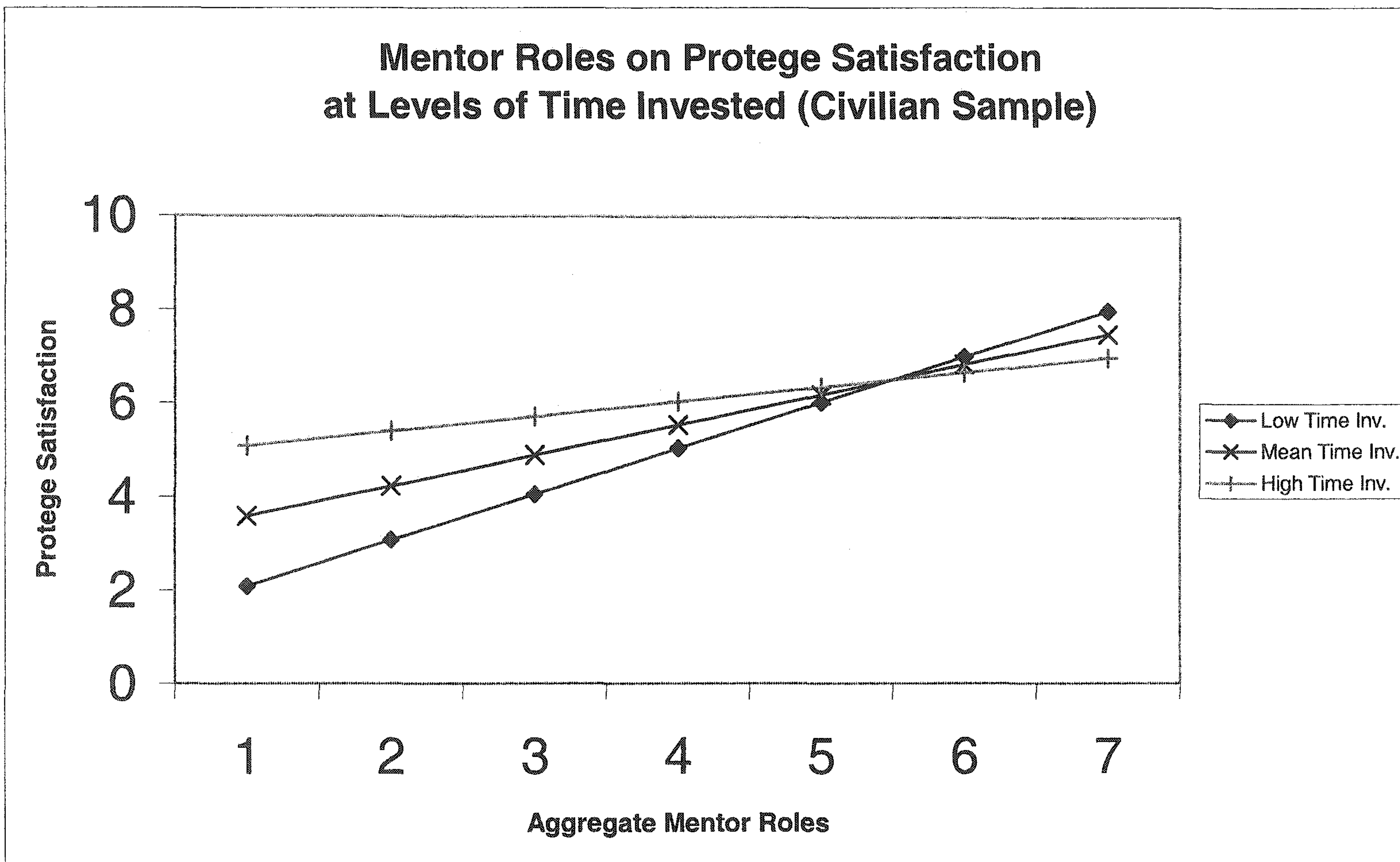

Figure 5

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PERSONALITY
(Mentor, Protégé, and Similarity)

MENTOR ROLES
(Mediator)
Career Dev:
-Coaching
-Sponsorship
-Protecting
-Challenging
-Visibility
Support:
-Prob Solve
-Role Model
-Parent
-Social Int
-Respect
-Identity

MODERATORS
- Time Invested in Mentoring
- Setting (Military vs. Civilian)

SATISFACTION
- With Mentoring (M & P)
- With Grad School Program

PERFORMANCE
Advisor ratings:
-Classroom performance
- Teaching performance
-Research progress
-Applied work
-Exam performance
-Program Citizenship
-Career readiness
-Overall performance

Figure 6 – Final Study Model

APPENDIX B

TABLES

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Table 1

Samples Sizes, Means, Standard Deviations and Reliabilities

	N	M	SD	α
Protégé Personality				
Neuroticism	195	16.17	8.71	.85
Extraversion	195	30.11	6.86	.81
Openness	195	28.09	7.65	.83
Agreeableness	195	29.07	7.64	.79
Conscientiousness	195	33.53	6.50	.83
Mentor Personality				
Neuroticism	77	12.18	7.11	.76
Extraversion	77	27.11	7.56	.81
Openness	77	29.22	6.65	.84
Agreeableness	77	30.61	8.10	.78
Conscientiousness	77	35.31	7.75	.82
Personality Similarity				
Global Similarity	116	7.94	7.94	
Neuroticism	116	8.39	8.39	.76
Extraversion	116	7.70	7.70	.79
Openness	116	7.66	7.66	.81
Agreeableness	116	8.51	8.51	.77
Conscientiousness	116	7.46	7.46	.80
Mentor Roles				
Global Role Score	195	4.44	.87	
Sponsorship	195	4.25	1.53	.84
Coaching	195	4.91	1.12	.60
Protecting	195	3.71	1.35	.83
Challenging	195	4.50	1.61	.90
Exposure	195	3.78	1.48	.87
Friendship	195	5.86	1.11	.86
Social Interaction	195	2.62	1.55	.80
Parent Role	195	2.86	1.50	.80
Role Modeling	195	5.17	1.37	.88
Counseling	195	5.37	1.13	.75
Acceptance	194	5.83	.89	.87
Satisfaction & Time				
Time Invested	195	28.73	65.39	
Mentor Satisfaction	167	5.67	1.27	.96
Protégé Satisfaction	195	5.74	1.15	.82
Prot Satis w/Dept	81	3.83	1.23	
Protégé Performance				
Perf Average	118	3.90	.91	.95
Classroom Perf	112	4.00	1.05	
Teaching Perf	78	4.15	.74	
Research Perf	112	3.44	1.24	
Practicum Perf	85	4.14	.89	
Exam Perf	101	3.81	1.09	
Program Citiznshp	118	4.04	1.07	
Career Prep	118	4.03	1.07	
Overall Perf	118	3.83	1.12	

Note. Personality similarity: Lower numbers indicate increased congruence.

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Table 2

CORRELATIONS OF STUDY VARIABLES—OVERALL SAMPLE

	Mentor Personality					**Protégé Personality**					**Personality Similarity**					
Variable	**Con**	**Ext**	**Agr**	**Neu**	**Ope**	**Con**	**Ext**	**Agr**	**Neu**	**Ope**	**Con**	**Ext**	**Agr**	**Neu**	**Ope**	**Avg Sim.**
Mentor Sat.	.15+	.07	.04	-.19*	.04	.20*	.06	-.13	.06	.11	-.07	.00	-.08	.16+	.10	.05
Protégé Sat.	-.01	-.08	.14	-.09	.07	.20*	.13	-.02	.05	.06	-.09	.06	-.17+	.17+	.06	.01
Dept. Sat.	.07	.04	-.03	.16	.12	-.15	.23*	.07	-.11	-.08	.30*	.13	-.03	.11	.08	-.01
Overall Perf.	.10	-.18+	-.12	-.07	.26*	.28*	.08	.05	.09	.21+	-.10.	.06	-.08	.17	.15	.10
Overall Roles	.04	-.12	-.08	-.06	.19*	.22**	.19*	.03	.06	.12	-.10	-.02	.02	.07	.16+	.06
Time Invested	.19*	-.27**	-.17+	.21*	.29**	.21*	-.03	.07	.00	.01	.05	.06	.01	-.04	.06	.05

Variable	**Mentor Sat.**	**Protégé Sat.**	**Dept. Sat.**	**Overall Perf.**	**Overall Roles**
Mentor Sat.	-				
Protégé Sat.	.51***	-			
Dept. Sat.	.04	.16	-		
Overall Perf.	.80***	.25*	.08	-	
Overall Roles	.43***	.74***	.04	.26*	-
Time Invested	.14	.23*	.01	.16	.24**

Note. +*p*<.*1*. **p* < .05. ***p* < .01. ****p*<.001.

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Table 3

CORRELATIONS OF STUDY VARIABLES—MILITARY SAMPLE

	Mentor Personality					Protégé Personality					Personality Similarity					
Variable	**Con**	**Ext**	**Agr**	**Neu**	**Ope**	**Con**	**Ext**	**Agr**	**Neu**	**Ope**	**Con**	**Ext**	**Agr**	**Neu**	**Ope**	**Avg Sim.**
Mentor Sat.	-.02	.00	.20	-.11	-.02	.12	.01	-.16	.26+	.18	-.12	.07	-.26+	.36*	.03	.01
Protégé Sat.	.01	-.15	.10	.03	.10	.34**	.16	-.05	.11	-.01	-.12	.01	-.26+	.26+	.13	.01
Overall Roles	.12	-.24	-.01	.01	.14	.38**	.34**	-.04	.12	-.02	-.09	-.22	-.19	.14	.12	-.09
Time Invested	-.10	.01	.13	.27+	.09	.21+	.22+	-.09	-.02	-.07	-.19	.08	.14	.10	.09	.08

Variable	Mentor Sat.	Protégé Sat.	Overall Roles
Mentor Sat.	-		
Protégé Sat.	.73***	-	
Overall Roles	.55***	.80***	-
Time Invested	.36*	.31**	.43***

Note. $+p<.1$. $*p < .05$. $**p < .01$. $***p<.001$.

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Table 4

CORRELATIONS OF STUDY VARIABLES—UNIVERSITY SAMPLE

	Mentor Personality					Protégé Personality					Personality Similarity					
Variable	**Con**	**Ext**	**Agr**	**Neu**	**Ope**	**Con**	**Ext**	**Agr**	**Neu**	**Ope**	**Con**	**Ext**	**Agr**	**Neu**	**Ope**	**Avg Sim.**
Mentor Sat.	.20*	.00	-.01	-.17+	.18+	.25*	.00	-.07	-.04	.16	-.03	.04	.02	.08	.16	.00
Protégé Sat.	-.02	-.03	.17	-.16	.04	.13	.23*	.05	-.04	.11	-.07	.08	-.13	.12	.00	.13
Dept. Sat.	.07	.04	-.03	.16	.12	-.15	.23*	.07	-.10	-.08	-.30*	.13	-.03	.11	.08	-.01
Overall Perf.	.10	-.18+	-.12	-.07	.26**	.28*	.08	.05	.09	.21+	-.09	.06	-.08	.17	.15	.10
Overall Roles	.07	.04	-.03	-.17	.06	.05	.21+	.06	.00	.24*	-.12	.01	-.01	.00	.13	.00
Time Invested	.34**	-.17	-.21+	.17	.24*	.28*	.13	.03	-.06	-.13	.07	-.06	-.07	-.12	.09	-.05

Variable	Mentor Sat.	Protégé Sat.	Dept. Sat.	Overall Perf.	Overall Roles
Mentor Sat.	-				
Protégé Sat.	.30*	-			
Dept. Sat.	.04	.16	-		
Overall Perf.	.80***	.25*	.08	-	
Overall Roles	.41***	.68***	.04	.26*	-
Time Invested	.27*	.34**	.01	.16	.31**

Note. +p<*.1*. *p < .05. **p < .01. ***p<.001.

Table 5

STEPWISE REGRESSION OF TIME INVESTED MODERATING PROTÉGÉ CONSCIENTIOUSNESS AND STUDENT PERFORMANCE—UNIVERSITY SAMPLE

		β	Sig.
Step 1			
Protégé Conscientiousness		.26*	.041
Time Invested		.08	.51
Total R^2	**.09**		
Step 2			
Protégé Conscientiousness		.37**	.008
Time Invested		1.61+	.061
Prot. Con. x Time Inv		-1.58+	.072
ΔR^2	**.04**		

Note. +p<.1. *p < .05. **p < .01.

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Table 6

STEPWISE REGRESSION OF TIME INVESTED MODERATING MENTOR CONSCIENTIOUSNESS AND STUDENT PRACTICUM PERFORMANCE—UNIVERSITY SAMPLE

		β	Sig.
Step 1			
Mentor Conscientiousness		.06	.723
Time Invested		.33*	.037
Total R^2	**.13**		
Step 2			
Mentor Conscientiousness		.20	.208
Time Invested		3.48*	.011
Men Con x Time Inv		-3.24*	.020
ΔR^2	**.10**		

Note. $*p < .05$.

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Table 7

STEPWISE REGRESSION OF TIME INVESTED MODERATING MENTOR OPENNESS AND STUDENT PERFORMANCE—UNIVERSITY SAMPLE

		β	Sig.
Step 1			
Mentor Openness		.33**	.006
Time Invested		.08	.489
Total R^2	**.13**		
Step 2			
Mentor Openness		.28*	.041
Time Invested		-.784	.512
Men Open x Time Inv		.88	.467
ΔR^2	**.01**		

Note. $*p < .05$. $**p < .01$.

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Table 8

STEPWISE REGRESSION OF UNIVERSITY DEPARTMENT MODERATING PROTÉGÉ CONSCIENTIOUSNESS AND STUDENT PERFORMANCE—UNIVERSITY SAMPLE

		β	Sig.
Step 1			
Protégé Conscientiousness		.23+	.068
University Department		-.01	.971
Total R^2	**.05**		
Step 2			
Protégé Conscientiousness		-.06	.903
University Department		-.44	.525
Prot Con x Univ Dept		.57	.522
ΔR^2	**.01**		

Note. $+p<.1$.

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Table 9

STEPWISE REGRESSION OF UNIVERSITY DEPARTMENT MODERATING MENTOR CONSCIENTIOUSNESS AND STUDENT PRACTICUM PERFORMANCE—UNIVERSITY SAMPLE

		β	Sig.
Step 1			
Mentor Conscientiousness		.12	.447
University Department		-.06	.727
Total R^2	**.02**		
Step 2			
Mentor Conscientiousness		-.25	.666
University Department		-.55	.468
Men Con x Univ Dept		.516	.504
ΔR^2	**.01**		

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Table 10

STEPWISE REGRESSION OF TIME INVESTED MODERATING MENTORING ROLES AND PROTÉGÉ SATISFACTION WITH MENTORING RELATIONSHIP—MILITARY SAMPLE

		β	Sig.
Step 1			
Mentoring Roles		.81***	.000
Time Invested		-.03	.692
Total R^2	**.64**		
Step 2			
Mentoring Roles		.992***	.000
Time Invested		1.151*	.018
Roles x Time Inv		-1.284*	.013
ΔR^2	**.03**		

Note. *$p < .05$. ***$p<.001$.

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Table 11

STEPWISE REGRESSION OF TIME INVESTED MODERATING MENTORING ROLES AND MENTOR SATISFACTION WITH MENTORING RELATIONSHIP—MILITARY SAMPLE

		β	Sig.
Step 1			
Mentoring Roles		.48***	.001
Time Invested		.16	.244
Total R^2	**.32**		
Step 2			
Mentoring Roles		1.15***	.001
Time Invested		1.76*	.020
Roles x Time Inv		-1.982*	.032
ΔR^2	**.07**		

Note. $*p < .05$. $***p<.001$.

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Table 12

STEPWISE REGRESSION OF TIME INVESTED MODERATING MENTORING ROLES AND PROTÉGÉ SATISFACTION WITH MENTORING RELATIONSHIP—UNIVERSITY SAMPLE

		β	Sig.
Step 1			
Mentoring Roles		.50***	.000
Time Invested		.12	.226
Total R^2	**.30**		
Step 2			
Mentoring Roles		.64***	.000
Time Invested		1.50*	.019
Roles x Time Inv		-1.45*	.029
ΔR^2	**.04**		

Note. $*p < .05$. $***p<.001$.

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Table 13

STEPWISE REGRESSION OF TIME INVESTED MODERATING MENTORING ROLES AND STUDENT PERFORMANCE—UNIVERSITY SAMPLE

		β	Sig.
Step 1			
Mentoring Roles		.30*	.016
Time Invested		.07	.552
Total R^2	**.11**		
Step 2			
Mentoring Roles		.32*	.032
Time Invested		.31	.698
Roles x Time Inv		-.25	.762
ΔR^2	**.00**		

Note. $*p < .05$.

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Table 14

THREE REGRESSIONS (A, B, AND C) TO TEST MENTOR ROLES AS A MEDIATOR OF THE RELATIONSHIP BETWEEN PROTÉGÉ CONSCIENTIOUSNESS AND PROTÉGÉ SATISFACTION WITH MENTORING —OVERALL SAMPLE

Protégé Satisfaction (DV)	R^2	β	Sig.
A) onto Mentor Roles (Med)	.56	13.3	.000
B) onto Protégé Consc (IV)	.05	**.22**	**.01**
C) Simultaneous Regression	.56		.000
Protégé Satisfaction onto			
Mentor Roles		.73	.000
Protégé Consc		**.17**	**.08**
Change after mediation		**.05**	**.07**

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Table 15

THREE REGRESSIONS (A, B, AND C) TO TEST MENTOR ROLES AS A MEDIATOR OF THE RELATIONSHIP BETWEEN PROTÉGÉ CONSCIENTIOUSNESS AND MENTOR SATISFACTION WITH MENTORING —OVERALL SAMPLE

Mentor Satisfaction (DV)	R^2	β	Sig.
A) onto Mentor Roles (Med)	.19	.43	.000
B) onto Protégé Consc (IV)	.04	**.20**	**.03**
C) Simultaneous Regression	.21		.000
Mentor Satisfaction onto			
Mentor Roles		4.82	.000
Protégé Consc		**.13**	**.13**
Change after mediation		**.07**	**.10**

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Table 16

THREE REGRESSIONS (A, B, AND C) TO TEST MENTOR ROLES AS A MEDIATOR OF THE RELATIONSHIP BETWEEN PROTÉGÉ EXTRAVERSION AND PROTÉGÉ SATISFACTION WITH MENTORING —DEPT A

Protégé Satisfaction (DV)	R^2	β	Sig.
A) onto Mentor Roles (Med)	.51	.72	.000
B) onto Protégé Extra (IV)	.18	**.43**	**.01**
C) Simultaneous Regression	.54		.000
Protégé Satisfaction onto			
Mentor Roles		.65	.000
Protégé Extra		**.17**	**.18**
Change after mediation		**.26**	**.17**

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Table 17

THREE REGRESSIONS (A, B, AND C) TO TEST MENTOR ROLES AS A MEDIATOR OF THE RELATIONSHIP BETWEEN PROTÉGÉ OPENNESS AND MENTOR SATISFACTION WITH MENTORING —DEPT B

Mentor Satisfaction (DV)	R^2	β	Sig.
A) onto Mentor Roles (Med)	.28	.53	.004
B) onto Protégé Open (IV)	.18	**.42**	**.03**
C) Simultaneous Regression	.33		.007
Mentor Satisfaction onto			
Mentor Roles		.43	.025
Protégé Open		**.25**	**.18**
Change after mediation		**.17**	**.15**

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APPENDIX C

MEASURES

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Measures Package for Protégés in the Civilian Sample:

Please respond to the following items. Under no circumstances will specific responses or personal information be disclosed. All data will be referenced collectively.

1. Your Gender (circle) Male Female

2. Your Ethnic Group
________ African American
________ Asian
________ Caucasian
________ Hispanic
________ Other (specify)

3. Your Age ___________

Please carefully read each statement below and write your responses on the line next to each item. Please respond to the next 60 items on the following scale:

1------------------------2------------------------3------------------------4------------------------5

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

____ 1. I am not a worrier.
____ 2. I like to have a lot of people around me.
____ 3. I don't like to waste my time daydreaming.
____ 4. I try to be courteous to everyone I meet.
____ 5. I keep my belongings clean and neat.
____ 6. I often feel inferior to others.
____ 7. I laugh easily.
____ 8. Once I find the right way to do something, I stick to it.
____ 9. I often get into arguments with my family and co-workers
____ 10. I'm pretty good about pacing myself so as to get things done on time.
____ 11. When I'm under a great deal of stress, sometimes I feel like I'm going to pieces.
____ 12. I don't consider myself especially "light-hearted."
____ 13. I am intrigued by the patterns I find in art and nature.
____ 14. Some people think I'm selfish and egotistical.
____ 15. I am not a very methodical person.
____ 16. I rarely feel lonely or blue.
____ 17. I really enjoy talking to people.
____ 18 I believe letting students hear controversial speakers can only confuse and mislead them.
____ 19. I would rather cooperate with others than compete with them.
____ 20. I try to perform all the tasks assigned to me conscientiously.
____ 21. I often feel tense and jittery.
____ 22. I like to be where the action is.

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____ 23. Poetry has little or no effect on me.
____ 24. I tend to be cynical and skeptical of others' intentions.
____ 25. I have a clear set of goals and work toward them in an orderly fashion.
____ 26. Sometimes I feel completely worthless.
____ 27. I usually prefer to do things alone.
____ 28. I often try new and foreign foods.
____ 29. I believe that most people will take advantage of you if you let them.
____ 30. I waste a lot of time before settling down to work.
____ 31. I rarely feel fearful or anxious.
____ 32. I often feel as if I'm busting with energy.
____ 33. I seldom notice the moods or feelings that different environments produce.
____ 34. Most people I know like me.
____ 35. I work hard to accomplish my goals.
____ 36. I often get angry at the way people treat me.
____ 37. I am a cheerful, high-spirited person.
____ 38. I believe we should look to our religious authorities for decisions on moral issues.
____ 39. Some people think of me as cold and calculating.
____ 40. When I make a commitment, I can always be counted on to follow through.
____ 41. Too often, when things go wrong, I get discouraged and feel like giving up.
____ 42. I am not a cheerful optimist.
____ 43. Sometimes when I am reading poetry or looking at a work of art, I feel a chill or wave of excitement.
____ 44. I'm hard-headed and tough-minded in my attitudes.
____ 45. Sometimes I'm not as dependable or reliable as I should be.
____ 46. I am seldom sad or depressed.
____ 47. My life is fast-paced.
____ 48. I have little interest in speculating on the nature of the universe or the human condition.
____ 49. I generally try to be thoughtful and considerate.
____ 50. I am a productive person who always gets the job done.
____ 51. I often feel helpless and want someone else to solve my problems.
____ 52. I am a very active person.
____ 53. I have a lot of intellectual curiosity.
____ 54. If I don't like people, I let them know it.
____ 55. I never seem to be able to get organized.
____ 56. At times I have been so ashamed I just wanted to hide.
____ 57. I would rather go my own way than be a leader of others.
____ 58. I often enjoy playing with theories or abstract ideas.
____ 59. If necessary, I am willing to manipulate people to get what I want.
____ 60. I strive for excellence in everything I do.

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The questions below refer to your relationship with your primary advisor in his or her role as a mentor.

Please use the following scale to respond to the items below:

+----	----+----	----+----	----+----	----+----	----+----	----+
1	2	3	4	5	6	7
Totally Disagree			Neutral			Totally Agree

My Mentor...

___ ...helps me attain desirable positions.
___ ...fails to meet my needs.
___ ...disappoints me.
___ ...helps me learn about other parts of the organization.
___ ...suggests specific strategies for achieving career aspirations.
___ ...assigns me tasks that push me into developing new skills.
___ ..."runs interference" for me in the organization.
___ ...sees me as being competent.
___ ...provides support and encouragement.
___ ...serves as a sounding board for me to develop and understand myself.
___ ...shields me from damaging contact with important people in the organization.
___ ...is like a father/mother to me.
___ ...gives me advice on how to attain recognition in the organization.
___ ...guides my personal development.
___ ...protects me from those who may be out to get me.
___ ...treats me like a son/daughter.
___ ...creates opportunities for me to impress important people in the organization.
___ ...brings my accomplishments to the attention of important people in the organization.
___ ...is someone I can confide in.
___ ...accepts me as a competent professional.
___ ...is someone I can trust.
___ ...guides my professional development.
___ ...gives me tasks that require me to learn new skills.
___ ...and I frequently get together informally after work by ourselves.
___ ...provides me with challenging assignments.
___ ...serves as a role-model for me.
___ ...uses his/her influence to support my advancement in the organization.
___ ...and I frequently socialize one-on-one outside the work setting.
___ ...helps me be more visible in the organization.
___ ...and I frequently have one-on-one, informal social interactions.
___ ...reminds me of one of my parents.
___ ...uses his/her influence in the organization for my benefit.
___ ...is someone I identify with.
___ ...represents who I want to be.
___ ...thinks highly of me.
___ ...is someone I am satisfied with.
___ ...has been effective in his/her role.

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Mentoring Satisfaction Questionnaire for Graduate Students

The following items refer to your relationship with your primary advisor in his or her role as a mentor. Please place a number from the scale below on the line before each item to indicate the extent to which the statement describes your mentoring experience.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

1. ________ I am satisfied with my mentor.

2. ________ If I could switch mentors, I would.

3. ________ My mentor fails to meet my needs.

4. ________ My mentor disappoints me.

5. ________ My mentor has been effective in his or her role.

6. ________ So far I have gotten the things I want from my mentor.

7. ________ The quality of my relationship with my mentor is excellent.

8. ________ I am pleased with the level of closeness between my mentor and myself.

9. ________ I feel uncomfortable discussing important personal or professional issues with my mentor.

10. _______ The relationship I have with my mentor is meaningful to me.

11. _______ I feel that my mentor and I are equally invested in the mentoring process.

12. _______ I am frustrated with the mentoring process.

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General Mentoring Information Instrument for Graduate Students

Please respond to the following questions regarding yourself and your relationship with your current mentor (your advisor). Under no circumstances will specific responses or personal information be disclosed. All data will be referenced collectively.

1. Your academic program/department

____

2. How satisfied are you in general with this academic department? (check one)

___ Very dissatisfied
___ Somewhat dissatisfied
___ Neutral
___ Somewhat satisfied
___ Very satisfied

3. How long have you been working with your current advisor? (in months) __________

4. About how many times do you meet with your advisor per semester? __________

5. What is the average duration of these meetings? (in minutes) __________

6. What factors influenced your assignment/choice of this advisor? (Check all that apply)
___ I had little or no input
___ Research interests
___ Teaching style
___ Areas of expertise
___ Work style
___ Career or applied interests
___ Previous contact with this professor
___ Personality
___ Race
___ Gender
___ Age
___ Other (specify) ____

7. Have you ever changed advisors in this program? (circle) Yes No

8. If you answered yes to the previous question, what were the reason(s) for changing advisors?

____
____

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Measures Package for Mentors in the Civilian Sample:

Please respond to the following items. Under no circumstances will specific responses or personal information be disclosed. All data will be referenced collectively.

1. Your Gender (circle)   Male   Female

2. Your Ethnic Group
________ African American
________ Asian
________ Caucasian
________ Hispanic
________ Other (specify)

3. Your Age ___________

Please carefully read each statement below and write your responses on the line next to each item. Please respond to the next 60 items on the following scale:

1------------------------2------------------------3------------------------4------------------------5

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

____ 1. I am not a worrier.
____ 2. I like to have a lot of people around me.
____ 3. I don't like to waste my time daydreaming.
____ 4. I try to be courteous to everyone I meet.
____ 5. I keep my belongings clean and neat.
____ 6. I often feel inferior to others.
____ 7. I laugh easily.
____ 8. Once I find the right way to do something, I stick to it.
____ 9. I often get into arguments with my family and co-workers
____ 10. I'm pretty good about pacing myself so as to get things done on time.
____ 11. When I'm under a great deal of stress, sometimes I feel like I'm going to pieces.
____ 12. I don't consider myself especially "light-hearted."
____ 13. I am intrigued by the patterns I find in art and nature.
____ 14. Some people think I'm selfish and egotistical.
____ 15. I am not a very methodical person.
____ 16. I rarely feel lonely or blue.
____ 17. I really enjoy talking to people.
____ 18 I believe letting students hear controversial speakers can only confuse and mislead them.
____ 19. I would rather cooperate with others than compete with them.
____ 20. I try to perform all the tasks assigned to me conscientiously.
____ 21. I often feel tense and jittery.

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____ 22. I like to be where the action is.
____ 23. Poetry has little or no effect on me.
____ 24. I tend to be cynical and skeptical of others' intentions.
____ 25. I have a clear set of goals and work toward them in an orderly fashion.
____ 26. Sometimes I feel completely worthless.
____ 27. I usually prefer to do things alone.
____ 28. I often try new and foreign foods.
____ 29. I believe that most people will take advantage of you if you let them.
____ 30. I waste a lot of time before settling down to work.
____ 31. I rarely feel fearful or anxious.
____ 32. I often feel as if I'm busting with energy.
____ 33. I seldom notice the moods or feelings that different environments produce.
____ 34. Most people I know like me.
____ 35. I work hard to accomplish my goals.
____ 36. I often get angry at the way people treat me.
____ 37. I am a cheerful, high-spirited person.
____ 38. I believe we should look to our religious authorities for decisions on moral issues.
____ 39. Some people think of me as cold and calculating.
____ 40. When I make a commitment, I can always be counted on to follow through.
____ 41. Too often, when things go wrong, I get discouraged and feel like giving up.
____ 42. I am not a cheerful optimist.
____ 43. Sometimes when I am reading poetry or looking at a work of art, I feel a chill or wave of excitement.
____ 44. I'm hard-headed and tough-minded in my attitudes.
____ 45. Sometimes I'm not as dependable or reliable as I should be.
____ 46. I am seldom sad or depressed.
____ 47. My life is fast-paced.
____ 48. I have little interest in speculating on the nature of the universe or the human condition.
____ 49. I generally try to be thoughtful and considerate.
____ 50. I am a productive person who always gets the job done.
____ 51. I often feel helpless and want someone else to solve my problems.
____ 52. I am a very active person.
____ 53. I have a lot of intellectual curiosity.
____ 54. If I don't like people, I let them know it.
____ 55. I never seem to be able to get organized.
____ 56. At times I have been so ashamed I just wanted to hide.
____ 57. I would rather go my own way than be a leader of others.
____ 58. I often enjoy playing with theories or abstract ideas.
____ 59. If necessary, I am willing to manipulate people to get what I want.
____ 60. I strive for excellence in everything I do.

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Advisee Tracking # ________
(For combining advisor-advisee data only;
responses will remain confidential)

Mentoring Satisfaction Questionnaire

The following items refer to your mentoring relationship with your student advisee in his or her role as your protégé. Please place a number from the scale below on the line before each item to indicate the extent to which the statement describes your mentoring experience.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

1. ________ I am satisfied with my protégé.

2. ________ If I could switch protégés, I would.

3. ________ My protégé fails to meet my needs.

4. ________ My protégé disappoints me.

5. ________ My protégé has been effective in his or her role.

6. ________ So far I have gotten the things I want from my protégé.

7. ________ The quality of my relationship with my protégé is excellent.

8. ________ I am pleased with the level of closeness between my protégé and myself.

9. ________ I feel uncomfortable discussing important personal or professional issues with my protégé.

10. _______ The relationship I have with my protégé is meaningful to me.

11. _______ I feel that my protégé and I are equally invested in the mentoring process.

12. _______ I am frustrated with the mentoring process.

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Advisee Tracking # ________
(For combining advisor-advisee data only;
responses will remain confidential)

Advisor Ratings of Graduate Student Performance

The following items refer to your assessment of your advisee's performance ***relative to all your past and current advisees***. Please place a number from the scale below on the line before each item to indicate your assessment. If the question does not apply, or you don't know, please write "N/A".

1	2	3	4	5
Bottom 20% of Advisees	Below Average (21-40% of Advisees)	Average (41-60% of Advisees)	Above Avg. (61-80% of Advisees)	Top 20% of Advisees

1. ________ My advisee's classroom performance (as a student).

2. ________ My advisee's teaching performance.

3. ________ My advisee's timely research progress.

4. ________ My advisee's applied or practicum performance.

5. ________ My advisee's overall "exam" performance. (e.g., orals, written exams, defenses)

6. ________ My advisee as a "good citizen" of the program/department.

7. ________ My advisee's progress towards general career readiness. (e.g., informed, capable, professional)

8. ________ My advisee's overall performance as a graduate student.

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Measures Package for the Military Sample
(Utilized in a Previous Study)

Mentorship Satisfaction Questionnaire – Protégé Version

Please place a number from the scale below on the line before each item to indicate the extent to which the statement describes your mentoring experience.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

1. ________ My mentor is someone I am satisfied with.

2. ________ If I could switch mentors, I would.

3. ________ My mentor fails to meet my needs.

4. ________ My mentor disappoints me.

5. ________ My mentor has been effective in his or her role.

6. ________ So far I have gotten the things I want from my mentor.

7. ________ The quality of my relationship with my mentor is excellent.

8. ________ I am pleased with the level of closeness between my mentor and myself.

9. ________ I feel uncomfortable discussing important personal or professional issues with my mentor.

10. _______ The relationship I have with my mentor is meaningful to me.

11. _______ I feel that my mentor and I are equally invested in the mentoring process.

12. _______ I am frustrated with the mentoring process.

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NEO Five-Factor Instrument (60-item Short Form)

Carefully read all of the instructions before beginning. This questionnaire contains sixty statements. Read each statement carefully. For each statement, write in the letter(s) (SD, D, etc.) that best represent your opinion.

Choose **SD** if you strongly disagree or the statement is definitely false.
Choose **D** if you disagree or the statement is mostly false.
Choose **N** if you are neutral on the statement, you cannot decide, or the statement is about equally true and false.
Choose **A** if you agree or the statement is mostly true.
Choose **SA** if you strongly agree or the statement is definitely true.

Fill in only one response for each statement. Respond to all of the statements, making sure that you fill in the best response.

____ 1. I am not a worrier.
____ 2. I like to have a lot of people around me.
____ 3. I don't like to waste my time daydreaming.
____ 4. I try to be courteous to everyone I meet.
____ 5. I keep my belongings clean and neat.
____ 6. I often feel inferior to others.
____ 7. I laugh easily.
____ 8. Once I find the right way to do something, I stick to it.
____ 9. I often get into arguments with my family and co-workers
____ 10. I'm pretty good about pacing myself so as to get things done on time.
____ 11. When I'm under a great deal of stress, sometimes I feel like I'm going to pieces.
____ 12. I don't consider myself especially "light-hearted."
____ 13. I am intrigued by the patterns I find in art and nature.
____ 14. Some people think I'm selfish and egotistical.
____ 15. I am not a very methodical person.
____ 16. I rarely feel lonely or blue.
____ 17. I really enjoy talking to people.
____ 18 I believe letting students hear controversial speakers can only confuse and mislead them.
____ 19. I would rather cooperate with others than compete with them.
____ 20. I try to perform all the tasks assigned to me conscientiously.
____ 21. I often feel tense and jittery.
____ 22. I like to be where the action is.
____ 23. Poetry has little or no effect on me.
____ 24. I tend to be cynical and skeptical of others' intentions.
____ 25. I have a clear set of goals and work toward them in an orderly fashion.
____ 26. Sometimes I feel completely worthless.
____ 27. I usually prefer to do things alone.

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_____ 28. I often try new and foreign foods.
_____ 29. I believe that most people will take advantage of you if you let them.
_____ 30. I waste a lot of time before settling down to work.
_____ 31. I rarely feel fearful or anxious.
_____ 32. I often feel as if I'm busting with energy.
_____ 33. I seldom notice the moods or feelings that different environments produce.
_____ 34. Most people I know like me.
_____ 35. I work hard to accomplish my goals.
_____ 36. I often get angry at the way people treat me.
_____ 37. I am a cheerful, high-spirited person.
_____ 38. I believe we should look to our religious authorities for decisions on moral issues.
_____ 39. Some people think of me as cold and calculating.
_____ 40. When I make a commitment, I can always be counted on to follow through.
_____ 41. Too often, when things go wrong, I get discouraged and feel like giving up.
_____ 42. I am not a cheerful optimist.
_____ 43. Sometimes when I am reading poetry or looking at a work of art, I feel a chill or wave of excitement.
_____ 44. I'm hard-headed and tough-minded in my attitudes.
_____ 45. Sometimes I'm not as dependable or reliable as I should be.
_____ 46. I am seldom sad or depressed.
_____ 47. My life is fast-paced.
_____ 48. I have little interest in speculating on the nature of the universe or the human condition.
_____ 49. I generally try to be thoughtful and considerate.
_____ 50. I am a productive person who always gets the job done.
_____ 51. I often feel helpless and want someone else to solve my problems.
_____ 52. I am a very active person.
_____ 53. I have a lot of intellectual curiosity.
_____ 54. If I don't like people, I let them know it.
_____ 55. I never seem to be able to get organized.
_____ 56. At times I have been so ashamed I just wanted to hide.
_____ 57. I would rather go my own way than be a leader of others.
_____ 58. I often enjoy playing with theories or abstract ideas.
_____ 59. If necessary, I am willing to manipulate people to get what I want.
_____ 60. I strive for excellence in everything I do.

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Mentoring Information Instrument

Please respond to the following questions regarding your relationship with your **current mentor**. Under no circumstances will personal information be disclosed. All data will be referenced collectively.

1. Your sex (circle) Male Female

2. Sex of Mentor (circle) Male Female

3. Your Race
________ African American
________ Asian
________ Caucasian
________ Hispanic
________ Other (specify)

4. Race of Mentor
________ African American
________ Asian
________ Caucasian
________ Hispanic
________ Other (specify)

5. Your Age ___________

6. Estimated Age of Mentor ___________

7. What was the correlation score of the mentor you selected? ___________

Was the correlation a positive or negative number? (circle) positive negative

8. From the beginning of the semester to today, how many sessions have you had with your current mentor? __________

9. Across those mentoring sessions, what has been the average duration (in minutes)? __________ minutes

10. If your mentor has more than one protégé, how many of your meetings have been group meetings? ___________

11. During the semester, did you change mentors? (circle) Yes No

12. If you answered "Yes" to number 10, how many meetings did you have with your first mentor before you decided to change mentors? __________

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13. How did you come to participate in the mentorship program?

__________ I am a military leader

__________ I am a team captain

__________ I am both a military leader and a team captain

14. How many years do you intend to stay in the service? __________ years

15. Was the mentor's sex important in your selection of him/her as your mentor? (circle)

Not at all Important	Slightly Important	Moderately Important	Quite Important	Extremely Important

16. Was the mentor's race important in your selection of him/her as your mentor? (circle)

Not at all Important	Slightly Important	Moderately Important	Quite Important	Extremely Important

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