

## ABSTRACT

Title of thesis: A MULTI-LEVEL ANALYSIS OF THE EFFECTS OF SURFACE- AND DEEP-LEVEL DIVERSITY, IDENTIFICATION, AND PAST PERFORMANCE ON SUPERVISORY MENTORING

Archie L. Bates, III, Master of Arts, 2003

Thesis directed by: Professor Katherine J. Klein  
Department of Psychology

Researchers have provided inconsistent results regarding the effects of diversity on mentoring. The current study examines the effect of surface-level and underlying diversity on mentoring. I hypothesize that diversity negatively impacts upon identification (an emotional process by which one empathizes with, emulates, and feels similar to another person and/or feels that another person is a part of one's idealized self-image) and highlight the importance of identification in mentoring. As theorists suggest that protégé past performance predicts mentoring, I also investigate the effect of this factor on mentoring.

Using hierarchical linear modeling, I examine whether supervisors provide different levels of mentoring to subordinates based on similarity and past performance. Results suggest that underlying diversity does not negatively impact upon identification. However, gender diversity negatively impacts upon both subordinate and supervisor identification, and age diversity negatively impacts supervisor identification. Limited

evidence suggests that supervisors provide increased mentoring to high performing subordinates.

A MULTI-LEVEL ANALYSIS OF THE EFFECTS OF SURFACE- AND DEEP-  
LEVEL DIVERSITY, IDENTIFICATION, AND PAST PERFORMANCE ON  
SUPERVISORY MENTORING

by

Archie L. Bates, III

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Advisory Committee:

Professor Katherine J. Klein, Chair  
Professor Paul J. Hanges  
Professor Benjamin Schneider

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The impact of diversity on mentoring relationships has recently emerged as a topic of heightened interest within the mentoring literature. Increased organizational diversity has set the stage for mentoring relationships to be comprised of men and women of diverse backgrounds (Cox, 1993; Ragins, 1997a). However, mentoring theorists (e.g., Ragins, 1997a) suggest that differences in overt, "surface-level" (Harrison, Price, & Bell, 1998; Jackson, May, & Whitney, 1995) features such as race and gender may preclude individuals from identifying with each other, thereby dissuading individuals from engaging in mentoring relationships. While some researchers (e.g., Ensher & Murphy, 1997; Thomas, 1990) have found significant negative effects for race and gender diversity on mentoring, other researchers (e.g., Ragins & Cotton, 1999; Ragins & McFarlin, 1990; Scandura & Williams, 2001; Sosik & Godshalk, 2000; Turban, Dougherty, & Lee, 2002) have found non-significant effects for surface-level diversity.

An emergent paradigm in the diversity research may provide a plausible explanation for the conflicting results found in the mentoring literature. Conceptual models of "deep-level" diversity (Harrison et al., 1998; Jackson et al., 1995) suggest that underlying differences in interests, values, attitudes, and beliefs (Harrison et al., 1998; Jehn, Chadwick, & Thatcher, 1997) may have "differentially salient consequences" (Harrison, Price, Gavin, & Florey, 2002, p. 1029) than surface-level differences may have. Thus, deep-level or "underlying psychological" (p.1029) differences may affect mentoring differently than deep-level differences may. Accordingly, one of the purposes of the present study is to further examine the influence of diversity on mentoring by considering the effects of both surface- and deep-level diversity on the identification between supervisors and their subordinates.

In addition, the present study investigates the relative influence of protégé performance on mentoring. Theorized to predict the establishment of mentoring relationships, yet rarely tested in mentoring research (see Allen, Poteet, & Russell, 2000; Olian, Carroll, & Giannantonio, 1993 for examples), performance may be a criterion by which mentors judge would-be protégés (Kanter, 1977). Indeed, some individuals may be inclined to choose successful mentoring partners, notwithstanding the extent to which they identify with those individuals.

Lastly, the current study gives special consideration to relationships involving minority (racial minority and women) mentors. Existing mentoring theory (Ragins, 1997b) suggests that minority mentors may be less capable of mentoring than majority members (White men) are because minority members have fewer resources for organizational power than majority members do. Thus, I pose a research question to examine whether minority mentors provide less mentoring than their majority counterparts do. As organizational management ranks become more demographically diverse (Triandis, Kurowski, & Gelfand, 1993) research on minority mentors becomes more consequential. The present study addresses the paucity of research in this area.

The current study adds to and improves upon the existing mentoring literature in several ways. First, the present study adds to the mentoring literature by examining the role of deep-level diversity, in addition to the role of surface-level diversity. Second, this study provides conceptual and methodological advancement upon the current mentoring literature. The current mentoring literature is rife with single-source bias, retrospective measures, and cross-sectional data: either mentors or protégés comment on a history of mentoring relationships in which they have been involved (see Allen et al., 2000; Dreher

& Cox, 1996; Ragins & Cotton, 1999; Turban et al., 2002, for examples). While these studies provide a significant contribution to the understanding of mentoring relationships, these studies' results are susceptible to recall, common method variance, and other methodological constraints. Instead, the current study uses a longitudinal approach and assesses existing relationships—rather than past relationships—from both the mentor's and the protégé's perspective. Third, the present study takes a multi-level approach, in order to examine whether supervisors provide various levels of mentoring to their subordinates.

In addition, the current study is one of few studies (see Green & Bauer, 1995; Scandura & Schriesheim, 1994, for other examples) that focus solely on "supervisory mentoring," that is, mentoring that supervisors provide to their subordinates. Researchers (Burke & McKeen, 1997; Burke, McKenna, & McKeen, 1993; Fagenson-Eland, Marks, & Amendola, 1997; Ragins & McFarlin, 1990) have found that supervisors provide the majority of mentoring, thus it seems logical to conceptualize and study the factors that make supervisors more or less likely to effectively mentor their subordinates. I address calls in the mentoring literature (e.g., Allen et al., 2000) to examine whether supervisors mentor their subordinates differently based on (dis)similarity and past subordinate performance.

Finally, the current study represents an early attempt to thoroughly examine the role of identification in mentoring. Though mentoring theorists (e.g., Kram, 1985; Ragins, 1997a) have posited that identification is integral to the formation of mentoring relationship, researchers have yet to test this notion empirically. In the current study, I develop a measure of identification, examine antecedents of identification, and

investigate the relationship between supervisor-subordinate identification and the extent which supervisors provide mentoring to their subordinates.

In the following sections, I summarize theory and research on mentoring. Next, I describe supervisory mentoring and the importance of identification in mentoring relationships. Then, I present my hypotheses and describe the method I used to test my hypothesis. Last, I provide the results of my study and conclude with a discussion of my results, the strengths and limitations of my study, and implications for future research. First, however, a definition of mentoring is in order.

### *Definition of Mentoring*

In traditional mentoring relationships, senior, more experienced mentors share their expertise with and provide support to junior, less experienced protégés (Hunt and Michael, 1983; Kram, 1985). Much of the mentoring theory and research stems from Kram's (1985) seminal research in which she conducted in-depth interviews with managers and their protégés about their mentoring experiences. Analyzing these interviews, Kram theorized that mentoring functions converged into two, broad categories: career developmental functions and psychosocial functions. Career developmental functions prepare the protégé for future advancement in the organization. According to Kram, these functions include nominating the protégé for lateral moves and promotions (sponsorship); assigning the protégé responsibilities that make him or her more visible to organizational members who hold positions of power (exposure and visibility); sharing work-related ideas, experiences, and knowledge (coaching); protecting the protégé from adversity (protection); and providing the protégé with challenging work assignments (challenging assignments). Kram adds that the ability of the mentor to

provide career developmental support is largely a function of the mentor's power and position in the organization.

The mentor's ability to provide psychosocial functions is largely dependent upon the interpersonal attraction and comfort that exist between the mentor and the protégé (Kram, 1985). Kram posited that psychosocial functions involve the mentor exhibiting attitudes, values, and behaviors that the protégé emulates (role model); communicating a sense of trust to the protégé (acceptance and confirmation); providing a forum in which the protégé may candidly express his or her feelings (counseling); and interacting socially with the protégé in the workplace (friendship). The greater the number and the higher the quality of career developmental and psychosocial functions the mentor provides, the more beneficial the relationship is for the protégé (Kram, 1985).

### *Benefits of Mentoring*

The benefits associated with having a mentor are well documented in the literature. Research suggests that mentoring is positively associated with protégés' promotions, salary levels, career mobility and satisfaction, and organizational socialization (Chao, Walz, & Gardner, 1992; Dreher & Ash, 1990; Fagenson, 1989; Orstroff & Kozlowski, 1993; Scandura, 1992; Turban & Dougherty, 1994; Whitely, Dougherty, & Dreher, 1991) and negatively associated with protégés' turnover intentions (Viator & Scandura, 1991). Although the preponderance of mentoring research has focused on the benefits that protégés derive from the relationship, research also shows that mentors benefit from mentoring relationships by acquiring knowledge and updated information from their protégés (Allen, Poteet, Burroughs, 1997; Mullen and Noe, 1997). Furthermore, mentors may gain a sense of pride and receive organizational recognition

for developing new talent, and mentoring may help revitalize mentors' careers and may provide them with a loyal base of support in the organization (Burke, 1984; Erikson, 1963; Kram, 1985).

In order for the mentoring relationship to be beneficial to both members of the dyad, each person should possess certain characteristics that make him or her a suitable mentor or protégé (Hunt & Michael, 1983; Kram, 1985). As previously stated, the mentor's ability to provide career developmental and psychosocial functions is contingent upon the mentor's organizational power and the interpersonal comfort and attraction between the mentor and protégé (Kram, 1985). In order for the relationship to be reciprocal, the protégé should have the potential to advance in the organization and/or display high levels of performance (Kanter, 1977). From her interviews, Kram determined that mentors preferred protégés who had advancement potential, maintained a desire to learn, and displayed superior capabilities. Interviewees remarked that protégés with these qualities were highly capable of providing their mentors the benefits mentioned above. Hence, it would seem that mentoring would be most beneficial to the mentoring dyad when the mentor has the power to positively impact the protégé's career; the protégé performs in a way that garners praise for the mentor; and the mentor and protégé are comfortable with and attracted to each other. I consider the relative influence of each of these factors on mentoring in the current study.

#### *Supervisors as Mentors*

Realizing the benefits of mentoring, many individuals have actively sought out mentoring relationships. Frequently, individuals have found their supervisors and subordinates to be appropriate mentors and protégés, respectively (Burke, 1984). In fact,

research has shown that both mentors and protégés in supervisor-subordinate relationships report providing and receiving, respectively, more mentoring functions than mentors and protégés in non-supervisor-subordinate relationships report providing and receiving, respectively (Burke & McKeen, 1997; Burke et al., 1993; Fagenson-Eland et al., 1997; Ragins & McFarlin, 1990). The aforementioned seems intuitive: when individuals perceive mentoring to be a part of their jobs, they are likely to provide mentoring functions (Kram, 1985). Such may often be the case for supervisors. Moreover, as Ragins & McFarlin (1990) argued, supervisors often have personal knowledge of their subordinates' needs and workplace environments and customarily have responsibility for their subordinates' work-related development. Thus, supervisors have a unique opportunity (a) to coach and counsel their subordinates on what it takes to survive and advance in the organization and (b) to advocate their subordinates' career progression. Supervisor-subordinate relationships may entail more than just job-related support. Supervisors and their subordinates may share with one another their personal values and attitudes and on- and off-the-job goals and experiences. Thus, it should seem reasonable that supervisors would--at least, to some degree--mentor their subordinates.

#### *Identification Between the Protégé and Mentor*

However, the standard supervisor-subordinate relationship is not a mentor-protégé relationship. Indeed, experts on mentoring (e.g., Kram, 1985) caution that the latter is more involved and complex than the former. Due to the intimate nature of the mentoring relationship, individuals in informal mentoring relationships (mentoring relationships that are not organizationally-mandated; Kram, 1985) are well-served to be selective in their choice of mentoring partners. Early mentoring theorists (Erikson, 1963; Kram, 1985)

contended that mentoring relationships develop based on the level of identification that exists between the mentor and protégé. They described identification as a reciprocal process in which the protégé envisions the mentor as a representation of what the protégé endeavors to be, and the mentor views the protégé as a younger version of the mentor. Thus, the protégé selects a mentor whom he or she envisions as a suitable role model; the mentor selects a protégé who reminds the mentor of his or her idealized past. Thus, mentoring experts typically discuss identification in their discussions of the role modeling function.

However, I argue that role modeling is a component of—not synonymous with—identification. Kram's (1985) definition of identification centers on the protégé “emulating” and “aspiring” to be like the mentor and the mentor seeing the protégé as a part of the mentor's “self-image.” In the current study, I incorporate these ideas in and include empathy and similarity in my conceptualization of identification. I conceptualize identification as an emotional process by which one empathizes with, emulates, and feels similar to another person and/or feels that another person is a part of one's idealized self-image. Hence, I argue that identification may be the result of one person's understanding another person's behavior, way of thinking, and feelings. Also, if one feels that one shares similar interests to, a similar background with, and a similar personality to another individual, one may identify with that individual. Additionally, identification can be the result of one's emulation of another individual or one's feeling that another person reminds one of oneself.

If the mentor and protégé identify with each other, the mentor may have a unique perspective from which he or she may guide and counsel the protégé. Identification may

make the mentor more apt to reflect upon his or her own life to advise the protégé. In turn, the protégé may be likely to accept such counsel if he or she identifies with the mentor. I theorize that if individuals identify with each other, they may find communicating on a personal level to be easy, comforting and self-reinforcing. Instead, if individuals do not identify with each other, I contend that they may deem their respective experiences to be unique. Consequently, the would-be protégé may not embrace the mentor's counsel, and the would-be mentor may not feel that his or her support is germane. In sum, identification may lead to ease of communication, a mutual liking and respect, feelings of shared experience and perspective, and consequently, an effective mentoring relationship, as exemplified by the provision of psychosocial and career developmental support by the mentor.

#### *Effect of Surface-level Diversity on Identification*

Surface-level diversity may hinder individuals from identifying with one another. Surface-level diversity refers to the difference between individuals in overt demographic characteristics such as gender, race/ethnicity, and age (Harrison et al., 1998; Jackson et al., 1995). Ragins (1997b, p. 98) proposed that "identification would be negatively related to the degree of diversity in the mentoring relationship," and Turban et al. (2002, p. 258) suggested that "gender and race similarity lead to identification." Several social psychological theories provide support for Ragins' and Turban and colleagues' assertion. According to social identity (Tajfel, 1978) and self-categorization (Turner, 1982) theories, individuals are likely to classify themselves and others according to easily discernible features (e.g., race, gender, and age). As individuals are inclined to preserve

their social identity, they are likely to identify with those whom they regard as possessing the same overt, physical features.

Deschamps (1982) extended this line of thought in theorizing that individuals who are members of similar power-related groups are more likely than individuals who are members of dissimilar power-related groups to identify with each other. According to Deschamps, a shared identity results, in part, from the similar experiences of individuals who belong to the same power group. Because power group membership is often a function of race and gender, racial minorities and women may perceive themselves as being members of different power groups than White men are (Cox, 1993; Ilgen & Youtz, 1986; Ragins & Sundstrom, 1989). Consequently, racial minorities, women, and White men may not share a common identity.

Researchers have provided indirect empirical support for the notion that surface-level diversity is negatively associated with identification. Tsui & O'Reilly (1989) found that race and gender (amongst other surface-level) dissimilarity negatively affected supervisors' attraction to their subordinates. Research on interpersonal networks (e.g., Ibarra, 1995) has indicated that individuals may not be inclined to develop identity and friendship networks with individuals of a different race and of the opposite gender. In addition, researchers have found that surface-level diversity is positively related to a number of negative outcomes such as dissatisfaction, isolation, lack of attachment, and low levels of communication (Williams & O'Reilly, 1998). It seems to follow that race and gender diversity will have a negative effect on identification in mentoring relationship.

Though Ragins (1997a) proposed that race and gender dissimilarity are negatively associated with identification in mentoring relationships, empirical research in support of this notion has been indirect and inconsistent. Instead of examining the relationships between (a) surface-level diversity and identification and (b) identification and mentoring, mentoring researchers have focused on the relationship between surface-level diversity and mentoring, thereby failing to examine the construct of identification. Indeed, mentoring researchers have conducted a stream of research on the effect of race and gender diversity on mentoring. Common to these studies is the researchers' prediction that homogenous (e.g., same-gender, same-race) mentoring relationships would involve more mentoring functions than diversified mentoring relationships (mentoring relationships composed of mentors and protégés who differ in one or more group memberships associated with power in the organization; Ragins, 1995) would involve. This line of research has resulted in inconsistent findings. Researchers (Ragins & McFarlin, 1990, Scandura & Williams, 2001; Sosik & Godshalk, 2000) have found that protégés in same-gender relationships received significantly more role modeling (one of the four psychosocial functions) from their mentors than protégés in cross-gender relationships received from their mentors. However, these researchers and others (i.e., Ragins & Cotton, 1999; Turban et al., 2002) have found non-significant differences in the overall amount of psychosocial mentoring provided in same- and cross-gender relationships. Conversely, Thomas (1990) found that protégés in same-gender relationships received significantly more psychosocial mentoring than protégés in cross-gender relationships received.

The effect of racial diversity on mentoring functions has been less studied than the effect of gender diversity on mentoring functions. A thorough search of the literature provides only three studies that have compared mentoring received in cross- and same-race mentoring dyads. While Thomas (1990) found that protégés in same-race relationships received significantly more psychosocial support than protégés in cross-race relationships received, Turban and colleagues (2002) did not find significant effects for race. Ensher and Murphy (1997) examined the effect of race on formal mentoring relationships between high school student-interns and their mentors. Interns and mentors were members of various racial minority groups. At the conclusion of the 8-week intern program, interns who had been matched with same-race mentors had received significantly more career developmental functions than interns who had been matched with mentors of a different race had received.

The current study takes a somewhat different approach than those studies mentioned above. In the aforementioned studies, researchers theorized that surface-level diversity would be negatively associated with identification but failed to test this theory empirically. In the current study, I fill this gap in the mentoring literature by empirically testing the moderating effect of supervisor surface-level characteristics on the relationship between subordinate surface-level characteristics and identification. As mentioned earlier, mentoring theorists suggest that identification is a key precursor to the mentoring relationship. Hence, it seems worthwhile to examine whether surface-level diversity negatively influences identification. Thus, I propose the following hypotheses, examining the effects of surface-level similarity on identification as reported by both the subordinate and the supervisor:

1a: Supervisor surface-level characteristics will moderate the relationship between the respective subordinate surface-level characteristics and subordinate identification with the supervisor, such that subordinates who are similar to their supervisors will report identifying with their supervisors significantly more than subordinates who are dissimilar to their supervisors will report identifying with their supervisors.

1b: Supervisor surface-level characteristics will moderate the relationship between the respective subordinate surface-level characteristics and supervisor identification with the subordinate, such that supervisors will report identifying more with similar subordinates than with dissimilar subordinates.

#### *Effect of Deep-level Diversity on Identification*

Of course, race, gender, and age are not the only characteristics by which individuals identify with others. Deep-level differences may also influence whether individuals perceived a sense of shared identity. Deep-level diversity is defined as the difference between individuals in underlying features such as attitudes, preferences, values, and beliefs (Harrison et al., 1998; Jehn et al., 1997). Theories of interpersonal attraction (e.g., Byrne, 1971) explain that differences in these underlying characteristics may deter individuals from engaging in intimate relationships. Similar to the previously discussed theories of race and gender, theories of interpersonal attraction propose that individuals are more attracted to similar others than they are attracted to dissimilar others.

Indeed, empirical research has indicated that attitudinal and value similarity is positively related to higher supervisor ratings of subordinates (Turban & Jones, 1988). Conversely, researchers have found that value diversity is positively related to conflict,

dissatisfaction, decreased levels of organizational commitment and increased intent to quit amongst workgroup members (Jehn, Northcraft, & Neale, 1999; O'Reilly, Chatman, & Caldwell, 1991).

Few mentoring studies have examined deep-level diversity. Ensher and Murphy (1997) found that interns who perceived themselves to be similar to their mentors in terms of perspective, problem-solving and values reported receiving more mentoring than interns who did not perceive themselves to be similar to their mentors in these areas. Using perceived similarity measures similar to Ensher and Murphy's, Turban et al. (2002) found similar results in their study of doctoral students and faculty advisors. However, findings based principally on perceived similarity measures are limited in that they rely on individuals' perceptions of similarity, instead of actual similarity. In the current study, I aim to expand upon this research by directly measuring the underlying individual attributes (e.g., attitudes) by which individuals are likely to make judgments of similarity. Based on the presumption that values serve as criteria by which individuals judge their similarity to others, I contend that value diversity will be negatively associated with the level of identification between subordinates and their supervisors. Furthermore, in keeping with the current diversity literature, I build upon the premise that identification is a function of both deep- and surface-level diversity. Based on this argument, I present the following hypotheses, examining the effects of deep-level similarity on identification as reported by both the subordinate and the supervisor:

2a: Supervisor deep-level characteristics will moderate the relationship between the respective subordinate deep-level characteristics and subordinate identification with the supervisor, such that subordinates who are similar to their

supervisors will report identifying with their supervisors significantly more than subordinates who are dissimilar to their supervisors will report identifying with their supervisors.

2b: Supervisor deep-level characteristics will moderate the relationship between the respective subordinate deep-level characteristics and supervisor identification with the subordinate, such that supervisors will report identifying more with similar subordinates than with dissimilar subordinates.

### *Identification and Mentoring*

I continue with a discussion of the importance of identification, yet I focus here on the relationship between identification and the specific mentoring functions. The relationship between identification and psychosocial functions may seem rather obvious: if the protégé and the mentor identify with each other, it should be relatively easy for the mentor to provide role modeling, friendship and counsel to the protégé. The link between identification and career developmental functions may not seem as straightforward as the link between identification and psychosocial functions. However, it seems likely that the more the mentor and protégé identify with each other, the more the mentor will provide career developmental functions. As Kram (1985, p. 40) indicates, “[the mentor] who wants to coach and who embodies what the [protégé] wishes to become will provide both career and psychosocial functions.” Kram further suggests that the range of functions that the mentor provides increases when the protégé feels comfortable with asking for guidance, and the mentor feels comfortable with providing his or her assistance. If the mentor and protégé identify with each other, I contend that they are likely to feel comfortable with discussing career-related issues. Thus, I emphasize the importance of

identification in mentoring by suggesting that increased identification between the supervisor and subordinate results in increased mentoring. In accordance with mentoring theorists' (Erikson, 1963; Kram, 1985) notion that identification positively impacts upon mentoring, I propose the following hypotheses, suggesting that identification from both the subordinate's and supervisor's perspectives will lead to mentoring:

3a: Subordinate identification with the supervisor will be positively related to both psychosocial and career mentoring reported by the subordinate.

3b: Supervisor identification with the subordinate will be positively related to both psychosocial and career mentoring reported by the supervisor.

#### *Protégé Past Performance and Mentoring*

I shift my focus from diversity to another characteristic that mentoring theorists suggest is integral to mentoring. For some mentors, the protégé's past performance might be particularly consequential in their decision to mentor the protégé. As Ilgen and Youtz (1986, p.319) stated, "[mentors] may choose as protégés individuals who have performed well in the past or who are seen as having the potential to do well in the future."

Interestingly, Kanter (1977) suggested that protégé performance is the primary criteria by which mentors should judge prospective protégés.

Social exchange theory (Homans, 1958; Thibaut & Kelley, 1959) might suggest that past performance is a criterion by which mentors judge protégés. This model of human behavior explains that individuals compare the costs that they perceive they will incur with the benefits they perceive they will obtain from engaging in a relationship. According to this theory, individuals tend to form and maintain relationships in which the

benefits outweigh the costs and tend to refrain from or terminate relationships in which the costs outweigh the benefits.

A few mentoring researchers (Allen et al., 2000; Olian et al., 1993) have used the social exchange perspective to predict that high-performing protégés receive the most mentoring. Olian et al. (1993) conducted an experiment in which responding managers assumed the role of a mentor to a protégé described in the experiment. Experimental manipulation included the “paper” subordinate’s desire to progress professionally and the subordinate’s performance as indicated by an appraisal form. The experiment called for respondents to indicate the extent to which they were willing to engage in a mentoring relationship with the subordinate described in the materials. The researchers found that respondents were significantly more willing to mentor high-performing subordinates than they were willing to mentor moderately performing subordinates.

Field studies also support the point of view that mentors prefer high-performing protégés. Allen et al. (2000) conducted a survey study of 292 state government employees to examine the factors that contributed to the employees’ decisions to select their past and/or present protégés. Respondents indicated that they were more likely to select high ability/potential protégés than protégés who needed assistance. However, these findings must be interpreted with caution because respondents were asked to recall and comment on a history of mentoring relationships. Thus, the accuracy of their responses is susceptible to recall and are hence questionable.

To my knowledge, only one published study has examined the relationship between protégé past performance and mentoring provided in ongoing relationships. Green and Bauer (1995) conducted a longitudinal study to examine the relationship

between graduate student potential and mentoring provided by faculty advisers. The study demonstrated that students with high verbal aptitude scores on the Graduate Record Examination received significantly more mentoring than students with moderate or low verbal aptitude scores received. Furthermore, students with more prior research experience received more mentoring than students with less prior research experience received.

Based on existing theory and research, I predict that subordinate past performance will be positively associated with mentoring as reported by the subordinate and by the supervisor.

4a: Subordinate past performance will be positively associated with mentoring reported by the subordinate.

4b: Subordinate past performance will be positively associated with mentoring reported by the supervisor.

### *Minority Mentors*

Here, I focus on the capacity of the minority mentor to provide career developmental functions. Again, a mentor's ability to provide career developmental support is largely a function of his or her power and position in the organization. As Kram (1985) explained, a mentor uses his or her organizational power and influence to provide his or her protégé with protection, challenging assignments, and visibility within the organization. A mentor also provide his or her protégé with “reflected power”—an indication that the protégé has the support of an influential person and that the mentor’s resources are behind the protégé (Kanter, 1977). Indeed, research shows that mentored

individuals report more positional power than do non-mentored individuals (Fagenson, 1988).

However, minority members may lack the organizational power of their majority counterparts (Ragins, 1997b; Ragins & Sundstrom, 1989). Minority members often hold lower-ranking positions than majority members do, and theorists suggest that minority members often do not feel properly empowered when they do hold high-ranking positions (Cox, 1993; Ilgen & Youtz, 1986; Ragins & Sundstrom, 1989; Thomas & Aldefer, 1989). Ragins (1997b) also pointed out that power is, in part, a perceptual phenomenon, subject to attributions and stereotypes and suggested that—other things being equal—individuals often perceive minority members as having less power than majority members have. According to Ragins, attributions regarding minority members' power frequently lead individuals to underestimate minority members' power. Indeed, empirical studies consistently indicate that individuals identify men as having more power than women have, regardless of actual power (cf. review by Ragins & Sundstrom, 1989). Because minority members lack—or are perceived to lack—organizational power, Ragins (1997b) predicted that minority mentors would provide fewer career development functions than majority mentors would provide.

Nevertheless, empirical findings lend inconsistent support to this notion. Ragins and Cotton (1999) and Ragins and McFarlin (1990) did not find support for their prediction that protégés with male mentors would receive significantly more career developmental functions than protégés with female mentors would receive. On the other hand, Sosik and Godshalk (2000) found that protégés with male mentors received

significantly more career developmental functions than protégés with female mentors received.

Researchers have yet to examine whether race predicts the amount of career developmental functions that mentors provide. Yet, research has shown that protégés with racial majority mentors attain higher salary levels than protégés with racial minority members attain. In a study of 758 graduates of master of business administration programs, Dreher and Cox (1996) found that graduates who had established mentoring relationships with White men received significantly higher annual compensation than graduates who not had established mentoring relationships received. Conversely, those who had established mentoring relationships with women or minority men did not receive significantly higher annual compensation than non-mentored graduates received. Dreher and Chargois (1998) found similar results in a study of African-American business school graduates of a historically black college. Dreher and his colleagues based their studies on the notion that “advantage goes to those who form developmental relationships with those most likely to hold (or have access to those who hold) positions of power and influence in contemporary organizations” (Dreher & Cox, 1996, p. 298).

With the notion that majority members have more organizational power than minority members do, I pose the following research question:

Research Question: Do majority mentors provide more mentoring than minority mentors do?

## Method

### *Setting*

The study took place during the first phase of Cadet Field Training (CFT) at the U.S. Military Academy (the Academy), an institution whose purpose is to prepare young men and women for careers as officers in the United States Armed Forces and for future service to the nation. CFT is a nearly 8-week course of rigorous military training that emphasizes individual- and team-level soldier skills. During the first phase (roughly 4 weeks) of this course, cadets who have completed their first year at the Academy (hereafter referred to as “subordinates”) learn skills such as rifle marksmanship, land navigation, and team leadership, which are necessary for success in their future military careers. (I concluded the study at the end of the first phase because subordinates receive new supervisors at the beginning of the second phase of CFT.) Cadets who have completed their second year at the Academy (hereafter referred to as “supervisors”) supervise cadets who are undergoing this training. In these supervisory roles, cadets are largely responsible for the military and physical development of their subordinates. In fact, active duty Army officers and more senior cadets evaluate each supervisor on how well the supervisor develops his or her subordinates. This evaluation factors into the supervisor’s military grade point average, which helps determine the cadet’s class standings. Thus, one may presume that, on average, supervisors take seriously the job of developing their subordinates.

Although the Academy has not mandated mentoring or made it an explicit part of supervisors’ evaluations, it does encourage mentoring (T. Kolditz, personal communication, November 5, 2002). Indeed, mentoring appears to be an implied task for

supervisors. During CFT, the Academy tasks supervisors with helping their subordinates make the adjustment from an academic setting to a military setting; teaching subordinates many of the skills that they are required to learn during CFT; counseling their subordinates on their performance and recommending to their subordinates ways in which they can improve upon their performance; helping subordinates deal with familial pressures and hardships; and giving subordinates advice on career choices, such as selecting future summer training assignments and choosing Army career fields. Also, supervisors recommend subordinates for awards, special training opportunities, and leadership positions and protect subordinates from damaging contact with other senior cadets and Army officers within the Academy's leadership structure. On a more personal level, cadet supervisors and their subordinates may share with each other their childhood experiences, accompany each other to various social events, and engage in other informal interactions, such as playing sports, watching movies, and hiking.

Hence, the Academy has not formalized mentoring, but informal mentoring relationships between cadet supervisors and their subordinates may exist at CFT. In the current study, I gauge the extent to which these relationships exist and examine correlates of the relationships that emerge.

### *Sample*

*Subordinates.* The subordinate sample included 968 cadets, which represented a 92% response rate. The average subordinate age was 19. Eighty-five percent of subordinates were male, and 78% of subordinates were White. Seven percent were Asian; 5% were Hispanic; 4% were Black; and 4% were American-Indian. Two percent indicated being of more than one race/ethnicity.

*Supervisors.* The current study included each of the 96 supervisors who participated in CFT. The average supervisor age was 20. Eighty-five percent of supervisors were male, and 81% of supervisors were White. Seven percent were Black; 5% were Asian; 5% were American-Indian, and 1% were Hispanic. One-percent indicated being of more than one race/ethnicity. Supervisors were typically in-charge of 10 subordinates, although squad-size ranged from 8 to 12 subordinates.

### *Procedure*

I administered surveys to supervisors and subordinates at three times. Time 1 survey administration occurred approximately two weeks prior to the beginning of CFT. At Time 1, I measured both subordinates' and supervisors' academic, military, physical, and social focus as well as their level of identification with the Academy and the Army. At Time 1, respondents also provided demographic information.

Time 2 survey administration occurred during day 12 of CFT. At Time 2, subordinates answered questions about how much they identified with their supervisors, and supervisors answered questions about how much they identified with their subordinates.

Approximately two weeks after Time 2 and near the end of the first phase of CFT, subordinates and supervisors completed Time 3 surveys. At Time 3, subordinates reported how much mentoring they had received from their supervisors, and supervisors reported how much mentoring they had provided to each of their subordinates.

### *Measures*

*Surface-level diversity.* At Time 1, respondents indicated their gender, which I coded as 1 for male and 2 for female. Also, respondents indicated their race which I coded 1 for White and 2 for non-White. Lastly, respondents provided their age.

*Deep-level diversity.* Since I found few established measures of deep-level diversity that would be appropriate for the context of this study, I developed many of the measures that I used in this study. I developed measures by interviewing several cadets about their interests and values and about matters in their lives that were of particular importance to them. A large number of cadets spoke of being focused on one or more of three domains: academics, the military, and physical fitness. I felt that it would be appropriate for me to include items representing these three domains because they represent three main areas in which the Academy seeks to develop cadets further. In fact, the Academy objectively evaluates cadets on these three criteria to determine cadets' class standing. Cadets also spoke of valuing the social relationships they had developed and the opportunities they had to socialize with friends at and away from the Academy. Thus, social focus was a fourth main theme that I gathered from interviews with cadets. From these interviews, I generated 24 items, six representing each of the four major themes from my interviews with cadets. I administered these items as part of the Time 1 survey. Supervisors and subordinates responded to each item on a 5-point Likert scale assessing how true each statement was of the respondent (1 = *not true*; 2 = *slightly true*; 3 = *somewhat true*; 4 = *mostly true*; 5 = *true*).

Because these were new measures, I conducted an exploratory factor analysis (EFA) with varimax rotation on each of the four measures to examine the factor structure

of the cadets' responses. For each of the four measures, the pattern of eigenvalues suggested that a one-factor solution best fit the data. For each measure, I retained those items that loaded higher than .40 on a single factor. Academic focus explained 48% of the variance; military focus explained 40% of the variance; physical fitness focus explained 43% of the variance; and social focus explained 35% of the variance. Appendix A lists the items for each of the four scales and their item loadings. I describe the scales in more detail below.

*Academic focus.* I measured how academically focused subordinates and supervisors were using 6 items (e.g., "It is important to me that I excel academically," "Achieving a high academic class standing is an important goal to me"). The internal consistency reliability for the subordinate sample was .83; for the supervisor sample, it was .84.

*Military focus.* I measured how militarily focused subordinates and supervisors were using 4 items (e.g., "Receiving military awards is an important goal to me," "Achieving a high military class standing is an important goal to me"). The internal consistency reliability for the subordinate sample was .79; for the supervisor sample, it was .78.

*Physical fitness focus.* I measured how physical fitness focused subordinates and supervisors were using 6 items (e.g., "Receiving physical fitness awards is an important goal to me," "Achieving a high physical fitness class standing is an important goal to me"). The internal consistency reliability for the subordinate sample was .80; for the supervisor sample, it was .72.

*Social focus.* I measured how socially focused subordinates and supervisors were using 4 items (e.g., “I love to party with friends,” “I am always enthusiastic about attending social events). The internal consistency reliability for the subordinate sample was .76; for the supervisor sample, it was .54.

*Identification with the Army.* I measured subordinates’ and supervisors’ identification with the Army using Mael’s (Mael, 1988; Mael & Ashforth, 1992) 5-item Organizational Identification (OID) scale. Items for this scale were as follows: “When someone criticizes the Army, it feels like a personal insult;” “I am very interested in what others think about the Army;” “When I talk about the Army, I usually say ‘we’ rather than ‘they’;” “The Army’s successes are my successes;” and “When someone praises the Army, it feels like a personal compliment.” Supervisors and subordinates responded to each item on a 5-point Likert scale assessing how true each statement was regarding their feelings toward the Army (1 = *not true* to 5 = *true*). The internal consistency reliability for the subordinate sample was .85; for the supervisor sample, it was .84. These reliabilities are comparable to reliabilities from previous research (Mael & Alderks, 1993; Mael & Ashforth, 1995) in which the researchers obtained reliabilities ranging from .74 to .80.

*Identification with the Academy.* I measured subordinates’ and supervisors’ identification with the Academy by using items similar to those I used to measure identification with the Army. However, I substituted “Academy” in the place of “Army” for each item. The response scale was the same as that used for identification with the Army. Each respondent indicated how true each statement was regarding the

respondent's feelings toward the Academy. The internal consistency reliability for the subordinate sample was .84; for the supervisor sample, it was .81.

*Subordinate past performance.* I used each subordinate's military grade point average (GPA) as a measure of subordinate past performance. Since CFT is geared toward military training, I presumed that subordinates' past military performance would be suitable for the context of this study. Military GPA is based on a 4-point scale and is similar to the traditional academic GPA (i.e., A = 4, F = 0) in which higher scores indicate higher performance. I used each subordinate's military GPA as of the end of the 2002-2003 Academic Year.

*Subordinate identification with the supervisor.* As I found no measure of identification, I developed a scale to measure the extent to which subordinates identify with their supervisors. I used several methods to develop items to measure identification. More specifically, I consulted *The American Heritage Dictionary* (Pickett, 2000) for definitions of the word "identification" and its derivatives (e.g., identify, identifying); held focus groups and interviews with undergraduate and graduate psychology students; and asked faculty members for advice and suggestions. From this process, I generated 18 items to measure subordinate identification with the supervisor.

In order to examine the factor structure of this measure, I conducted an EFA with varimax rotation. The pattern of eigenvalues suggested that a three-factor solution best fit the data. I determined that the three factors measured emulation, empathy, and similarity, which was in accordance with my intent when I developed the items. However, since my intent was to have one measure, I decided to combine the three factors to represent one measure. I retained those items that loaded higher than .40 on at

least one factor. The resulting 18-item factor (e.g., “I admire my squad leader,” “I identify with my squad leader”) explained 57% of the variance and had an internal consistency reliability of .90. Appendix B lists the items and their factor loadings for the measure of subordinate identification with the supervisor.

*Supervisor identification with the subordinate.* I conducted a similar process as I did for subordinate identification with the supervisor to generate items for this measure. However, the EFA for these items revealed a two-factor solution. Items measuring similarity and self-image loaded on one factor; items measuring empathy loaded on a second factor. However, I decided to treat these items as one measure. I retained those items that loaded higher than .40 on at least one factor. The resulting 18-item factor (e.g., “I admire this cadet,” “I identify with this cadet”) explained 60% of the variance and had an internal consistency reliability of .93. Appendix C lists the items and their factor loadings.

*Mentoring reported by the supervisor.* I adapted items from two scales (Noe, 1988; Ragins & McFarlin, 1990) that mentoring researchers typically use to measure mentoring. Although I included items from scales that were developed to measure psychosocial and career developmental mentoring separately, these measures were highly correlated ( $r = .90$ ) in the current study. Thus, I decided to treat the items as one measure. Items included the following: “To what extent did you...”use your influence in the unit to benefit this cadet”...”act friendly towards this cadet.” Using the following response scale, supervisors indicated the extent to which they provided each mentoring function: (1 = *To No Extent*; 2 = *To a Limited Extent*; 3 = *To Some Extent*; 4 = *To a*

*Considerable Extent*; 5 = *To a Great Extent*). The 17-item measure (see Appendix D) had an internal consistency reliability of .93.

*Mentoring reported by the subordinate.* I also adapted items from existing scales (Noe, 1988; Ragins & McFarlin, 1990) to measure mentoring reported by the subordinate. Measures of psychosocial and career developmental mentoring were highly correlated ( $r = .81$ ), so I decided to treat the items as one measure. Items included the following: “To what extent did your squad leader...”use his/her influence in the unit to your benefit”...”act friendly towards you.” Subordinates indicated (1 = *To No Extent* to 5 = *To a Great Extent*) the extent to which their supervisors provided each mentoring function. The 33-item measure (see Appendix E) had an internal consistency reliability of .94.

*Desire to be a mentor.* Since a supervisor may not desire to be a mentor, I adapted the following four items from Ragins and Cotton’s (1993) measure to control for a supervisor’s desire to be a mentor: “I would like to be a mentor;” “I would feel comfortable assuming a mentoring role to other cadets;” “I like the idea of developing a mentoring relationship with other cadets;” and “I have no desire to be a mentor.” Supervisors responded to each item using a 5-point Likert scale (1 = *not true* to 5 = *true*) to indicate how true each statement was regarding their feelings about being mentors. To ensure supervisors understood what being a mentor entails, I provided them with the following statement:

A mentor is an experienced person who is committed to providing career and/or personal support to another individual (the protégé). Mentors may support, train, counsel, ‘teach the ropes to’ and sponsor protégés who are pursuing their goals.

The internal consistency reliability for this scale was .89.

*Desire to be a protégé.* Since a subordinate may not desire to be a protégé, I developed the following 5-items to control for a subordinate's desire to be a protégé: "I would like to be a protégé;" "I would feel comfortable being a protégé of a more experienced cadet;" "I am eager to receive career support from a more experienced cadet;" "I am eager to receive personal support from a more experienced cadet;" "I like the idea of having a more experienced cadet as my mentor." Also, I provided subordinates with the same definition of mentoring that I provided to supervisors. Subordinates responded to each item using a 5-point Likert scale (1 = *not true* to 5 = *true*) to indicate how true each statement was regarding their feelings about being protégés. The internal consistency reliability for this scale was .87.

#### *Analytical Approach*

Since subordinates are nested within supervisors, the appropriate method of analysis is one that takes into account the hierarchical structure of the data. When a researcher is interested in examining the effects of variables that operate at both lower and higher levels—such as in the current study—three main choices of data analysis exist (Hofmann, 1997). Hofmann suggests that the researcher can "disaggregate the data such that each lower level unit is assigned a score representing the higher-level unit within which it is nested" (p. 725). In the current study, this would entail assigning to each subordinate his or her supervisor's score on each supervisor-level variable (e.g., supervisor academic focus) and conducting analysis at the individual level (e.g., for each subordinate, investigating the relationship, between his or her supervisor's academic focus and the subordinate's identification with the supervisor). However, this method

disregards the fact that subordinates are in the same squad and are likely to be subject to similar contexts, and thus fails to satisfy the independence of observations assumption (Bryk & Raudenbush, 1992).

According to Hofmann, a second approach would be to aggregate subordinate-level variables and examine relationships at the supervisor-level of analysis. This would entail examining the relationship between squad characteristics (e.g., the mean squad academic focus) and average outcomes (e.g., the mean subordinate identification with the supervisor). Yet, this method disregards potentially meaningful individual-level variance in the dependent measure.

Several experts (Hofmann, 1997; Hofmann, Griffin, & Gavin, 2000; Klein, Bliese, Kozlowski, et al., 2000) on multilevel theory suggest a third approach—hierarchical linear modeling (HLM)—to investigate relationships among variables that operate at different levels. HLM improves upon the weaknesses of aggregation and disaggregation by modeling both individual- and group-level residuals (thereby, recognizing the partial independence of subordinates within the same group) and allowing the researcher to examine both the lower- and higher-level unit variance in the dependent measure, while maintaining the appropriate level of analysis for the independent variables (Hofmann, 1997).

Moreover, Klein et al., 2000 advise that HLM is explicitly designed to test cross-level moderator-effect models, such as those predicted by Hypotheses 1 and 2. Hypotheses 1 and 2 predicted that the strength of a relationship between two lower-level variables (e.g., subordinate academic focus and subordinate identification with the supervisor) varies from supervisor to supervisor, typically as a function of higher-level

variables (e.g., supervisor academic focus). Thus, in one squad, a subordinate may identify strongly with his or supervisor if both the subordinate and the supervisor are highly-focused academically, and in another squad, an academically-focused subordinate may not identify strongly with his or her supervisor if the supervisor is not highly academically-focused. As Klein et al. propose, HLM is well-suited to investigate relationships such as the abovementioned because HLM “identif[ies] whether lower-level slopes vary across higher-levels units” (p.524). That is, HLM identifies whether, for example, subordinate identification with the supervisor varies from group to group as a function of characteristics of the supervisor. In sum, HLM permits me to model both within- and between-group variance—useful for testing all hypotheses in the current study—and permits me to test cross-level moderator-effects models—useful for testing Hypotheses 1 and 2. Consequently, I chose to use HLM to analyze the data in the current study.

#### *Hypothesis Testing Using HLM*

*Null model.* Hypothesis testing using HLM entails estimating a series of models. Referred to as the “null model,” the first model includes no predictors, is equivalent to a one-way analysis of variance, and allows one to investigate the amount of within- and between-group variance in the dependent variable. For instance, in the current study, I estimated the following model to determine whether there were significant within- and between-group differences in subordinate identification with the supervisor:

$$\text{Level-1: subordinate identification with supervisor}_{ij} = \beta_{0j} + r_{ij} \quad (1)$$

$$\text{Level-2: } \beta_{0j} = \gamma_{00} + U_{0j} \quad (2)$$

where:

$\beta_{0j}$  = mean subordinate identification with supervisor for group  $j$

$\gamma_{00}$  = grand mean of subordinate identification with supervisor

$r_{ij}$  = within group variance in subordinate identification with supervisor ( $\sigma^2$ )

$U_{0j}$  = between group variance in subordinate identification with supervisor ( $\tau_{00}$ )

Thus, the Level-1 equation predicted subordinate identification with the supervisor based on the mean identification (i.e., intercept) within each of the  $j$  groups ( $\beta_{0j}$ ) and the error for each of  $i$  subordinates ( $r_{ij}$ ). The Level-2 equation modeled each group's mean identification based on the grand mean ( $\gamma_{00}$ ) and each group's deviation from the mean ( $U_{0j}$ ). Also, the null model produced information necessary for computing an intraclass correlation coefficient (ICC-1), which indicates the proportion of between-group variance in the dependent variable (cf. Bryk & Raudenbush, 1992). One may calculate an ICC-1 using the following equation:

$$ICC = \tau_{00} / (\tau_{00} + \sigma^2)$$

*Random coefficients regression model.* The next step entails adding an individual-level predictor to the equation. For example, I estimated the following set of equations for subordinate academic focus:

Level-1:

$$\text{subordinate identification with supervisor}_{ij} = \beta_{0j} + \beta_{1j}(\text{subordinate academic focus}_{ij}) + r_{ij} \quad (3)$$

Level-2:

$$\beta_{0j} = \gamma_{00} + U_{0j} \quad (4)$$

$$\beta_{1j} = \gamma_{10} + U_{1j} \quad (5)$$

where:

$\beta_{0j}$  = identification for group  $j$

$\beta_{1j}$  = slope for group j

$\gamma_{00}$  = mean of the intercepts across groups

$\gamma_{10}$  = mean of the slopes across groups

$r_{ij}$  = Level-1 residual variance ( $\sigma^2$ )

$U_{0j}$  = variance in intercepts ( $\tau_{00}$ )

$U_{1j}$  = variance in the slopes ( $\tau_{11}$ )

In the above system of equations, called random coefficients regression models, coefficients  $\beta_{0j}$  and  $\beta_{1j}$  in equation 3 are modeled as random effects in Equations 4 and 5. These random coefficients are predicted by the overall mean,  $\gamma_{00}$ , and the slope,  $\gamma_{10}$ , for each group. T-tests related to the  $\gamma_{00}$  and  $\gamma_{10}$  parameters indicate whether the average mean and slope across groups, respectively, are significantly different from 0. In the current example, the significance of the  $\gamma_{00}$  parameter would indicate whether, on average, subordinate identification with the supervisor is significantly different from 0. The significance of the  $\gamma_{10}$  parameter would indicate whether, across groups, subordinate academic focus is related to subordinate identification with the supervisor. That is, the significance of the  $\gamma_{10}$  parameter indicates whether this is a significant relationship between an individual-level predictor and an individual-level outcome. In the current study, the significance of the  $\gamma_{10}$  parameter is directly related to testing Hypotheses 3 and 4. Hypothesis 3 predicted that there would be a significant positive relationship between identification and mentoring, and Hypothesis 4 predicted that there would be a significant positive relationship between subordinate past performance and mentoring.

Significance tests related to the  $U_{0j}$  and  $U_{1j}$  parameters indicate whether the variance in the intercepts across groups and slopes across groups, respectively, are

significantly different from 0. In the current example, the significance of the  $U_{1j}$  parameter indicated whether there is significant between-group variance in the relationship between subordinate academic focus and subordinate identification with the supervisor. If the  $U_{1j}$  parameter were significant, the next step would be to examine whether a group-level characteristic (e.g., supervisor academic focus) explains the between-group variance—that is, moderates the relationship between subordinate academic focus and subordinate identification with the supervisor. However, in accordance with Snijders and Bosker (1994), since I hypothesize that supervisor characteristics moderate the relationship between subordinate characteristics and identification (Hypotheses 1 and 2), I examine interactions regardless of the significance of the  $U_{1j}$  parameter. The significance of the  $U_{0j}$  parameter indicated whether there is significant between-group variance in the intercepts of the regression lines relating subordinate academic focus to subordinate identification with the supervisor. I compute the amount of within-group variance ( $R^2$ ) in the dependent variable by using the following ratio:

$$R^2 = (\sigma^2_{\text{one-way ANOVA}} - \sigma^2_{\text{random regression}}) / \sigma^2_{\text{one-way ANOVA}}, \text{ where } \sigma^2 = r_{ij}$$

The reader should note that this  $R^2$  value represents the proportion of explainable variance within groups, thus one should not confuse this value with traditional  $R^2$  values calculated in linear regression models (see Snijders & Bosker, 1994, for a complete discussion of this issue). Also, as interpretations of  $R^2$  values differ depending on the model being estimated, the reader should note explanations of  $R^2$  values in subsequent sections as well.

*Intercepts-as-outcomes model.* The next step entails determining whether a group-level variable predicts the variability in the intercepts. Continuing with the current example and adding supervisor academic focus as a predictor of the variability of the intercepts, I estimated the following set of equations (intercepts-as-outcomes) to test for significant differences in subordinate identification with the supervisor as a function of supervisor academic focus:

Level-1:

$$\text{subordinate identification with supervisor}_{ij} = \beta_{0j} + \beta_{1j}(\text{subordinate academic focus}) + r_{ij} \quad (6)$$

Level-2:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{supervisor academic focus}) + U_{0j} \quad (7)$$

$$\beta_{1j} = \gamma_{10} + U_{1j} \quad (8)$$

where:

$\gamma_{00}$  = Level-2 intercept

$\gamma_{01}$  = Level-2 slope

$\gamma_{10}$  = mean of the slopes across groups

$r_{ij}$  = Level-1 residual variance ( $\sigma^2$ )

$U_{0j}$  = variance in intercepts ( $\tau_{00}$ )

$U_{1j}$  = variance in the slopes ( $\tau_{11}$ )

In the above set of equations, a significant  $\gamma_{10}$  parameter would indicate that supervisor academic focus (group-level variable) is significantly related to subordinate identification with the supervisor. In the current study, the significance of the  $\gamma_{10}$  parameter is necessary for examining the Research Question, which I posed to investigate whether minority supervisors provide less mentoring to their subordinates than majority

supervisors provide to their subordinates. Thus, in order to investigate the Research Question, I consider the effect of group-level variables—in this case, supervisor race and gender—on individual-level outcomes: mentoring reported by the supervisor and mentoring reported by the subordinate. In order to obtain the amount of intercept variance accounted for by the group-level variable ( $R^2$ ), I use the following equation:

$$R^2 = (\tau_{00\text{random regression}} - \tau_{00\text{intercepts-as-outcomes}}) / \tau_{00\text{random regression}}, \text{ where } \tau_{00} = U_{0j}$$

*Slopes-as-outcomes model.* Next, I estimated the following set of equations (slopes-as-outcomes) to investigate whether supervisor academic focus predicted the between-group variance in the relationship between subordinate academic focus and subordinate identification with the supervisor (i.e., the variability in the slopes at the individual level):

Level-1:

$$\text{subordinate identification with supervisor}_{ij} = \beta_{0j} + \beta_{1j}(\text{subordinate academic focus}) + r_{ij} \quad (9)$$

Level-2:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{supervisor academic focus}) + U_{0j} \quad (10)$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{supervisor academic focus}) + U_{1j} \quad (11)$$

where:

$\gamma_{00}$  = Level-2 intercept

$\gamma_{01}$  = Level-2 slope

$\gamma_{10}$  = mean of the slopes across groups

$\gamma_{11}$  = Level-2 slope

$r_{ij}$  = Level-1 residual variance ( $\sigma^2$ )

$U_{0j}$  = variance in intercepts ( $\tau_{00}$ )

$U_{ij}$  = variance in the slopes ( $\tau_{11}$ )

In the above set of equations, a significant  $\gamma_{11}$  parameter would indicate that supervisor academic focus moderates the relationship between subordinate academic focus and subordinate identification with the supervisor. In the current study, the significance of the  $\gamma_{11}$  parameter is directly related to testing Hypotheses 1 and 2. Hypotheses 1 and 2 predicted that supervisor characteristics would moderate the relationship between subordinate characteristics and identification. In addition, using the following equation, I compute the proportion of variance accounted for by the supervisor characteristic to the total variance in the subordinate characteristic-identification slopes across groups:

$$R^2 = (\tau_{11\text{intercepts-as-outcomes}} - \tau_{11\text{slopes-as-outcomes}}) / \tau_{11\text{intercepts-as-outcomes}}, \text{ where } \tau_{11} = U_{ij}$$

I present the results of the HLM models that I used to test each hypothesis in the Results section below.

*Centering.* Before presenting the results, I address another important issue regarding the analysis of cross-level data: the issue of centering. In Hypotheses 1 and 2, I am interested in determining whether the slope between the individual level predictor (e.g., subordinate characteristic) and the individual-level outcome (e.g., subordinate identification with supervisor) varies as a function of the group-level predictor (e.g., supervisor characteristic). Hofmann and Gavin (1998) caution that one may find spurious cross-level relationships if one does not separate the within- from the between-group variance in the individual level predictor, in cases in which the variable being moderated has both an individual- and group-level variance component. Although researchers (Hofmann & Gavin, 1998; Raudenbush & Bryk, 2002) suggest that there is

no correct centering approach, Hofmann and Gavin suggest that group mean centering provides an unbiased estimate of the pooled within-group slope, rather than a mix of the within- and between-group slope. Thus, group mean centering ensures that significant findings for interactions are the result of cross-level interactions, not between-group interactions. Following Hofmann and Gavin's suggestion and published research (Hofmann, Morgeson, & Gerrass, 2003), I group-mean centered each subordinate deep-level variable and age. That is, for each of these subordinate characteristics, I subtracted the group mean from each individual's score on the characteristic. For example, in order to compute the group mean centered academic focus for each subordinate, I subtracted the group average subordinate academic focus from each individual's score on academic focus.

Although it may seem reasonable to group-mean center the subordinate gender and race as well, researchers (Sacco, Scheu, Ryan, & Schmitt, 2003) suggest otherwise. As Sacco et al. might suggest, when one uses uncentered grouping variables (e.g., gender and race), the slope represents the within-group gender and race difference between the subordinates, unadjusted for the overall proportion of subordinates of a given race or gender within each group. Thus, by using uncentered, dichotomous surface-level variables, I am able to investigate differences based on gender and race.

## Results

### *Initial Analysis*

*Correlations among subordinate characteristics and dependent variables.* Table 1 provides the means, standard deviations, and intercorrelations of the (individual-level) subordinate characteristics and individual-level dependent variables of this study. (Note:

with the exception of subordinate age and gender, all variables are group mean centered.) In describing the Table 1 results, I focus particularly on the significant relationships between variables that I measured at different times. For instance, Table 1 shows that White subordinates ( $r = -.12, p < .01$ ) and subordinates who are more academically- ( $r = .09, p < .05$ ), militarily- ( $r = .13, p < .01$ ), physical fitness- ( $r = .14, p < .01$ ), and socially-focused ( $r = .22, p < .01$ ) (each reported at Time 1) reported identifying with their supervisors (Time 2) significantly more than non-White subordinates and subordinates who are less academically-, militarily-, physical fitness-, and socially-focused, respectively, reported identifying with their supervisors. Furthermore, subordinates who identify highly with the Academy ( $r = .17, p < .01$ ) and the Army ( $r = .17, p < .01$ ) reported identifying with their supervisors significantly more than subordinates who identify less strongly with the Academy and the Army reported identifying with their supervisors.

Similar relationships exist between Time 1 variables and subordinate reports of mentoring received (Time 3). More specifically, White subordinates ( $r = -.12, p < .01$ ), subordinates who are physical fitness- ( $r = .17, p < .01$ ) and socially-focused ( $r = .32, p < .01$ ), and subordinates who identify highly with the Academy ( $r = .12, p < .01$ ) and the Army ( $r = .15, p < .01$ ) reported receiving significantly more mentoring from their supervisors than did subordinates who are non-White, subordinates who are less physical fitness- and socially-focused, and subordinates who identify less strongly with the Academy and the Army, respectively, reported receiving from their supervisors.

Table 1 also shows relationships between subordinate characteristics and supervisor-reported dependent (individual-level) variables. Supervisors reported

identifying (Time 2) significantly more with White subordinates ( $r = -.14, p < .01$ ), older subordinates ( $r = .10, p < .01$ ), and male subordinates ( $r = -.15, p < .01$ ) than they reported identifying with non-White subordinates, younger subordinates, and female subordinates, respectively. In addition, supervisors reported identifying significantly more with more academically- ( $r = .09, p < .05$ ), physical fitness- ( $r = .13, p < .01$ ) and socially-focused ( $r = .21, p < .01$ ) subordinates than they reported identifying with subordinates who are less academically, physical fitness-, and socially-focused, respectively. Also, supervisors reported identifying significantly more with subordinates who identify highly with the Academy ( $r = .12, p < .01$ ) and the Army ( $r = .11, p < .01$ ) than they report identifying with subordinate who identify less strongly with the Academy and the Army, respectively. Furthermore, supervisors reported identifying significantly more with subordinates who had performed highly in the past than they reported identifying with subordinates who had performed less highly in the past ( $r = .21, p < .01$ ). Lastly, supervisors reported providing significantly more mentoring to subordinates who are more physical fitness- ( $r = .14, p < .01$ ) and socially-focused ( $r = .14, p < .01$ ) than they reported providing to subordinates who are less physical fitness- and socially-focused.

*Correlations among supervisor characteristics and dependent variables.* Table 2 shows relationships between (group-level) supervisor characteristics and group-level dependent variables. In this table, subordinate identification with the supervisor, supervisor identification with the subordinate, mentoring reported by the subordinate, and mentoring reported by the supervisor represent the mean squad ratings. Again, I highlight significant relationships between measures taken at different time periods. For

example, on average, subordinates reported identifying significantly more with ( $r = -.29$ ,  $p < .01$ ) and receiving significantly more mentoring from ( $r = -.35$ ,  $p < .01$ ) male supervisors than they reported identifying with and receiving mentoring from female supervisors. Also, on average, subordinates reported receiving significantly more mentoring from supervisors who identify highly with the Academy ( $r = .34$ ,  $p < .01$ ) than they report receiving from supervisors who identify less strongly with the Academy. Of note, there is not a significant relationship between any of the supervisor characteristics and supervisor reports of identification with or mentoring provided to subordinates. That is, supervisors who rated themselves differently on a particular characteristic (e.g., military focus or identification with the Army) do not differ in their mean levels of identification with or mentoring provided to subordinates.

*Correlations among independent variables.* Tables 1 and 2 also provide intercorrelations among subordinate characteristics and intercorrelations among supervisor characteristics, respectively. Table 1 indicates that the mean correlation among subordinate academic, military and academic focus is .36. That is, subordinates who are focused in one of these three areas tend to be focused in the other two areas as well. As one might expect, militarily-focused subordinates tend to identify highly with the Academy ( $r = .36$ ,  $p < .01$ ) and the Army ( $r = .41$ ,  $p < .01$ ). Subordinates who identify with the Academy are also likely to identify with the Army ( $r = .61$ ,  $p < .01$ ).

Similar relationships exist among supervisor variables. For instance, Table 2 indicates that supervisors who identify with the Academy are likely to identify with the Army ( $r = .43$ ,  $p < .01$ ). Also, older cadets tend to identify with the Army ( $r = .30$ ,  $p < .01$ ). Supervisors who are militarily-focused tend to be academically- ( $r = .30$ ,  $p < .01$ )

and physical fitness-focused ( $r = .37, p < .01$ ) as well. Supervisors who are physical fitness-focused are likely to be socially-focused ( $r = .43, p < .01$ ). Whereas academically-focused supervisors are likely to identify with the Academy ( $r = .34, p < .01$ ), militarily-focused supervisors are likely to identify with the Army. Socially-focused supervisors tend to be physical fitness-focused ( $r = .43, p < .01$ ).

*Correlations among dependent variables.* Besides the aforementioned intercorrelations among independent and dependent variables, Tables 1 and 2 also provide intercorrelations among supervisor and subordinate dependent variables at the individual- and group-level, respectively. At the individual-level, Table 1 shows that there is a significant relationship ( $r = .27, p < .01$ ) between subordinate identification with the supervisor and supervisor identification with the subordinate, and it shows that there is a significant relationship ( $r = .18, p < .01$ ) between mentoring reported by the subordinate and mentoring reported by the supervisor. Hence, when a supervisor identifies highly with one of his or her subordinates, the subordinate is likely to identify highly with that mentor. Similarly, when a supervisor feels that he or she provides a high level of mentoring to one of his or her subordinates, the subordinate is likely to feel that he or she received a high level of mentoring.

At the group-level, Table 2 shows that there is a significant relationship ( $r = .72, p < .01$ ) between average subordinate identification with the supervisor and average supervisor identification with the subordinate. Thus, on average, when a supervisor identifies highly with his or her subordinates, on average, subordinates are likely to identify highly with that mentor. There is a positive, but non-significant, relationship ( $r = .10, p = .42, ns$ ) between average mentoring reported by the supervisor and average

mentoring reported by the supervisor's subordinates. Next, I turn to the results of the HLM analysis to test my hypotheses.

### *HLM Results*

*Subordinate identification with the supervisor.* Following the steps discussed in the data analysis section, I estimated a null model in order to investigate the proportion of between-group variance in subordinate identification with the supervisor. The results indicated that 29% of the variance was between groups, and therefore, provided a basis for me to examine group-level predictors of the between-group variance in subordinate identification with the supervisor as well as individual-level predictors of the within-group variance in subordinate identification with the supervisor.

Tables 5 provides a summary of the results of the slopes-as-outcomes model used to test Hypothesis 1a. Hypothesis 1a predicted that supervisor surface-level characteristics (Time 1) would moderate the relationship between the respective subordinate surface-level characteristics (Time 1) and subordinate identification with the supervisor (Time 2), such that subordinates who are similar to their supervisors would report identifying with their supervisors significantly more than subordinates who are dissimilar to their supervisors would report identifying with their supervisors. Table 5 indicates that supervisor race did not moderate the relationship between subordinate race and subordinate identification with the supervisor. Likewise, supervisor age did not moderate the relationship between subordinate age and subordinate identification with the supervisor. However, supervisor gender moderated the relationship between subordinate gender and subordinate identification with the supervisor ( $\gamma_{11} = .43, p < .05$ ), such that subordinates with supervisors of the same gender reported identifying with their

supervisors significantly more than subordinates with supervisors of the opposite gender reported identifying with their supervisors. Figure 1 depicts the form of this interaction. Thus, I found partial support for Hypothesis 1a.

Table 5 also provides a summary of the results of the slopes-as-outcomes model used to test Hypothesis 2a. Hypothesis 2a predicted that supervisor deep-level characteristics (Time 1) would moderate the relationship between the respective subordinate deep-level characteristics (Time 1) and subordinate identification with the supervisor, such that subordinates who are similar to their supervisors would report identifying with their supervisors significantly more than subordinates who are not similar to their supervisors would report identifying with their supervisors. As Table 5 indicates, none of the supervisor deep-level characteristics moderated the relationship between the respective subordinate deep-level characteristics and subordinate identification with the supervisor. Thus, I found no support for Hypothesis 2a.

In order to examine the individual-level predictors of subordinate identification with the leader, I estimated a separate random regression coefficients model for each of the subordinate deep- and surface-level characteristics. Table 3 indicates that several of the subordinate characteristics were significantly related to subordinate identification with the supervisor. More specifically, subordinate race was significantly negatively related to identification with the supervisor ( $\gamma_{10} = -.18$ ,  $p < .01$ ,  $R^2 = .02$ ). That is, White subordinates reported identifying with their supervisors significantly more than non-Whites subordinates reported identifying with their supervisors. Also, subordinate military- ( $\gamma_{10} = .10$ ,  $p < .01$ ,  $R^2 = .03$ ), physical fitness- ( $\gamma_{10} = .10$ ,  $p < .01$ ,  $R^2 = .02$ ), and social ( $\gamma_{10} = .17$ ,  $p < .01$ ,  $R^2 = .09$ ) focus were each significantly positively related to

subordinate identification with the supervisor. That is, more militarily-, physical fitness-, and socially-focused subordinates reported identifying with their supervisors significantly more than subordinates who are less militarily-, physical fitness-, and socially-focused, respectively, reported identifying with their supervisors. Lastly, subordinates who identify highly with the Academy ( $\gamma_{10} = .10$ ,  $p < .01$ ,  $R^2 = .09$ ) and identify with the Army ( $\gamma_{10} = .11$ ,  $p < .01$ ,  $R^2 = .09$ ) reported identifying with their supervisors significantly more than subordinates who identify less strongly with the Academy and the Army, respectively.

Of note, I also estimated an HLM in which I simultaneously tested all of the predictors—to include subordinate-supervisor gender similarity—that were significant when I tested each one separately. Since subordinate identification with the Academy and subordinate identification with the Army were relatively highly correlated ( $r = .61$ ,  $p < .01$ ), I created a new variable, identification with the military, to represent the mean of these two variables. In the simultaneous test of the significant subordinate characteristics, I used this new variable, instead of subordinate identification with the Academy and subordinate identification with the Army. The results of this HLM indicated that social focus ( $\gamma_{10} = .13$ ,  $p < .01$ ), identification with the military ( $\gamma_{10} = .09$ ,  $p = .01$ ), and subordinate-supervisor gender similarity ( $\gamma_{11} = .42$ ,  $p = .05$ ) were significantly related to subordinate identification with the supervisor.

*Supervisor identification with the subordinate.* I estimated a null model in order to investigate the proportion of between-group variance in supervisor identification with the subordinate. The results indicated that 43% of the variance was between groups, and therefore, provided a basis for me to examine group-level predictors of the between-

group variance in supervisor identification with the subordinate as well as individual-level predictors of the within-group variance in supervisor identification with the subordinate.

Table 8 provides a summary of the results of the slopes-as-outcomes model used to test Hypothesis 1b. Hypothesis 1b predicted that supervisor surface-level characteristics would moderate the relationship between the respective subordinate surface-level characteristics and supervisor identification with the subordinate (Time 2), such that supervisors would report identifying more with similar subordinates than dissimilar subordinates. As Table 8 indicates, supervisor race did not moderate the relationship between subordinate race and supervisor identification with the subordinate. However, supervisor gender moderated the relationship between subordinate gender and supervisor identification with the subordinate ( $\gamma_{11} = .68, p < .01$ ), such that supervisors identified more with same-gender subordinates than they did with opposite-gender subordinates. Figure 2 depicts the form of this interaction.

Furthermore, supervisor age moderated the relationship between subordinate age and supervisor identification with the subordinate ( $\gamma_{11} = .11, p < .01$ ), such that older supervisors identified more with older subordinates than they did with younger subordinates (see Figure 2). Figure 3 depicts the form of this interaction. Thus, I found partial support for Hypothesis 1b.

Table 8 provides a summary of the results of the slopes-as-outcomes model used to test Hypothesis 2b. Hypothesis 2b predicted that supervisor deep-level characteristics would moderate the relationship between the respective subordinate deep-level characteristics and supervisor identification with the subordinate, such that supervisors

would report identifying more with similar subordinates than dissimilar subordinates. As Table 6 indicates, none of the supervisor deep-level characteristics moderated the relationship between the respective subordinate deep-level characteristics and supervisor identification with the subordinate. Thus, I found no support for Hypothesis 2b.

In order to examine the individual-level predictors of supervisor identification with the subordinate, I estimated a separate random regression coefficients model for each of the subordinate deep- and surface-level characteristics. Table 6 indicates that several of the subordinate characteristics were significantly related to supervisor identification with the subordinate. More specifically, subordinate race ( $\gamma_{10} = -.24$ ,  $p < .01$ ,  $R^2 = .04$ ), age ( $\gamma_{10} = .08$ ,  $p < .01$ ,  $R^2 = .02$ ), and gender ( $\gamma_{10} = -.27$ ,  $p < .01$ ,  $R^2 = .04$ ) were significantly related to supervisor identification with the subordinate. That is, on average, supervisors reported identifying significantly more with White subordinates, older subordinates, and men than they reported identifying with non-White subordinates, younger subordinates, and women, respectively. Also, subordinate military focus ( $\gamma_{10} = .07$ ,  $p < .05$ ,  $R^2 = .11$ ), physical fitness focus ( $\gamma_{10} = .14$ ,  $p < .01$ ,  $R^2 = .10$ ), and social focus ( $\gamma_{10} = .12$ ,  $p < .01$ ,  $R^2 = .14$ ) were each significantly positively related to supervisor identification with the subordinate. That is, on average, supervisors reported identifying significantly more with subordinates who were more militarily-, physical fitness-, and socially-focused than they reported identifying with subordinates who were less militarily-, physical fitness-, and socially-focused, respectively. Lastly, on average, supervisors reported identifying significantly more with subordinates who identify highly with the Academy ( $\gamma_{10} = .08$ ,  $p < .01$ ,  $R^2 = .08$ ) and identify highly with the Army ( $\gamma_{10} =$

.06,  $p < .01$ ,  $R^2 = .09$ ) than they reported identifying with subordinates who identify less strongly with the Academy and the Army, respectively.

Of note, I also estimated an HLM in which I simultaneously tested all of the predictors—to include subordinate-supervisor gender and age similarity—that were significant when I tested each one separately. Again, I used subordinate identification with the military, instead of separate measures of identification with the Academy and identification with the Army. The results of this HLM indicated that subordinate race ( $\gamma_{10} = -.20$ ,  $p < .01$ ), physical fitness focus ( $\gamma_{10} = .08$ ,  $p < .05$ ), and social focus ( $\gamma_{10} = .11$ ,  $p < .01$ ) as well as subordinate-supervisor gender similarity ( $\gamma_{11} = .11$ ,  $p < .01$ ) were each significant.

In order to examine the group-level predictors of supervisor identification with the subordinate, I estimated a separate intercepts-as-outcomes model for each of the supervisor characteristics. As Table 7 indicates, none of the supervisors characteristics was significant.

*Identification and Mentoring.* Hypothesis 3a predicted that subordinate identification with the supervisor (Time 2) would be positively related to mentoring reported by the subordinate (Time 3). The null model indicated that 29% of the variance in mentoring reported by the subordinate was between groups, so by default, 71% of the variance was within groups. Thus, I had a basis for investigating the individual-level predictors of the within-group variance in mentoring reported by the subordinate. I estimated a random coefficients regression model to test this hypothesis. The results of the HLM indicated that subordinate identification with the supervisor was significantly positively related to mentoring reported by the subordinate ( $\gamma_{10} = .55$ ,  $p < .01$ ,  $R^2 = .26$ ).

That is, subordinates who identified highly with their supervisors at Time 2 reported receiving significantly more mentoring from their supervisors at Time 3 than subordinates who identified less strongly with their supervisors at Time 2 reported receiving from their supervisors at Time 3. In order to provide a more rigorous test of Hypothesis 3a, I controlled for all supervisor and subordinate deep- and surface-level characteristics that I measured (including the control measures, subordinate desire to be a protégé and supervisor desire to be a mentor) in the current study in a second HLM. The result of this model supported the above finding ( $\gamma_{10} = .50, p < .01$ ). Thus, I found full support for Hypothesis 3a.

Hypothesis 3b predicted that supervisor identification with the subordinate (Time 2) would be positively related to mentoring reported by the supervisor (Time 3). The null model indicated that 83% of the variance in mentoring reported by the supervisor was between groups, so by default, 17% of the variance was within groups. I estimated a random coefficients regression model to test this hypothesis. The results of the HLM indicated that supervisor identification with the subordinate was significantly positively related to mentoring reported by the supervisor ( $\gamma_{10} = .27, p < .01, R^2 = .46$ ). That is, supervisors reported providing significantly more mentoring at Time 3 to subordinates with whom they identified at Time 2 than they reported providing to subordinates with whom they identified less strongly at Time 2. In order to provide a more rigorous test of Hypothesis 3b, I controlled for all supervisor and subordinate deep- and surface-level characteristics that I measured (including the control measures, subordinate desire to be a protégé and supervisor desire to be a mentor) in a second HLM. The result of this model

supported the above finding ( $\gamma_{10} = .33, p < .01$ ). Thus, I found full support for Hypothesis 3b.

Also, I estimated an HLM in which I simultaneously tested whether subordinate identification with the supervisor and supervisor identification with the subordinate both predicted mentoring reported by the subordinate. The results indicated that both subordinate identification with the supervisors ( $\gamma_{01} = .53, p < .01$ ) and supervisor identification with the subordinate ( $\gamma_{01} = .20, p < .01$ ) were significantly related to mentoring reported by the subordinate.

*Subordinate Past Performance and Mentoring.* Hypothesis 4a predicted that subordinate past performance (that is, the subordinate's military grade point average) would be positively related to mentoring reported by the subordinate. I estimated a random coefficients regression model to test this hypothesis. The results of the HLM indicated that subordinate past performance was not significantly related to mentoring reported by the subordinate. That is, subordinates who had performed highly in the past did not report receiving more mentoring from their supervisors than subordinates who had performed less highly in the past reported receiving from their supervisors. Hence, I found no support for Hypothesis 4a.

Hypothesis 4b predicted that subordinate past performance would be positively associated with mentoring reported by the supervisor. I estimated a random coefficients regression model to test this hypothesis. The results of the HLM indicated that subordinate past performance was significantly related to mentoring reported by the supervisor ( $\gamma_{10} = .10, p < .10, R^2 = .08$ ). That is, supervisors reported providing significantly more mentoring to subordinates who had performed highly in the past than

they reported providing to subordinates who had performed less highly in the past.

Hence, I found support for hypothesis 4b.

*Minority Supervisors and Mentoring.* I posed a Research Question to examine whether minority (women and racial minority) supervisors would provide less mentoring to their subordinates than majority (White men) supervisors would provide to their subordinates. To investigate this question, I estimated two intercepts-as-outcomes models: one for the relationship between supervisor race and mentoring reported by the supervisor, the other for the relationship between supervisor gender and mentoring reported by the supervisor. The results of the model with supervisor race as the group-level predictor indicated that non-White supervisors did not report providing significantly less mentoring than White supervisors reported providing. Similarly, the results of the model with supervisor gender as the group-level predictor indicated that female supervisors did not report providing significantly less mentoring than male supervisors reported providing.

Also, I investigated whether subordinates of minority supervisors would report receiving less mentoring than subordinates of majority supervisors would report receiving. Again, I estimated two intercepts-as-outcomes models: one for the relationship between supervisor race and mentoring reported by the subordinate, the other for the relationship between supervisor gender and mentoring reported by the subordinate. The results of the model with supervisor race as the group-level predictor indicated that subordinates of non-White supervisors did not report receiving significantly less mentoring than subordinates of non-White supervisors reported receiving. The results of the model with supervisor gender as the group-level predictor

indicated that subordinates of female supervisors reported receiving significantly less mentoring than subordinates of male supervisors report receiving ( $\gamma_{10} = -.43, p < .01$ ). Controlling for all of the deep- and surface-level supervisor characteristics measured in the current study—to include supervisor desire to be a mentor and subordinate desire to be a protégé—a more rigorous model supported the above finding ( $\gamma_{10} = -.37, p = .05$ ).

*Supervisor-subordinate identification as a mediator.* Before I move to the discussion, it seems apropos that I investigate how the predictors in the current study link together. Although not explicitly stated in the introduction, my hypotheses imply that supervisor-subordinate identification mediates the effects of surface-level similarity and deep-level similarity on mentoring. Thus, I conducted mediation analyses. In the mediation analyses, I chose to focus exclusively on mentoring reported by the subordinate for two primary reasons. First, mentoring reported by the supervisor is only modestly related to mentoring reported by the subordinate. This means that a subordinate may not perceive that the supervisor has mentored him or her, even if the supervisor reports that he or she has provided mentoring. In such circumstances, the subordinate's report seems most critical and valid: if the subordinate has not realized the supervisor's attempts to provide mentoring to the subordinate, then the supervisor's attempts may not have been effective.

Second, supervisor reports of mentoring vary predominantly between-groups. That is, when supervisors rated the extent to which they mentored their subordinates, supervisors tended not to distinguish among their subordinates. I found this to be the case when I observed the supervisors' surveys and when I conducted the analysis of mentoring reported by the supervisor. The results and the actual paper surveys give the

impression that supervisors were hesitant to reveal preferential treatment of some subordinates over others. This too calls into question the validity of the supervisors' reports of mentoring provided.

According to Kenny and his colleagues (Kenny, Kashy & Bolger, 1998), a variable (M) mediates the relationship between an antecedent variable (X) and an outcome variable (Y) if: (1) X is significantly related to Y; (2) X is significantly related to M; (3) after controlling for X, M remains significantly related to Y; and (4) after controlling for M, the X-Y relationship is zero. Kenny et al. (1998, p. 260) described the second and third of these steps as “the essential steps in establishing mediation.” They added that the first step “is not required, but a path from the initial variable to the outcome is implied if [the two middle steps] are met” (Kenny et al., 1998, p. 260). Further, the last step is necessary only to prove a complete mediation effect.

A necessary precursor to conducting the mediation analyses was determining the set of significant predictors of supervisor-subordinate identification, as supervisor-subordinate identification can only mediate the effects of those predictors to which it is significantly related. The reader may recall that the significant predictors of subordinate identification with the supervisor (M1) were subordinate race; subordinate military, physical, and social focus; subordinate identification with the military; and gender similarity. The set of significant predictors of supervisor identification with the subordinate (M2) was the same as that for subordinate identification with the supervisor, with the addition of supervisor-subordinate age similarity. The combined set of significant predictors of (a) subordinate identification with the supervisor and (b)

supervisor identification with the subordinate represents the set of antecedent variables (X) that I use for the mediation analyses.

In Table 9, I present the results of the first step: the relationship between (a) subordinate race; subordinate military, physical fitness, and social focus; subordinate identification with military; and supervisor-subordinate gender and age similarity (antecedent variables) and (b) mentoring reported by the subordinate (Y). The simultaneous test of the antecedent variables showed that only subordinate social focus was significantly related to mentoring received. These results provide limited evidence in support of the first step of Kenny and colleagues' procedures for testing mediation, but Kenny et al. do not consider evidence of a significant X-Y relationship to be essential to tests of mediation.

Thus, I continue with the results of the second step of the mediation analyses. The second step entailed determining the significant relationships between the antecedent variables (X) and supervisor-subordinate identification (M). As Table 10 indicates, the simultaneous test of the antecedent variables showed that subordinate social focus; subordinate identification with military, and gender similarity were significantly related to subordinate identification with the supervisor (M1). Furthermore, as Table 11 shows, subordinate physical fitness and social focus, subordinate race, and gender similarity were significantly related to supervisor identification with the subordinate (M2).

Continuing the mediation analyses, I conducted the third step of Kenny and colleagues' recommended procedures. As shown in Table 12, the relationships between mentoring reported by the subordinate (Y) and both subordinate identification with the supervisor (M1) and supervisor identification with the subordinate (M2) remain

significant, even after controlling for all the other antecedent variables. The results in Table 12 also yield information regarding the fourth step of Kenny and colleagues' recommended procedures. After control for subordinate-supervisor identification, only subordinate social focus remains significantly related to mentoring reported by the subordinate.

In sum, the mediation results suggested that identification between a subordinate and his or her supervisor fully mediated the effects of subordinate identification with the military, subordinate race, subordinate physical fitness focus, and gender similarity on mentoring reported by the subordinate. However, supervisor-subordinate identification did not mediate the effects of subordinate social focus on mentoring reported by the subordinate.

## Discussion

In this study, I proposed a model of the antecedents of the formation of mentoring relationships between subordinates and their supervisors. More specifically, I proposed that subordinates and supervisors who identified with one another would be more likely to develop a close, mentoring relationship than would subordinates and supervisors who did not identify with one another. Further, I proposed that surface-level and deep-level similarity between subordinates and their supervisors would predict the extent to which subordinates and supervisors would identify with one another. To test these hypotheses, I assessed subordinate and supervisor surface- (i.e., race, age, gender) and deep-level (i.e., values) characteristics at the start of an intensive training program (Time 1); subordinate identification with his or her supervisor and supervisor identification with his or her subordinates (Time 2, two weeks after Time 1); and both subordinates' and supervisors'

perceptions of the extent to which their relationships involved mentoring (Time 3, two weeks after Time 2). Below, I summarize the results of the study and discuss some of the study's strengths, limitations, and implications for future research.

#### *Supervisor-subordinate Surface-level Similarity and Identification*

I found partial support for the Hypothesis 1a, which predicted that surface-level similarity would be positively associated with subordinate identification with the supervisor. More specifically, I found that subordinates with supervisors of the same gender reported identifying with their supervisors significantly more than subordinates with supervisors of the opposite gender reported identifying with their supervisors. However, supervisor-subordinate similarity in terms of race and age did not predict subordinate identification with the supervisor.

I also found partial support for Hypothesis 1b which predicted that surface-level similarity between the subordinate and the supervisor would be positively associated with supervisor identification with the subordinate. In particular, supervisors identified more with same-gender subordinates than they did with opposite-gender subordinates, older supervisors identified more with older subordinates than they did with younger subordinates, and younger supervisors identified more with younger subordinates than they did with older subordinates. I did not find significant effects for race similarity. In sum, these findings provided some support for theories of social identity (Tajfel, 1978) and self-categorization (Turner, 1982) which suggest that one is likely to have positive affect towards others who possess similar physical characteristics as one does.

#### *Supervisor-subordinate Deep-level Similarity and Identification*

I found no support for Hypotheses 2a or 2b which predicted that supervisor-subordinate deep-level similarity would be positively associated with identification. Values similarity between the subordinate and the supervisor did not predict subordinate identification with the supervisor, nor did it predict supervisor identification with the subordinate.

The results challenge existing theories of interpersonal attraction (i.e., Byrne, 1971), which propose that one is particularly likely to have positive affect towards others who possess similar underlying characteristics as one does. The results also challenge some existing mentoring research (Ensher & Murphy, 1997; Turban et al., 2002) which has shown that protégés who perceived themselves to be similar to their mentors in interests and values reported receiving more mentoring than those who did not perceive themselves to be similar to their mentors. The current study provides some evidence that the results of studies which actually measure deep-level similarity yield findings different from those studies that simply assess perceived similarity.

#### *Identification and Mentoring*

The results provide substantial support for Hypotheses 3a and 3b, which predicted that identification predicts mentoring. In a simultaneous analysis, both subordinate identification with the supervisor and supervisor identification with the subordinate were significantly positively related to mentoring reported by the subordinate. Similarly, both subordinate identification with the supervisor and supervisor identification with the subordinate were significantly positively related to mentoring reported by the supervisor

Consequently, the results confirm mentoring theorists' (e.g., Kram, 1985) notion that identification is integral to the mentoring relationship. Extant mentoring research

assumed that there was a positive relationship between identification and mentoring; however, researchers failed to empirically test the relationship. The current study provides evidence that identification on the part of both the subordinate and the supervisors predicts mentoring reported by both the subordinate and the supervisor.

#### *Subordinate Past Performance and Mentoring*

The results provide partial support for the hypothesis that subordinate past performance predicts mentoring. In support of Hypothesis 4b, supervisors reported providing significantly more mentoring to subordinates who had performed highly in the past than they reported providing to subordinates who had performed less highly in the past. This finding is consistent with theory of social exchange (Homans, 1958; Thibaut & Kelley, 1959) and confirms findings from extant mentoring research (Allen et al., 2000; Olian, Carroll, & Giannantonio, 1993), which has revealed that mentors prefer high-performing protégés, rather than moderately- or high-performing protégés.

Contrary to Hypothesis 4a, subordinate past performance did not predict mentoring reported by the subordinate. This finding is contrary to extant research, yet it is not counterintuitive. The finding is contrary to Green and Bauer's (1995) study, in which high potential doctoral students reports receiving more mentoring than less high potential doctoral students. However, the current study's results are not counterintuitive when one considers that past high-performers may have felt that their performance at CFT was largely due to their own ability. Indeed, past high-performers were likely to still be high-performers (i.e., the correlation between subordinate past performance and subordinate performance during CFT was .34,  $p < .01$ ). Perhaps, past high-performers

underestimated the amount of mentoring they received, thinking that their continued success had little to do with their supervisors' mentoring.

### *Minority Supervisors and Mentoring*

In regards to the Research Question, the results provide little evidence that minority supervisors provide less mentoring than majority supervisors do. Subordinates of female supervisors reported receiving significantly less mentoring from their supervisors than subordinates of male supervisors reported receiving. This finding supports existing theory (Ragins, 1997b) that minority mentors are less capable of providing mentoring than their majority counterparts because the former lacks the power that the latter possesses.

However, several findings contest the notion that minority supervisors provide less mentoring than majority supervisors do. Indeed, women and men supervisors did not differ in the levels of mentoring that they reported providing. Furthermore, subordinates of non-White supervisors did not report receiving significantly less mentoring from their supervisors than subordinates of White supervisors reported receiving. Likewise, White and non-White supervisors did not differ in their reported levels of mentoring provided.

### *Putting It All Together: The Antecedents of Mentoring Received*

Although the similarity hypotheses, as a whole, received only modest support, the research results shed new light on the antecedents of the development of the mentoring relationship. In the following section, my intent is to illustrate to the reader how the results link together to predict mentoring reported by the subordinate. As the significant predictors of subordinate identification with the supervisor differ somewhat from the predictors of supervisor identification with the subordinate, I describe each of these sets

of predictors in turn, focusing first on subordinate identification and then on supervisor identification. Although the results regarding mentoring reported by the supervisor are interesting, and the perspective of the mentor is important for research and practical purposes, I limit further discussion of mentoring to the perspective of the subordinate for reasons that I outlined in the Results section.

As I previously noted, whereas some surface-level similarity (i.e., supervisor-subordinate gender similarity) between the subordinate and the supervisor predicted subordinate identification with the supervisor, deep-level similarity was not predictive of subordinate identification with the supervisor. However, subordinate deep-level characteristics (i.e., militarily, physical fitness, and social focus and identification with the military) as well as subordinate race did predict identification with the supervisor. In an omnibus test of all the significant predictors of subordinate identification with the supervisor, I found that subordinate social focus, identification with the military, and subordinate-supervisor gender similarity were significantly positively related to subordinate identification with the supervisor. In sum, subordinates who are socially-focused, identify with the military, and are of the same gender as their supervisors are most likely to identify with their supervisors.

The results for supervisor identification with the subordinate are quite similar to the results for subordinate identification with the supervisor. Whereas surface-level similarity (i.e., gender and age similarity) between the subordinate and the supervisor predicted supervisor identification with the subordinate, deep-level similarity was not predictive of supervisor identification with the subordinate. Nonetheless, subordinate deep-level characteristics (i.e., military focus, physical fitness focus, social focus, and

identification with the military) as well as subordinate race were significantly related to supervisor identification with the subordinate. In an omnibus test of all the significant predictors of supervisor identification with the subordinate, I found that subordinate physical fitness and social focus, subordinate race, and subordinate-supervisor gender similarity were significantly positively related to subordinate identification with the supervisor.

The predictors of subordinate and supervisor identification served a single set of predictors for my mediation analyses. The test of mediation suggested that subordinates who are socially-focused, identify with the military, and are of the same gender as their supervisors are most likely to identify with their supervisors. In turn, supervisors are most likely to identify with subordinates who are physical fitness-focused and socially-focused, White, and of the same gender as their subordinates are. The effects of subordinate identification with the military, physical fitness focus, race and supervisor-subordinate gender similarity on mentoring are mediated by supervisor-subordinate identification. However, subordinate social focus has a direct effect on mentoring and is not mediated by supervisor-subordinate identification.

Together, the results suggest that supervisor-subordinate gender similarity fosters supervisor-subordinate identification, as does subordinate physical fitness and social focus, subordinate identification with the military (i.e., the Academy and the Army), and subordinate race (more specifically, being White). In turn, supervisor-subordinate identification fosters the development of a mentoring relationship.

*Strengths, Limitations, and Contextual Factors*

The present study extended previous research on mentoring by examining the role of deep- and surface-level diversity, identification, and performance on mentoring. To my knowledge, the current study marks the first attempt to thoroughly explore the role of identification in mentoring. Indeed, this study provided support for mentoring theorists' notion that identification is integral to the development of a mentoring relationship. In addition to filling this gap in the mentoring literature, I added to or improved upon the mentoring literature in a few ways. First, the current study is one of few longitudinal studies of mentoring. In fact, one of the major strengths of the current study is its longitudinal nature. Because I measured predictor variables at different time periods than I measured dependent variables, I minimized single-source bias.

Also, I minimized the effects of single-source bias by measuring both identification and mentoring from both the subordinates' and supervisors' perspectives. This enabled me to show that identification on the subordinates' part led to the increased levels of mentoring as reported by both subordinates and supervisors. Likewise, identification on the supervisors' part led to the increased levels of mentoring as reported by both subordinates and supervisors. However, although the results were similar for subordinates' and supervisors' reports of identification, and they were similar for subordinates' and supervisors' reports of mentoring, they were by no means identical. This finding provides evidence that results of research using protégés' reports and results of research using mentors' reports are not interchangeable. Indeed, the perspective makes a difference.

Perhaps more importantly, I captured relationships that began at the same time. Few mentoring studies (see Ensher & Murphy, 1997; Grenn & Bauer, 1995 for

exceptions) compare mentoring relationships that began at the same time and lasted for the same period of time. Since the intensity of the mentoring relationship is dependent upon how long the relationship has lasted (Chao, 1997; Kram, 1983, 1985), it was essential that I compared relationships that were at the same stage of development. Doing so minimized the likelihood that the length of the relationships affected the level of mentoring that supervisors provided in the current study.

Another methodological strength of the current study is its multilevel nature. Since subordinates were nested within supervisors, I was able to compare subordinates with different characteristics, yet the same supervisor. Thus, the study's multilevel nature allowed me to examine whether supervisors identify with and provide various levels of mentoring to subordinates based on certain subordinate characteristics. This method allowed me to ascertain whether certain subordinates are more privy to mentoring than others are.

Although this study contributes to the mentoring literature in a number of ways, it also has its limitations. One of most considerable limitations is the setting and sample. The current study's sample is indeed atypical. Usually, mentors are several years older than their protégés and have substantially more knowledge and experience than their protégés. Contrarily, in the present study, supervisors and subordinates were somewhat similar in age and experience. Thus, mentoring in the context of the current study may be quite different than mentoring in contexts in which protégés and mentors differ considerably in age and experience. Accordingly, researchers should replicate and extend this study in other settings.

Because I conducted this study using a predominately White male, military sample, the findings from this study may not generalize to other settings. Many of the results in the current study related to the gender of either the supervisor or subordinate. Gender is highly salient in masculine settings such as the military (Boldry, Wood, & Kashy, 2001). In such settings, attributions regarding gender may be more common than they are in other settings. Thus, in the current study, when individuals were questioned about how well they identified with other persons, such attributions may have come to mind and shaped individuals responses. In the future, researchers who investigate the relationships between gender, identification, and mentoring are wise to choose a setting in which gender is not so salient. Perhaps, another recommendation would be to utilize a measure of affect towards women.

Furthermore, since the sample was largely White males, the findings of this study may be specific only to similar samples. In settings in which racial minorities and women comprise more of the sample, researchers may find different results. Perhaps, racial minorities and women consider characteristics other than gender to be of more importance than White males do. Accordingly, researchers may find deep-level characteristics to be more consequential in more diverse samples.

Another limitation may be that I measured identification too early in the relationships. Because of the short duration of the relationships in the current study, I measured identification relative early. Since, supervisors and subordinates responded to measures of identification early on (i.e., day 12) in the relationships, they may have based the extent to which they identified with each other on easily identifiable features, such as gender, race and age. Individuals may have had little other information by which to

make judgments of identification. Had I measured identification later in the relationships or in relationships that lasted longer, respondents may have become more familiar with each other and may have been more apt to base identification on characteristics other than gender, race and age. Indeed, Harrison et al. (1998) found the effects of surface-level diversity weakened and the effect of deep-level diversity strengthened over time. In the future, researchers who implement measures of identification should ensure that individuals have had enough time to get acquainted with one another before they measure the extent to which they identify with one other. Perhaps, another solution would be to measure identification at more than one time, in order to determine whether the relationship between identification and deep- and surface-level diversity changes over time.

The current study is also limited in that the White versus non-White categorization of participants restricts findings regarding race. Initially, I chose to categorize respondents as either White or non-White because I assumed that there would be too few same-race supervisor-subordinate dyads in the minority sample to obtain meaningful results. Subsequent analysis of the data in which I utilized a same-race versus different-race categorization of supervisor-subordinate dyads confirmed this notion: the correlation between subordinate race and supervisor-subordinate dyad race (i.e., a same-race versus different-race) was .97. That is, White subordinates were far more likely than non-White subordinates to have a same-race supervisor. Consequently, White versus non-White comparisons were essentially equivalent to same-race versus different-race dyad comparisons. This phenomenon also highlights a limitation of the current study's racially homogeneous sample.

Lastly, the measures of identification that I used in the current study mark a starting point for researchers wishing to examine the construct of identification. While these measures were useful in the current study, mentoring researchers should further develop and implement other measures of identification in future studies. Furthermore, additional research is needed to overcome the weaknesses of the current study and other mentoring studies.

Many important questions remain. What deep-level characteristics are important to mentors and protégés? Under what circumstances do surface-level characteristics become less important to mentors and protégés? Do protégés look for high-performing mentors?

Having a mentor and being a mentor can be rewarding to individuals both psychologically and professionally. As more individuals recognize the benefits associated with being involved in a mentoring relationship, researchers should conduct more research to facilitate a better understanding of the dynamics of mentoring relationship. With this study, I hope to have provided a better understanding of the antecedents of mentoring.

Table 1

*Means, Standard Deviations, and Intercorrelations Among Subordinate Characteristics and Dependent Variables (Individual-level)*

	Mean	SD	1	2	3	4	5	6	7	8
1.Subordinate race	1.22	.41								
2.Subordinate age†	19.15	.99	.03							
3.Subordinate gender	1.15	.35	.09**	-.04						
4.Subordinate academic focus†	0.00	.83	.00	-.04	.02					
5.Subordinate military focus†	0.00	.80	-.13**	.03	-.24**	.36**				
6.Subordinate physical-fitness focus†	0.00	.74	-.06	.03	.04	.32**	.39**			
7.Subordinate social focus†	0.00	.74	-.02	-.01	.03	.22**	.15**	.29**		
8.Subordinate identification w/Academy†	0.00	.88	-.04	-.01	-.04	.23**	.35**	.26**	.25**	
9.Subordinate identification w/Army†	0.00	.91	-.04	.04	-.06	.11**	.41**	.28**	.20**	.60**
10.Subordinate desire to be protégé†	0.00	.91	-.03	-.08*	.13**	.29**	.32**	.26**	.26**	.34**
11.Subordinate past performance†	0.00	.60	-.11**	.04	.01	.25**	.23**	.14**	.01	.06
12.Subordinate identification w/supervisor†	0.00	.59	-.12**	.02	-.04	.09*	.13**	.14**	.22**	.17**
13.Subordinate report-mentoring†	0.00	.64	-.12**	-.06	-.05	.04	.07	.17**	.32**	.12**
14.Supervisor identification w/subordinate†	0.00	.55	-.14**	.10**	-.15**	.09*	.13**	.21**	.13**	.12**
15.Supervisor report-mentoring†	0.00	.31	-.03	.07	-.07	.02	.04	.14**	.14**	.06

Note: N varies due to variables being measured at different times. \*  $p < .05$ . \*\*  $p < .01$ . † denotes group mean centered variable.

Table 1 (ctd.)

	Mean	SD	9	10	11	12	13	14
1.Subordinate race								
2.Subordinate age†								
3.Subordinate gender								
4.Subordinate academic focus†								
5.Subordinate military focus†								
6.Subordinate physical-fitness focus†								
7.Subordinate social focus†								
8.Subordinate identification w/Academy†								
9.Subordinate identification w/Army†								
10.Subordinate desire to be protégé†	0.00	.91	.31**					
11.Subordinate past performance†	0.00	.60	.02	.10**				
12.Subordinate identification w/supervisor†	0.00	.59	.17**	.21**	.06			
13.Subordinate report-mentoring†	0.00	.64	.15**	.10*	-.01	.48**		
14.Supervisor identification w/subordinate†	0.00	.55	.11**	.06	.21**	.25**	.33**	
15.Supervisor report-mentoring†	0.00	.31	.07	.04	.20**	.17**	.22**	.52**

Note: N varies due to variables being measured at different times. \*  $p < .05$ . \*\*  $p < .01$ . † denotes group mean centered variable.

Table 2

*Means, Standard Deviations, and Intercorrelations Among Supervisor Characteristics and Dependent Variables (Group-level)*

	Mean	SD	1	2	3	4	5	6	7
1.Supervisor race	1.19	.39							
2.Supervisor age	20.10	.84	.06						
3.Supervisor gender	1.16	.36	.01	-.10					
4.Supervisor academic focus	3.27	.94	-.11	-.29*	.21				
5.Supervisor military focus	2.67	.84	-.05	.13	-.17	.30			
6.Supervisor physical-fitness focus	3.52	.60	.08	.09	-.16	.23	.37**		
7.Supervisor social focus	3.88	.73	.18	.14	-.06	.11	.14	.43**	
8. Supervisor identification w/Academy	3.30	1.00	.25*	-.10	.11	.34**	.12	.16	.01
9.Supervisor identification w/Army	3.52	.95	.17	.30**	.00	-.02	.39**	.11	.08
10.Supervisor desire to be mentor	3.83	.99	.00	.20	.25*	.11	.06	.08	.13
11.Supervisor CFT grade (post)	2.59	.72	.00	.02	-.05	.12	.32**	.16	-.02
12.Subordinate identification w/supervisor	3.39	.45	.08	.14	-.29**	.02	.04	.10	.00
13.Subordinate report-mentoring	3.17	.53	.12	-.04	-.35**	-.07	.06	.18	-.03
14.Supervisor identification w/subordinate	3.18	.57	.06	.12	-.09	-.21	.01	.01	-.01
15.Supervisor report-mentoring	3.00	.71	-.07	-.03	-.11	-.02	-.11	.06	.06

Note: N varies due to variables being measured at different times. \*  $p < .05$ . \*\*  $p < .01$ .

Table 2 (ctd.)

	Mean	SD	8	9	10	11	12	13	14
1.Supervisor race									
2.Supervisor age									
3.Supervisor gender									
4.Supervisor academic focus									
5.Supervisor military focus									
6.Supervisor physical-fitness focus									
7.Supervisor social focus									
8. Supervisor identification w/Academy									
9.Supervisor identification w/Army	3.52	.95	.43**						
10.Supervisor desire to be mentor	3.83	.99	.32**	.32**					
11.Supervisor CFT grade (Post)	2.59	.72	.08	.07	.12				
12.Subordinate identification w/supervisor	3.39	.45	.14	.11	.08	.24*			
13.Subordinate report-mentoring	3.17	.53	.34**	.03	.05	.28**	.33**		
14.Supervisor identification w/subordinate	3.18	.57	-.04	-.03	-.12	-.02	.72**	.38**	
15.Supervisor report-mentoring	3.00	.71	-.04	-.15	.05	-.08	.21	.10	.28*

Note: N varies due to variables being measured at different times. \*  $p < .05$ . \*\*  $p < .01$ .

Table 3  
*Random Coefficients Regression Model for Hypothesis 1a and 2a*

Individual-level Predictor	$\gamma_{00}$	$\gamma_{10}$	$r_{ij}$	$U_{0j}$	$U_{1j}$
Subordinate race	3.61**	-18**	.36**	.19**	.00
Subordinate age	3.39**	.00	.37**	1.61	.00
Subordinate gender	3.42**	-.03	.37**	.11	.01
Subordinate academic focus	3.40**	.06	.35**	.16**	.02
Subordinate military focus	3.39**	.10**	.36**	.16**	.00
Subordinate physical fitness focus	3.40**	.10**	.34**	.16**	.02
Subordinate social focus	3.40**	.17**	.34**	.16**	.02
Subordinate identification w/Academy	3.40**	.10**	.34**	.16**	.02
Subordinate identification w/Army	3.40**	.11**	.34**	.16**	.02

Note: Each of the predictors in this model was tested separately. \*  $p < .05$ . \*\*  $p < .01$ .

Level-1:

$$\text{subordinate identification with supervisor} = \beta_{0j} + \beta_{1j}(\text{Subordinate characteristic}) + r_{ij}$$

Level-2:

$$\beta_{0j} = \gamma_{00} + U_{0j}$$

$$\beta_{1j} = \gamma_{10} + U_{1j}$$

where:

$$\beta_{0j} = \text{identification for group } j$$

$$\beta_{1j} = \text{slope for group } j$$

$$\gamma_{00} = \text{mean of the intercepts across groups}$$

$$\gamma_{10} = \text{mean of the slopes across groups}$$

$$r_{ij} = \text{Level-1 residual variance } (\sigma^2)$$

$$U_{0j} = \text{variance in intercepts } (\tau_{00})$$

$$U_{1j} = \text{variance in the slopes } (\tau_{11})$$

Table 4  
Intercepts-as-Outcomes Model for Hypothesis 1a and 2a

Group-level Predictor	$\gamma_{00}$	$\gamma_{01}$	$r_{ij}$	$U_{0j}$
Supervisor race	3.30**	.08	.37**	.15**
Supervisor age	2.43*	.05**	.38**	.08**
Supervisor gender	3.7**	-.35	.37**	.14**
Supervisor academic focus	3.3**	.01	.38**	.09**
Supervisor military focus	3.4**	-.01	.38**	.09**
Supervisor physical fitness focus	3.2**	.05	.38**	.08**
Supervisor social focus	3.3**	.01	.38**	.09**
Supervisor identification w/Academy	3.3**	.03	.38**	.08**
Supervisor identification w/Army	3.3**	.03	.38**	.08**

Note: Each of the predictors in this model was tested separately. \*  $p < .05$ . \*\*  $p < .01$ .

Level-1:

$$\text{subordinate identification with supervisor} = \beta_{0j} + \beta_{1j}(\text{Subordinate characteristic}) + r_{ij}$$

Level-2:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} (\text{Supervisor characteristic}) + U_{0j}$$

$$\beta_{1j} = \gamma_{10} + U_{1j}$$

where:

$$\gamma_{00} = \text{Level-2 intercept}$$

$$\gamma_{01} = \text{Level-2 slope}$$

$$\gamma_{10} = \text{mean of the slopes across groups}$$

$$r_{ij} = \text{Level-1 residual variance } (\sigma^2)$$

$$U_{0j} = \text{variance in intercepts } (\tau_{00})$$

$$U_{1j} = \text{variance in the slopes } (\tau_{11})$$

Table 5  
*Slopes-as-Outcomes Model for Hypothesis 1a and 2a*

Interaction	$\gamma_{11}$
Supervisor race * Subordinate race	.02
Supervisor age * Subordinate age	.03
Supervisor gender * Subordinate gender	.43*
Supervisor academic focus * Subordinate academic focus	.01
Supervisor military focus * Subordinate military focus	.07
Supervisor physical fitness focus * Subordinate physical fitness focus	-.08
Supervisor social focus * Subordinate social focus	.05
Supervisor identification w/Academy * Subordinate identification w/Academy	.02
Supervisor identification w/Army * Subordinate identification w/Army	.06

Note: Each of the predictors in this model was tested separately. \*  $p < .05$ . \*\*  $p < .01$ .

Level-1:

$$\text{subordinate identification with supervisor} = \beta_{0j} + \beta_{1j}(\text{Subordinate characteristic}) + r_{ij}$$

Level-2:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} (\text{Supervisor characteristic}) + U_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11} (\text{Supervisor characteristic}) + U_{1j}$$

where:

$$\gamma_{00} = \text{Level-2 intercept}$$

$$\gamma_{01} = \text{Level-2 slope}$$

$$\gamma_{10} = \text{mean of the slopes across groups}$$

$$\gamma_{11} = \text{Level-2 slope}$$

$$r_{ij} = \text{Level-1 residual variance } (\sigma^2)$$

$$U_{0j} = \text{variance in intercepts } (\tau_{00})$$

$$U_{1j} = \text{variance in the slopes } (\tau_{11})$$

Table 6  
*Random Coefficients Regression Model for Hypothesis 1b and 2b*

Individual-level Predictor	$\gamma_{00}$	$\gamma_{10}$	$r_{ij}$	$U_{0j}$	$U_{1j}$
Subordinate race	3.47**	-.24**	.36**	.31**	.04
Subordinate age	1.73**	0.08**	.37**	2.49	.01
Subordinate gender	3.48**	-.27**	.36**	.49**	.07
Subordinate academic focus	3.17**	0.06	.35**	.32**	.00
Subordinate military focus	3.17**	0.07**	.33**	.32**	.02
Subordinate physical fitness focus	3.17**	0.14**	.34**	.32**	.00
Subordinate social focus	3.17**	0.12**	.32**	.32**	.03**
Subordinate identification w/Academy	3.17**	0.08**	.35**	.31**	.00
Subordinate identification w/Army	3.17**	0.06**	.34**	.31**	.01

Note: Each of the predictors in this model was tested separately. \*  $p < .05$ . \*\*  $p < .01$ .

Level-1:

supervisor identification with subordinate =  $\beta_{0j} + \beta_{1j}(\text{Subordinate characteristic}) + r_{ij}$

Level-2:

$$\beta_{0j} = \gamma_{00} + U_{0j}$$

$$\beta_{1j} = \gamma_{10} + U_{1j}$$

where:

$\beta_{0j}$  = identification for group j

$\beta_{1j}$  = slope for group j

$\gamma_{00}$  = mean of the intercepts across groups

$\gamma_{10}$  = mean of the slopes across groups

$r_{ij}$  = Level-1 residual variance ( $\sigma^2$ )

$U_{0j}$  = variance in intercepts ( $\tau_{00}$ )

$U_{1j}$  = variance in the slopes ( $\tau_{11}$ )

Table 7  
*Intercepts-as-Outcomes Model for Hypothesis 1b and 2b*

Group-level Predictor	$\gamma_{00}$	$\gamma_{01}$	$r_{ij}$	$U_{0j}$
Supervisor race	3.10**	.09	.38**	.30**
Supervisor age	1.41	.09	.36**	.33**
Supervisor gender	3.33**	-.13	.38**	.29**
Supervisor academic focus	3.66**	-.14	.36**	.33**
Supervisor military focus	3.18**	.00	.36**	.35**
Supervisor physical fitness focus	3.16**	.01	.36**	.35**
Supervisor social focus	3.20**	-.01	.36**	.35**
Supervisor identification w/Academy	3.27**	-.03	.36**	.34**
Supervisor identification w/Army	3.26**	-.02	.36**	.34**

Note: Each of the predictors in this model was tested separately. \*  $p < .05$ . \*\*  $p < .01$ .

Level-1:

$$\text{supervisor identification with subordinate} = \beta_{0j} + \beta_{1j}(\text{Subordinate characteristic}) + r_{ij}$$

Level-2:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} (\text{Supervisor characteristic}) + U_{0j}$$

$$\beta_{1j} = \gamma_{10} + U_{1j}$$

where:

$$\gamma_{00} = \text{Level-2 intercept}$$

$$\gamma_{01} = \text{Level-2 slope}$$

$$\gamma_{10} = \text{mean of the slopes across groups}$$

$$r_{ij} = \text{Level-1 residual variance } (\sigma^2)$$

$$U_{0j} = \text{variance in intercepts } (\tau_{00})$$

$$U_{1j} = \text{variance in the slopes } (\tau_{11})$$

Table 8  
*Slopes-as-Outcomes Model for Hypothesis 1b and 2b*

Interaction	$\gamma_{11}$
Supervisor race * Subordinate race	-.03
Supervisor age * Subordinate age	.11**
Supervisor gender * Subordinate gender	.68**
Supervisor academic focus * Subordinate academic focus	-.03
Supervisor military focus * Subordinate military focus	.08
Supervisor physical fitness focus * Subordinate physical fitness focus	-.02
Supervisor social focus * Subordinate social focus	.03
Supervisor identification w/Academy * Subordinate identification w/Academy	-.04
Supervisor identification w/Army * Subordinate identification w/Army	.02

Note: Each of the predictors in this model was tested separately. \*  $p < .05$ . \*\*  $p < .01$ .

Level-1:

$$\text{supervisor identification with subordinate} = \beta_{0j} + \beta_{1j}(\text{Subordinate characteristic}) + r_{ij}$$

Level-2:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} (\text{Supervisor characteristic}) + U_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11} (\text{Supervisor characteristic}) + U_{1j}$$

where:

$$\gamma_{00} = \text{Level-2 intercept}$$

$$\gamma_{01} = \text{Level-2 slope}$$

$$\gamma_{10} = \text{mean of the slopes across groups}$$

$$\gamma_{11} = \text{Level-2 slope}$$

$$r_{ij} = \text{Level-1 residual variance } (\sigma^2)$$

$$U_{0j} = \text{variance in intercepts } (\tau_{00})$$

$$U_{1j} = \text{variance in the slopes } (\tau_{11})$$

Table 9  
*Step 1 of Test of Mediation: The Relationships Between Antecedent Variables and Mentoring Reported by the Subordinate*

Predictor	$\gamma_{10}/\gamma_{11}/\gamma_{01\ 11}$
Subordinate military focus	-.05
Subordinate physical fitness focus	.02
Subordinate social focus	.27**
Subordinate identification w/military	.09
Subordinate race	-.10
Subordinate age	-.52
Supervisor age	-.49
Subordinate sex	-.34
Supervisor sex	-.55
Subordinate age * Supervisor age	.02
Subordinate sex * Supervisor sex	.19

Note: All predictors in this model were tested simultaneously. \*  $p < .05$ . \*\*  $p < .01$ .

Table 10  
*Step 2 of Test of Mediation: The Relationships Between Antecedent Variables and Subordinate Identification with the Supervisor*

Predictor	$\gamma_{10}/\gamma_{11}/\gamma_{01\ 11}$
Subordinate military focus	.01
Subordinate physical fitness focus	-.01
Subordinate social focus	.15**
Subordinate identification w/military	.11**
Subordinate race	-.11
Subordinate age	-.50
Supervisor age	-.45
Subordinate sex	-.70
Supervisor sex	-.93
Subordinate age * Supervisor age	.02
Subordinate sex * Supervisor sex	.57*

Note: All predictors in this model were tested simultaneously. \*  $p < .05$ . \*\*  $p < .01$ .

Table 11  
*Step 2 of Test of Mediation: The Relationships Between Antecedent Variables and Supervisor Identification with the Subordinate*

Predictor	$\gamma_{10}/\gamma_{11}/\gamma_{01\ 11}$
Subordinate military focus	-.05
Subordinate physical fitness focus	.08*
Subordinate social focus	.11**
Subordinate identification w/military	.03
Subordinate race	-.20**
Subordinate age	-1.16
Supervisor age	-1.10
Subordinate sex	-1.61
Supervisor sex	-1.32
Subordinate age * Supervisor age	.06
Subordinate sex * Supervisor sex	1.15**

Note: All predictors in this model were tested simultaneously. \*  $p < .05$ . \*\*  $p < .01$ .

Table 12  
*Steps 3 and 4 of Test of Mediation: The Relationships Between Each Study Variable and Mentoring Reported by the Subordinate After Controlling for all Other Study Variables*

Predictor	$\gamma_{10}/\gamma_{11}/\gamma_{01\ 11}$
Subordinate identification with supervisor	.51**
Supervisor identification with subordinate	.17**
Subordinate military focus	-.01
Subordinate physical fitness focus	-.03
Subordinate social focus	.11**
Subordinate identification w/military	.05
Subordinate race	.05
Subordinate age	.62
Supervisor age	.58
Subordinate sex	.42
Supervisor sex	.09
Subordinate age * Supervisor age	-.03
Subordinate sex * Supervisor sex	-.32

Note: All predictors in this model were tested simultaneously. \*  $p < .05$ . \*\*  $p < .01$ .

Figure 1. Supervisor Gender as a Moderator of the Relationship Between Subordinate Gender and Subordinate Identification with the Supervisor

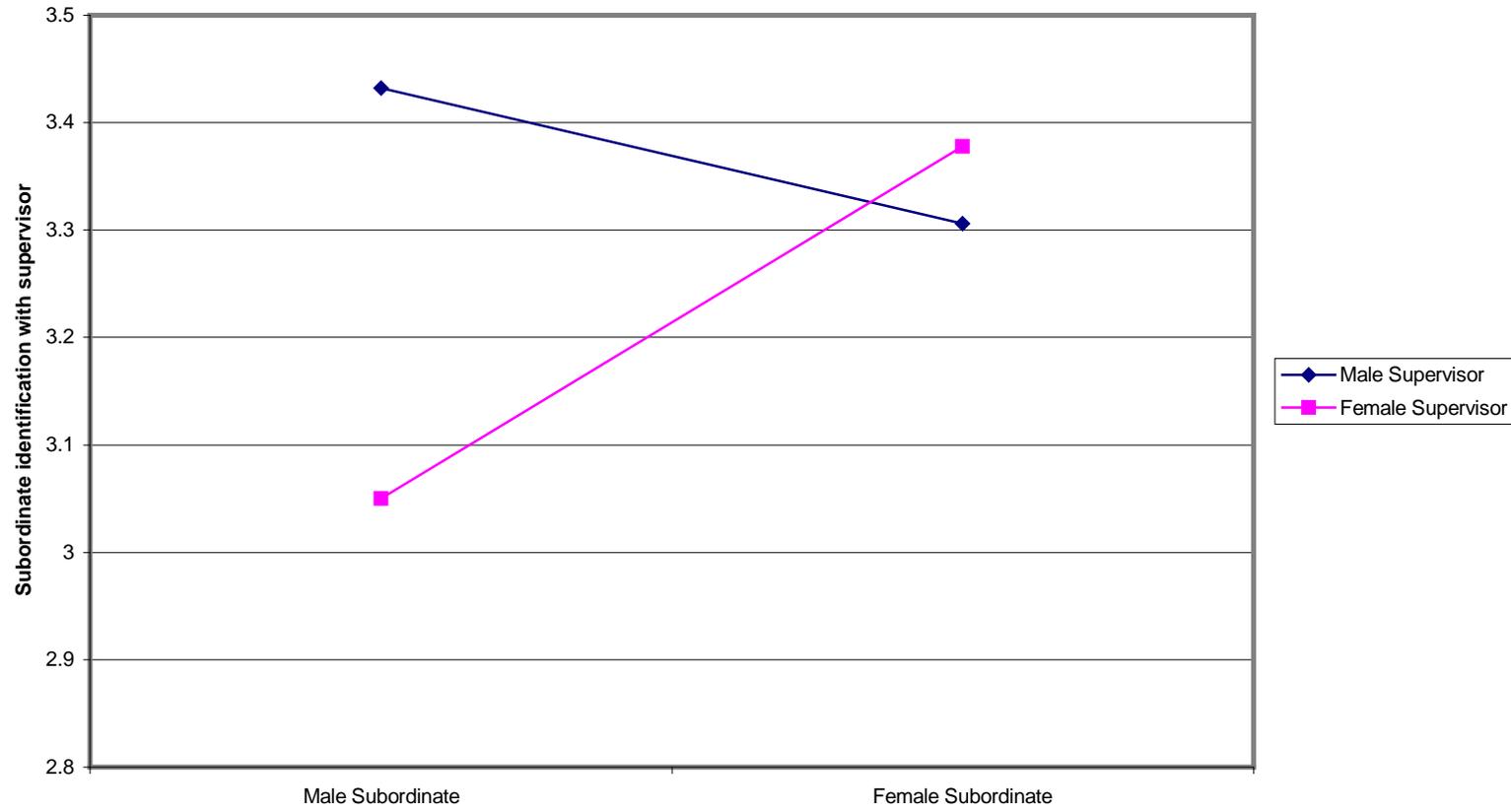


Figure 2. Supervisor Gender as a Moderator of the Relationship Between Subordinate Gender and Supervisor Identification with the Subordinate

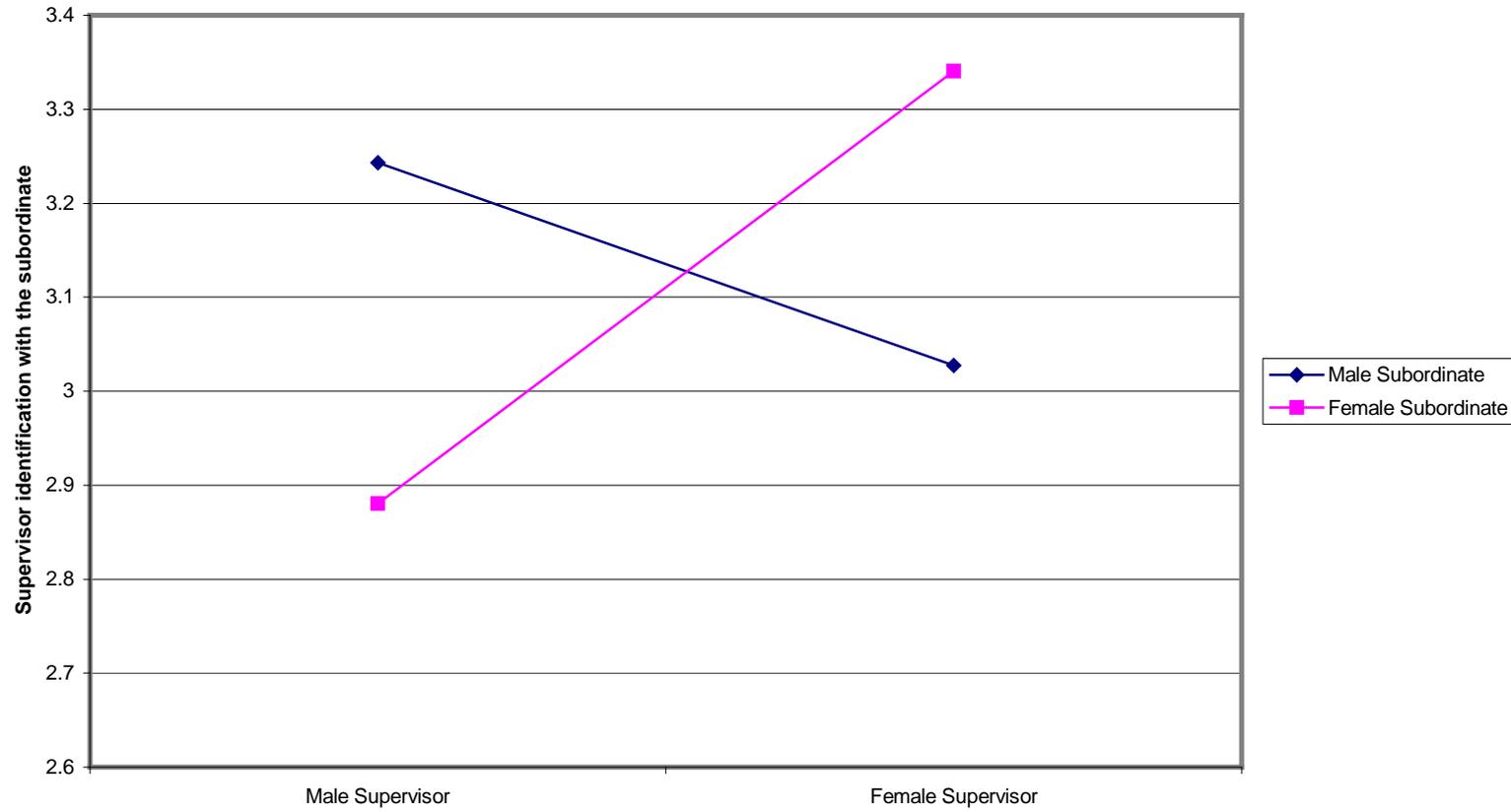
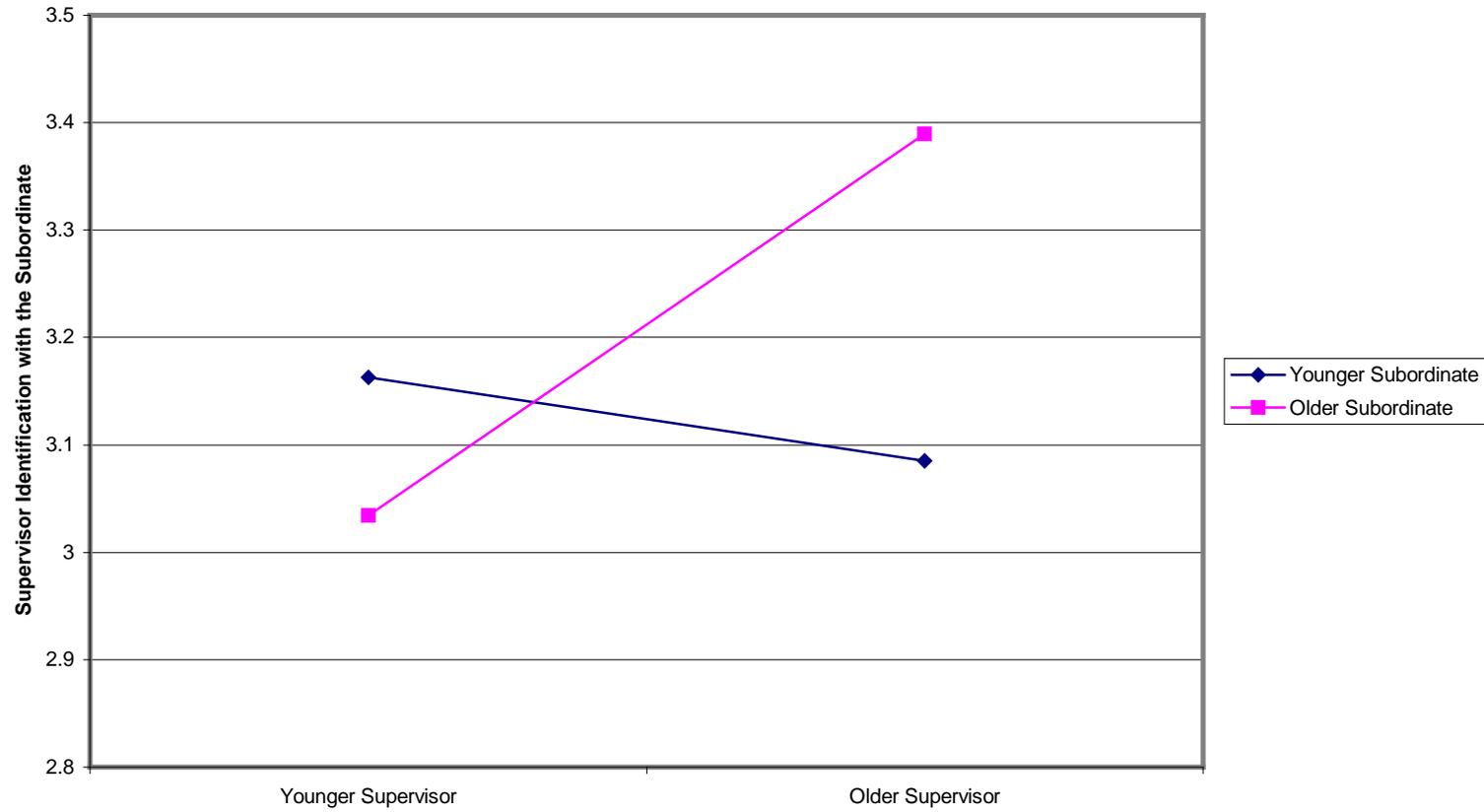


Figure 3. Supervisor Age as a Moderator of the Relationship Between Subordinate Age and Supervisor Identification with the Subordinate



## APPENDIX A

## Items and Item Loadings for Subordinate and Supervisor Focus Scales

## Academic Focus

It is important to me that I excel academically.	.86
Achieving a high academic class standing is an important goal to me.	.84
Receiving academic awards is an important goal to me.	.70
I seek to get grades that show my true ability.	.69
I try to perform up to my potential in every class I take.	.59
I enjoy participating in academic competitions (e.g., debate team, engineering competitions, paper presentations).	.40

## Military Focus

Receiving military awards is an important goal to me.	.74
Achieving a high military class standing is an important goal to me.	.73
I enjoy learning about military tactics.	.48
I enjoy participating in military competitions. (e.g., Sandhurst, Orienteering)	.48

## Physical Focus

It is important to me to achieve high scores on physical fitness tests.	.79
Achieving a high physical fitness class standing is an important goal to me.	.79
I enjoy training hard to maintain physical fitness.	.71
Receiving physical fitness awards is an important goal to me.	.61
I feel bad when I do not workout.	.56
I enjoy participating in athletic competitions (e.g., corps squad, intramurals).	.41

## APPENDIX A (cont.)

## Items and Item Loadings for Subordinate and Supervisor Focus Scales

## Social Focus

I love to party with friends.	.68
I am always enthusiastic about attending social events.	.67
I make friends easily.	.52
Having a lot of really close friends is important to me.	.52

## APPENDIX B

## Items and Item Loadings for Subordinate Identification with the Supervisor

I identify with my squad leader.	.85
I emulate many of my squad leader's characteristics.	.84
I will model my leadership qualities after my squad leader's leadership qualities.	.84
I can envision myself behaving like my squad leader does when I am in a similar position.	.83
I look at things from a similar perspective as my squad leader does.	.80
In a lot of ways, my squad leader reminds me of myself.	.80
I admire my squad leader.	.78
My squad leader and I have a similar personality.	.72
I have the utmost respect for my squad leader.	.67
My squad leader and I have similar interests.	.66
I understand my squad leader's way of thinking.	.63
I understand my squad leader's feelings.	.58
I understand why my squad leader behaves the way he/she does.	.56
My squad leader and I have similar moral values.	.56
My squad leader and I have similar career aspirations.	.44
My squad leader and I have a similar background.	.44
I understand the leadership challenges that my squad leader faces.	.40
I understand the leadership challenges that my squad leader faces.	.40

## APPENDIX C

## Items and Item loadings for Supervisor Identification with the Subordinate

I identify with this cadet.	.84
In a lot of ways, this cadet reminds me of myself.	.81
I can recall behaving like this cadet when I was in a similar position.	.78
I look at things from a similar perspective as this cadet does.	.78
I emulate many of this cadet's characteristics.	.76
I understand this cadet's way of thinking.	.74
I understand this cadet's feelings.	.73
This cadet and I have a similar personality.	.73
I will model the follower skills of this cadet the next time I am the follower in a situation.	.71
This cadet and I have similar interests.	.71
I admire this cadet.	.68
I understand why this cadet behaves the way he/she does.	.68
This cadet and I have similar moral values.	.63
This cadet and I have a similar background.	.60
I understand the personal challenges that this cadet faces.	.60
This cadet and I have similar career aspirations.	.58
I have the utmost respect for this cadet.	.52
I understand the leadership challenges that this cadet faces.	.51

## APPENDIX D

## Mentoring Reported by the Supervisor

I adapted these items from Noe's (1988) and Ragins and McFarlin's (1990) mentoring functions scales.

"To what extent did you..."

- ...Use your influence in the unit to benefit this cadet?
- ...Obtain special opportunities for this cadet?
- ...Recommend specific strategies to this cadet for achieving success?
- ...Give this cadet advice on how to attain recognition from the chain of command?
- ...Shield this cadet from damaging contact with the chain of command?
- ...Shield this cadet from potentially troublesome situations?
- ...Assign this cadet tasks that pushed him/her to learn new skills?
- ...Assign this cadet to roles of high responsibility?
- ...Create opportunities for this cadet to impress the chain of command?
- ...Bring this cadet's accomplishments to the attention of the chain of command?
- ...Have one-on-one, informal interactions with this cadet after training?
- ...Invite this cadet to attend activities with you after training?
- ...Form a special bond with this cadet?
- ...Think highly of this cadet?
- ...Involve this cadet in the decision-making process?
- ...Talk openly with this cadet about concerns that he/she had?
- ...Engage in open conversations with this cadet in which you both shared your personal thoughts?

## APPENDIX E

## Mentoring Reported by the Subordinate

I adapted these items from Noe's (1988) and McFarlin's (1990) mentoring functions scales.

"To what extent did your squad leader..."

...Use his/her influence in the unit to your benefit?

...Obtain special opportunities for you?

...Use his/her influence in the unit to promote and defend your interests?

...Recommend to you specific strategies for achieving success?

...Give you advice on how to attain recognition from the chain of command?

...Provide you with strategies to build on your strengths?

...Provide you with methods to improve upon your weaknesses?

...Give you one-on-one, individualized training?

...'Run interference' for you in the unit?

...Shield you from damaging contact with the chain of command?

...Protect you from those who were out to get you?

...Shield you from potentially troublesome situations?

...Provide you with challenging assignments?

...Assign you tasks that pushed you to learn new skills?

...Assign you to roles of high responsibility?

...Help you to be more visible in the unit?

...Create opportunities for you to impress the chain of command?

...Bring your accomplishments to the attention of the chain of command?

## APPENDIX E (cont)

## Mentoring Reported by the Subordinate

“To what extent did your squad leader...”

...Have one-on-one, informal interactions with you after training?

...Act friendly towards you?

...Form a special bond with you?

...Invite you to attend activities with him or her after training?

...Treat you as a competent individual?

...Think highly of you?

...Value your suggestions?

...Involve you in the decision-making process?

...Talk openly with you about concerns that you had?

...Engage in open conversations with you in which you both shared your personal thoughts?

...Discuss your anxieties and fears with you?

...Serve as a role model for you?

...Set the example for you?

...Give you a clear picture of how to act as a leader?

...Serve as a valuable example of effective leadership?

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