

THESIS

MENTOR-MENTEE MATCH  
IN WORKPLACE MENTORING RELATIONSHIPS

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## ABSTRACT

### MENTOR-MENTEE MATCH IN WORKPLACE MENTORING RELATIONSHIPS

Mentoring programs are increasingly common in organizations. However, little research has addressed the optimal way to pair mentors and mentees together on deep-level characteristics. Person-Environment Fit Theory provides two possible ways to conceptualize fit. Supplementary fit emphasizes the importance of similarity, and complementary fit emphasizes the importance of meeting one another's needs.

This study examined the effects of supplementary and complementary fit between mentors and mentees on three mentoring outcomes – relationship effectiveness, mentee learning, and mentee job performance. This study is unique in that, to the best of my knowledge, this is the first study to assess multiple conceptualizations of mentor-mentee fit, and to examine their respective impacts on outcomes for mentees.

I collected data from 145 mentor-mentee pairs employed in various universities, and analyzed it using structural equation modeling. A revised measurement and structural model was a good fit to the data. The results suggest that both supplementary and complementary fit significantly and independently predict mentoring relationship quality, which in turn, predicts mentee job performance. Neither conceptualization of fit directly predicted mentee learning.

The results of this study imply that organizational mentoring programs should assess both supplementary and complementary fit between mentors and mentees. By doing so, organizations can take steps towards ensuring that employees have high quality mentoring relationships and that mentees will be able to perform their jobs to the best of their abilities.

This study is valuable in that it has clarified the relationship between mentor-mentee match and outcomes of workplace mentoring. However, future research should aim to replicate these findings with mentor-mentee samples in other fields and industries.

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## CHAPTER I: INTRODUCTION

As employees enter new organizations, job roles, and career stages, they often turn to more experienced colleagues for advice and support. This provision of advice and support from experienced to inexperienced employees is referred to as mentoring. Meta-analytic evidence suggests that employees who receive mentoring at work are better compensated, more likely to be promoted, more satisfied with their jobs, and more committed to their careers than their non-mentored counterparts (Allen, Eby, Poteet, Lentz, & Lima, 2004). Historically, mentoring relationships have often been informal connections sought out by the mentor or mentee. However, in recent years a growing number of organizations have implemented formal mentoring programs in an attempt to assist employees in developing mentoring relationships (Allen, Finkelstein, & Poteet, 2009). The primary difference between formal and informal mentoring relationships is that organizations sanction and initiate formal relationships, while the employees involved initiate informal relationships (Chao, Walz, & Gardner, 1992).

Despite the growing popularity of formal mentoring programs, some research suggests that those in formal mentoring relationships do not receive the same benefits as those in naturally forming, informal relationships (Chao et al., 1992; Ragins & Cotton, 1999). This may be because mentors and mentees paired by organizations are not as well suited to one another as are pairs who meet through natural social attraction in the workplace. Although many argue that ensuring a good match between mentors and mentees is important (Armstrong, Allinson, & Hayes, 2002; Chao et al., 1992; Hale, 2000; Hay, 1995; Turban & Lee, 2007), few scholars provide specific recommendations as to how organizations should pair mentoring partners to achieve positive outcomes (Armstrong et al., 2002; Hale, 2000).

While there is little empirical evidence directly related to mentor-mentee matching, there has been some theory building in this area. In this paper, I will examine previous theory and research on mentor-mentee matching, develop a testable model of mentor-mentee match, and propose an empirical study to test the model. The aim of this research is to investigate how match between mentor and mentee characteristics affects outcomes for mentees. Ultimately, the findings may serve to inform organizations as they develop mentoring programs by providing information about how to match mentoring pairs in a way that leads to positive outcomes for mentees, as well as for the organization as a whole.

### **Defining Mentoring**

In her seminal work, Kram (1985) defined mentoring as a relationship in which a more experienced individual (the mentor) helps a less experienced individual (the mentee or protégé) as he or she learns to navigate the workplace. More recently, Eby, Rhodes, and Allen (2010) and Ragins and Kram (2007) have identified several characteristics of mentoring relationships. First, the mentoring process includes several distinct functions, usually categorized into career functions and psychosocial functions (Eby et al., 2010; Ragins & Kram, 2007). Career functions aim to increase a mentee's success within the organization through means such as promoting visibility, providing sponsorship, giving feedback, providing protection from risks and problems, and assigning challenging work projects. Psychosocial functions focus on building a mentee's confidence and identity by providing acceptance, counseling, and friendship (Kram, 1985). Additionally, some evidence suggests that role modeling constitutes a distinct third mentoring function (Scandura, 1992). Throughout the course of a relationship, mentors may tailor the mentoring functions they provide to best meet mentees' developmental needs (Ragins & Kram, 2007).

Second, each mentoring relationship is unique and may vary in terms of the length of the relationship, the breadth and depth of the relationship, and the extent to which each mentoring function is provided (Eby et al., 2010; Ragins & Kram, 2007). Further, each mentor and mentee is an individual and will bring a unique set of personality traits, needs, and experiences to the relationship. Each of these characteristics has the ability to influence how a mentoring pair interacts with one another and ultimately how successful their relationship becomes (Ragins & Kram, 2007).

Third, the primary goal of each mentoring relationship is to promote the mentee's learning, growth, and development. Regardless of contextual factors or individual differences, mentoring relationships share a focus on the mentee's acquisition of relevant knowledge and skills (Eby et al., 2010). However, mentors may also benefit from participation in the mentoring relationship. For example, research has found that mentoring is associated with increased job satisfaction and organizational commitment for mentors (Eby, Durley, Evans, & Ragins, 2006).

Finally, as the mentoring relationship progresses, the nature of the partnership will adapt and change over time (Eby et al., 2010; Ragins & Kram, 2007). Kram (1985) proposed four phases of a typical mentoring relationship: initiation of the relationship, cultivation, separation, and redefinition. Though this four-phase model is useful for conceptualizing the life of a mentoring relationship, it was developed based on naturally developing, informal mentoring relationships (Kram, 1985). In formal relationships the organization is heavily involved early in the relationship by promoting participation in the mentoring relationship, providing guidelines and goals for participants, and pairing mentors and mentees together (Eby & Lockwood, 2005). Because organizations with formal mentoring programs are developing and implementing match

procedures, it is important to fully understand how mentors and mentees can be paired together optimally in order to lead to the most positive mentoring outcomes.

### **Match in Mentoring Relationships**

Within the mentoring literature, authors will often comment on the importance of match in a mentoring relationship. Many suggest that a good fit between a mentor and mentee is a key determinate of successful mentoring (Bozeman & Feeney, 2008; Bush, Coleman, Wall, & West-Burnham, 1996; Forret, Turban, & Dougherty, 1996; Hale, 2000). Further, some imply that any form of matching system would be better than random assignment (Chao et al., 1992; Forret et al., 1996). However, there has been limited empirical research comparing different mentor-mentee matching schemes.

### **Surface-Level Characteristics**

Most research that has been conducted on mentor-mentee match has focused on surface-level, or readily observable characteristics. These include demographic characteristics, and research in this area has paid particular attention to gender and race. Concerning gender, most mentees report that they would prefer a mentor of the same gender (McKeen & Bujaki, 2007). However, mentee preference may not necessarily be predictive of actual benefits received. That is, the mentor a mentee prefers may not be the mentor with whom the mentee would have the best relationship or show the most development. For example, research on instructional methods has found that while there is ample evidence of individual differences in preferences for how information is presented, instructional preferences have not been shown to have any effect on learning. That is, individuals learn just as much when they are presented with information in their non-preferred instructional methods as when they are presented with information in their preferred methods (Pashler, McDaniel, Rohrer, & Bjork, 2008). If this is applied to mentoring, it

may suggest that even though mentees may have preferences for same-gender mentors, that they can learn just as much in cross-gender relationships

Some research has examined the effects of gender composition on mentoring outcomes. Sosik and Godshalk (2000) found that mentees in male mentor/female mentee relationships receive more career development support than mentees in relationships with other gender combinations. When it comes to psychosocial support, some studies have found that female mentor/female mentee relationships provide the most psychosocial support and role-modeling functions to mentees (Burke, McKeen, & McKenna, 1990; Ragins & McFarlin, 1990; Sosik & Godshalk, 2000). However, other research has found conflicting results, showing that cross-gender relationships actually provide more psychosocial support than same-gender relationships (Ensher, Grant-Vallone, & Marelich, 2002). Turban, Dougherty, and Lee (2002) found that although mentees in cross-gender pairings receive less career and psychosocial support early in the relationship, they actually receive more support in the long term than mentees in same-gender pairs.

These findings suggest that both same-gender and cross-gender mentoring relationships have their benefits and disadvantages. While same-gender relationships appear to be better at providing mentees some types of support, cross-gender relationships may be better at providing others.

Racial match or mismatch may also affect mentoring relationships. Similar to what has been found with gender match, some research has found that African-Americans with same-race mentors received more psychosocial support than those in cross-race relationships. Nonetheless, mentees received the same level of career development support regardless of whether their mentor was of the same or a different race (James, 2000; Thomas, 1990). However, these

findings have not been universal. Ensher and Murphy (1997) found that mentees in cross-race mentoring relationships received equal amounts of psychosocial support from their mentors but less career support than peers in same-race pairings. Additionally, Murray (1982) found that African-American mentees who had mentors of the same race reported more satisfaction with their career advancement than those who had White mentors.

Alternatively, some research finds no differences in outcomes between same- and different race pairs. Turban et al. (2002) found no differences in the amount of mentoring received, regardless of the length of time the relationship had been in progress. Similarly, Ensher et al. (2002) found no differences in psychosocial support, career support, or role-modeling provided between same-race and cross-race dyads, and as well as no difference in mentee satisfaction with the relationship. Ensher and Murphy (1997) also found no differences in mentee satisfaction between mentees in same- and cross-race pairs.

As was the case with gender, these results suggest that while racially homogeneous mentoring relationships may be beneficial in terms of some outcomes, other mentoring outcomes are unaffected by racial composition. It may be the case that some conflicting findings can be explained by changing attitudes towards racial and gender diversity in the workplace. Diversity attitudes in many organizations have likely shifted over the last few decades, and changing attitudes towards diversity may affect the ways in which mentors and mentees respond to heterogeneous relationships. Individual, organizational, and cultural attitudes may all play a role in how dissimilar mentors and mentees interact with one another and perceive the relationship.

### **Deep-Level Characteristics**

Beyond surface-level characteristics, mentoring relationships may also be affected by match or mismatch on deep-level characteristics. Deep-level characteristics are the individual

differences that only become apparent after repeated personal interactions. Though surface-level characteristics may be more important for initial attraction, over time deep-level characteristics may have more of an impact on mentor-mentee interactions. As mentoring relationships are designed to be long-lasting partnerships, it is important to consider how match on deep-level characteristics may affect outcomes.

Some research has examined the deep-level characteristics that mentors and mentees desire in a partner. Mentors reported preferring mentees who they perceived as high in ability, competence, honesty, confidence, dependability, and willingness to learn (Allen, 2007; Allen, Poteet, & Burroughs, 1997). Mentees reported preferring mentors who they perceived as competent, particularly interpersonally (Olian, Carroll, Giannantonio, & Feren, 1988). However, it may not necessarily be the case that one's preference for a mentoring partner is necessarily the optimal partner for that individual. As previously mentioned, research suggests that instructional preferences do not impact learning outcomes (Pashler et al., 2008).

Some research has suggested that mentoring partners should be paired together based on similarity to one another. Studies have found that mentoring participants who perceive themselves as more similar to their partners report more satisfaction with their relationship (Ensher et al., 2002; Ensher & Murphy, 1997), more psychosocial support (Ensher et al., 2002; Wanberg, Kammeyer-Mueller, & Marchese, 2006), more career support (Ensher et al., 2002), more mentor role-modeling (Ensher et al., 2002), and more overall mentoring functions received (Turban et al., 2002). In these studies, the similarity measures primarily asked questions about deep-level similarity on factors like values, work style, and outlook on life.

However, it is important to note these similarity findings refer to perceived similarity rather than objective similarity. Unfortunately, evidence suggests that the relationship between

perceived and actual similarity on deep-level characteristics is relatively small (Cable & Judge, 1997). While some research has focused on objective similarity in terms of surface-level, demographic factors (see section on surface-level characteristics above), research on objective similarity on deep-level characteristics in mentoring relationships is lacking. This lack of research on how objective similarity affects mentoring outcomes is particularly problematic for organizations wishing to pair mentors and mentees together, as perceived similarity cannot be measured until after mentors and mentees have been matched and working together for some time. Thus, it is not particularly useful for the purpose of mentor-mentee matching.

Cox (2005) tried to address the problem of match in mentoring relationships by analyzing qualitative data from a mentoring program that matched parents hoping to return to the workforce with a volunteer mentor. Cox found that mentee needs often don't become apparent until partially through a relationship, and even when they do become apparent they continue to evolve over time. Cox noted that most existing mentor-mentee matching schemes pair partners on surface-level traits that may not matter in long-term relationships. It may be the case that these matching schemes are ineffective because deep-level characteristics are more predictive of outcomes in long-lasting relationships.

Some researchers have attempted to provide direction to organizations seeking to devise mentor-mentee matching systems. Hay (1995) suggested three factors that organizations should consider when matching mentors and mentees. The first was whether or not to match or mix employees on demographic characteristics like age, gender, racial background, and education level. The second consideration was whether matches should provide support for each other or challenge each other to grow. Finally, she suggested organizations consider whether or not

mentors should be role models for mentees, or if the organization desires different traits be developed in junior employees.

While Hay suggested some broad areas for organizations to consider, she did not recommend any specific matching schemes. Alternatively, Bozeman and Feeney (2008) developed the Goodness of Fit model of mentor-mentee matching. This model specifies three aspects on which the mentoring pair should be compatible in order to be effective mentoring partners. The first is the participants' endowments, or each person's set of knowledge, experience, communication abilities, and learning abilities. The second aspect is participants' preferences, or the extent to which the mentor values sharing different types of knowledge and experiences and the extent to which the mentee values receiving this information. The final aspect is the content of the mentoring relationship, or the specific knowledge, advice, and advantages the mentor shares with the mentee.

The Goodness of Fit Model has not yet been empirically tested. Bozeman and Feeney (2008) recommended that this model be used to develop mentor-mentee matching systems, but not until others empirically identify the specific types of endowments, preferences, and mentoring content that matter in effective relationships. Further, although the Goodness of Fit Model specifies domains in which mentors and mentees should have good fit, they do not specify what qualifies as a good fit. Is similarity between mentor and mentee characteristics desirable or is there some other way to determine compatibility? The current study will further examine mentor-mentee fit by considering different types of fit and how they may differentially affect outcomes.

## Conceptualizing Mentor-Mentee Match

Organizations looking to develop mentoring programs must decide not only what attributes they should pair mentors and mentees on, but also what constitutes compatibility. As several authors have pointed out, similarity on some traits may be important for developing a close and supportive relationship (Hale, 2000; Hay 1995). However, it is also important to ensure that mentors have the knowledge and experience necessary to address mentee needs (Bozeman & Feeney, 2008; Hale, 2000). These two perspectives on mentor-mentee fit correspond with conceptualizations currently present in the person-environment fit literature. For that reason, understanding the ways in which a person can fit his or her environment provides insights into how one person may fit with another in a mentoring relationship.

Person-environment (PE) fit theory describes the compatibility between an individual's characteristics and characteristics of their work environment (Kristof-Brown, Zimmerman, & Johnson, 2005). PE fit is generally conceptualized as either supplementary or complementary (Kristof-Brown & Guay, 2011). *Supplementary fit* describes how closely the individual's characteristics match the characteristics of others in their environment. *Complementary fit* describes the extent to which the person or the environment's characteristics provide what the other lacks or needs (Muchinsky & Monahan, 1987). Complementary fit can be further broken down into two subtypes that consider both the individual and the environment's perspective. *Need-supplies fit* (sometimes also referred to as supplies-values fit) describes the match between what an individual needs from the environment and what the environment is able to supply. *Demands-abilities fit* describes the match between what the environment demands of the individual and the individual's ability to meet those demands (Kristof-Brown & Guay, 2011).

Kristof-Brown et al. (2005) conducted a meta-analysis that examined the effects of PE fit when measured from either a supplementary or complementary perspective. They found that both complementary and supplementary fit were significant predictors of workplace attitudes and behaviors. Complementary fit between a person's needs and the environment's supplies had the strongest relationships with outcomes, followed by supplementary fit, and then complementary fit between the environment's demands and the individual's abilities. Because the relationships between all three conceptualizations and work outcomes were significant, they concluded that it is important to examine all conceptualizations of fit when predicting work outcomes. Similarly, Cable and Edwards (2004) found that supplementary and complementary fit both significantly and independently predicted work attitudes.

Typically, PE fit research does not examine the relationship between a person and the environment as a whole, but instead examines the relationship between a person and a particular level of the environment. Levels of the environment might include the individual's supervisor, work group, department, job, organization, or vocation (Edwards & Shipp, 2007). A mentor can thus be considered a level of the environment, thus enabling one to apply the PE fit literature to mentor-mentee match.

When considering fit from any perspective, the characteristics of both the individual and that particular level of the environment must be considered. An individual's characteristics may include their personality, values, attitudes, and goals (Kristof, 1996). As is the case in person-supervisor fit, both mentors and mentees are individuals, and so an examination of fit between mentors and mentees should consider the compatibility of each individual's personal characteristics. Match on these characteristics, either from a supplementary or complementary

perspective, may be important in determining why some mentoring relationships lead to better outcomes than others.

### **Mentor-Mentee Fit and Mentoring Outcomes**

As Kristof-Brown et al. (2005) reported, both supplementary and complementary fit are predictive of workplace outcomes. However, they found that the conceptualizations of fit were not equally predictive of different work outcomes. Supplementary fit was more highly related to organizational commitment and intentions to quit, while complementary fit between employee needs and job supplies was more highly related to job satisfaction.

Likewise, it may be that supplementary and complementary fit between mentors and mentees are differentially related to outcomes. As Hay (1995) and Hale (2000) suggested, greater similarity between mentors and mentees may lead to more supportive, comfortable relationships. This notion is consistent with the similarity-attraction hypothesis, a social theory that posits that individuals are attracted to others who are similar to themselves (Byrne, 1971). More similar people may be attracted to one another because they are more likely to validate each other's views and beliefs (Fehr, 2001). Montoya, Horton, and Kirchner (2008) conducted a meta-analysis that examined interpersonal attraction in all types of social couplings, including pairs of strangers, friends, and romantic partners. They found support for the similarity-attraction hypothesis, finding that interpersonal attraction was significantly related to objective and perceived similarity.

This similarity-attraction hypothesis has also been supported within the context of mentoring relationships. Studies have found that mentoring participants who perceive themselves as more similar to their partners report better mentoring fit (Matarazzo-Moran, 2011), more satisfaction with their relationship (Ensher et al., 2002; Ensher & Murphy, 1997), more

psychosocial support (Ensher et al., 2002; Wanberg et al., 2006), more career support (Ensher et al., 2002), more mentor role-modeling (Ensher et al., 2002), and more overall mentoring functions received (Turban et al., 2002).

In mentoring relationships, it may be the case that perceived similarity affects the way partners view the relationship. When a mentee perceives their mentor to be similar to them in terms of values, beliefs, and experiences, they may feel more comfortable asking questions and sharing difficulties with their mentor. Similarly, when a mentor perceives similarity, it may lead them to feel more comfortable sharing advice and work experiences with their mentee. The comfortable and supportive nature of relationships between similar partners may lead the pair to perceive their relationship more positively. Thus, I hypothesize that:

***Hypothesis 1.** Supplementary fit between mentors and mentees is positively related to relationship quality.*

Hay (1995) and Hale (2000) also suggested mentees may learn more in relationships where the mentor is dissimilar from the mentee, as this disparity in strengths may make the mentor better able to challenge the mentee to learn new skills. In social psychology, the idea that individuals are well-suited to those who possess attributes that they lack is referred to as the complementarity hypothesis (Winch, 1958). Though empirical evidence suggests that complementarity on some traits is beneficial in relationships, the complementarity hypothesis has received less empirical support than the similarity hypothesis (Beach, Whitaker, Jones, & Tesser, 2001).

Concerning mentoring relationships specifically, Hale (2000) conducted a qualitative study of semi-structure interviews with mentors and mentees. He found support for the idea that when matching mentors and mentees, organizations should consider the developmental needs of

mentee, so that they can pair that mentee with a mentor who has strengths in that area. When a mentor does not have the attributes necessary to help facilitate mentee development, it is unlikely that a mentee will learn much from the relationship. A study by Eby, Butts, Lockwood, and Simon (2004) supported this idea, finding that mentee perceptions of complementarity had a strong positive correlation with mentee learning.

There are a number of reasons why a mentor might not be able to meet a mentee's needs. These include a lack of awareness about needs, a lack of expertise in areas of developmental need, a lack of social skills required to communicate information, or an inability to dedicate the time necessary for mentee development. Eby et al. (2004) examined how negative mentoring experiences such as these may affect outcomes for mentees. The study found that when mentees perceived a lack of mentor expertise, they were less likely report having learned from their mentor. Similarly, when mentees reported that their mentors distanced themselves from the relationship, mentees were less likely to say they learned from their mentor. These findings suggest that there may be a relationship between a mentor's ability to meet their mentee's needs and the amount the mentee is able to learn from the relationship.

Beyond the empirical evidence, a relationship between a mentor's ability to meet mentee needs and mentee learning makes intuitive sense. If a mentor is unable to share the job information that their mentee needs to learn, no opportunity for learning exists. The mentee could be highly intelligent and eager to learn, but if the information they need to know isn't presented to them, there is no way that they could possibly absorb it. Conversely, when a mentor does have the attributes necessary to meet their mentee's developmental needs, mentee learning is possible. In line with previous findings and this logic, I hypothesis that:

***Hypothesis 2.** Complementary fit between mentor attributes and mentee needs is positively related to mentee learning.*

Though supplementary and complementary fit may be differentially related to outcomes, they may not be completely unrelated. For example, a study of person-organization fit by Cable and Edwards (2004) found that though supplementary and complementary fits each independently contribute to outcomes, there is still an empirical relationship between the two. For this reason, a more thorough investigation into this relationship is warranted.

For example, both complementary and supplementary fit may be related to mentee learning. Some evidence suggests that the improved relationship quality associated with better supplementary fit may facilitate mentee learning. Eby et al. (2004) found that social variables in a mentoring relationship, specifically the amount of psychosocial support received and satisfaction with the social relationship, were positively related to mentee learning. However, it is unlikely that relationship quality is impacting mentee learning directly, as there is no theoretical reason to expect that a better relationship would cause a mentee to spontaneously take in new job information.

Rather, it may be the case that relationship quality is interacting with some other factors present in the context of a mentoring relationship. Perhaps a high quality relationship facilitates the transfer of relevant job information from mentors to mentees. Just because mentors possess the knowledge and abilities that mentees need to learn, does not necessarily mean they will be able and willing to share this information in a way the mentee understands. A high quality relationship may make it easier for a mentoring pair to openly and honestly discuss what the mentee needs to learn and how the mentor can best communicate it to them. This may lead to better communication of job information, and ultimately more mentee learning.

Empirically, this line of reasoning is supported by the fact that Eby et al. (2004) found relationships between mentor-mentee complementarity and mentee learning (consistent with Hypothesis 2), but also relationships between both of those variables and indicators of relationship quality (i.e., psychosocial support and satisfaction with the social relationship). As I outlined above, I propose a logical explanation for these empirical relationships:

***Hypothesis 3.** The association between complementary fit and mentee learning is moderated by relationship quality, such that when relationship quality is high, the association between complementary fit and mentee learning is stronger than when relationship quality is low.*

When mentees are able to learn the knowledge and skills they need to be successful at work, they may also subsequently experience other benefits on the job. Several meta-analyses suggest that there may be a relationship between learning and job performance. A meta-analysis by Hunter (1986) found that there was a strong positive association between job knowledge and job performance. Further, others have found there is a significant relationship between learning in a training environment and transfer of training to on-the-job performance (Alliger, Tannenbaum, Bennett, Traver, & Shotland, 1997; Arthur, Bennett, Edens, & Bell, 2003).

Applied to mentoring relationships, it is likely the case that when a mentee learns job knowledge and skills from their mentor, that he or she is then able to apply the knowledge in a way that increases performance on the job. In mentoring relationships where the partners are compatible in terms of both complementary and supplementary fit, mentees may be more likely to have an effective relationship that leads to mentee learning and mentee performance gains. Therefore, I hypothesize that:

***Hypothesis 4.*** *Mentee learning is positively related to mentee job performance.*

To test these hypothesized relationships, I collected data on each of the variables in a survey of mentor and mentee dyads. By collecting dyadic data, this study was able to address calls for additional research examining the experiences of both mentors and mentees within mentoring relationships (e.g., Kram & Ragins, 2007). This data was able to provide insights into how mentoring outcomes are shaped by the mentoring partners' perceptions of mentor-mentee fit.

## CHAPTER II: METHODOLOGY

### **Participants**

One hundred and forty-five mentor-mentee dyads participated in this study. At least one member of each dyad (the primary respondent) was a faculty member or graduate student at a college or university.

### **Sample Size**

Prior to analyses, a power analysis was conducted in MPlus (Muthén & Muthén, 2011) using a Monte Carlo approach. This method is considered to be the most accurate method for determining an appropriate sample size (Kenny, 2015; Wolf et al., 2013).

The power analysis was conducted using my proposed model and sufficient power was determined based on the ability to detect my hypothesized paths. The conventional .80 was used as my minimum acceptable statistical power for each path. Past research suggested that the effects sizes for some of the relationships examined in this study may be moderate to large. To be conservative, I estimated moderate effects sizes (path coefficients of .30) for all hypothesized paths in my power analysis.

Based on the results of the Monte Carlo simulations, I determined that a sample of at least 200 mentor-mentee dyads would be sufficient to test my hypotheses. At a sample size of 200, I would have power between .82 and .98 to detect moderate effects for my each of my hypotheses.

However, at a sample size of 145 dyads, preliminary analyses of the effect sizes for the proposed paths revealed that data collection up to 200 dyads would not be useful. As is discussed in detail in the results section, three of the hypotheses (H1, H2, and H4) were significant at a

sample size of 145. The final hypothesis (H3) had an effect so small that that no reasonable sample size would have found it significant ( $B = -0.03$ ,  $SE = 0.07$ ,  $p = .69$ ). Further, the effect is actually in the opposite direction than was hypothesized, so even if a very large sample could be obtained, the hypothesis would not be supported. Since further data collection would not lead to additional support for any of the hypotheses, data collection was stopped at 145 dyads.

### **Participant Eligibility and Recruitment**

Potential faculty member and graduate student participants were identified through professional organizations, university databases, and personal contacts. These potential participants were sent recruitment emails inviting them to participate in the study. Any contact who reported having a person that they consider to be a mentor or mentee and was willing to provide that person's contact information was eligible to participate in the study. Eligibility was determined by a series of preliminary questions. The first provided a definition of a mentoring relationship, and asked if the participant was currently in a mentoring relationship. If so, the recruits were asked if they were willing to provide the email address of one recent mentoring partner. They were also asked whether they were a mentor to that person or mentored by that person.

In total, recruitment emails were sent to 797 individuals. Of those individuals, 222 responded to the survey, representing a response rate of 27.9%. The recruitment emails were clear that only those in mentoring relationships were eligible to participate, so it is likely that the low response rate is partially due to self-selection out of the study.

Of the 222 survey respondents, 165 had a mentoring partner and were eligible to participate (20.7% of all individuals contacted; 75.3% of those who responded to the survey). Of those were not eligible, 53 were not in a mentoring relationship (6.7% of all individuals

contacted; 23.9% of those who responded to the survey) and four declined to provide the name and contact information of their mentoring partner (0.5% of all individuals contacted; 1.8% of those who responded to the survey).

A recruitment email was also sent to the mentoring partners of each of the 165 eligible initial respondents. Of the 165 potential secondary respondents contacted, 145 responded to the survey. This represented a response rate of 87.9% for the secondary respondents. All of those who responded were eligible to participate, as determined by preliminary questions confirming that they are in a mentoring relationship with the individual who provided their contact information. Initial respondents whose partners' did not respond were removed from the sample.

### **Procedure**

After it was determined that the respondents were eligible to participate, they were instructed to answer all the remaining survey questions based on only their relationship with the person whose contact information they provided or the person who provided their contact information, depending on whether they were the initial or secondary respondent. All of the remaining questions were framed in a way that matched their role in the relationship, e.g., “My mentor and I...” versus “My mentee and I...”

### **Measures**

All variables in this study were measured based on mentoring participants' perceptions of the observed variables, rather than objective sources or third-party perceptions. Regarding fit, many scholars make distinctions between perceived and objective measures. Perceived fit is assessed by directly asking participants for ratings of compatibility; objective fit is measured by examining compatibility of scores on some set of traits (Kristof-Brown et al., 2005). Similarly, other researchers make distinctions between objective and subjective measures of job

performance, where objective measures do not require human evaluation of performance but subjective measures do (Cascio & Aguinis, 2011). Perceived (or subjective) measures were used in this study because they are more predictive of outcomes and better predicted by antecedents than their objective counterparts (Cascio & Aguinis, 2011; Kristof-Brown et al., 2005), and also because they were more easily measured and analyzed than comparable objective measures for this set of variables and this sample.

All variables in this study were measured from both the mentor and mentee's perspectives. This allowed for descriptive statistics to be reported that examined the degree of discrepancy between mentor and mentee responses for each observed variable. However, the structural equation model was tested using the mentee's perspective for some variables and the mentor's perspective for others. This method is comparable to common practices in this area of literature (T. Allen, personal communication, 2015). Using variables taken from multiple perspectives helped to combat issues with common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Prior research has demonstrated substantial issues in the accuracy self-ratings in the workplace. Particularly, performance ratings have been shown to be inflated and biased when compared to the ratings of supervisors (Podsakoff & Organ, 1986; Yammarino & Atwater, 1993). For this reason, mentor ratings rather than mentee ratings were used to measure mentee outcome variables (i.e., mentee learning and mentee job performance). The remaining variables (i.e., supplementary fit, complementary fit, and relationship quality) were measured from the mentee's perspective, in order to combat issues arising from a single measurement source.

Participants answered all items in the measures described below using a five-point response scale (1=strongly disagree; 5=strongly agree). In addition to these variables of interest,

participants also completed a demographics questionnaire. The demographics questionnaire contained questions about the participants' age, race, and gender, as well as questions about the nature and duration of the mentoring relationship. Copies of all measures, including the demographics questionnaire, are provided in the appendix.

### **Supplementary Fit**

Supplementary fit was measured using Ensher and Murphy's (1997) five-item measure of perceived mentor/mentee similarity. The items were worded differently depending on if they were asked to the mentor or mentee. This measure contains two items originally adapted from Turban and Jones (1988); "My mentor/mentee and I see things in much the same way," and "My mentor/mentee and I were similar in terms of our outlook, perspective, and values." It also contains three items adapted from Liden, Wayne, and Stilwell (1993): "My mentor/mentee and I are alike in a number of areas," "My mentor/mentee and I thought alike in terms of coming up with a similar solution for a problem," and "My mentor/mentee and I analyzed problems in a similar way." This measure showed acceptable internal consistency reliability in this sample ( $\alpha = .81$  for mentors,  $\alpha = .77$  for mentees).

### **Complementary Fit**

Complementary fit was measured using five items originally developed by Lauver and Kristof-Brown (2001) to measure fit between jobs and employee characteristics. The wording of the items was modified to address the fit between mentor characteristics and mentee needs. The items were worded differently depending on if they were asked to the mentor or mentee. Three items addressed fit between mentee needs and mentor skills, "My mentor's abilities fit my needs as a mentee/My abilities fit my mentee's needs," "My mentor has the right skills and abilities to mentor me effectively/I have the right skills and abilities to mentor my mentee effectively," and

“There is a good match between what I need from a mentor and my mentor’s skills/There is a good match between what my mentee needs from a mentor and my skills.” Two additional items addressed the fit between mentee needs and mentor personality, “My mentor’s personality is a good match for me/My personality is a good match for my mentee” and “My mentor is the right type of person to mentor me/I am the right type of person to mentor my mentee.” This measure showed acceptable internal consistency reliability in this sample ( $\alpha = .86$  for mentors,  $\alpha = .87$  for mentees).

### **Relationship Quality**

Relationship quality was measured using Allen and Eby’s (2003) five-item relationship quality measure. Because Allen and Eby’s scale only addressed the mentor’s perspective, the wording was modified to address the mentee’s perspective as well. A sample item from the measure reads “My mentor/mentee and I enjoy a high-quality relationship.” This measure showed acceptable internal consistency reliability in this sample ( $\alpha = .87$  for mentors,  $\alpha = .82$  for mentees).

### **Mentee Learning**

Mentee learning was measured using five items from Lankau and Scandura’s (2002) measure of personal learning. For brevity, only five items were used, rather than the full scale. The selected items were chosen because they represent the range of items in the original scale, and because they were particularly applicable to an academic setting. Because the measure originally only addressed personal learning, the items were modified to fit a mentor’s perception of mentee learning as well. A sample item reads “My mentee has gained new skills/I have gained new skills.” This measure showed acceptable internal consistency reliability in this sample ( $\alpha = .81$  for mentors,  $\alpha = .72$  for mentees).

## **Mentee Job Performance**

Mentee job performance was measured using Podsakoff and MacKenzie's (1989) five-item job performance scale. The questions were adapted to address both the mentor and mentee's perception of the mentee's job performance. A sample item reads "My mentee fulfills all responsibilities required by his or her job/I fulfill all responsibilities of my job." This measure showed acceptable internal consistency reliability in this sample ( $\alpha = .82$  for mentors,  $\alpha = .76$  for mentees).

## **Analyses**

The hypotheses were analyzed in Mplus (Muthén & Muthén, 2011) using Structural Equation Modeling (SEM). The SEM analysis was conducted using the two-step approach recommended by Anderson and Gerbing (1988). The first step of this approach is a confirmatory factor analysis (CFA) for the measurement model. The purpose of the CFA is to determine if the relationships between the latent constructs and their measured indicators are adequate.

After ensuring adequate fit of the measurement model, the next step is to assess the structure model. The structure model specifies the hypothesized relationships between the constructs of interest. The purpose of this step is to determine if the hypothesized paths are supported by the data, and whether the proposed model fits the data.

## **Evidence of Adequate Model Fit**

At each step of the model, fit was assessed to determine if the model was an adequate fit to the data (McDonald & Ho, 2002). Fit was primarily assessed using three different fit statistics – the chi-square statistic ( $\chi^2$ ), the comparative fit index (CFI; Bentler, 1990), and the root mean square error of approximation (RMSEA; Browne & Cudeck, 1993)

A model is considered an acceptable fit to the data if the  $\chi^2$  value is non-significant (i.e.,  $p > .05$ ). However, it is important to note that a large sample size or a model with many parameters can inflate the  $\chi^2$  statistic and its p-value. A  $\chi^2$  value that is less than twice the degrees of freedom can also indicate a relatively good fit (Anderson & Gerbing, 1988; Hu & Bentler, 1999).

Unlike  $\chi^2$ , CFI accounts for sample size. This index indicates the model's improvement in fit over a model with complete independence among the measured variables. CFI values range from zero to one and indicate the proportion of the covariation in the data that is reproduced by the proposed model. The higher the CFI value, the better the model fit (Bentler, 1990). As recommended by Hu and Bentler (1999), values of .90 or higher were considered an acceptable model fit.

RMSEA measures the amount of residual between the observed and predicted covariance structure. This index measures the fit per degree of freedom, while controlling for sample size. RMSEA values also range from zero to one, although lower values indicate a better model fit for this statistic (Browne & Cudeck, 1993). As recommended by Hu and Bentler (1999), values of .06 or lower were considered acceptable.

Model fit for the measurement model will be assessed using these three fit indicators –  $\chi^2$ , CFI, and RMSEA. However, these indices are not available in Mplus for models that include interactions among latent variables. Since the structural model I proposed includes an interaction (H3), I was not able to provide these statistics for the full structural model. Alternatively, I calculated and reported the  $\chi^2$ , CFI, and RMSEA for the structural model with all paths other than the interaction between latent variables.

However, there are some other fit statistics available in Mplus for models that include interactions between latent variables. Two of these are the Akaike information criterion (AIC) and Bayesian information criterion (BIC). These statistics do not provide concrete information about whether a single model is or is not a good fit to the data. Rather, they allow a model to be compared to another model to determine which is a better fit. A better model fit is indicated by lower AIC and BIC values (Klein, 2005).

To assess the model fit of the full structural model, the AIC and BIC were calculated for both the full structural model and the structural model without the interaction. If the AIC and BIC values for the full structural model were smaller than those of the structural model without the interaction, then it could be concluded that the full structural model is a better fit to the data. If this were the case and it was also the case structural model without the interaction was an adequate fit according to the  $\chi^2$ , CFI, and RMSEA statistics, then it can be assumed that the full structural model also has adequate fit.

### **Evaluation of Alternative Models**

Alternative models (discussed in detail in the results section) were evaluated by comparing the alternative models' overall fit to the overall fit of the proposed models. Alternative Model 1 is an alternative measurement model, and so its fit was compared to the fit of the proposed measurement model. Higher  $\chi^2$  values, higher CFI values, and lower RMSEA values for the alternative model would indicate that the alternative model was a better fit for the data than the proposed model. Conversely, substantially higher  $\chi^2$  values, higher CFI values, and lower RMSEA values for the proposed model would indicate that the proposed model is a better fit to the data.

Alternative Models 2 and 3 are alternative structural models. Both models contain a latent variable interaction, and therefore, the  $\chi^2$ , CFI, and RMSEA statistics were not available in Mplus. Therefore, Alternative Models 2 and 3 were evaluated by examining their AIC and BIC values. Lower AIC and BIC values for the alternative models would indicate that the alternative models were a better fit to the data than the proposed structure model. Conversely, substantially higher AIC and BIC values for the alternative models would indicate that the proposed model was a better fit to the data.

## CHAPTER III: RESULTS

### Preliminary Analyses

#### Data Cleaning

Prior to any data analysis, I cleaned the data. This involved removing any responses that disqualified a respondent for either not being in a mentoring relationship or for failing to provide their mentee's contact information. Participants whose mentoring partners chose not to respond to the survey also had their data removed.

Mentor and mentee pairs were then matched in the data set using the pair number assigned to each dyad during recruitment. Once mentor and mentee responses were paired, all identifying information (i.e., names and email addresses) was removed from the data set in compliance with Colorado State University's Internal Review Board guidelines.

#### Demographic Characteristics

Demographic characteristics for the individuals in the sample can be found in Table 1. The mean age was 45.5 years for mentors ( $SD = 10.1$ ) and 29.7 years for mentees ( $SD = 7.0$ ). About half of the mentors were female, whereas almost three quarters of the mentees were female. In both the mentor and mentee samples, respondents were predominately White individuals.

Demographic characteristics about the mentoring relationships can be found in Table 2. A majority of mentors and mentees reported that they had been in their mentoring relationship between one and five years and that they interact at least once a week. About two-thirds of the sample was in formal mentoring relationships, and about one third was in informal relationships. In about half of relationships, the mentor was also the mentee's direct supervisor.

Table 1

*Individual Characteristics of the Mentor and Mentee Participants as a Percentage of the Total Sample*

Characteristic	Mentors	Mentees
Gender		
Female	51.7	71.0
Male	48.3	27.6
Other	0.0	0.7
Racial or Ethnic Group		
Asian or Pacific Islander	5.5	9.0
Black/African American	2.8	4.1
Hispanic or Latino	1.4	8.3
Native American	0.0	0.7
White/Caucasian	86.2	73.8
Multiracial or Multiethnic	3.4	2.1
Other	0.7	0.7

*Note.* n = 145 for mentors, n = 145 for mentees.

Table 2

*Relationship Characteristics of the Mentor and Mentee Participants as a Percentage of the Total Sample*

Characteristic	Mentor	Mentee
Length of Relationship		
Less than 1 month	0.7	0.0
1-6 months	2.8	4.1
6-12 months	18.6	17.2
1-5 years	60.7	60.7
5+ years	15.9	17.2
Frequency of Interaction		
At least once a day	9.0	10.3
At least once a week	62.1	57.2
At least once a month	23.4	20.7
At least once every several months	5.5	11.0
Less than once every several months	0.0	0.0
Relationship Type		
Formal	62.8	60.7
Informal	37.2	38.6
Mentor is Direct Supervisor		
Yes	54.5	55.2
No	45.5	44.1

*Note.* n = 145 for mentors, n = 145 for mentees.

**Descriptive Statistics**

For each of the latent variables of interest, scale scores were calculated by taking the mean of all items in a particular measure. Separate scale scores were calculated for mentor and mentee ratings on the items for each variable. Descriptive statistics for the scale scores are shown in Table 3. In general, the means for the scale scores were very high. Means on each scale ranged from 4.00 to 4.61 on a scale of one to five. The standard deviations were relatively small, ranging from 0.44 to 0.64 points.

Intercorrelations between scale scores can be found in Table 4. Measures of the same scale across sources are shown in bold. With the exception of complementary fit scores, all of the mentor and mentee scale scores on the same intended latent variable were significantly and positively correlated. Additionally, all of mentor scale scores were significantly correlated with all other mentor scale scores. Most of the mentee scale scores were correlated with the rest of the mentee scale scores, the exceptions being supplementary fit with mentee learning, complementary fit with mentee learning, and complementary fit with mentee job performance.

Table 3

*Descriptive Statistics for Mentor and Mentee Scale Scores*

Scale	<i>M</i>	<i>SD</i>
Supplementary Fit - Mentee Ratings	4.07	0.56
Complementary Fit - Mentee Ratings	4.61	0.56
Relationship Quality - Mentee Ratings	4.46	0.56
Mentee Learning - Mentee Ratings	4.54	0.44
Mentee Job Performance - Mentee Ratings	4.59	0.50
Supplementary Fit - Mentor Ratings	4.00	0.58
Complementary Fit - Mentor Ratings	4.31	0.58
Relationship Quality - Mentor Ratings	4.44	0.58
Mentee Learning - Mentor Ratings	4.44	0.50
Mentee Job Performance - Mentor Ratings	4.52	0.64

*Note.* n = 145 for mentors, n = 145 for mentees.

Table 4

*Correlations Between Mentor and Mentee Scale Scores*

Scale	1	2	3	4	5
1 Supplementary Fit - Mentee Ratings					
2 Complementary Fit - Mentee Ratings	0.48**				
3 Relationship Quality - Mentee Ratings	0.54**	0.61**			
4 Mentee Learning - Mentee Ratings	0.15	0.05	0.23**		
5 Mentee Job Performance - Mentee Ratings	0.34**	0.04	0.35**	0.16*	
6 Supplementary Fit - Mentor Ratings	<b>0.23**</b>	-0.04	0.09	0.05	0.14
7 Complementary Fit - Mentor Ratings	0.02	<b>0.12</b>	0.15	0.08	0.11
8 Relationship Quality - Mentor Ratings	0.22**	0.17*	<b>0.29**</b>	0.21*	0.14
9 Mentee Learning - Mentor Ratings	0.10	0.00	0.10	<b>0.29**</b>	0.05
10 Mentee Job Performance - Mentor Ratings	0.32**	0.24**	0.42**	0.15	<b>0.43**</b>

Note.  $n = 145$  for mentors,  $n = 145$  for mentees. \*  $p < .05$ , \*\*  $p < .01$ . Values in bold are correlations between measures of the same scale across sources.

Table 4 Continued

*Correlations Between Mentor and Mentee Scale Scores*

Scale	6	7	8	9
1 Supplementary Fit - Mentee Ratings				
2 Complementary Fit - Mentee Ratings				
3 Relationship Quality - Mentee Ratings				
4 Mentee Learning - Mentee Ratings				
5 Mentee Job Performance - Mentee Ratings				
6 Supplementary Fit - Mentor Ratings				
7 Complementary Fit - Mentor Ratings	0.30**			
8 Relationship Quality - Mentor Ratings	0.54**	0.56**		
9 Mentee Learning - Mentor Ratings	0.35**	0.31**	0.51**	1.00
10 Mentee Job Performance - Mentor Ratings	0.38**	0.22**	0.56**	0.40**

Note.  $n = 145$  for mentors,  $n = 145$  for mentees. \*  $p < .05$ , \*\*  $p < .01$ . Values in bold are correlations between measures of the same scale across sources.

**Mentor-Mentee Agreement**

The mentor and mentees' agreement on ratings of the same variable was assessed in order to determine the extent to which a mentor's rating might represent a mentee's view or vice versa.

Demographic variables about the mentoring relationship were assessed with a single item that had categorical responses. Therefore, agreement was assessed using the percentage of the time that mentors and mentees reported the same categorical response. As is shown in Table 5, mentors' and mentees' responses were largely in agreement for every relationship variable. Agreement was the highest regarding the length of time that the pair had been in a mentoring relationship. Agreement was lowest regarding the frequency of mentor-mentee interaction; on average, mentors reported interacting more often than mentees did.

The variables of interest in this study were all measured using five-item scales. Because a similar scale score does not necessarily mean that there was similarity at the item level, agreement on the variables of interest was assessed at the item level. To assess mentor-mentee agreement on any particular item, correlations between mentor and mentee ratings of the same item were calculated.

In general, agreement between mentors and mentees was modest (see Table 6). Mentor-mentee agreement was strongest on the items indicating mentee job performance and relationship quality. For each of those variables, mentor and mentee responses were positively and significantly correlated for all items. However, responses were only significantly correlated for three mentee learning items, two supplementary fit items, and one complementary fit item.

Table 5

*Agreement on Relationship Characteristics between Mentors and Mentees*

Characteristic	Percentage in Agreement
Relationship Length	85.2
Frequency of Interaction	60.4
Relationship Type	73.8
Mentor is Direct Supervisor	80.7

*Note.* n = 145 for mentors, n = 145 for mentees.

Table 6

*Agreement on Items between Mentors and Mentees*

Item Description	Correlation
The pair sees things in the same way	.20*
The pair is similar in terms of our outlook, perspective, and values	.04
The pair is alike in a number of areas	.15
The pair is alike in terms of coming up with similar solutions for problems	.27**
The pair analyzes problems in a similar way	.13
The mentor's abilities fit the mentee's needs	.23**
The mentor has the right skills and abilities to mentor the mentee effectively	.07
There is a good match between the mentee's needs and the mentor's skills	.07
The mentor's personality is a good match for the mentee	.13
The mentor is the right type of person to mentor the mentee	.12
The pair enjoy a high quality relationship	.16*
Both people benefit from the mentoring relationship	.30**
The mentee effectively utilizes mentor	.21*
The mentoring relationship is very effective	.17*
They are satisfied with the mentoring relationship	.17*
The mentee has increased understanding of issues and problems outside their job	.23**
The mentee has a better sense of organizational politics	.25**
The mentee has learned how to communicate effectively with others	.12
The mentee has developed new ideas about how to perform his or her job	.04
The mentee has gained new skills	.26**
The mentee always completes duties	.41**
The mentee meets all the formal performance requirements of the job	.33**
The mentee fulfills all responsibilities required by the job	.31**
The mentee never neglects aspects of the job	.17*
The mentee often fails to perform essential duties (reverse coded)	.21**

*Note.* n = 145 for mentors, n = 145 for mentees. \*  $p < .05$ , \*\*  $p < .01$ .

### **Assumptions of Structural Equation Modeling**

As described in the Analyses section, the hypotheses were tested using Structural Equation Modeling (SEM). First, the data were checked to ensure that it met the assumption of multivariate normality. Excess kurtosis values within the range of +3 to -3 are typically considered satisfactory (Yuan & Bentler, 2000).

Excess kurtosis values for the observed variables measured in this study ranged from -0.58 to 6.89. In total, nine of the 25 observed variables had excess kurtosis values greater than three, indicating an unsatisfactory departure from normality.

Because the data violated the assumption of multivariate normality, an alternate estimation method was used. Robust Maximum Likelihood (MLR) estimation adjusts fit statistics to be more robust to violation of the assumptions of multivariate normality. MLR estimation was used for all models tested in this study.

### **Measurement Model**

The first step of an SEM analysis is to perform a CFA to determine if the relationships in the measurement model between the observed variables and their underlying latent constructs are adequate (Anderson & Gerbing, 1988). Figure 1 shows the proposed measurement model. Each of the survey items served as indicators for their respective latent variables. The initial measurement model was not a good fit to the data,  $\chi^2 (265) = 507.65, p < .001, CFI = 0.85, RMSEA = 0.08$ .

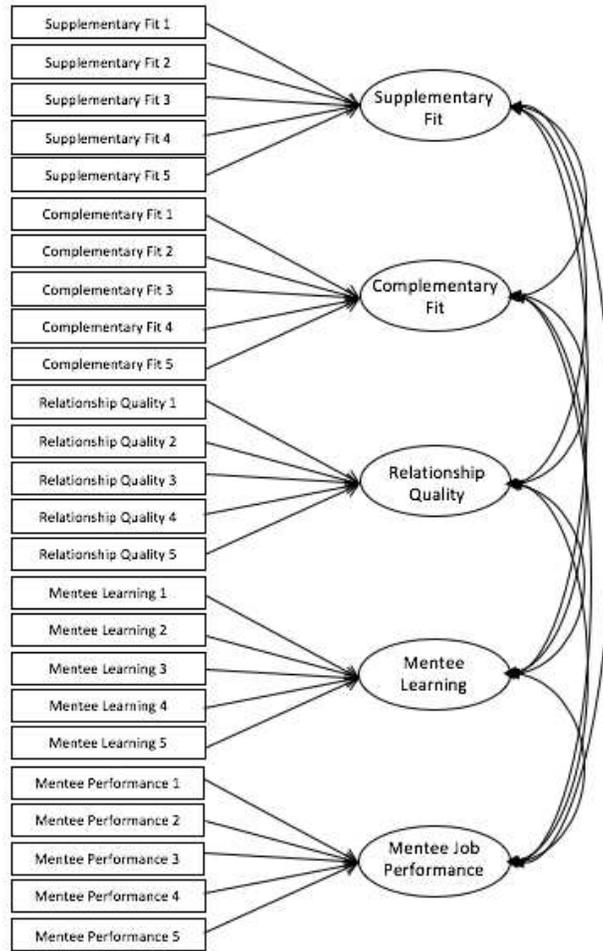


Figure 1. The proposed measurement model.

### Alternative Model 1

Alternate Model 1 was an alternate measurement model that posited that supplementary fit, complementary fit, and relationship quality are not separate factors, but a single construct representing mentor-mentee affect. This model is pictured in Figure 2. The fit statistics for Alternative Model 1 suggested that this model also was not a good fit to the data  $\chi^2 (272) = 673.08, p < .001, CFI = 0.75, RMSEA = 0.10$ .

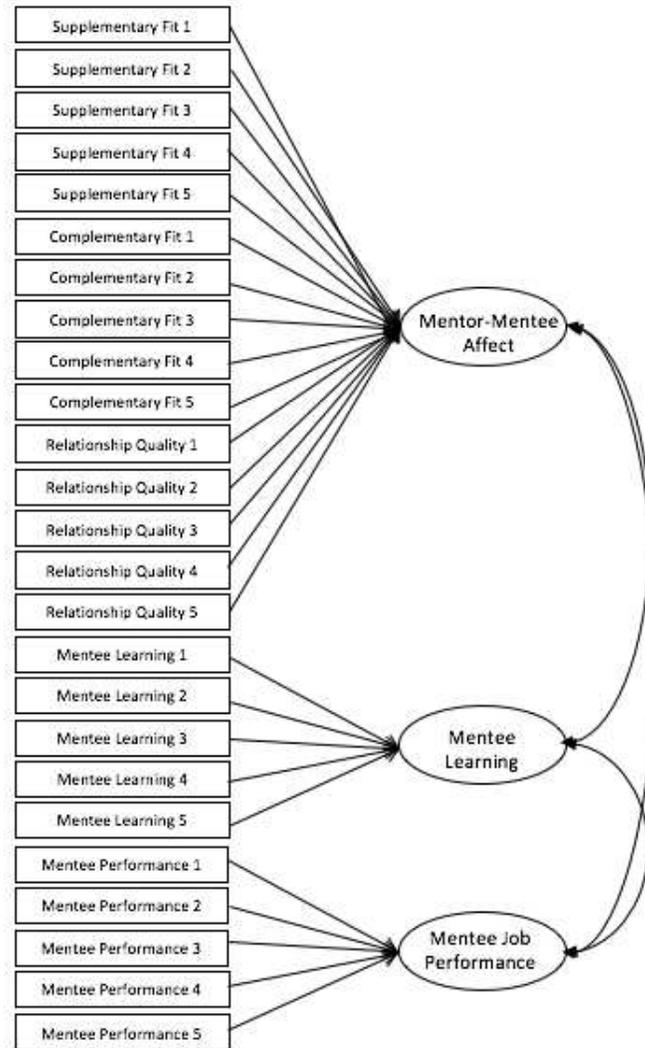


Figure 2. Alternative Model 1, an alternative measurement model.

### Modifications to the Measurement Model

In an attempt to improve the measurement model, I examined the item statistics to determine if there were problematic items that should be dropped from the model. Factor loadings and discrepancies between the observed and predicted inter-item correlations were used as indicators that an item may need to be dropped from the model. Factor loadings of less than .30 were considered problematically low, and discrepancies with absolute values greater than .10 were considered problematically high. When an item violated one or both of these rules of

thumb, I also considered the theoretical justification for keeping or eliminating concerning items. Six items were ultimately dropped across all five measures (Supplementary Fit 5, Complementary Fit 4, Complementary Fit 5, Relationship Quality 1, Relationship Quality 2, and Mentee Job Performance 5). The revised measurement model is shown in Figure 3.

After dropping the problematic items, the measurement model was reexamined. The revised measurement model was a good fit to the data,  $\chi^2(142) = 171.35, p = .047, CFI = 0.98, RMSEA = 0.04$ . The dropped items were not examined as part of the structural model or alternative structural models. The covariance matrix between latent variables is shown in Table 7.

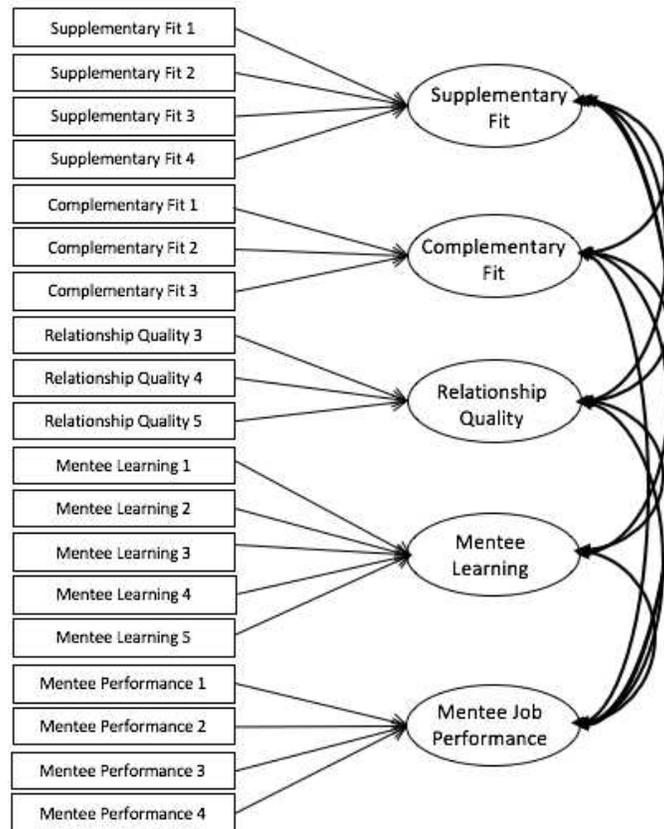


Figure 3. The revised measurement model tested in the first step of the structural equation modeling procedure.

Table 7

*Covariances between Latent Variables*

Scale	1	2	3	4
1 Supplementary Fit				
2 Complementary Fit	0.46**			
3 Relationship Quality	0.60**	0.68**		
4 Mentee Learning	0.09	-0.08	0.08	
5 Mentee Job Performance	0.26**	0.07	0.30**	0.43*

Note.  $n = 145$  for mentors,  $n = 145$  for mentees. \*  $p < .05$ , \*\*  $p < .01$ .

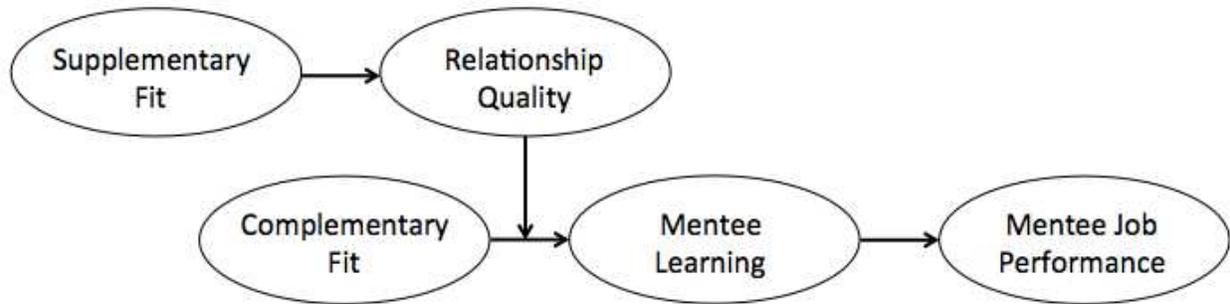
### Structural Model

The second step of an SEM analysis is to assess the structural model (Anderson & Gerbing, 1988). The purpose of this step is to determine whether the proposed structural model fits the data and to determine if the hypothesized paths are supported by the data. The proposed structural model is shown in Figure 4.

Because the  $\chi^2$ , CFI, and RMSEA statistics are not available for models that include interactions between latent variables, these statistics were calculated for the model without the interaction. Although the  $\chi^2$  statistic was significant,  $\chi^2(147) = 212.11, p < .001$ , a value less than two times the degrees of freedom is a relative small  $\chi^2$  value. Additionally, both the CFI (0.95) and RMSEA (0.06) values indicated acceptable model fit. Taken together, these values indicate that the structural model without the interaction was a fairly good fit to the data. However, as compared to the measurement model, the addition of the paths somewhat decreased fit according to all three fit indicators.

Unlike the  $\chi^2$ , CFI, and RMSEA statistics, the AIC and BIC statistics are available for models that include latent variable interactions. Although the AIC and BIC statistics do not suggest the adequacy of the model fit on their own, they can be compared to the AIC and BIC statistics of other models to determine which model was a better fit to the data. The statistics for

the proposed model (AIC = 4672.51, BIC = 4860.04) were larger than the statistics for the model without the interaction (AIC = 4670.70, BIC = 4855.26). This indicates that the full proposed model was not a better fit to the data than the model without the latent variable interaction.



*Figure 4.* The proposed model of mentor-mentee fit. These paths were tested in the second step of the structural equation modeling procedure.

### **Alternative Model 2**

In addition to testing an alternate measurement model, two alternate structural models were also tested. Like the proposed structural model, both alternative models were tested using the revised measurement model.

Alternative Model 2, shown in Figure 5, proposed that relationship quality leads to perceptions of supplementary fit, which moderates the relationship between complementary fit and mentee learning. This model is depicted in Figure 4. The AIC and BIC fit statistics for the alternative model (AIC = 4639.77, BIC = 4827.30) were smaller than the statistics for the proposed structural model (AIC = 4672.51, BIC = 4860.04). This indicates that Alternative Model 2 was a better fit to the data than the proposed structural model.

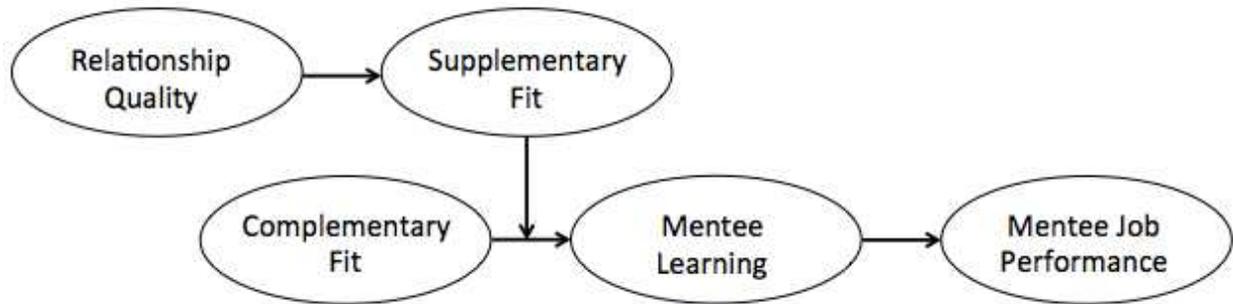


Figure 5. Alternative Model 2, an alternative structural model.

### Alternative Model 3

The third alternative model that was tested is similar to the proposed model (which is shown in Figure 4) in that relationship quality moderates the relationship between complementary fit and mentee learning. However, this model posits that there is a curvilinear moderation, such that the association between complementary fit and mentee learning is strongest when relationship quality is neither too high nor too low.

The AIC and BIC fit statistics for Alternative Model 3 (AIC = 4674.33, BIC = 4864.84) were larger than the statistics for the proposed structural model (AIC = 4672.51, BIC = 4860.04). This indicates that Alternative Model 3 was not a better fit to the data than the proposed structural model.

In addition to these alternative structural models, an additional alternative model was tested post hoc. The post hoc model, as well as overall conclusions about the best fitting structural model, are discussed in the Post Hoc Revisions to the Structural Model section below.

### Tests of Hypotheses

Each of the hypothesized paths in the model was tested using the revised measurement model with the proposed paths. Standardized path coefficients are not available in Mplus for models with latent variable interactions. Thus, unstandardized path coefficients are reported.

### **Hypothesis 1: Supplementary Fit and Relationship Quality**

Hypothesis 1 stated that supplementary fit between mentors and mentees would be positively related to relationship quality. At this phase of the proposed model, relationship quality was regressed on supplementary fit. Supplementary fit did predict relationship quality,  $B = 0.92$ ,  $SE = 0.21$ ,  $p < .001$ . Thus, Hypothesis 1 was supported.

### **Hypothesis 2: Complementary Fit and Mentee Learning**

Hypothesis 2 stated that complementary fit between mentors and mentees would be positively related to mentee learning. At this phase of the proposed model, mentee learning was regressed on complementary fit, relationship quality, and the interaction between the two. Complementary fit did predict mentee learning when relationship quality was equal to zero,  $B = -0.25$ ,  $SE = 0.11$ ,  $p = .028$ . However, this relationship was in the opposite direction than was hypothesized. The greater the complementary fit between mentors and mentees, the less the mentee had learned over the course of the relationship. Because the relationship is in the opposite direction than was predicted, Hypothesis 2 was not supported.

### **Hypothesis 3: Interaction**

Hypothesis 3 stated that the association between complementary fit and mentee learning would be moderated by relationship quality, such that when relationship quality is high, the association is stronger than when relationship quality is low. At this phase of the proposed model (the same phase at which H2 was tested), mentee learning was regressed on complementary fit, relationship quality, and the interaction between the two. Relationship quality did not moderate the relationship between complementary fit and mentee learning,  $B = -0.03$ ,  $SE = 0.07$ ,  $p = .692$ . In other words, relationship quality did not affect the strength of the relationship between complementary fit and mentee learning. Thus, Hypothesis 3 was not supported.

#### **Hypothesis 4: Mentee Learning and Job Performance**

Hypothesis 4 stated that mentee learning would be positively related to mentee job performance. That this phase of the proposed model, mentee job performance was regressed on mentee learning. Mentee learning did predict mentee job performance,  $B = 0.47$ ,  $SE = 0.09$ ,  $p < .001$ . Thus, Hypothesis 4 was supported.

#### **Post-Hoc Revisions to the Structural Model**

The proposed structural model was not an ideal fit to the data, as evidenced by the fact that the revised measurement model, Alternative Model 2, and the proposed structural model without the interaction were a better fit to the data than was the proposed structural model (according to the AIC and BIC statistics). For this reason, the literature and data were reexamined post hoc in an effort to uncover the best possible model to describe the data.

The obtained relationship between mentee learning and the mentoring latent variables (i.e., supplementary fit, complementary fit, and relationship quality) was expected to be positive, but, in fact, turned out not to be significantly different than zero. The covariance between latent variables showed that mentee learning was only significantly correlated with mentee performance ( $r = 0.43$ ,  $p < .001$ ). However, mentee job performance was related to two of the three mentoring variables (with relationship quality  $r = 0.30$ ,  $p = .001$ , with supplementary fit  $r = 0.26$ ,  $p = .004$ ). In other words, in my sample, mentoring variables were related to mentee job performance, but not mentee learning. It may be the case that a good relationship with a mentor increases job performance, but does not lead to learning. Alternatively, it may be that mentoring is increasing learning, but that mentors are not able to accurately assess their mentee's learning. This would be consistent with research suggesting that humans are not particularly accurate at making judgements about learning (Rhodes, 2016).

Although the learning latent variable was less related to other variables than was expected, other variables were more interrelated than expected. The correlations between the mentoring variables (e.g., supplementary fit, complementary fit, and relationship quality) were all highly significant ( $p < .001$ ). Further, as mentioned above, mentee job performance was related to two of the three mentoring variables (i.e., relationship quality and supplementary fit). This suggests that there may be direct relationships between the mentoring variables and mentee job performance.

Based on these findings, the model was adapted such that: 1) complementary fit is directly related to relationship quality rather than through an interaction, 2) complementary fit no longer leads to mentee learning, and 3) relationship quality is directly related to mentee job performance rather than through mentee learning. This model is pictured in Figure 6.

The results of this revised structural model suggested that it was a good fit to the data,  $\chi^2(145) = 175.40$ ,  $p = .043$ , CFI = .98, RMSEA = .04. Further, this revised structural model is the only tested model that did not show a decrease in fit from the revised measurement model shown in Figure 3,  $\chi^2(142) = 171.35$ ,  $p = .047$ , CFI = 0.98, RMSEA = 0.04.

The AIC and BIC statistics allowed me to compare this revised model to models that included interaction terms. These statistics indicated that the revised structural model (AIC = 4631.84, BIC = 4822.83) was a better fit to the data than the original proposed model (AIC = 4672.51, BIC = 4860.04), Alternative Model 2 (AIC = 4639.77, BIC = 4827.30), or Alternative Model 3 (AIC = 4674.33, BIC = 4864.84). These results suggest that the revised structural model is the best fit to the data among models tested in this paper.

Figure 6 shows the standardized path estimates for the revised structural model. There was a significant, positive relationship between supplementary and complementary fit ( $r = .46$ ,  $SE = 0.09$ ,  $p < .001$ ). Both supplementary ( $\beta = .38$ ,  $SE = 0.08$ ,  $p < .001$ ) and complementary ( $\beta = .51$ ,  $SE = 0.12$ ,  $p < .001$ ) fit significantly predicted relationship quality when holding the other constant. Relationship quality significantly predicted mentee job performance when mentee learning was held constant ( $\beta = .26$ ,  $SE = 0.09$ ,  $p = .002$ ). Mentee learning also predicted mentee job performance when relationship quality was held constant ( $\beta = .42$ ,  $SE = 0.10$ ,  $p < .001$ ). Neither supplementary ( $r = .11$ ,  $SE = 0.10$ ,  $p = .31$ ) nor complementary ( $r = -.08$ ,  $SE = 0.10$ ,  $p = .38$ ) fit was significantly related to mentee learning.

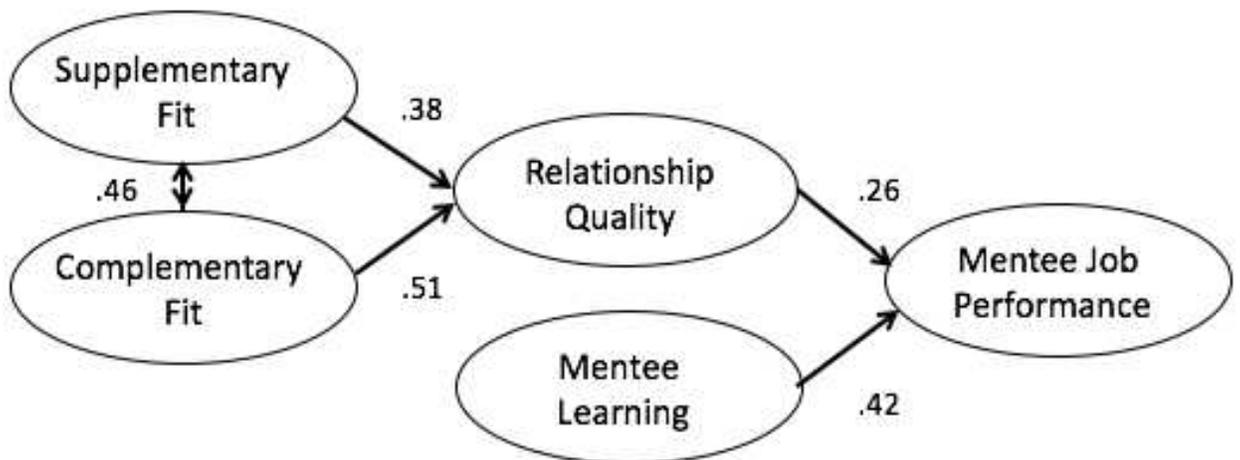


Figure 6. The revised structural model which best fits the data. All path estimates are standardized. All path estimates were significant at  $p < .01$ .

## CHAPTER IV: DISCUSSION

The purpose of this study was to develop a greater understanding of mentor-mentee match in workplace mentoring relationships. By examining two separate conceptualizations of fit from the person-environment fit literature – supplementary and complementary fit – this study was able to compare the effect of each conceptualization on several outcomes – relationship quality, mentee learning, and mentee job performance. By doing so, this study has provided clarity regarding the relationship between mentor-mentee match and mentoring outcomes.

### **Model of Mentor-Mentee Fit**

In this study, I proposed a model of mentor-mentee match, seen in Figure 4, that specified the relationship between types of mentor-mentee fit – supplementary and complementary fit – and several mentoring outcomes – relationship quality, mentee learning, and mentee job performance. Fit statistics indicated that the proposed model (less the interaction) described the data well<sup>1</sup>. In addition to proposing my model of mentor-mentee fit, I also proposed two plausible alternative models. One of these models, the second alternative model (seen in Figure 5) was also a good fit to the data.

Because my model was not an ideal fit to the data, I reexamined the mentoring literature and the data collected in this study. The data showed that there were relationships between some of the latent variables that I had not originally hypothesized relationships between and that there were not relationships between variables that I had hypothesized relationships between. Based on this, I revised my model, as seen in Figure 6. When the fit statistics for this revised structural

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<sup>1</sup> Because only relative fit statistics are available for models with interactions, it is not known whether the proposed model had objectively good fit. The results only indicate that the model without the interaction was a good fit, and that it was a better fit than the model with the interaction.

model were examined, they indicated that this revised model was a good fit to the data. It was also the only structural model tested in which fit did not decrease from the measurement model. Below, I review evidence for hypothesized relationships and then discuss the revised model.

## **Hypotheses**

### **Hypothesis 1: Supplementary Fit and Relationship Quality**

The first hypothesis proposed that supplementary fit between mentors and mentees would be related to mentoring relationship quality. Path estimates from both the original proposed model and the revised model indicated that there was a significant relationship between supplementary fit and relationship quality.

This finding is consistent with related research that has found that mentoring participants who perceive themselves as more similar to their partners report more satisfaction with their relationship (Ensher et al., 2002; Ensher & Murphy, 1997). Further, it provides evidence that the similarity-attraction hypothesis (Byrne, 1971) extends to mentoring relationships, in that those who perceive that they are similar to their mentoring partner are more likely to report that they have a good mentoring relationship.

More broadly, this finding may also extend to other affective variables within the work context. In addition to feeling that they have a better relationship with their partner, mentors and mentees who perceive greater supplementary fit may also have more positive attitudes towards their jobs, organizations, and career paths. This would be consistent with findings that other types of fit at work (e.g., person-organization, person-job) are related not only to attitudes about the level of environment at which fit is high (e.g., person-organizational fit with organizational commitment, person-job fit with job satisfaction), but also to attitudes about other levels of the

environment (e.g., person-organization fit is related to job satisfaction; Kristof-Brown et al., 2005; Verquer, Beehr, & Wagner, 2003).

### **Hypothesis 2: Complementary Fit and Mentee Learning**

The second hypothesis suggested that complementary fit between mentors and mentees would be positively related to mentee learning. Contrary to my hypothesis, there was a significant negative relationship between complementary fit and mentee learning in the proposed structural model when relationship quality was constrained to zero. However, there was not significant correlation between the latent variables in either the proposed or revised structural models. This pattern suggests that there is no relationship between complementary fit and mentee learning when those variables are examined independent of the other variables, however they are negatively related when the variance due to relationship quality partialled out.

However, to some extent, it may make theoretical sense for a mentee's perception of complementary fit to be negatively related to a mentor's perception of their mentee's learning. Several of the complementary fit items used in this study get at the extent to which mentors have the right skills and abilities to help the mentee develop. Many of these skills and abilities may be the same skills and abilities that mentees need to acquire to perform their jobs. If a mentee recognizes and reports that their mentor has the right skills and abilities, it may indicate that the mentee wants to (but hasn't yet) acquired those skills him or herself. If so, it may make sense for the mentor to then report that the mentee has not learned much over the course of their mentoring relationship. Further, this relationship may have been statistically strengthened by partialling out any variance mentee learning that was shared with the relationship quality variable.

**Measurement of complementary fit.** It is important to note that unlike the other scales taken by mentors and mentees as part of this study, mentor and mentee scale scores of

complementary fit were not significantly related to one another. It appears that mentors and mentees have very different ideas whether or not the mentor's attributes (e.g., abilities, skills) match the needs of the mentee. In the testing of my hypotheses, the mentee's ratings were used to assess complementary fit. However, since there is not agreement between mentors and mentees on what constitutes complementary fit, a case could be made that it would have been more appropriate to use the mentor's ratings. In theory, mentors should know more about their own strengths and weaknesses than mentees do, and they should also know more about the knowledge and skills that mentees need to acquire to be successful at their jobs. In fact, the descriptive statistics showed that there was a significant correlation between mentor's scale scores of complementary fit and mentor's scale ratings of mentee learning.

### **Hypothesis 3: Interaction**

My third hypothesis proposed that relationship quality would moderate the relationship between complementary fit and mentee learning. This hypothesis was not supported in the proposed model.

**Reevaluation of hypothesis.** The justification for this hypothesis stemmed from a previous finding by Eby et al. (2004) that social factors in a mentoring relationship (i.e., the amount of psychosocial support received and satisfaction with the social relationship) were related to mentee learning. When I proposed this hypothesis in the introduction, I argued that it did not make intuitive sense for relationship quality to be directly related to mentor learning. I implied that being friends with a mentor should not cause mentees to spontaneously take in new job information, and that it must be the case that relationship quality is actually affecting mentee learning by moderating the relationship between complementary fit and learning.

Although I think that argument is valid, I do not think that the relationship quality measure used in this study was ideal for the evaluation of my hypothesis. The items in the relationship quality measure seem to indicate relationship effectiveness rather than friendship. I think a valid theoretical argument can be made that the effectiveness of the mentoring relationship should be related to mentee learning directly, and that there is no need for a moderation hypothesis to explain that relationship. Given the measure I used, I do not believe that I adequately tested the hypothesis I proposed. I believe that the lack of support for H3 makes intuitive sense, as the measure of relationship quality better reflects relationship effectiveness than friendship.

**Relationship quality and learning.** The results of this study were consistent with previous research that found social factors in a mentoring relationship were related to mentee learning (Eby et al., 2004). I found that mentee perceptions of relationship quality were positively correlated with mentee perceptions of personal learning. Similarly, there was a correlation between mentor perceptions of relationship quality and mentor perceptions of mentee learning.

However, this this study did not find a significant relationship between mentee perceptions of relationship quality and mentor perceptions of learning (as indicated by nonsignificant paths in the proposed model as well as a nonsignificant correlation between the latent variables). This may be partially due the fact that mentor-mentee agreement on both variables was only moderate (as indicated by weak and moderate correlations between mentor and mentee ratings at both the scale and item levels). Because mentors and mentees perceived their relationships and the mentees' learning differently, it is reasonable that a relationship would not exist across sources even if it was present between sources.

Though this study used cross-source ratings of relationship and learning variables, prior research has used exclusively mentee ratings (Eby et al., 2004). This may explain why previous research was able to detect significant relationships between social relationship and learning variables, but I was not able to when testing the proposed or revised models. Future research should further investigate this relationship by comparing mentor and mentee perceptions of mentee learning to objective indicators of learning (e.g., job knowledge). It may be the case that mentees are better aware of their learning progress, or alternatively, that mentors have a better sense of what knowledge needs to be learned by the mentee.

**Evidence from the revised model of mentor-mentee fit.** Though previous research has found a relationship between social relationship variables and mentee learning (Eby et al., 2004), the lack of support for H3 indicates that this relationship could not be explained by relationship quality moderating the complementary fit-mentee learning path in this study.

Alternatively, the revised model developed as part of this study suggests that a different relationship between mentoring variables and learning may exist. The revised model found that complementary fit directly predicts relationship quality, which in turn predicts mentee job performance. Mentee learning also predicted mentee job performance, but mentee learning itself was not related to any of the mentoring variables (i.e., supplementary fit, complementary fit, and relationship quality).

My findings suggest that it is beneficial for a mentor-mentee pair to have good complementary fit and a high quality relationship, as both are related to mentee job performance. However, having good complementary fit and a high quality relationship (at least as measured from the mentee's perspective) is not related to the mentor's perception of mentee learning. One explanation for this may be that mentor perceptions of mentee learning are influenced by other

factors, for example, the mentee's characteristics (e.g., cognitive ability), the mentee's job characteristics (e.g., job does not require the acquisition of new knowledge), or organizational factors (e.g., organizational climate doesn't support learning). Alternatively, it may be that the relationship is affecting the mentors' perceptions of mentee learning, but that the mentor and mentee have just have very different ideas about the extent to which the mentee has learned new information. In fact, that the latter is more likely, as the data suggested that there was only fair agreement between mentor and mentee perceptions of mentee learning. Further, mentor perceptions of mentee learning were positively correlated with mentor perceptions of complementary fit and mentor perceptions of relationship quality.

#### **Hypothesis 4: Mentee Learning and Job Performance**

The fourth hypothesis predicted that mentee learning would be positively related to mentee job performance. Path estimates from both the proposed model and the revised model supported this hypothesis, as did correlations between the latent variables. This finding is consistent with meta-analytic evidence that job knowledge is related to job performance (Hunter, 1986), as well as evidence that learning in training is related to job performance (Alliger, Tannenbaum, Bennett, Traver, & Shotland, 1997; Arthur, Bennett, Edens, & Bell, 2003). Thus, the findings of this study suggest that the relationship between learning and job performance generalizes to learning in the context of mentoring relationships.

While my analyses showed that mentee learning and performance were related, the two constructs were clearly distinct from one another, as evidenced by only moderate to large correlation between the two. For this reason, researchers should beware of using learning and performance as interchangeable outcome variables. It is often the case that either one or the other will be included in a study for brevity or convenience. However, this study found that mentee

learning and mentee performance were differentially related to the other mentoring variables. To more fully understand the relationship between learning, performance, and other mentoring variables, it is important to measure both outcomes in studies on mentoring relationships.

### **Additional Findings**

#### **Revised Model of Mentor-Mentee Match**

The revised model (Figure 6) best describes the data collected in this study. While the revised model contains some of the same relationships that were hypothesized and supported above (i.e., supplementary fit predicts relationship quality, mentee learning predicts mentee job performance), it also contains some additional relationships.

The revised model found that in addition to supplementary fit predicting relationship quality, complementary fit independently predicted relationship quality between mentors and mentees. In turn, relationship quality predicted mentee job performance. Mentee learning also predicted job performance, independent of relationship quality. However, neither supplementary or complementary fit directly predicted mentee learning or mentee performance.

**Support for the revised model.** The person-environment (PE) fit literature provides general support for the revised model of mentor-mentee match in several ways. A meta-analysis by Kristof-Brown et al. (2005) found that both supplementary and complementary fit between persons and their environment (at the job and organization level) predicted individual attitudes. Further, the meta-analysis indicated that complementary fit (measured by the environment's characteristics meeting the individuals needs) was generally a stronger predictor of attitudes than was supplementary fit. Although supplementary and complementary fit are independent constructs, research has found that on an empirical level, they are related yet distinct (Cable & Edwards, 2004).

There has also been some research regarding the relationship between PE fit and job performance. The same meta-analysis (Kristof-Brown et al., 2005) found that there were correlations between PE fit (at the group, job, and organizational level) and job performance. These correlations were generally smaller than the correlations between fit and attitudes. Unfortunately, there is little research available on the potential relationship between fit and learning in at any level of the environment.

The paths at the first phase of the revised model are consistent with findings in the PE literature. Supplementary and complementary fit between mentors and mentees were moderately correlated with one another. Both types of fit independently predicted an attitudinal variable, relationship quality, though the complementary fit was a somewhat stronger predictor than was supplementary fit.

The other paths in the revised model are also consistent with the PE fit literature, although research on these variables has been less well developed. There was a relationship between both supplementary and complementary fit and mentee job performance, although it was fully mediated by relationship quality. Though the PE fit literature has not provided any evidence of a relationship or lack thereof between fit and learning, this may be for good reason. The revised model did not suggest a relationship between either type of mentor-mentee fit with learning.

One other path is present in the revised model, the path between mentee learning and mentee performance. Neither of those is a fit variable, and as such, the PE fit literature does not have much to say about the relationship between the two. However, as was discussed in the introduction, the relationship between learning and performance has been supported by several

meta-analyses in other bodies of literature (Alliger et al., 1997; Arthur et al., 2003; Hunter, 1986).

### **Mentor-Mentee Agreement**

By collecting dyadic data, I was able to evaluate the degree of similarity between mentor and mentee responses to the same survey questions. On demographic characteristics about the mentoring relationship (e.g., length of relationship, frequency of interaction), agreement between mentors and mentees was high. Since convergence was high, it is reasonable to conclude that mentoring participant responses about relationship characteristics are relatively reliable and valid.

There was less agreement on items assessing the variables of interest in this study. Mentor and mentee scale scores were moderately correlated for supplementary fit, relationship quality, mentee learning, and mentee job performance. There was not a significant correlation between mentor and mentee scores on complementary fit. These findings are further supported by the item correlations between mentor and mentee responses. Mentor and mentee responses were correlated for every item on the relationship quality and job performance scales, some items on the supplementary fit and mentee learning scales, and only a single item on the complementary fit scale.

Together, these findings suggest that mentors and mentees have a moderate but meaningful amount of agreement on most variables, namely supplementary fit, relationship quality, mentee learning, and mentee job performance. However, agreement is not universal. Mentors and mentees did not agree on whether the mentor was a good fit for the mentee's needs.

There are several possible reasons why agreement was particularly poor for the measure of complementary fit. It may be the case that complementary fit is a variable on which mentees

are particularly lacking in knowledge compared to mentors. In theory, mentors should know more about their own strengths and weaknesses than mentees do, and they should also know more about the knowledge and skills that mentees need to acquire to be successful at their jobs.

Alternatively, it may be the case that mentors and mentees agree less on items which are more deeply grounded in subjective opinion (e.g., items like “My mentor is the right type of person to mentor me/I am the right type of person to mentor my mentee”) than items that are grounded in objective observation (e.g., items like “I meet all the formal performance requirements of my job/My mentee meets all the formal performance requirements of his or her job”).

The lack of strong agreement between mentor-mentee pairs on relationship variables has substantial implications for mentoring researchers and practitioners. The results suggest that it cannot be assumed that a mentor’s perception of a variable represents the mentee’s perception of the same variable, or vice versa. In order to get a complete sense of a mentoring relationship, it may be necessary to collect data on all variables of interest from both parties. In mentoring research, the collection of dyadic data has the potential to lead to a better understanding of how mentor and mentee attitudes and behaviors are differentially shaped by antecedents and differentially predictive of outcomes.

In organizations with formal mentoring programs, it may also be helpful to measure both mentor and mentee attitudes and behaviors. Data from both participants may serve to help better pair mentors and mentees, assess the quality of existing relationships, and determine if training or reassignment is necessary.

## **Strengths and Limitations**

There were a number of strengths and limitations associated with this study. First, a noteworthy strength of this study was in the analyses that were conducted. This study employed structural equation modeling, a data analysis method that allows for the fitting of an entire model to data. By using this analysis, I was able to assess the fit of my entire model of mentor-mentee fit. Further, I was able to compare my model of mentor-mentee fit to plausible alternative models. This allowed me to determine that while my model (less the interaction; see footnote 1) was a good fit to the data, that it was not the best possible fit to the data. The revised model is the best way to describe the data that was collected in this study.

Another strength of this study was the use of multiple data sources. Data were collected from both the mentor and mentee in each dyad. By using two separate sources, I was able to assess the agreement between mentor and mentee responses on the variables of interest. Further, by using two sources, I was able to diminish common method variance, or the variance in constructs that might have been shared by using the same data collection methods, that may have been present in my data.

However, there are also some limitations associated with this study. Perhaps most importantly, this sample that was used in this study was an academic sample. In each dyad, at least one of the participants was either a faculty member or graduate student. Although this constituted a workplace mentoring relationship for the participants in this study, an academic setting may not represent a typical workplace. Similarly, a university faculty member or graduate student may not represent a typical employee.

For example, many of the mentor-mentee pairs in this study consisted of faculty advisors and graduate students. Unlike is often the case in corporate settings, these pairs are often neither

in an unambiguously formal or unambiguously informal relationship. One or both participants may have had a strong influence on the matching process (e.g., student applies, advisor influences acceptance), but the university or department typically plays some role in providing guidance, training, and reassignment support when necessary.

Because there may be meaningful differences between mentors-mentee pairs in an academic setting and pairs in other industries, it may not be the case that the findings of this study generalize to a broader population of mentors and mentees across various jobs and fields. It is possible that there are differences in how mentoring relationships operate, such that the revised model of mentor-mentee match developed in this study does not best represent how mentoring relationships function in different contexts.

Another limitation concerns the inability to draw causal conclusions from this data. Although this study found several relationships between variables, there was no temporal antecedence established in this study, as all measures used in this study were taken at a single time point. Although the revised mode of mentor-mentee match has several phases of predictor and outcome variables, I cannot assess whether or not the predictor variables, in fact, lead to differences in outcome variables at a later point in time. For this reason, I am unable to determine if the predictor variables cause the outcomes, the outcomes cause the predictors, or other factors are causing both.

Further, all variables measured as part of this study were assessed using subjective rather than objective measures. While I can say that, for example, a mentee's perception of relationship quality is related to their mentor's perception that they are performing their job well, I cannot be sure that relationship quality is related to more objective measures of job performance (i.e., in an

academic setting more objective measures may include measures like number journal publications, classes taught, committees served on, etc.).

It may be the case that a mentor's positive feelings about their mentee color the way that they view their mentee's job performance. A positive bias in the ratings of liked individuals is known as the halo effect (Thorndike, 1920), and it has been well supported in organizational contexts (Viswesvaran, Schmidt & Ones, 2005). However, as mentioned above, the use of separate sources for mentoring (i.e., supplementary fit, complementary fit, and relationship quality) and mentee outcome (i.e., mentee learning and mentee job performance variables), may reduce some of the common method variance in the data due to halo effects.

Finally, study results may have been affected by a violation of the assumption of multivariate normality. Several of the observed variables used in this study demonstrated substantial amounts of negative skew. Although I conducted SEM analyses using robust methods of estimation, skewed observed variables may have limited my ability to detect relationships between the latent variables. Skewed variables can attenuate relationships leading to the appearance of smaller effects.

### **Future Directions**

Future research can build on the findings of this study in a number of ways. Most fundamentally, this research should be replicated. Because the final model was developed post hoc, confirmatory analyses should be conducted to determine if the findings are replicated in similar samples of mentors and mentees.

Additionally, further research should be conducted to see if these findings extend to mentors and mentees in other organizational contexts. This study used a sample of mentoring pairs employed in an academic setting. This research should be replicated in non-academic

organizations in a variety of industries, fields, and jobs roles in order to confirm that these findings generalize to a broader population of mentors and mentees. Further, researchers may choose to replicate this study with other types of mentor-mentee relationships. This study did not examine differences between mentoring pairs in formal and informal relationships, nor did it measure differences between pairs at different stages of their mentoring relationship. It may be the case that different relationships between variables exist across different subsets of mentor-mentee pairs.

Future research may also choose to address some of the other limitations of this study. For example, researchers should employ experimental research methods when studying these constructs. This study provided a groundwork for studying the relationships between mentor-mentee fit and outcomes, but it is not clear if there is a causal link between supplementary or complementary fit and mentoring outcomes. By randomly assigning participants to be matched with mentoring partners on the basis of either supplementary fit, complementary fit, or neither, researchers could determine if there was a causal relationship between fit and various outcomes.

Researchers may also choose to study the relationship between mentoring variables and additional outcomes. This study took an important step forward by examining the relationship between fit and subjective outcomes from the mentor's perspective. However, future research in this area can provide insight regarding the relationship between fit and objective mentee outcomes. For instance, research could examine objective outcomes such as mentee job knowledge, job performance, compensation, or promotions. Beyond using objective measures, research could also examine other mentee variables such as mentee job satisfaction, organizational commitment, or career commitment. Additionally, outcomes for mentors (e.g., job

satisfaction, organizational comment) or organizations (e.g., productivity, profit) could also be examined.

Another area for potential inquiry may involve the way in which supplementary and complementary fit were conceptualized and measured. In this study, I took a broad approach to examining fit. Fit was measured with general questions about the degree to which the mentor and mentee were similar (for supplementary fit) or the mentor met the mentee's needs (for complementary fit). However, it may be the case that mentor-mentee fit on more specific characteristics is a better predictor of outcomes than is broad mentor-mentee fit. As has been suggested by others (Hale, 2000; Hay, 1995), future research could study fit on any number of characteristics, perhaps work style, work or personal values, work or personal interests, personality, etc.

This study also examined supplementary and complementary fit from a subjective perspective, in the sense that mentors and mentees were asked about the degree to which they were similar to their partner (for supplementary fit) or the mentor met the mentee's needs (for complementary fit). However, future research could also examine fit from a more objective perspective, by measuring mentor and mentee characteristics and comparing their similarity (for supplementary fit) or by measuring mentor characteristics and mentee needs and comparing their similarity (for complementary fit). It may be the case that objective supplementary and complementary fit is a better predictor of mentoring outcomes than is subjective (i.e., perceived) fit, although in other types of PE fit, research has shown subjective fit to be a better predictor of outcomes than objective fit (Kristof-Brown et al., 2005).

However, the use of objective fit measures may have advantages over subjective fit measures for the purposes of mentor-mentee matching. If objective fit does predict outcomes,

then it would provide evidence that supplementary and complementary fit should be measured prior to mentor-mentee matching, and that mentors and mentees should be paired on that basis.

One interesting finding in this study was that, generally, mentors and mentees have only modest agreement on mentoring variables and mentee outcomes. One variable with notably poor agreement was complementary fit between mentor attributes and mentee needs. Future research should investigate why this is. It may be the case that mentors and mentees have very different perspectives on what the mentor brings to the table, what the mentee needs from the mentor, or both. A better understanding of what leads to perceptions of complementarity could shed some light on how organizations can increase these perceptions, and in turn, improve mentoring outcomes.

### **Practical Implications**

If the findings of this study are replicated, they will have substantial implications for individuals engaged in mentoring relationships at work, as well as for organizations interested in developing a formal mentoring program or improving their current mentoring program.

This study was able to compare two conceptions of mentor-mentee fit, supplementary and complementary fit. Unlike as was proposed in the original model, these two types of fit do not appear to affect different outcomes. Both supplementary and complementary fit independently predicted relationship quality, which in turn predicted increased mentee job performance.

If an organization is going to systematically pair mentors and mentees, these findings imply that they should consider the extent to which mentors and mentees are similar, as well as the degree to which the mentor is able to meet the mentee's developmental needs. It may be the case that organizations choose to assess these things before mentors and mentees are paired

together. If the potential mentor and mentee are already acquainted, it may be possible to measure perceived supplementary and complementary fit from them directly, as was done in this study. If not, it may be the case that supplementary and complementary fit could be assessed using a third party (e.g., the coordinator of the mentoring program) who is acquainted with both the potential mentor and mentee. As is discussed in the future directions section, it may also be the case that mentors and mentees could be paired by objectively assessing mentor and mentee similarity or complementarity.

Alternatively, it may be the case that it is more practical to pair mentors and mentees based on other factors (e.g., availability, willingness to participate in the program), and to intermittently assess the mentoring relationship to see if supplementary and complementary fit are reasonably high. If fit drops to problematically low levels, the organization could choose to intervene. If supplementary fit were low, there may be interventions that could increase perceptions of similarity, perhaps exercises that could facilitate discussion of personal or work values, styles, and outlook. If complementary fit were low, interventions may be implemented to encourage a discussion of the mentee needs and how mentors can best help mentees address those needs. Training could also be available to help mentors develop the interpersonal skills necessary to effectively provide the career and psychosocial support that mentees need.

Similarly, organizations could also choose periodically evaluate relationship quality between mentors and mentees, as relationship quality serves as an intervening variable between mentor-mentee fit and mentee performance. If relationship quality were to drop to problematic levels, it may be possible for organizations to intercede by encouraging mentoring partners to discuss the reasons that the relationship is not working and develop plans to overcome those

obstacles. Additionally, the organization may be able to provide resources, training, or reassignment to pairs that are not able to resolve the issues in their relationship.

By taking steps to ensure that mentoring pairs have good supplementary and complementary fit, organizations will be taking steps towards ensuring that mentoring relationships are high quality. The results of this study indicated that high quality relationships are positively related to mentee job performance. By providing means for increasing the job performance of junior employees, organizations can take meaningful steps towards increasing productivity within their company, and by extension, contributing to the success of their organization.

### **Conclusions**

The current study contributes to our understanding of how mentor-mentee fit affects outcomes for mentees. Consistent with person-environment fit theory, two conceptualizations of mentor-mentee fit were examined, supplementary and complementary fit. Both conceptualizations independently predict mentoring relationship quality, which in turn, predicts mentee job performance. These findings provide evidence that organizations should consider both types of fit when pairing mentors and mentees in organizational mentoring programs.

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## APPENDIX

[Note: This survey was administered via an online survey tool that allows for questions to be skipped. Survey commands are noted in brackets. To prevent confusion, the question numbers were not visible to participants. Because the survey directs participants to a different set of questions depending on if they are a mentor or mentee, participants only completed about half of the questions.]

### **Preliminary Questions:**

1. Mentoring is a relationship in which a more experienced individual helps a less experienced individual as he or she learns to navigate the workplace. Are you currently in a mentoring relationship?
  - a. Yes
  - b. No

[If no, survey terminates.]

2. When you were invited to take this survey, were you given the name of a mentoring partner who also completed this survey in reference to you?
  - a. Yes
  - b. No

[If no, skip to question 5.]

3. What is that mentoring partner's name? Please note that all answers provided in this survey are confidential. We will not share any of your answers with your mentoring partner.  
\_\_\_\_\_

4. What is the pair number that was provided to you in your recruitment email?  
\_\_\_\_\_

[Skip to question 7 after providing any response.]

5. Please provide the first name of a person who recently mentored you or was mentored by you. Please note that all answers provided in this survey are confidential. We will not share any of your answers with your mentoring partner.  
\_\_\_\_\_

6. Please provide that person's email address. Although this survey is confidential, we will contact them to see if they are also interested in participating in the survey.  
\_\_\_\_\_

7. In this mentoring relationship, are you the mentor or mentee?
  - a. Mentor (the more experienced person in the relationship)
  - b. Mentee (the less experienced person in the relationship)

**Demographics questions:**

[Questions 1-4 visible to mentees only]

1. How long have you been in a mentoring relationship with your mentor?
  - a. Less than a month
  - b. 1-6 months
  - c. 6-12 months
  - d. 1-5 years
  - e. 5+ years
2. Which best describes how often do you interact with your mentor?
  - a. At least once a day
  - b. At least once a week
  - c. At least once a month
  - d. At least once every several months
  - e. Less often than once every several months
3. Is your mentoring partner also your direct supervisor?
  - a. Yes
  - b. No
4. A formal mentoring relationship is one in which the organization initiates or formally recognizes the relationship. An informal relationship is one in which the individuals involved initiated the relationship, and the organization doesn't not formally recognize the relationship.

What kind of relationship are you and your mentor in?

- a. Formal mentoring relationship
- b. Informal mentoring relationship

[Questions 5-8 visible to mentors only]

5. How long have you been in a mentoring relationship with your mentee?
  - a. Less than a month
  - b. 1-6 months
  - c. 6-12 months
  - d. 1-5 years
  - e. 5+ years

6. Which best describes how often do you interact with your mentee?
- f. At least once a day
  - g. At least once a week
  - h. At least once a month
  - i. At least once every several months
  - j. Less often than once every several months
7. Is your mentee also directly supervised by you?
- c. Yes
  - d. No
8. A formal mentoring relationship is one in which the organization initiates or formally recognizes the relationship. An informal relationship is one in which the individuals involved initiated the relationship, and the organization doesn't not formally recognize the relationship.

What kind of relationship are you and your mentee in?

- c. Formal mentoring relationship
- d. Informal mentoring relationship

[Questions 8-12 visible to all]

9. What gender do you identify with?
- a. Male
  - b. Female
  - c. Other
10. What racial or ethnic groups do you identify with?
- a. Asian/Pacific Islander
  - b. Black/African-American (non-Hispanic)
  - c. Hispanic or Latino
  - d. Native American
  - e. White/Caucasian (non-Hispanic)
  - f. Multiracial or Multiethnic
  - g. Other
11. How old are you? \_\_\_\_\_
12. What category best describes the field you are employed in?
- a. Natural Science (for example, biology, chemistry, or physics)
  - b. Social Science (for example, psychology, sociology, economics, or political Science)
  - c. Technology or Engineering (for example, computer programming or civil engineering)
  - d. Arts and Humanities (for example, history, philosophy, literature, or performing arts)

## Measures:

Please answer the following questions according to how much you agree with the statement. A response of 1 indicates that you strongly disagree, a response of 3 indicates that you neither agree nor disagree, and a response of 5 indicates that you strongly agree with the statement.

[Supplementary fit questions visible to mentees]

1. My mentor and I see things in much the same way.
2. My mentor and I were similar in terms of our outlook, perspective, and values.
3. My mentor and I are alike in a number of areas.
4. My mentor and I thought alike in terms of coming up with a similar solution for a problem.
5. My mentor and I analyzed problems in a similar way.

[Supplementary fit questions visible to mentors]

1. My mentee and I see things in much the same way.
2. My mentee and I were similar in terms of our outlook, perspective, and values.
3. My mentee and I are alike in a number of areas.
4. My mentee and I thought alike in terms of coming up with a similar solution for a problem.
5. My mentee and I analyzed problems in a similar way.

[Complementary fit questions visible to mentees]

1. My mentor's abilities fit my needs as a mentee.
2. My mentor has the right skills and abilities to mentor me effectively.
3. There is a good match between what I need from a mentor and my mentor's skills.
4. My mentor's personality is a good match for me.
5. My mentor is the right type of person to mentor me.

[Complementary fit questions visible to mentors]

1. My abilities fit my mentee's needs.
2. I have the right skills and abilities to mentor my mentee effectively.
3. There is a good match between what my mentee needs from a mentor and my skills.
4. My personality is a good match for my mentee.
5. I am the right type of person to mentor my mentee.

[Relationship quality questions visible to mentees]

1. My mentor and I enjoy a high quality relationship.
2. Both my mentor and I benefit from the mentoring relationship.
3. I effectively utilize my mentor.
4. The mentoring relationship between my mentor and me is very effective.
5. I am very satisfied with the mentoring relationship my mentor and I have developed.

[Relationship quality questions visible to mentors]

1. My mentee and I enjoy a high quality relationship.
2. Both my mentee and I benefit from the mentoring relationship.
3. My mentee effectively utilize me as a mentor.
4. The mentoring relationship between my mentee and me is very effective.
5. I am very satisfied with the mentoring relationship my mentee and I have developed.

[Mentee learning questions visible to mentees]

1. I increased my understanding of issues and problems outside my job.
2. I have a better sense of organizational politics.
3. I have learned how to communicate effectively with others.
4. I have developed new ideas about how to perform his or her job.
5. I have gained new skills.

[Mentee learning questions visible to mentors]

6. My mentee has increased his or her understanding of issues and problems outside their job.
7. My mentee has a better sense of organizational politics.
8. My mentee has learned how to communicate effectively with others.
9. My mentee has developed new ideas about how to perform his or her job.
10. My mentee has gained new skills.

[Mentee job performance questions visible to mentees]

1. I always complete the duties specified in my job description.
2. I meet all the formal performance requirements of my job.
3. I fulfill all responsibilities required by my job.
4. I never neglect aspects of the job that I am obligated to perform.
5. I often fail to perform essential duties. {R}<sup>2</sup>

[Mentee job performance questions visible to mentors]

6. My mentee always completes the duties specified in his or her job description.
7. My mentee meets all the formal performance requirements of his or her job.
8. My mentee fulfills all responsibilities required by his or her job.
9. My mentee never neglects aspects of the job that he or she is obligated to perform.
10. My mentee often fails to perform essential duties. {R}

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<sup>2</sup> {R} indicates that this item is reverse coded.