An Interdisciplinary Meta-Analysis of the Potential Antecedents, Correlates, and Consequences of Protégé Perceptions of Mentoring

Lillian Turner de Tormes Eby
University of Georgia

Tammy D. Allen
University of South Florida

Brian J. Hoffman
University of Georgia

Lisa E. Baranik
East Carolina University

Julia B. Sauer and Sean Baldwin
University of Georgia

M. Ashley Morrison
University of Maryland

Katie M. Kinkade, Charleen P. Maher, and Sara Curtis
University of Georgia

Sarah C. Evans
Children's Healthcare of Atlanta, Atlanta, Georgia

This meta-analysis summarized youth, academic, and workplace research on the potential antecedents (demographics, human capital, and relationship attributes), correlates (interaction frequency, relationship length, performance, motivation, and social capital), and consequences (attitudinal, behavioral, career-related, and health-related outcomes) of protégé perceptions of instrumental support, psychosocial support, and relationship quality to the mentor or to the relationship. A total of 173 meta-analytic correlations were computed based on data from 173 samples and a combined N of 40,737. Among antecedents, positive protégé perceptions were most strongly associated with greater similarity in attitudes, values, beliefs, and personality with their mentors (ρ ranged from .38 to .59). Among correlates, protégé perceptions of greater instrumental support ($\rho = .35$) and relationship quality ($\rho = .54$) were most strongly associated with social capital while protégé perceptions of greater psychosocial support were most strongly associated with interaction frequency ($\rho = .25$). Among consequences, protégé perceptions of greater instrumental support ($\rho = .36$) and relationship quality ($\rho = .38$) were most strongly associated with situational satisfaction while protégé perceptions of psychosocial support were most highly associated with sense of affiliation ($\rho = .41$). Comparisons between academic and workplace mentoring generally revealed differences in magnitude, rather than direction, of the obtained effects. The results should be interpreted in light of the methodological limitations (primarily cross-sectional designs and single-source data) and, in some instances, a small number of primary studies.

Keywords: mentoring, meta-analysis, relationships, life-span development

Mentoring is a developmentally oriented relationship between a younger or less experienced individual (the protégé) and an older or more experienced individual (the mentor; Jacobi, 1991; Kram,

1985; Rhodes, 2005). It is a unique, idiosyncratic relationship marked by an emotional bond between mentor and protégé, where the mentor offers guidance and new learning opportunities to the protégé (DuBois & Karcher, 2005; Eby, Rhodes, & Allen, 2007). The specific type of learning that occurs in a mentoring relationship varies. For youth it may involve learning strategies to avoid peer pressure or how to develop a better relationship with one's parents, in academic settings it may include hands-on learning in a scientific laboratory, and in the workplace it may involve learning how to network to advance one's career.

Scholarly interest in mentoring has several historical lineages. Keller (2007) noted that formal youth mentoring programs in the United States were rooted within major social movements of the late 19th and early 20th centuries that drew on the charitable impulses of volunteers who wanted to assist disadvantaged youth. Sociological research further underscored the important role that mentoring plays as a protective factor for disadvantaged youth (Lefkowitz, 1987; T. Williams & Kornblum, 1985) and that men-

toring in college settings positively impacts personal, vocational, and educational outcomes (Astin, 1977; Chickering, 1969). Adolescent and adult mentoring is often traced to Levinson's (Levinson, Darrow, Klein, Levinson, & McKee, 1978) seminal study of human development. In chronicling the lives of 40 adult men, Levinson and colleagues identified mentoring as an important developmental milestone that "facilitates the realization of the Dream" (Levinson et al., 1978, p. 98), which refers to the vision that one has about the sort of life he or she wants as an adult. Kram's (1985) research on the influence of mentoring on employees' personal and professional development extended scholarly study of mentoring to organizational settings.

Given the broad reach of mentoring scholarship, researchers from a wide range of disciplines, such as education, social work, community psychology, developmental psychology, public health, sociology, and industrial/organizational psychology, have examined the potential antecedents, correlates, and consequences of mentoring. The present research summarizes this vast literature on mentoring across the life span by conducting an interdisciplinary meta-analysis on the potential antecedents, correlates, and consequences of protégés' perceptions of the mentoring relationship.

Mentoring Across the Life Span

Three distinct areas of mentoring scholarship exist, each of which corresponds to a different developmental stage: youth, academic, and workplace. These areas of scholarship have developed relatively independently, yet share the common belief that through sustained interactions marked by trust, empathy, and authentic concern, mentoring can have positive, significant, and enduring effects on protégés (T. D. Allen & Eby, 2007; Ellis, 1992; Rhodes & DuBois, 2008).

Youth Mentoring

Research on youth mentoring assumes that a supportive relationship between a nonparental adult and a young person promotes positive youth development and can be a protective factor against a wide range of negative youth outcomes (e.g., school failure, drug use, psychological distress; DuBois, Portillo, Rhodes, Silverthorn, & Valentine, 2011). The primary pathways by which mentoring is presumed to operate is through improvements in protégé social and emotional development, enhanced cognitive development, and positive identity development (Rhodes, 2005). Youth mentors can affect these changes by engaging in behaviors that demonstrate trust, empathy, and tangible support to youth (Nakkula & Harris, 2005; Rhodes, 2005). Youth mentoring relationships may occur naturally; for example, a neighbor or a teacher may provide support and guidance to a young person without being matched through a formal mentoring program (Zimmerman, Bingenheimer, & Behrendt, 2005). Mentoring relationships may also be formally arranged, as is the case in a mentor–protégé relationship through Big Brothers Big Sisters of America. Youth mentoring, particularly formal programs, often target youth who are considered at risk for poor academic, health, and other outcomes (DuBois & Karcher, 2005). Perhaps due to this emphasis, much of the research on youth mentoring involves comparing outcomes across youth with and without experience in a mentoring relationship (see DuBois, Holloway, Valentine, & Cooper, 2002; DuBois et al.,

2011). Notwithstanding the pervasive argument that mentoring relationships can be transformative for youth, the empirical record suggests much more modest effects (DuBois et al., 2002, 2011; Herrera, Grossman, Kauh, Feldman, & McMaken, 2007).

Academic Mentoring

Mentoring that occurs in academic programs and university settings is based on the apprenticeship model of education, where a faculty member provides guidance and support on both academic and nonacademic issues outside the classroom (Jacobi, 1991). Like youth mentoring, it is assumed that students benefit from academic mentoring relationships with teachers and faculty members (Tenenbaum, Crosby, & Gliner, 2001). Academic mentoring can lead to improvements in academic achievement, scholarly productivity, professional development, identity development, academic persistence, and psychological health (W. B. Johnson, 2007), among other things. A mentoring relationship may confer these benefits through the provision of both career-related support (e.g., opportunities to engage in research, direct training) and emotional support (e.g., unconditional acceptance, encouragement) to undergraduates (Baker, Hocevar, & Johnson, 2003) and graduate students (R. A. Clark, Harden, & Johnson, 2000). Research on academic mentoring often presumes that the relationship is informal (W. B. Johnson, 2007), although many mentorships develop out of formal advising relationships (Schlosser & Gelson, 2001).

Workplace Mentoring

Mentoring relationships also exist in organizational settings (Ragins & Kram, 2007a). This type of mentoring relationship is oriented toward helping the protégé develop personally and professionally in his or her career (Kram, 1985). Workplace mentors can provide assistance that helps the protégé become oriented to the organization and socialized in the profession, as well as prepare him or her for career advancement. Mentors can also provide support behaviors that build trust, intimacy, and interpersonal closeness, such as offering acceptance and confirmation, counseling, and serving as a role model (Kram, 1985; Ragins & McFarlin, 1990). The provision of these support behaviors is associated with more positive work and career attitudes, greater career success, and lower intentions to leave the organization (T. D. Allen, Eby, Poteet, Lentz, & Lima, 2004), among other things. In organizational settings, mentoring has been studied primarily among professional employees and can develop naturally (informal mentoring) or occur as part of an organizationally sanctioned formal mentoring program (Ragins & Cotton, 1999). The latter type of mentoring often targets employees who are identified as having high potential for career advancement (Eddy, Tannenbaum, Alliger, D'Abate, & Givens, 2001).

Theoretical Overview

Building on the foundational work of Erickson (1950) and others, Levinson (1986) outlined the normative trajectory of individual development across the life course. Central to this theory is the tenet that relationships outside one's family, including mentors, play a central role in human development. Close relationships with others give substance to one's life and are the means by which

we live out, or hide from, various aspects of our life. Of course, this idea is not new; the universal and fundamental need to form and maintain positive relationships with others occupies a prominent role in Maslow's (1943) influential theory of human needs. This need to belong is fulfilled through acceptance from and affiliation with other people (Baumeister & Leary, 1995; Gardner, Pickett, & Brewer, 2000).

The recognized importance of relationships begs the question of how mentoring may uniquely fulfill the need to belong. Several characteristics of mentoring set it apart from other types of close relationships, such as friendships, student–teacher relationships, therapeutic relationships, and supervisory relationships. This includes the mentor serving as a role model to the protégé, differential experience between mentor and protégé, the provision of guidance by the mentor, an emotional bond between mentor and protégé, and tailoring the support provided to the unique developmental needs of the protégé (DuBois & Karcher, 2005; Eby et al., 2007; W. B. Johnson, Rose, & Schlosser, 2007). Importantly, a mentoring relationship provides a safe environment for self-exploration, reflection, and self-expression (W. B. Johnson et al., 2007). These validating experiences allow the protégé to explore alternative ways of thinking and acting, while eventually learning to operate more effectively without the support and guidance of the mentor (Kram, 1985). This may also build resiliency, which helps individuals persevere in the face of setbacks (Masten & Coatsworth, 1998). While other relationships may involve some of these components, mentoring is unique by encompassing them all.

By virtue of these unique aspects, mentoring may help fulfill a protégé's need to belong, from youth to adulthood. In terms of childhood and early adolescence, the youth mentoring literature suggests that one reason for risk taking and behavior problems is that youth feel increasingly disconnected and isolated (Karcher, Davis, & Powell, 2002). Karcher and colleagues (2002) attributed this to fewer community resources for youth and the replacement of caregiving roles from the family to an already overloaded public school system. Mentoring may be able to help fill this void (T. D. Allen & Eby, 2007). For individuals who attend college, another developmental milestone awaits them. As they leave the comfort and security of their family, students are expected to take on greater responsibility for scheduling their time, handling finances, and caring for themselves. This represents the early adult transition period (Levinson, 1986). Mentoring is discussed as a strategy to increase student integration into the university community and profession, combat feelings of loneliness that often accompany the transition to college and graduate school, and facilitate engagement in learning (Austin, 2002; Jacobi, 1991; Ostrove & Long, 2007). Another transitional period is the first few years as a working professional. During this time individuals try to establish a niche for themselves (Levinson, 1986). However, they often harbor concerns about the ability to perform effectively in their chosen profession and are still in the process of forming a sense of professional identity (Kram, 1985). Mentoring is uniquely positioned to help with this transition because it is believed to foster the development of personal and professional competence (Ragins & Kram, 2007b).

The Content of Mentoring Relationships

In an effort to understand how and why mentoring has a positive influence on protégés, researchers have studied various aspects of mentoring relationships. Across subfields of mentoring scholarship, this includes protégé perceptions of instrumental support behaviors, protégé perceptions of psychosocial support behaviors, and protégé perceptions of relationship quality. Perceived *instrumental support* refers to mentor behaviors that are geared toward facilitating protégé goal attainment (Flaxman, Ascher, & Harrington, 1988; W. B. Johnson et al., 2007; Kram, 1985; Nakkula & Harris, 2005; Spencer, 2007; Tenenbaum et al., 2001). This includes the specific mentor behaviors of providing task-related assistance, sponsorship, exposure and visibility, and coaching. Perceived *psychosocial support* refers to mentor behaviors that enhance a protégé's perception of competence and facilitate both personal and emotional development (Flaxman et al., 1988; W. B. Johnson et al., 2007; Kram, 1985; Nakkula & Harris, 2005; Spencer, 2007; Tenenbaum et al., 2001). Specific mentor psychosocial behaviors include offering counseling, unconditional acceptance, encouragement, and role modeling. The youth mentoring literature has discussed the relative merits of prescriptive or goal-oriented relationships (similar to instrumental support) versus developmental or youth-focused relationships (similar to psychosocial support; Morrow & Styles, 1995; Styles & Morrow, 1992). Although some structure and guidance are important, relationships that are believed to have the greatest positive impact on youth allow flexibility in youth goals, are collaborative, and create a comfort zone for youth to discuss relevant issues (Rhodes, 2007).

We also examine perceptions of relationship quality in relation to potential antecedents, correlates, and consequences of mentoring. Consistent with the broader literature on state-based affect (Parkinson, Totterdell, Briner, & Reynolds, 1996), perceived *relationship quality* refers to the protégé's evaluative feelings toward the mentor or to the relationship as a whole. It includes protégé satisfaction with the mentoring relationship, satisfaction with the mentor, overall perceptions of relationship quality, and liking (T. D. Allen & Eby, 2003; Kram, 1985; Nakkula & Harris, 2005; Rhodes, 2005). Our inclusion of perceived relationship quality is noteworthy given the suggestion that relational processes such as trust, empathy, respect, and emotional connectedness can be growth-fostering experiences for both youth (Rhodes, 2002, 2005; Thomson & Zand, 2010; Zand et al., 2009) and adults (Ragins, 2010). In fact, Rhodes's (2005) influential model of youth mentoring argues that without a strong interpersonal connection, mentoring is unlikely to yield positive protégé outcomes. The importance of relationship closeness for youth was also discussed by Nakkula and Harris (2005), who argued that relationship quality is essential to examine because this is the mechanism by which mentoring exerts its effect on protégés. Spencer (2006) further noted that a strong emotional connection is the distinguishing feature of mentoring relationships that have better outcomes for youth.

The concept of relational mentoring at work (J. K. Fletcher & Ragins, 2007; Ragins, 2010) also stresses the importance of carefully considering relationship quality in mentoring research. Ragins (2010) argued that the existing literature has generally failed to examine the high-quality end of mentoring relationships, and this is where the mentoring is most generative, fulfilling, and developmental for both mentor and protégé. Consistent with the youth mentoring literature, Ragins argued that high-quality relationships are further characterized by authenticity and empowerment (also see Spencer, 2006), which lead to increased self-worth,

motivation, new skills, and the desire for greater connection. This makes high-quality mentoring relationships both reinforcing and sustainable (Ragins, 2010).

Existing research substantiates both the conceptual and empirical distinctions between perceived instrumental and psychosocial support (Kram, 1985; Ragins & McFarlin, 1990; Spencer, 2007). Perceived relationship quality is also conceptually distinct from perceptions of mentoring support because the former refers to general evaluative feelings about the relationship or about the mentor, not perceptions of the type and amount of support provided. Moreover, Ragins (2010) argued that the emotional connection and relational depth that characterize high-quality relationships clearly differentiate relationship quality from instrumental support.

Although distinct, these three aspects of mentoring are not always discussed and/or operationalized precisely or uniformly in the literature. For example, research that purports to examine relationship quality is sometimes based on measures of perceived mentoring support (Cavell, Meehan, Heffer, & Holladay, 2002; Gattis, 2008; Liang, Tracy, Taylor, & Williams, 2002; Villarreal, 2007). Likewise, researchers have operationalized satisfaction with the mentoring relationship or mentor through the use of measures of mentor support (Blakely, Menon, & Jones, 1995; Cavell et al., 2002; Duster, 2010; Kemp, 2007; Liang et al., 2002; Villarreal, 2007). This creates conceptual confusion and may obfuscate potentially important differences between perceived instrumental support, perceived psychosocial support, and relationship quality. In an effort to provide some clarity to the existing literature, we distinguish between protégé perceptions of instrumental mentor support behaviors, psychosocial mentor support behaviors (i.e., what the mentor *does* in the relationship), and protégé perceptions of relationship quality (i.e., how the protégé *feels about or evaluates* the mentor or the relationship).

The Present Study

Interest in mentoring has yielded an explosion of scholarship over the past decade. There have been four broad edited handbooks (T. D. Allen & Eby, 2007; DuBois & Karcher, 2005; S. Fletcher & Mullen, 2012; Ragins & Kram, 2007a), numerous meta-analytic reviews (T. D. Allen et al., 2004; Blinn-Pike, 2007; DuBois et al., 2002, 2011; Eby, Allen, Evans, Ng, & DuBois, 2008; Jolliffe & Farrington, 2007; Kammeyer-Mueller & Judge, 2008; Tolan, Henry, Schoeny, & Bass, 2008; Underhill, 2006; Wheeler, Keller, & DuBois, 2010), and narrative reviews (e.g., Sambunjak, Straus, & Marusic, 2006; Wanberg, Welsh, & Hezlett, 2003) that transverse the youth, academic, and workplace mentoring literature.

Table 1 provides a summary of previous meta-analyses, many of which focused exclusively on comparing those who have been mentored to those who have not. Such studies are important because they document that those who have been a protégé in a mentoring relationship have somewhat more positive outcomes than individuals without such experience. However, they do not allow for an examination of differences in the amount of perceived support and relationship quality within mentoring relationships. In other words, there is substantial variability in the nature and quality of interactions among mentors and protégés (Darling, 2005; Eby et al., 2007), which is likely to be influenced by what individuals bring to the relationship (e.g., demographic character-

istics, motivation) and relate to the degree that mentoring has an effect on protégés. Moreover, there is increasing recognition in the youth (Rhodes, 2005; Thomson & Zand, 2010) and workplace (Ragins, 2010) mentoring literature that it is essential to examine the relational processes that drive the formation of a high-quality emotional bond between mentor and protégé because high-quality relationships are both fundamentally different from average relationships and potentially more impactful.

The current meta-analysis makes several key contributions. We extend the mentoring literature by examining protégé perceptions of two specific types of mentoring support (instrumental and psychosocial) and protégé perceptions of relationship quality in relation to each other, as well as to potential antecedents, correlates, and consequences. In so doing, we highlight the potentially important yet generally understudied construct of perceived relationship quality, using emerging theory and research on relational mentoring (Ragins, 2010) as a guide.

We also provide the first meta-analytic estimate of associations between protégé perceptions of mentoring and mentor race, mentor human capital, mentor–protégé similarity (deep-level, surface-level, and experiential), interaction frequency, relationship length, motivation, social capital, sense of affiliation, learning/socialization, and protégé strain in relation to protégé perceptions of mentoring. This builds on the three existing workplace meta-analyses that focused on protégé perceptions of the mentoring relationship but failed to examine these theoretically relevant potential antecedents, correlates, and consequences (see Table 1; T. D. Allen et al., 2004; Kammeyer-Mueller & Judge, 2008; O'Brien, Biga, Kessler, & Allen, 2010). We also provide the most up-to-date review of the literature by including additional studies published between 2008 and 2010.

Another contribution is that none of the existing meta-analyses examined protégé perceptions across all three life-span areas of mentoring scholarship or considered such a broad range of potential antecedents, correlates, and consequences. Interdisciplinary research such as ours provides a high-level summary and integration of typically isolated bodies of scholarship, which can lead to unique insights and approaches that can be leveraged to understand important phenomena (National Academy of Sciences, 2005; Rhoten & Parker, 2004). We also contribute to the literature through the examination of type of mentoring (youth, academic, and workplace) as a moderator of the association between mentoring and potential antecedents, correlates, and consequences. Given the unique developmental issues that confront protégés at various life stages, substantive differences across various types of mentoring may be uncovered. Such findings may enable scholars to hone in on areas in which cross-disciplinary learning may be most fertile. Gaps in the existing literature may also be uncovered, which can catalyze new streams of research in specific areas of scholarship.

In terms of theory development, if we find a consistent relationship between mentoring and a particular set of antecedents, correlates, and consequences, this will both fine-tune theory development and lead to promising new theoretical extensions. In contrast, those relationships that are found to be low or inconsistent across studies may encourage mentoring theory to branch into other directions. By obtaining a more precise estimate of the associations among perceived instrumental support, perceived psychosocial support, and relationship quality, we can also advance theory by determining if these three aspects of mentoring are actually distinct

Table 1
Summary of Previous Meta-Analyses

Article	Population	Time frame of review	Aspect of mentoring studied	Variables studied in relation to mentoring	Key findings/conclusions
			Mentor/no mentor comparisons only		
Blinn-Pike (2007)	Youth	1970–2005	Program evaluation; restricted to evaluations that included a matched comparison group; random assignment, and at least 50 protégés in mentored group	Outcomes: school (e.g., grades), self (e.g., self-esteem), interpersonal relationships (e.g., family bonding, peer support), alcohol and drugs (e.g., substance use), delinquency (e.g., violence)	Mentoring has a low to moderate impact
DuBois, Holloway, Valentine, & Cooper (2002)	Youth	1970–1998	Program evaluation; preprogram versus postprogram or mentored versus not mentored	Six categories: (a) report information (e.g., published/unpublished), (b) evaluation methodology (e.g., type of research design), (c) program features (e.g., mentoring alone vs. mentoring as part of multicomponent intervention, compensation of mentors), (d) characteristics of participating youth (e.g., gender, race/ethnicity), (e) mentor–mentee relationships (actual frequency of contact, average length), and (f) assessment of outcomes (type of outcome, data source, timing of assessment)	Program effects enhanced when best practices (e.g., ongoing training for mentors, expectations for frequency of contact) are used and strong relationships are formed; overall effects modest in magnitude
Dubois, Portillo, Rhodes, Silverthorn, & Valentine (2011)	Youth	1999–2010	Program evaluation; mentored versus not mentored; preprogram versus postprogram	Outcomes: attitudinal/motivational, social/interpersonal, psychological/emotional, conduct problems, academic/school, physical health	Findings support positive effects associated with mentoring across behavioral, social, emotional, and academic domains; moderate effect sizes observed
Eby, Allen, Evans, Ng, & DuBois (2008)	Youth, academic, employed adults	1985–2006	Mentored versus not mentored	Outcomes: behavioral (e.g., performance), attitudinal (e.g., school attitudes), health-related (e.g., substance use), relational (interpersonal relations), motivational (e.g., involvement), career (e.g., career recognition)	Small to moderate effects overall with the largest between mentoring and attitudes and smallest between mentoring and psychological stress & strain; subgroup analyses (i.e., youth, academic, workplace) revealed differences in the strength of various relationships (e.g., positive effect on school attitudes stronger for academic than youth mentoring)
Jolliffe & Farrington (2007)	Youth	Not explicitly reported but studies referenced ranged from 1979 to 2005	Mentored versus not mentored	Outcome: reoffending	Mentoring programs in which mentoring was combined with other interventions and in which mentors and protégés met at least weekly and spent a longer time together per meeting had a greater impact on reoffending as long as the mentoring continued

(*table continues*)

Table 1 (*continued*)

Article	Population	Time frame of review	Aspect of mentoring studied	Variables studied in relation to mentoring	Key findings/conclusions
Tolan, Henry, Schoeny, & Bass (2008)	Youth, but with several student–faculty studies included	1970–2005	Program evaluation; mentored versus not mentored; preprogram versus postprogram	Outcomes: delinquency, aggression, drug use, academic functioning	Modest effects overall, but the largest effects were for delinquency and aggression; findings suggest mentoring may be most valuable for those at risk
Underhill (2006)	Employed adults	1988–2004	Mentored versus not mentored	Outcomes: income, tenure, number of promotions, job satisfaction, self-esteem, intent to stay, promotion/ career advancement, organizational commitment, alternative employment opportunities, work stress, work–family conflict	Positive effect on career outcomes and satisfaction; informal mentoring had larger effects than did formal mentoring
Wheeler, Keller, & DuBois (2010)	Youth school-based programs	2007–2009	Mentored versus not mentored	Outcomes: truancy, presence of a supportive nonfamilial adult relationship, scholastic efficacy, school-related misconduct, peer support, absenteeism, self-esteem/self-concept, future orientation, connectedness to school, general misconduct, parent relationships, academic performance, teacher–student relationship quality, substance use	School-based mentoring modestly related to increased support from nonfamilial adults, peer support, perceptions of scholastic efficacy, school-related misconduct, absenteeism, and truancy; no effects for academic achievement or other outcomes

Mixed studies: mentor/no mentor comparisons and perceptions of mentoring

Article	Population	Time frame of review	Aspect of mentoring studied	Variables studied in relation to mentoring	Key findings/conclusions
T. D. Allen, Eby, Poteet, Lentz, & Lima (2004)	Employed adults	Not explicitly reported but studies referenced ranged from 1985 to 2004	Mentored versus not mentored; protégé perceived instrumental and psychosocial mentoring	Outcomes: objective and subjective career success, satisfaction, relationship quality	Small but positive relationships between mentoring and outcomes
Kammeyer-Mueller & Judge (2008)	Employed adults, but it appears student–faculty also included	1987–2007	Mentored versus not mentored; protégé perceived instrumental and psychosocial mentoring, overall mentoring quality or satisfaction with mentor	Predictors and outcomes: demographic, core self-evaluations, performance, promotions, salary, job satisfaction, career satisfaction	Mentoring has significant effect on job and career satisfaction after controlling for demographics, human capital, and core self-evaluations
O'Brien, Biga, Kessler, & Allen (2010)	Employed adults	1984–2007	Mentored versus not mentored; protégé perceptions of instrumental and psychosocial mentoring	Predictors: mentor and protégé gender	Very small in magnitude gender differences (e.g., women perceive more psychosocial mentoring than do men; men report serving as a mentor more often than women)

from one another and if they relate to antecedents, correlates, and consequences in different ways. Finally, a large-scale meta-analysis of the mentoring literature will permit comparisons to other types of relationships such as friendships, patient–therapist relationships, and supervisor–subordinate relationships. This will facilitate theoretical integration with other areas of scholarship on relationships. Table 2 lists all study variables, along with their respective operationalization.

Boundary Conditions

This research focuses on protégé perceptions of instrumental support, psychosocial support, and relationship quality. We did not include studies that focused only on the mentor's perception of support provided or perceived relationship quality. This is because research has found that mentor and protégé reports are not highly correlated; they appear to tap distinct phenomena (Ensher & Murphy, 1997; Fagenson-Eland, Baugh, & Lankau, 2005; Waters, 2004). Moreover, most research has examined the protégé's perspective on mentoring, so this provides the largest literature base from which to draw. We also did not include indicators of relationship quality such as relationship length or meeting frequency (Nakkula & Harris, 2005). We restricted our focus to subjective perceptions of the relationship because this is what influences subsequent behavior and ultimately affects the trajectory of a relationship (Hinde, 1981). A final boundary condition is that we were unable to disentangle specific aspects of perceived relationship quality, such as trust, respect, liking, and satisfaction, due to limited research on the topic.

Potential Antecedents of Mentoring

A wide range of variables are expected to predict protégé perceptions of mentoring support and relationship quality. Broadly speaking, these potential antecedents include demographics, human capital, and relationship attributes.

Demographics

Previous research has examined various demographic characteristics of both the mentor and the protégé as predictors of perceived instrumental support, psychosocial support, and protégé perceptions of relationship quality. Our meta-analysis examines protégé gender, mentor gender, protégé race, and mentor race.

Protégé and mentor gender is the most extensively studied demographic variable in the mentoring literature. The general argument is that female protégés may report receiving less instrumental support, yet greater psychosocial support, than male protégés (Bogat & Liang, 2005; McKeen & Bujaki, 2007). Likewise, female mentors may provide less instrumental support and more psychosocial support than male mentors (Burke, 1984). This is presumed to reflect fundamental differences in help-seeking behavior among male and female protégés and differences in relating among men and women (Bogat & Liang, 2005; Liang & Grossman, 2007). It may also reflect differences in gender-prescribed helping behaviors among mentors (Bogat & Liang, 2005) or differences in the power and resources that male and female mentors have to offer protégés (Ragins, 1997b). Existing research is mixed regarding whether the gender of the protégé and the gender of the

mentor relate to these three aspects of mentoring (e.g., H. M. Johnson, Xu, & Allen, 2007; Liang & Grossman, 2007; O'Brien et al., 2010; Ragins, 1999, 2007).

Protégé and mentor race has also been examined in relation to perceptions of instrumental support, psychosocial support, and relationship quality. Protégé race may be important to consider because mentors in community (Rhodes, 2002), educational (Pope-Davis, Stone, & Neilson, 1997), and organizational (Ragins, 1997a) settings tend to be racial majority group members. This can create complex interracial dynamics for minority protégés (Ogbu, 1990; B. Sanchez & Colon, 2005) and make it difficult for them to build close and trusting relationships with majority group mentors (Thomas, 1989). Although the empirical evidence is mixed, minority protégés may receive less instrumental support because mentors are less willing to invest in their personal and professional developmental (Blake-Beard, Murrell, & Thomas, 2007).

Mentor race may also influence perceptions of mentoring. Due to their lesser social status, power, and access to resources, mentors who are racial minorities might be perceived as less able to provide instrumental support to protégés than those who are majority group members (Ragins, 1997b). In terms of psychosocial support, it may be that minority mentors are perceived as providing greater psychosocial support due to cultural values that place a strong emphasis on relationships and social connectedness (Canary & Dindia, 1998; L. A. Gilbert, 1985; B. Sanchez & Colon, 2005). On the other hand, to maintain a sense of legitimacy and reduce their own emotional vulnerability, perhaps minority mentors are viewed as less emotionally open with protégés. If so, protégés may perceive less psychosocial support and lower relationship quality.

Human Capital

Human capital theory (Becker, 1975) proposes that individuals vary with respect to the investments they make in developing personal skills and abilities. These investments in time, energy, and money typically manifest in years of education, amount or breadth of training and experience, grade or level achieved, or hierarchical position (e.g., Ng, Eby, Sorensen, & Feldman, 2005; Ng & Feldman, 2010; Wayne, Liden, Kraimer, & Graf, 1999). The development of human capital is important because it is believed to confer advantages to individuals in terms of greater opportunities in the marketplace and economic stability (Becker, 1975). Mentor human capital may positively influence perceptions of mentoring support because mentors with greater human capital have more expertise, skills, and wisdom to offer to their protégés. When mentors have more to offer their protégés, the mentor and/or the mentoring relationship may also be viewed more favorably by the protégé. Protégé human capital variables may also predict the amount of mentoring support received, with the general expectation that protégés with greater experience, education, and potential for development will receive more mentoring support and report higher relationship quality than those with less human capital (e.g., Green & Bauer, 1995; Olian, Carroll, & Giannantonio, 1993; Rhodes, 2005).

Relationship Attributes

A final category of antecedents represents attributes of the mentoring relationship as a whole. The relationship attributes we

Table 2

Operationalization of Variables Included in the Meta-Analysis

Variable	Operationalization	Average reliability
Mentoring		
Perceived instrumental support	Mentor support behaviors that consist of providing challenging assignments, task assistance, exposure and visibility, sponsorship, protection, or coaching	.87
Perceived psychosocial support	Mentor support behaviors that consist of providing encouragement, acceptance, confirmation, counseling, role modeling, or engaging in social activities with protégé	.87
Perceived relationship quality	Satisfaction with the mentoring relationship, satisfaction with the mentor, liking, or overall perceptions of relationship quality	.87
Potential antecedents		
Demographics		
Protégé gender	Biological sex of protégé (coded male = 0, female = 1)	—
Mentor gender	Biological sex of mentor (coded male = 0, female = 1)	—
Protégé race	Racial minority or not racial minority (coded 0 = racial minority, 1 = not racial minority)	—
Mentor race	Racial minority or not racial minority (coded 0 = racial minority, 1 = not racial minority)	—
Human capital		
Mentor human capital	Years of education, highest degree obtained, previous work experience, amount or breadth of training and experience, grade or level achieved, hierarchical position, or protégé perceptions of the mentor's influence	—
Protégé human capital	Years of education, highest degree, previous work experience, educational prestige, amount of training, or number of leadership positions held	—
Relationship attributes		
Deep-level similarity	Overall similarity, similarity in attitudes, values, beliefs, or personality	.84
Surface-level similarity	Gender similarity or race similarity (coded 0 = dissimilar, 1 = similar)	—
Experiential similarity	Similarity in education, academic discipline, functional area, job tenure, rank/status, departmental affiliation, geographic location, employment setting, or organizational setting (coded 0 = dissimilar, 1 = similar)	—
Relationship formality	Assigned mentoring relationship or informal mentoring relationship (coded 0 = formal, 1 = informal)	—
Potential correlates		
Interaction frequency	Frequency of communication, number of contacts per month, amount of time spent with mentor, or hours spent with mentor	—
Relationship length	Time invested in the relationship, tenure with mentor, or relationship tenure	—
Performance	Performance rating, performance effectiveness, graduated, grade point average, high school rank, mentor report of protégé competence, prestige of first job, goal attainment, or number of students advised/supervised in career	.89
Motivation	Hours worked per week, hour studied per week, job involvement, persistence, self-set goals, or citizenship behavior	.89
Social capital	Family support, peer support, supervisor support, team social support, family valuing of education, relationship with peers, instrumental network resources, number of contacts at higher levels, access to female role models, or family planning support	.79
Potential consequences		
Attitudinal outcomes		
Situational satisfaction	Satisfaction with one's university, department, program, academic courses, professor, job in general, specific job attributes (e.g., supervisor, coworkers, pay, benefits), or career; positive attitude toward work or university environment; academic satisfaction	.84
Sense of affiliation	Affective organizational commitment, sense of community, team spirit, work integration, or person–culture fit	.83
Behavioral outcomes		
Learning/socialization	Academic socialization, access to information, organizational socialization, work role socialization, engagement in orientation activities, team learning, overall learning, personal growth, professional growth, work knowledge, or receipt of information about job; knowledge of conferences, research, graduate school, or organizational systems	.84
Turnover intent	Intent to leave one's job, organization, major, university, or career	.76
Career-related outcomes		
Compensation	Pay, salary, compensation, or salary growth	—
Perceived career success	Positive feelings about one's career, self-reported career attainment, or perceived career success	.80

Table 2 (*continued*)

Variable	Operationalization	Average reliability
Career prospects	Perceived chance of promotion, not career plateaued, career expectations, assessment of promotability, or expected future income	.84
Health-related outcomes		
Strain	Depressed mood, burnout, work–family conflict, loneliness, distress, powerlessness, psychological withdrawal, lack of well-being, psychosomatic/health complaints, general workplace stress, school stress, overall stress, or current level of drinking	.87
Self-efficacy	Task-related (career, school, etc.) or generalized self-efficacy	.83

Note. Dashes indicate reliability is not applicable (i.e., constructs are presumed to be measured without error).

examine are deep-level similarity, surface-level similarity, experiential similarity, and relationship formality.

Mentor–protégé similarity has been extensively examined as a predictor of protégé perceptions of instrumental and psychosocial support and has been operationalized in various ways. Deep-level similarity refers to similarity in attitudes, beliefs, values, and other personal characteristics (e.g., personality), which are revealed over time through interpersonal interactions (Harrison, Price, & Bell, 1998). Mentors and protégés may also be similar in terms of surface-level characteristics such as race or gender (Harrison et al., 1998). Finally, experiential similarity includes similarity in terms of experience-based factors such as educational level, educational background, functional area, departmental affiliation, job tenure, and geographic location. Narrative reviews of the mentoring literature find that deep-level similarity is consistently related to protégé reports of more instrumental and psychosocial support (Eby, 2012). In contrast, both surface-level similarity and experiential similarity tend to demonstrate weaker and more inconsistent effects with perceived mentoring support (Eby, 2012; B. Sanchez & Colon, 2005).

Relationship formality is another attribute of a mentoring relationship. Informal mentoring relationships (also referred to as natural mentoring relationships in the youth literature; Zimmerman et al., 2005) develop spontaneously based on mutual attraction, liking, and perceived interpersonal comfort (Kram, 1985; Ragins & Cotton, 1999). In contrast, formal mentoring relationships usually involve a third-party matching process and individuals may not even meet one another until after the match is made (Eddy et al., 2001; Ragins & Cotton, 1999). In terms of structural features, formal relationships tend to be of shorter duration (e.g., Ragins & Cotton, 1999) and often involve written contracts with specific goals and timelines (Miller, 2007; Murray, 1991). Research examining the effect of relationship formality on perceptions of mentoring has been primarily from the workplace literature and has found that informal mentoring tends to be associated with more instrumental and psychosocial support than formal mentoring (e.g., Chao, Walz, & Gardner, 1992; Ragins & Cotton, 1999).

Potential Correlates of Mentoring

Potential correlates of mentoring refer to variables that are thought to relate to perceived instrumental support, perceived psychosocial support, and relationship quality but cannot be firmly situated as antecedents or as outcomes. Here we examine interaction frequency, relationship length, protégé performance, protégé motivation, and protégé social capital.

Interaction frequency and relationship length are considered potential correlates because they unfold over the course of the relationship and may be influenced by the mentoring process. For a protégé to reap the benefits of mentoring and develop a strong connection with his or her mentor, frequent interpersonal interaction is needed (Csiksizentmihalyi & Rathunde, 1998; Lankau & Scandura, 2002; Liang, Spencer, Brogan, & Corral, 2008). In the absence of frequent interaction, it is difficult, if not impossible, for the mentor to provide guidance, support, and encouragement to the protégé. The length of the relationship is also likely to relate to both types of mentoring support and relationship quality. Mentoring relationships are time-bound in the sense that the greatest opportunity for learning and development occurs during the early and middle stages of the relationship (Kram, 1985). Over time, the protégé's reliance on the mentor is reduced and the relationship runs its natural course, with the result being protégé independence from the mentor (Kram, 1985; Van Dyne, 1996).

In terms of protégé performance, it can be an antecedent to the relationship (e.g., mentors offer more support to higher performing protégés; Green & Bauer, 1995) or an outcome of the relationship (e.g., protégés who are in more supportive relationships become higher performers; R. J. Sanchez, Bauer, & Paronto, 2006). Although not examined empirically, there may also be reciprocal effects between protégé performance and protégé perceptions of mentoring. Specifically, higher performing protégés report greater support and higher quality relationships with their mentor, and by virtue of being in a more supportive and higher quality mentoring relationship, protégé performance is further enhanced. Another commonly studied correlate of instrumental and psychosocial support is protégé motivation. Protégés who demonstrate greater motivation may receive more mentoring support from mentors (Noe, 1988). It is also possible that protégé motivation is enhanced by receiving more instrumental or psychosocial support or by being in a relationship that the protégé views more favorably (Blinn-Pike, 2007). Mentoring may also positively relate to protégé social capital, defined as the extent to which a protégé's social network contacts create value for him or her (Coleman, 1988). Protégés should develop greater social capital if they perceive their mentors are providing them with sponsorship, visibility, and exposure (Kram, 1985). Alternatively, protégés with greater social capital will have more social contacts, which may increase the likelihood of receiving instrumental or psychosocial support and be associated with stronger protégé perceptions of relationship quality (Seibert, Kraimer, & Liden, 2001).

Potential Consequences of Mentoring

A wide range of potential protégé consequences have been examined in relation to perceptions of instrumental support, psychosocial support, and relationship quality. These fall into several distinct categories, including attitudinal, behavioral, career-related, and health-related outcomes.

Attitudinal Outcomes

We examine the attitudinal outcomes of situational satisfaction and sense of affiliation. Protégés who perceive themselves as receiving more instrumental or psychosocial support may report higher situational satisfaction, defined as favorable evaluations of a particular context, experience, or situation. For example, due to both role modeling and the positive experience of engaging in a shared activity, protégés may develop more favorable attitudes toward academics (Blinn-Pike, 2007; Tenenbaum et al., 2001), graduate school (W. B. Johnson, Koch, Fallow, & Huwe, 2000), or their work role (Chao et al., 1992). Protégés who perceive greater instrumental or psychosocial support, or feel that the relationship is of higher quality may also develop a stronger sense of affiliation and belonging, manifested in greater psychological attachment to the context in which the relationship is embedded (e.g., their university, organization, community; T. D. Allen & Eby, 2007).

Behavioral Outcomes

Mentoring is often discussed as a means to enhance positive protégé behaviors. We examine the behavioral outcomes of protégé learning/socialization and turnover intentions. Protégés who perceive more instrumental or psychosocial support or who report higher relationship quality may garner more positive motivational, social-emotional, and cognitive resources, which in turn can facilitate learning and socialization (J. K. Fletcher & Ragins, 2007; Rhodes, 2005). Through the provision of tangible support, encouragement, and a sense of connection with a more experienced and caring individual, mentoring may also reduce behavioral intentions to quit a course of action or to exit a job, organization, or educational pursuit (Blinn-Pike, 2007; Payne & Huffman, 2005; R. J. Sanchez et al., 2006).

Career-Related Outcomes

Career-related outcomes refer to quantifiable indicators of role success as well as to career-related perceptions. We investigate the career-related outcomes of compensation, perceived career success, and career prospects. Mentoring relationships bestow both credibility and career-enhancing exposure on protégés (Kram, 1985). For example, being affiliated with a powerful and influential mentor may allow a protégé to experience gains in terms of pay and salary growth due to career-enhancing opportunities that are provided vis-à-vis instrumental support. Likewise, perceiving higher relationship quality or greater instrumental or psychosocial support may strengthen protégés' perceptions of career success or career prospects. This may occur because mentors offer developmental opportunities to protégés (i.e., what the mentor does) or because of the sense of identification that protégés may develop with a successful mentor (i.e., how the protégé feels about the mentor/relationship).

Health-Related Outcomes

Like other forms of social support, the receipt of both types of perceived mentoring support and relationship quality may have a positive effect on protégé health-related outcomes. In the current study, we included the health-related outcomes of protégé strain and protégé self-efficacy.

A wide range of strain outcomes have been examined in relation to the receipt of mentoring, including psychological (e.g., depressed mood, burnout, overall stress) and physical (e.g., psychosomatic health complaints) strain. Perceived instrumental support in the form of task-related assistance, coaching, and guidance can lessen strain by reducing role stressors and helping protégés successfully accomplish difficult, potentially stress-inducing tasks (e.g., Lankau, Carlson, & Nielson, 2006). Likewise, the compassionate listening, counseling, and empathetic response associated with psychosocial support behavior may reduce protégé strain (Kram, 1985). There is also considerable evidence that high-quality relationships are associated with better health (see Heaphy & Dutton, 2008, for a review).

Self-efficacy is also considered a health-related outcome because it taps into one's sense of personal agency, which is a component of psychological well-being (Bandura, 2004). Self-efficacy is likely to be enhanced when protégés perceive greater instrumental and psychosocial support and when they perceive the relationship as higher in quality. This is because efficacy perceptions develop from task accomplishment (e.g., mentor provides guidance and support on academic, work, or personal issues), vicarious experience (e.g., mentor role-models effective performance), positive verbal messages (e.g., mentor provides acceptance and confirmation), and emotional experiences (e.g., mentor encourages protégé to try new things, which may create anxiety but also enthusiasm; Bandura, 1986; Bearman, Blake-Beard, Hunt, & Crosby, 2007). Mentors can also directly enhance self-efficacy by challenging protégés' negative self-views (Rhodes, 2002, 2005), which in turn can enhance protégé self-confidence (W. B. Johnson, 2007).

Type of Mentoring as a Potential Moderator

The relationship between mentoring and potential antecedents, correlates, and consequences may be accentuated or attenuated by whether the type of mentoring is youth, academic, or workplace. Although different areas of mentoring scholarship share the common belief that mentoring is an important relational experience, as previously discussed, there are different developmental tasks facing individuals across the life span. As such, there may be differences in the antecedents, correlates, and consequences of mentoring based on the type of mentoring.[1] As an illustration, Eby et al.'s (2008) meta-analysis that compared individuals who had been mentored with those who had not been mentored found generally

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[1] Although it was our intention to compare youth, academic, and workplace mentoring, an insufficient number of primary studies were identified that examined the potential antecedents, correlates, and consequences of perceived instrumental support, perceived psychosocial support, and relationship quality among youth mentoring. This precluded us from including youth mentoring in the moderator analysis for type of mentoring relationship.

larger effect sizes for protégé outcomes in academic mentoring compared to youth or to workplace mentoring. The current study extends this earlier research by examining how variability in protégé perceptions of mentoring received and relationship quality relates to potential antecedents, correlates, and consequences across youth, academic, and workplace mentoring.

Method

Literature Search

A comprehensive search of articles published from January 1985 to November 2010 was conducted to identify articles examining mentoring support and relationship quality in relation to antecedents, correlates, or outcomes. The start date of 1985 coincides with the publication of Kram's (1985) work on mentoring, which laid the groundwork for the systematic study of mentoring relationships in academic and workplace settings. Although youth mentoring research cannot be easily traced to a particular study or timeline, Morrow and Styles's (1995) efforts to develop a comprehensive, descriptive profile of mentoring relationships are frequently cited as laying the groundwork for the study of variability in mentoring styles in formal youth mentoring relationships (e.g., Sipe, 2005).

Both computer-based and manual search methods were used to locate studies for the current analysis. These included the following computerized databases: PsycINFO, Business Source Premier, ERIC, Educational Abstracts, Medline, PubMed, Sociological Abstracts, and Social Sciences Abstracts, which included peer-reviewed articles, technical reports, books, edited book chapters, popular press articles, and unpublished dissertations. Search terms included *mentor* and all derivations of this word (e.g., *mentoring, mentored*), *Big Brother, Big Sister, nonparental adult,* and *buddy* in a relevant search field (i.e., title, abstract, keyword, descriptor, major topic). We manually searched quantitative reviews (e.g., T. D. Allen et al., 2004; Dorsey & Baker, 2004; DuBois et al., 2002; Underhill, 2006), narrative reviews (e.g., Jacobi, 1991; Sambunjak et al., 2006; Wanberg et al., 2003), and other major compendiums (e.g., T. D. Allen & Eby, 2007; DuBois & Karcher, 2005) to identify additional articles. We also visited the websites of several nationwide formal mentoring programs (e.g., Ronald McNair Post-Baccalaureate Program, Big Brothers/Big Sisters) as well as organizations that routinely evaluate or fund research in the area of mentoring (Public/Private Ventures) to search for articles and reports with limited circulation. Finally, we conducted a search of the electronic dissertation abstract database, ProQuest, using the same keywords as noted above, to identify other relevant research studies. The initial search process yielded 43,380 potential articles, dissertations, and reports.

Inclusion Criteria

To be considered for inclusion, a study had to examine the relationship between at least one of the three forms of mentoring (protégé perception of instrumental support, protégé perception of psychosocial support, protégé perception of relationship quality) and at least one of the potential antecedents, correlates, or consequences shown in Table 2. The study also had to be written in English and provide data using a statistic that could be converted

to a product-moment correlation coefficient (e.g., *d* statistic, *t* statistic, 2×2 contingency table, chi-square with one degree of freedom). For studies that met the inclusion criteria but did not report usable statistics (e.g., multivariate findings only), we attempted to obtain relevant data by contacting the study authors.

Studies had to involve youth, academic, or workplace mentoring (or some combination thereof) and include perceptions of mentoring from the protégé's perspective. We did not include studies that measured perceptions of mentoring only from the mentor's perspective because research finds only a moderate correlation between protégé and mentor perceptions of the same relationship (e.g., Ensher & Murphy, 1997; Fagenson-Eland et al., 2005; Waters, 2004). This is consistent with the broader social-psychological literature on close relationships, which discusses how individuals in the same relationship often have divergent perceptions of the relationship (e.g., Levinger, 1983). However, we did include studies in which other variables were collected from the mentor's perspective (e.g., mentor human capital, interaction frequency). Consistent with the view that mentoring is a reciprocal relationship involving mutuality of social exchange rather than a one-way relationship (e.g., Blinn-Pike, 2007; W. B. Johnson, 2007; Kram, 1985), we also limited our focus to traditional one-on-one nonparental mentoring relationships. Thus, we excluded studies that focused exclusively on professional caregivers or on specialists as mentors and general forms of social support provided by teachers (also see DuBois et al., 2002, 2011), as well as studies focusing exclusively on peer, group/team, or reverse mentoring (where the protégé is a more senior individual and the mentor is a more junior, less experienced individual; see Biss & DuFrene, 2006).

Studies were excluded that focused entirely on protégés who suffered from a major physical and/or psychological disability. Youth with serious disabilities are much less likely to pursue postsecondary education, and many face unemployment or underemployment (Wagner, Blackorby, Cameto, Hebbeler, & Newman, 1993). Therefore, if we included the few studies of youth mentoring for individuals with disabilities (see McDonald, Balcazar, & Keys, 2005), it would potentially skew our results. Research that focused exclusively on adults suffering from serious disabilities was also excluded because mentoring among this population typically occurs as part of a larger program aimed at vocational rehabilitation and life skills counseling (e.g., Shandra & Hogan, 2008; Stelk & Richards, 1992). Such research has a substantively different focus than mentoring in academic and workplace settings. With this said, many studies of at-risk youth and college students likely included some protégés with disabilities, and these studies were included in our review. Finally, for intervention studies, mentoring had to be the sole or primary intervention so that the effects associated with perceptions of the mentoring relationship could be isolated (e.g., interventions that included academic counseling, special coursework, financial aid, and mentoring to improve student retention were excluded).

The initial studies were narrowed to 165 that met the inclusion criteria. Eight studies included multiple samples, for a total of 173 independent samples for the meta-analysis. If authors published different studies from the same data set or a smaller subset of the same data set, only the effect size based on the larger sample size was included. Of the 173 independent samples, 14 (8%) were classified as focusing on youth mentoring, 36 (21%) on academic

mentoring, 117 (68%) on workplace mentoring, and six (3%) as other (e.g., combination of academic and workplace samples). The combined sample size was 40,737. A large number of the data points were from unpublished sources (36%), and there is no appreciable difference in the average effect size across published (mean $\rho = .16$) and unpublished (mean $\rho = .18$) sources. Nonetheless, the fail-safe N was computed for all bivariate effects and is shown below. Most studies that failed to meet the inclusion criteria were either nonempirical (e.g., book chapters, practitioner articles) or did not include a measure of mentoring support or relationship quality from the protégé's perspective.

Study Variables

Mentoring was classified using the categories of protégé perceptions of instrumental support, perceptions of psychosocial support, and perceptions of relationship quality. The majority of meta-analytic correlations (79.8%) associated with perceived instrumental support and perceived psychosocial support was based on previously published and validated measures. Most commonly used measures of instrumental and psychosocial support were from Scandura (1992; 17.8%), Noe (1988; 17.5%), and Ragins and McFarlin (1990; 13.2%). Likewise, most of the measures of relationship quality were also from published sources (86.3%). Item content for each measure of relationship quality was carefully examined by one or more of the senior authors. Only measures that assessed protégé perceptions of relationship quality were retained.

Consistent with other meta-analyses (e.g., Glasman & Albarracín, 2006; Judge, Thoresen, Bono, & Patton, 2001; Steel, 2007) and to have sufficient sample size to facilitate meaningful inferences, potential antecedent, correlate, and consequence variables that were conceptually similar were combined. In creating variable categories, great care was taken to ensure that each category was sufficiently homogeneous in content to yield a conceptually meaningful variable. A description of each variable category appears in Table 2, along with the average coefficient alpha for all measures using Likert-type scaling. Average reliability estimates ranged from .76 to .89, indicating acceptable reliability.

To examine type of mentoring as a moderator, each study was classified in terms of whether the study focused on youth mentoring, academic mentoring, or workplace mentoring. Youth mentoring was defined as a relationship between a nonparental adult and a child, adolescent, or young adult (Blinn-Pike, 2007). Academic mentoring was defined as the relationship between an undergraduate or graduate student and a teacher mentor or faculty mentor in community colleges, 4-year colleges, and universities (W. B. Johnson, 2007). This included medical school training and nursing programs. Workplace mentoring included either formal or informal mentoring relationships between working adults in an organizational setting (T. D. Allen et al., 2004).

Coding Procedure

Each study was independently coded by two of the study authors. For each study, the relationship between each of the three aspects of mentoring and the potential antecedents, correlates, and consequences was coded. To perform calculations relevant to meta-analysis, we coded scale reliabilities and sample size. Information was also coded for use in the moderator analyses (academic, workplace, youth). Initial overall agreement among coders was 91%. Coding discrepancies were resolved through reexamination of the data and, when necessary, discussion.

Data Analysis

Analyses were conducted using the Raju, Burke, Normand, and Langlois (1991) method. This method of random effects meta-analysis corrects effect sizes individually for artifacts. An adapted version of Arthur, Bennett, and Huffcutt's (2001) SAS PROC MEANS was used to accommodate the Raju et al. method of meta-analysis. Using the Raju et al. method, each effect size was weighted by sample size and corrected for attenuation due to unreliability in both the predictor and criterion. When reliabilities were unreported, a distributional artifact correction was constructed by averaging the reliability for all studies that did report reliability information. Each disattenuated, sample-weighted correlation was then averaged. In other words, this method differs from the Hunter and Schmidt (2004) approach because corrections are undertaken at the study level, and an artifact distribution is used when artifact information is unavailable. The resulting effect size, rho (ρ), gives an indication of the strength of the relationship in the population. Only bivariate relationships that were drawn from three or more studies were retained for the overall analyses of the antecedents, correlates, and consequences of mentoring support and quality.

We report the Q statistic, which tests homogeneity in the true correlations across studies (Hunter & Schmidt, 2004). The Q statistic is distributed as an approximate chi-square distribution and gives an indication that moderators are present when significant. We also computed the 95% confidence interval (95% CI) and 80% credibility interval (80% CR; see Judge, Heller, & Mount, 2002; Su, Rounds, & Armstrong, 2009). Confidence intervals provide an estimate of the variability of the corrected mean correlation due to sampling error (Hunter & Schmidt, 2004) by using the standard error to construct an interval around the mean corrected correlation. In the present study, we use the 95% CI to (a) determine whether the corrected effect differs from zero and (b) investigate differences in effect sizes. The credibility interval is formed using the standard deviation of ρ and refers to the distribution of parameter values or an estimate of the variability of individual correlations in the population (Hunter & Schmidt, 2004). The credibility interval also gives an indication of the lower bound estimate of the relationship between two variables. Specifically, the lower bound value of the 80% CR indicates that 90% of the estimates of the mean corrected correlation are above that value (and 10% are below). If a credibility interval is small and excludes zero, it is unlikely that significant moderators are operating (Whitener, 1990). However, if the credibility interval is large and/or includes zero, evidence is provided that the effect size is actually composed of multiple subpopulations (e.g., there are substantive moderators).

Moderator analyses. To examine whether the effects varied by type of mentoring relationship, we conducted separate meta-analyses for perceived instrumental support, psychosocial support, and relationship quality for each subgroup (i.e., academic, workplace; Hunter & Schmidt, 2000). Because the type of mentoring relationship was examined separately for the three aspects of mentoring, we used a less stringent criterion of $k \geq 2$ to maximize

the amount of information provided in the meta-analysis. In so doing, we recommend caution in interpreting effects based on a small number of primary studies.

Results

For each meta-analytic relationship, we report the total sample size across all studies (N), the total number of independent studies associated with the reported relationship (k), the sample-weighted correlation (R_{xy}), the fully corrected mean correlation or rho (ρ), the Q statistic, the 95% CI, the 80% CR, and the fail-safe N. In terms of interpreting effect sizes, an absolute value of .10 is regarded as small, .30 as medium, and .50 as large (Cohen, 1988). Prior to interpreting results that met or exceeded Cohen's criteria for a small effect, we examined the confidence interval to ensure that it did not include zero. For those relationships for which there were fewer than three primary studies, the data are coded as missing.

Associations Between Protégé Perceptions of Mentoring

Table 3 presents the meta-analytic results for the associations between protégé perceptions of instrumental support, psychosocial support, and relationship quality. Protégé perceptions of these three aspects of mentoring were strongly and positively related (ρ ranged from .53 for instrumental support and relationship quality to .71 for psychosocial support and relationship quality). The shared variance between these constructs ranged from 28% (instrumental support and relationship quality) to 50% (psychosocial support and relationship quality), indicating that protégé perceptions of instrumental support, psychosocial support, and relationship quality are overlapping but distinct constructs.

Potential Antecedents

Three categories of potential antecedents were examined: demographics, human capital, and relationship attributes. The results are presented separately for perceived instrumental support (see Table 4), perceived psychosocial support (see Table 5), and relationship quality (see Table 6). The Q statistics associated with many of the potential antecednts in Table 4 and Table 5 were significant and some of the credibility intervals were wide or included zero, indicating the likely presence of moderators. Two of the potential antecedents shown in Table 6 had significant Q

statistics associated with them (deep-level similarity, relationship formality), suggesting the presence of moderators for these effects.

Demographics. The results for mentor and protégé demographics were all below Cohen's (1988) threshold for a small effect ($\leq$.10). For protégé gender (coded male = 0, female = 1), the corrected correlations were $\rho = .03$, $\rho = .05$, and $\rho = -.02$ for perceived instrumental support, psychosocial support, and relationship quality, respectively. Mentor gender (coded male = 0, female = 1) demonstrated corrected correlations of $\rho = .00$, $\rho = -.02$, and $\rho = -.01$ with the three aspects of mentoring. The effect sizes were $\rho = -.06$, $\rho = .01$, and $\rho = .00$ for protégé race (coded minority = 0, nonminority = 1) for perceived instrumental support, psychosocial support, and relationship quality. The corrected correlation for mentor race (coded minority = 0, nonminority = 1) was $\rho = .09$, $\rho = .09$, and $\rho = -.02$ for perceived instrumental support, psychosocial support, and relationship quality, respectively. On the basis of these findings, protégé gender, mentor gender, and protégé race were generally unrelated to mentoring. In a minor exception, protégés perceived slightly higher instrumental and psychosocial support from nonminority mentors compared to minority mentors.

Human capital. With one exception, the effect sizes associated with mentor and protégé human capital were also below Cohen's (1988) criteria for a small effect and in many cases the confidence intervals included zero. Specifically, the corrected correlation for protégé human capital was $\rho = .03$, $\rho = .01$, and $\rho = .06$ for perceived instrumental support, psychosocial support, and relationship quality, respectively. For mentor human capital, the corrected correlation was $\rho = -.05$ and $\rho = .05$ for psychosocial support and relationship quality, respectively, suggesting little appreciable effect. A small effect was found for mentor human capital and perceived instrumental support, although it was opposite to prediction; as a mentor's human capital decreased, his or her protégé perceived greater instrumental support ($\rho = -.11$). The nonoverlapping confidence intervals indicate that the corrected correlation between instrumental support and mentor human capital was different from the association between mentor human capital and both psychosocial support and relationship quality.

Relational attributes. Deep-level similarity, experiential similarity, and relationship formality demonstrated effects that were above the threshold for a small effect and their respective confidence intervals did not include zero. The results for surface-level similarity tended to be smaller.

Table 3

Associations Between Protégé Perceptions of Mentoring

	Perceived instrumental support							Perceived psychosocial support						
Antecedents	N	k	R_{xy}	ρ	80% CR	95% CI	Fail-safe N	N	k	R_{xy}	ρ	80% CR	95% CI	Fail-safe N
Perceived instrumental support														
Perceived psychosocial support	17,150	74	.58	.68[a]	[.45, .91]	[.67, .69]	933							
Relationship quality	3,690	22	.45	.53[a]	[.25, .81]	[.51, .55]	212	3,612	22	.60	.71[a]	[.50, .93]	[.70, .73]	292

Note. R_{xy} is the uncorrected mean sample-weighted correlation, N is the total sample size, k is the number of independent samples, ρ is the fully corrected mean correlation, 80% CR represents the 80% credibility interval, and 95% CI represents the 95% confidence interval. For both 80% CR and 95% CI, the value on the left is the lower bound, and the value on the right is the upper bound.
[a] Indicates significant Q statistic.

Table 4
Potential Antecedents, Correlates, and Consequences of Perceived Instrumental Support

Construct	N	k	R_{xy}	ρ	80% CR	95% CI	Fail-safe N
Potential antecedents							
Demographics							
Protégé gender	16,544	57	.03	.03[a]	[−.05, .12]	[.02, .05]	0
Mentor gender	6,115	18	.00	.00	[.00, .00]	[−.03, .02]	0
Protégé race	2,321	17	−.05	−.06[a]	[−.17, .05]	[−.10, −.02]	0
Mentor race	566	5	.09	.09	[.02, .15]	[.01, .17]	0
Human capital							
Mentor human capital	5,789	14	−.10	−.11[a]	[−.27, .05]	[−.14, −.09]	0
Protégé human capital	11,804	39	.03	.03[a]	[−.07, .12]	[.01, .05]	0
Relationship attributes							
Deep-level similarity	1,438	13	.32	.38[a]	[.11, .65]	[.34, .42]	86
Surface-level similarity	2,272	16	.02	.03[a]	[−.09, .13]	[−.02, .06]	0
Experiential similarity	1,021	9	.20	.21[a]	[.02, .40]	[.15, .27]	29
Relationship formality	2,717	14	.09	.10[a]	[−.07, .26]	[.06, .13]	13
Potential correlates							
Interaction frequency	1,853	18	.27	.29[a]	[.06, .53]	[.25, .33]	87
Relationship length	7,742	31	.07	.08[a]	[−.05, .20]	[.05, .10]	16
Performance	2,943	15	.28	.33[a]	[.21, .45]	[.30, .36]	85
Motivation	6,088	24	.15	.19[a]	[.05, .32]	[.16, .21]	65
Social capital	2,680	11	.27	.35[a]	[−.01, .72]	[.32, .39]	67
Potential consequences							
Attitudinal outcomes							
Situational satisfaction	7,627	37	.30	.36[a]	[.17, .55]	[.34, .38]	226
Sense of affiliation	4,270	22	.25	.33[a]	[−.08, .74]	[.31, .36]	124
Behavioral outcomes							
Learning/socialization	5,158	20	.21	.26[a]	[.06, .47]	[.24, .29]	86
Turnover intent	2,833	12	−.18	−.24[a]	[−.54, .05]	[−.28, −.21]	0
Career-related outcomes							
Compensation	6,760	14	.09	.10[a]	[.02, .18]	[.07, .12]	13
Perceived career success	2,369	10	.26	.32[a]	[.19, .46]	[.29, .36]	55
Career prospects	5,095	9	.20	.23[a]	[−.18, .64]	[.21, .26]	33
Health-related outcomes							
Strain	1,551	9	−.10	−.12[a]	[−.33, .09]	[−.17, −.07]	0
Self-efficacy	807	9	.05	.06[a]	[−.21, .32]	[−.01, .13]	1

Note. R_{xy} is the uncorrected mean sample-weighted correlation, N is the total sample size, k is the number of independent samples, ρ is the fully corrected mean correlation, CR represents the 80% credibility interval, and CI represents the 95% confidence interval. For both 80% CR and 95% CI, the value on the left is the lower bound, and the value on the right is the upper bound. Gender coded 0 = male, 1 = female. Race coded 0 = minority, 1 = nonminority. Surface-level similarity coded 0 = dissimilar, 1 = similar. Experiential similarity coded 0 = dissimilar, 1 = similar. Relationship formality coded 0 = formal, 1 = informal.
[a] Indicates significant Q statistic.

As deep-level similarity increased, so did protégé perceptions of instrumental support (ρ = .38), psychosocial support (ρ = .56), and relationship quality (ρ = .59). The magnitude of these corrected correlations indicates a medium to large effect. Comparing the confidence intervals, we found that the effect for deep-level similarity was stronger for psychosocial support and relationship quality compared to instrumental support. Experiential similarity was positively related to instrumental support (ρ = .21) and relationship quality (ρ = .12), but unrelated to psychosocial support (ρ = .03). In terms of relationship formality, consistent yet small effects were found. Protégés in informal relationships perceived slightly higher instrumental (ρ = .10) and psychosocial support (ρ = .10) and reported somewhat higher relationship quality (ρ = .14) than did those in formal mentorships. The confidence interval overlapped for all three aspects of mentoring, suggesting no appreciable difference in effect size.

The associations between surface-level similarity and all three aspects of mentoring were weak (ρ = .03, ρ = .09, and ρ = −.01 for instrumental support, psychosocial support, and relationship

quality, respectively). The corrected correlation for psychosocial support was just below Cohen's criteria for a small effect, but the confidence interval did not include zero. Therefore, although the practical significance is somewhat limited, the positive association between surface-level similarity and perceptions of psychosocial support is noted.

Potential Correlates

Five potential correlates of mentoring were examined: interaction frequency, relationship length, performance, motivation, and social capital. The results appear in Table 4 (perceived instrumental support), Table 5 (perceived psychosocial support), and Table 6 (relationship quality). Each of these potential correlates was related to one or more aspects of mentoring at or above Cohen's (1988) criteria for a small effect. In addition, the confidence intervals for the corrected correlations meeting this threshold did not include zero. For many effect sizes, the Q statistics associated with rho (ρ) were significant and the credibility intervals were

Table 5
Potential Antecedents, Correlates, and Consequences of Perceived Psychosocial Support

Construct	N	k	R_{xy}	ρ	80% CR	95% CI	Fail-safe N
Potential antecedents							
Demographics							
Protégé gender	12,340	47	.05	.05[a]	[−.05, .15]	[.03, .07]	0
Mentor gender	5,884	17	−.02	−.02[a]	[−.12, .07]	[−.05, .00]	0
Protégé race	1,987	16	.01	.01	[−.06, .07]	[−.04, .05]	0
Mentor race	713	6	.09	.09	[.03, .15]	[.02, .17]	5
Human capital							
Mentor human capital	5,901	14	−.05	−.05[a]	[−.19, .08]	[−.08, −.03]	0
Protégé human capital	9,632	29	.01	.01[a]	[−.05, .08]	[−.01, .03]	0
Relationship attributes							
Deep-level similarity	1,924	15	.49	.56[a]	[.24, .87]	[.52, .59]	152
Surface-level similarity	2,230	17	.08	.09[a]	[−.02, .19]	[.04, .13]	12
Experiential similarity	883	8	.02	.03[a]	[−.19, .25]	[−.04, .10]	0
Relationship formality	2,645	14	.09	.10[a]	[−.01, .21]	[.06, .13]	13
Potential correlates							
Interaction frequency	2,270	20	.23	.25[a]	[.02, .48]	[.21, .29]	80
Relationship length	7,792	33	.13	.14[a]	[−.02, .30]	[.12, .16]	58
Performance	3,267	16	.19	.24[a]	[.10, .38]	[.21, .27]	60
Motivation	4,260	17	.16	.18[a]	[.05, .32]	[.16, .21]	46
Social capital	1,191	5	.09	.10[a]	[−.07, .28]	[.05, .16]	5
Potential consequences							
Attitudinal outcomes							
Situational satisfaction	5,632	30	.23	.26[a]	[.05, .48]	[.24, .29]	128
Sense of affiliation	5,520	14	.31	.41[a]	[.15, .66]	[.38, .43]	100
Behavioral outcomes							
Learning/socialization	3,872	15	.20	.24[a]	[−.02, .50]	[.21, .27]	58
Turnover intent	3,827	14	−.08	−.10[a]	[−.27, .07]	[−.13, −.07]	0
Career-related outcomes							
Compensation	5,256	9	.03	.03	[.03, .03]	[.00, .06]	0
Perceived career success	1,848	8	.07	.08[a]	[−.13, .30]	[.04, .13]	6
Career prospects	3,482	3	.15	.19[a]	[−.01, .38]	[.15, .22]	8
Health-related outcomes							
Strain	3,952	7	−.11	−.12[a]	[−.23, −.01]	[−.15, −.09]	0
Self-efficacy	1,821	11	.16	.18[a]	[−.08, .44]	[.14, .23]	30

Note. R_{xy} is the uncorrected mean sample-weighted correlation, N is the total sample size, k is the number of independent samples, ρ is the fully corrected mean correlation, 80% CR represents the 80% credibility interval, and 95% CI represents the 95% confidence interval. For both 80% CR and 95% CI, the value on the left is the lower bound, and the value on the right is the upper bound. Gender coded 0 = male, 1 = female. Race coded 0 = minority, 1 = nonminority. Surface-level similarity coded 0 = dissimilar, 1 = similar. Experiential similarity coded 0 = dissimilar, 1 = similar. Relationship formality coded 0 = formal, 1 = informal.
[a] Indicates significant Q statistic.

wide and/or included zero. This suggests that moderators are likely operating for many of the correlates of mentoring.

Interaction frequency was moderately correlated with all three aspects of mentoring. As interaction frequency increased, so did protégé perceptions of instrumental support (ρ = .29), psychosocial support (ρ = .25), and relationship quality (ρ = .26). All three confidence intervals overlapped, suggesting no differences across these three aspects of mentoring. Those in relationships of longer duration perceived greater psychosocial support (ρ = .14) and higher relationship quality (ρ = .18). Relationship length was less strongly related to instrumental support (ρ = .08) and was weaker than that found for psychosocial support and relationship quality.

The corrected correlations associated with protégé performance varied. As protégé performance increased, so did perceived instrumental support (ρ = .33) and perceived psychosocial support (ρ = .24). By contrast, the corrected correlation for relationship quality was near zero (ρ = .06). None of the confidence intervals associated with protégé performance overlapped, indicating that the effects were different for instrumental support, psychosocial sup-

port, and relationship quality. Protégé motivation demonstrated a consistently positive association with all three aspects of mentoring (ρ = .19, .18, and .23 for instrumental, psychosocial, and relationship quality, respectively), and the effects were small to medium in magnitude. All of these confidence intervals overlapped, suggesting no appreciable difference across the three aspects of mentoring. Finally, as protégé reports of social capital increased, so did perceived instrumental support (ρ = .35) and relationship quality (ρ = .54). A positive but small effect was also found for psychosocial support (ρ = .10; the confidence interval did not include zero). None of the confidence intervals associated with social capital overlapped, indicating that the effects were strongest for relationship quality, followed by perceived instrumental support, and then perceived psychosocial support.

Potential Consequences

Four categories of potential consequences were examined: attitudinal, behavioral, career-related, and health-related. The results

Table 6
Potential Antecedents, Correlates, and Consequences of Perceived Relationship Quality

Construct	N	k	R_{xy}	ρ	80% CR	95% CI	Fail-safe N
Potential antecedents							
Demographics							
Protégé gender	2,237	14	−.01	−.02	[−.02, −.02]	[−.06, .03]	0
Mentor gender	1,262	6	−.01	−.01	[−.01, −.01]	[−.07, .04]	0
Protégé race	974	8	−.00	−.00	[−.05, .05]	[−.07, .06]	0
Mentor race	269	3	−.02	−.02	[−.02, −.02]	[−.14, .10]	0
Human capital							
Mentor human capital	339	3	.05	.05	[−.01, .12]	[−.05, .16]	0
Protégé human capital	931	4	.05	.06	[.01, .10]	[−.01, .12]	1
Relationship attributes							
Deep-level similarity	959	7	.52	.59[a]	[.16, 1.0]	[.55, .64]	76
Surface-level similarity	610	4	−.01	−.01	[−.01, −.01]	[−.09, .07]	0
Experiential similarity	485	4	.11	.12	[.01, .22]	[.03, .20]	5
Relationship formality	1,236	6	.13	.14[a]	[.03, .25]	[.09, .20]	11
Potential correlates							
Interaction frequency	2,238	15	.24	.26[a]	[−.02, .55]	[.22, .30]	63
Relationship length	1,671	9	.17	.18[a]	[−.02, .38]	[.13, .23]	23
Performance	1,927	8	.05	.06[a]	[−.01, .13]	[.02, .11]	2
Motivation	1,755	8	.20	.23[a]	[.09, .36]	[.18, .27]	29
Social capital	706	5	.49	.54[a]	[.23, .85]	[.49, .60]	49
Potential consequences							
Attitudinal outcomes							
Situational satisfaction	2,296	11	.30	.38[a]	[.12, .64]	[.35, .42]	73
Sense of affiliation	1,053	5	.20	.23	[.23, .23]	[.17, .29]	18
Behavioral outcomes							
Learning/socialization	—	—	—	—	—	—	—
Turnover intent	888	3	−.19	−.24	[−.24, −.24]	[−.31, −.18]	0
Career-related outcomes							
Compensation	1,018	3	−.01	−.01	[−.01, −.01]	[−.07, .06]	0
Perceived career success	554	3	.18	.22	[.22, .22]	[.14, .30]	10
Career prospects	—	—	—	—	—	—	—
Health-related outcomes							
Strain	1,495	6	−.07	−.08[a]	[−.19, .02]	[−.13, −.03]	0
Self-efficacy	2,243	10	.12	.14[a]	[.08, .21]	[.10, .19]	19

Note. R_{xy} is the uncorrected mean sample-weighted correlation, N is the total sample size, k is the number of independent samples, ρ is the fully corrected mean correlation, 80% CR represents the 80% credibility interval, and 95% CI represents the 95% confidence interval. For both 80% CR and 95% CI, the value on the left is the lower bound, and the value on the right is the upper bound. Dash indicates k < 2. Gender coded 0 = male, 1 = female. Race coded 0 = minority, 1 = nonminority. Surface-level similarity coded 0 = dissimilar, 1 = similar. Experiential similarity coded 0 = dissimilar, 1 = similar. Relationship formality coded 0 = formal, 1 = informal.
[a] Indicates significant Q statistic.

are shown in Table 4 (perceived instrumental support), Table 5 (perceived psychosocial support), and Table 6 (relationship quality). Looking across the three aspects of mentoring, the most consistent effects were found for attitudinal and behavioral consequences. However, the Q statistics associated with many of these effects were significant or the credibility intervals were wide or included zero. This indicates the likely presence of moderators.

Attitudinal outcomes. As shown in Tables 4–6, protégés who perceived greater instrumental support, psychosocial support, and higher relationship quality also reported higher situational satisfaction (ρ = .36, .26, and .38, respectively). The confidence intervals for instrumental support and relationship quality overlapped with each other, but not with perceived psychosocial support. This suggests that the association with psychosocial support was weaker than instrumental support or relationship quality. Positive associations were also found for protégé sense of affiliation (ρ = .33, .41, and .23 for perceived instrumental support, perceived psychosocial support, and relationship quality, respectively). Moreover, none of the confidence intervals overlapped,

indicating that all of these effects were different from one another, with the strongest effects for perceived psychosocial support. With a few exceptions (e.g., relationship between sense of affiliation and relationship quality), these effect sizes were medium according to Cohen's (1988) standards.

Behavioral outcomes. Protégés who reported more instrumental support and psychosocial support reported greater socialization/learning (ρ = .26, ρ = .24, respectively). This represents a small to medium effect for the two types of mentoring support. An insufficient number of primary studies precluded the examination of learning/socialization in relation to relationship quality. All three aspects of mentoring were associated with lower intentions to turn over (ρ = −.24, ρ = −.10, and ρ = −.24, for instrumental support, psychosocial support, and relationship quality, respectively). The confidence intervals overlapped for instrumental support and relationship quality but were different for psychosocial support, indicating weaker effects.

Career-related outcomes. Protégés who perceived greater instrumental support tended to report higher compensation, al-

though the effect was small ($\rho = .10$). For the other two aspects of mentoring, the corrected correlation was near zero ($\rho = .03$ and $\rho = -.01$; see Tables 5 and 6). Moreover, the corrected correlation with compensation was stronger for instrumental support than for perceived psychosocial support or relationship quality. Perceptions of greater instrumental support and higher relationship quality were both related to stronger perceptions of career success ($\rho = .32$ and $\rho = .22$, respectively, with overlapping confidence intervals). The corrected correlation between psychosocial support and perceived career success was below Cohen's (1988) criteria for a small effect ($\rho = .08$). In terms of perceived career prospects, a small to medium effect was found for perceived instrumental support and perceived psychosocial support ($\rho = .23$ and $\rho = .19$, with overlapping confidence intervals). An insufficient number of primary studies were identified to examine the association between perceived career prospects and relationship quality.

Health-related outcomes. A small, negative relationship was found between strain and both perceived instrumental support and psychosocial support ($\rho = -.12$ for both). For relationship quality, although the effect was different from zero, it was weak ($\rho = -.08$). The corrected correlation for self-efficacy and instrumental support was near zero ($\rho = .06$). In contrast, self-efficacy was positively related to perceived psychosocial support ($\rho = .18$) and relationship quality ($\rho = .14$).

Moderator Analyses

Comparisons were made between the three aspects of mentoring and potential antecedents, potential correlates, and potential consequences across academic and workplace mentoring. As is often the case with meta-analyses (e.g., Judge, Colbert, & Ilies, 2004; Ng et al., 2005), some of these comparisons involved a small number of primary studies. As such, caution should be exercised when interpreting these findings.

Potential antecedents. Consistent with the bivariate relationships, the effects associated with the demographic variables of protégé gender and protégé race were below Cohen's (1988) criteria for a small effect for both academic and workplace mentoring, across all three aspects of mentoring. Furthermore, several of these corrected correlations were near zero (see Table 7). In contrast, several relationship attributes demonstrated notable differences across academic and workplace mentoring. Deep-level similarity displayed stronger effects in academic compared to workplace settings in terms of perceived instrumental ($\rho = .64$ vs. $\rho = .38$) and psychosocial support ($\rho = .75$ vs. $\rho = .48$). No difference was found for relationship quality ($\rho = .74$ vs. $\rho = .72$ for academic and workplace, respectively). A different pattern was found for surface-level similarity; the relationship was near zero with psychosocial support ($\rho = -.04$) for academic mentoring, yet small and positive for workplace mentoring ($\rho = .12$). Relationship formality also demonstrated differential effects across type of mentoring relationship. A small effect was found among workplace mentoring, such that greater perceived instrumental support ($\rho = .10$) and psychosocial support ($\rho = .10$) were reported in informal relationships. No appreciable effect was found for academic mentoring ($\rho = -.05$ and $\rho = -.10$ for instrumental and psychosocial support, respectively). Unfortunately, there were an insufficient number of studies to compare the effect associated

with mentor race, mentor gender, mentor human capital, and experiential similarity across academic and workplace mentoring.

Potential correlates. Interaction frequency demonstrated a large positive association with relationship quality in the workplace ($\rho = .44$) and a small positive relationship in academic settings ($\rho = .16$). Conversely, relationship length was more strongly related to relationship quality with academic mentoring ($\rho = .35$) compared to workplace mentoring ($\rho = .09$). The other difference involves the corrected correlation between protégé performance and psychosocial mentoring. The effect was stronger for workplace mentoring ($\rho = .32$) than for academic mentoring ($\rho = .16$). There were not enough primary studies to make comparisons in terms of social capital.

Potential consequences. Situational satisfaction was more strongly associated with perceived psychosocial support and relationship quality in academic mentoring contexts ($\rho = .46$ and $\rho = .52$, respectively) than in the workplace ($\rho = .23$ and $\rho = .30$, respectively). The opposite pattern was found for sense of affiliation. Specifically, stronger positive effects were found for both perceived instrumental support and psychosocial support in workplace mentoring ($\rho = .37$ and $\rho = .27$, respectively), compared to academic mentoring ($\rho = -.02$ and $\rho = .06$, respectively). Finally, the corrected correlation associated with self-efficacy and psychosocial mentoring was stronger for workplace ($\rho = .30$) than for academic mentoring ($\rho = .08$). An insufficient number of primary studies precluded comparisons between academic and workplace mentoring in terms of turnover intent, any of the career-related outcomes, or strain.

Discussion

The objective of this research was to provide an interdisciplinary meta-analytic summary of the potential antecedents, correlates, and consequences of protégé perceptions of instrumental support, psychosocial support, and relationship quality. In the sections that follow, we discuss the results related to the association among these protégé perceptions, and their relationships with various antecedents, correlates, and consequences. To guide the discussion, we offer a framework to organize our findings. Because many of the differences between academic and workplace mentoring reflect magnitude rather than direction, the proposed framework is likely to apply across mentoring relationships. Following the proposed framework, we highlight differences across academic and workplace mentoring that are substantial enough to have theoretical and practical significance. We then discuss broad theoretical implications and propose suggestions for future research. Finally, practical suggestions are highlighted and the major limitations associated with this research effort are noted.

Overview of the Proposed Framework

Drawing from McGrath's (1964) input–process–output model, we propose the framework depicted in Figure 1 to integrate our findings with regard to the antecedents, correlates, and consequences of protégé perceptions of instrumental support, psychosocial support, and relationship quality. The shaded arrows in Figure 1 depict theoretically based but speculative associations based on the results of the current review. Due to the small number of primary studies ($n = 12$) using longitudinal methods and the absence of studies using experi-

Table 7
Subgroup Analysis of Academic and Workplace Mentoring

Construct	Perceived instrumental support						Perceived psychosocial support						Relationship quality					
	Academic			Workplace			Academic			Workplace			Academic			Workplace		
	k	ρ	Fail-safe N	k	ρ	Fail-safe N	k	ρ	Fail-safe N	k	ρ	Fail-safe N	k	ρ	Fail-safe N	k	ρ	Fail-safe N
Potential antecedents																		
Demographics																		
Protégé gender	6	-.07[b]	0	49	.05[a,c]	0	6	.03[a]	0	40	.05[a]	3	5	-.04[b]	0	7	.00	0
Mentor gender	3	.01	0	15	.00[b,c]	0	2	-.09[a]	0	15	-.02[a,c]	0	—	—	—	5	.00	0
Protégé race	3	-.05[b]	0	12	-.06[a]	0	3	-.06[a]	0	12	.02[b]	0	3	.03[b]	0	4	-.06	0
Mentor race	—	—	—	4	.07[c]	1	—	—	—	5	.07[c]	2	—	—	—	3	-.02	0
Human capital																		
Mentor human capital	—	—	—	14	-.11[a]	0	—	—	—	14	-.05[a]	0	—	—	—	2	.02	0
Protégé human capital	4	.07[a]	2	34	.03[a]	0	4	.08[a]	3	23	.01[a]	0	—	—	—	3	.04[b]	0
Relationship attributes																		
Deep-level similarity	2	.64[a,b]	24	9	.38[a,b,c]	59	4	.75[a,b]	56	9	.48[a,b,c]	78	3	.74[b]	42	2	.72[a,b]	27
Surface-level similarity	2	-.04[b]	0	13	.04[a]	0	2	-.04[b]	0	14	.12[a,b,c]	20	2	.07[b]	2
Experiential similarity	—	—	—	8	.22[a,b]	27	—	—	—	7	.02[a]	0	—	—	—	3	.11[a]	4
Relationship formality	2	-.05[a]	0	11	.10[a,c]	11	2	-.01[a]	0	11	.10[a,b]	11	—	—	—	4	.11[b]	5
Potential correlates																		
Interaction frequency	2	.35[a,b]	12	15	.26[a]	64	2	.25[a,b]	8	15	.31[a,b]	78	4	.16[a]	9	7	.44[a,b,c]	54
Relationship length	5	.13[a]	8	24	.07[a]	9	5	.08[a]	3	25	.15[a,b]	52	3	.35[a,b]	18	3	.09[b,c]	2
Performance	5	.31[a,b]	26	9	.35[a,b]	55	5	.16[a,b]	11	8	.32[a,b,c]	42	6	.07[a]	3	—	—	—
Motivation	6	.20[b]	18	17	.18[a,b]	45	7	.23[a,b]	25	10	.16[a]	21	3	.26[a,b]	13	4	.21[a,b]	12
Social capital	—	—	—	10	.35[a]	61	—	—	—	4	.03[a]	0	3	.59[a,b]	32	—	—	—
Potential consequences																		
Attitudinal outcomes																		
Situational satisfaction	5	.37[a,b]	32	30	.36[a,b]	186	4	.46[a,b]	33	24	.23[a,b,c]	84	4	.52[a,b,c]	38	4	.30[a,b]	20
Sense of affiliation	2	-.02[a]	0	18	.37[a,c]	115	2	.06[a]	0	10	.27[a,c]	44	—	—	—	3	.23[b]	11
Behavioral outcomes																		
Learning/socialization	5	.23[a,b]	18	15	.27[a,b]	67	4	.29[a,b]	19	10	.27[a,b]	45	—	—	—	2	.84[a,b]	31
Turnover intent	—	—	—	11	-.26[a]	0	—	—	—	13	-.11[a]	0	—	—	—	3	-.24[b]	0
Career-related outcomes																		
Compensation	—	—	—	12	.10[a,b]	12	—	—	—	7	.04[b]	0	—	—	—	—	—	—
Perceived career success	—	—	—	8	.35[a,b]	48	—	—	—	5	.28[a,b]	23	—	—	—	—	—	—
Career prospects	—	—	—	9	.23[a]	33	—	—	—	3	.19[a]	8	—	—	—	—	—	—
Health-related outcomes																		
Strain	—	—	—	8	-.12[a]	0	—	—	—	6	-.05[a]	0	2	-.07[a]	0	—	—	—
Self-efficacy	—	—	—	7	.21[b]	22	4	.08[a]	2	7	.30[a,b,c]	35	—	—	—	4	.18[b]	10

Note. Protégé gender and mentor gender coded 0 = male, 1 = female. Protégé race and mentor race coded 0 = racial minority, 1 = not racial minority. Surface-level similarity coded 0 = dissimilar, 1 = similar. Experiential similarity coded 0 = dissimilar, 1 = similar. Race coded 0 = minority, 1 = nonminority. Relationship formality coded 0 = formal, 1 = informal. Gender coded 0 = male, 1 = female. Relationship formality coded 0 = formal, 1 = informal. ρ is the fully corrected mean correlation. k is the number of independent samples. Dash indicates k ≥ 2.
[a] Indicates significant Q statistic. [b] Indicates that the 80% credibility interval excludes zero. [c] Indicates that the relationship is significantly different across academic and workplace mentoring.
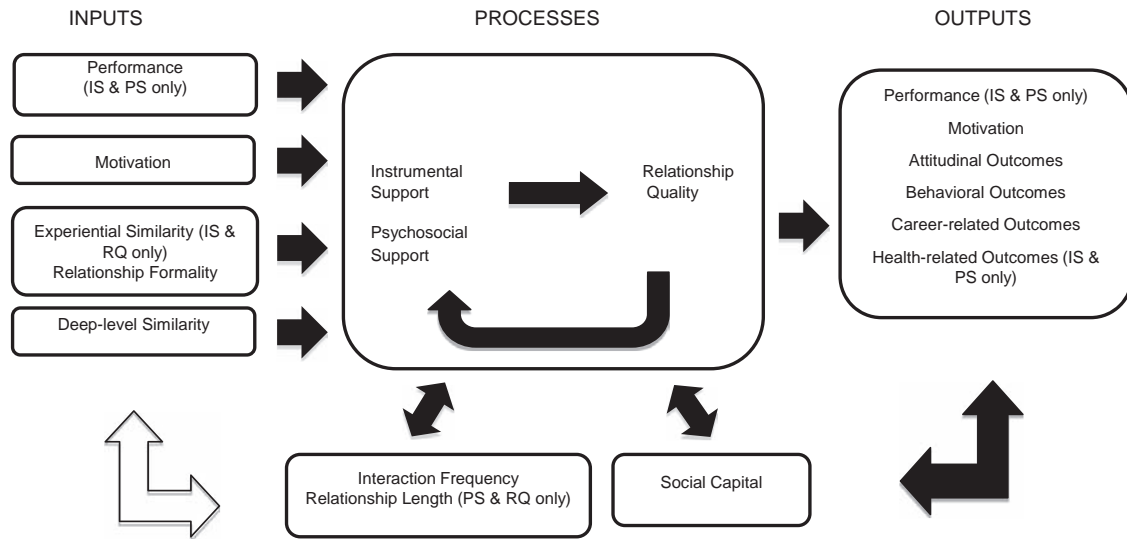
Figure 1. Proposed process-oriented model of mentoring. Shaded arrows are supported by meta-analytic findings. Unshaded arrows are proposed associations. IS = instrumental support; PS = psychosocial support; RQ = relationship quality.

mental designs to examine relationships included in the present research, the direction of causation depicted in Figure 1 is based on theory more than on empirical evidence.

Processes. At the core of Figure 1 are the three aspects of mentoring that are the focus of the current research: instrumental support, psychosocial support, and relationship quality. We found strong associations between these three aspects of mentoring; when protégés report greater instrumental support, they are also likely to perceive higher psychosocial support and perceive the relationship to be of higher quality. These associations are similar to what has been reported in previous research (T. D. Allen et al., 2004; Kammeyer-Mueller & Judge, 2008). One exception is our finding of a corrected correlation of .53 between instrumental support and relationship quality, which is considerably higher than the .37 reported by T. D. Allen et al. (2004). This difference may be due to the larger number of primary studies included in the current research and the inclusion of studies from the academic and youth mentoring literatures.

Consistent with research on close relationships (Hinde, 1981; Huston & Burgess, 1979), we presume that some interaction between the mentor and the protégé is necessary for perceptions of relationship quality to develop. As such, we speculate that receiving instrumental and psychosocial support helps create an interpersonal bond between mentor and protégé. As this emotional connection strengthens, self-disclosure increases and trust is built (Keller, 2007), which leads the protégé to report higher relationship quality. As shown in Figure 1, we further expect that as perceptions of relationship quality grow stronger, instrumental and psychosocial support will increase because being in a relationship marked by positive evaluative regard reinforces norms and expectations for the provision of mentoring support (Ragins & Verbos, 2007). This is consistent with emerging theory on relational mentoring (J. K. Fletcher & Ragins, 2007; Ragins, 2010).

On the basis of the results of our review, several correlates are also positioned as process variables. This includes interaction

frequency, relationship length, and social capital (see Figure 1). The more frequently mentors and protégés interact, the greater the opportunity for the mentor to provide support to the protégé. Building a close, satisfying relationship also requires getting to know one another and investing time in the relationship (Huston & Burgess, 1979). Furthermore, basic principles of positive reinforcement predict that when relationships are viewed as more supportive and satisfying, mentors and protégés will interact more frequently. Our finding of a consistently positive relationship between interaction frequency and all three aspects of mentoring supports the possibility of a reciprocal relationship.

Similar to interaction frequency, relationship length is depicted as having a bidirectional association with perceived psychosocial support and relationship quality, but not with instrumental support. This is supported by mentoring theory, which argues that psychosocial support represents a deeper level of relating and, as such, may require sustained mentor–protégé interactions to develop (Kram, 1985). Likewise, high-quality relationships take time to develop, requiring repeated interactions over time (Hinde, 1981; Huston & Burgess, 1979). In contrast, instrumental support can occur any time in the mentoring relationship (Kram, 1985), which may be why it was unrelated to relationship length.

The amount of support protégés received from family, friends, coworkers, and others (social capital) related positively to all three aspects of mentoring. Due to greater breadth and depth of relational experiences, protégés with more social capital are perhaps better able to leverage mentors for tangible assistance. Conversely, providing instrumental support may build social capital through information, sponsorship, and skills offered by the mentor to the protégé (Chow & Chan, 2008). Social capital may also contribute to perceptions of relationship quality if a mentor helps the protégé feel connected to and well regarded by others (parents, teachers, colleagues). It also seems likely that in more satisfying mentoring relationships, mentors will be more invested in helping protégés develop social capital. Interestingly, social capital is less strongly

related to psychosocial support. This is consistent with the perspective that social capital serves more of an instrumental purpose; it is a resource that individuals can use to pursue personally relevant interests and outcomes (Bourdieu, 1986).

Inputs. On the basis of the findings of the present review, two aspects of similarity (deep-level, experiential), relationship formality, protégé performance, and protégé motivation are positioned as inputs to perceptions of mentoring (see Figure 1).

Of all the variables investigated, deep-level similarity (e.g., similarity in attitudes, values, beliefs, personality) exhibits the strongest and most consistent positive association with all three aspects of mentoring, particularly psychosocial support and relationship quality. The attraction-similarity paradigm (Byrne, 1971) and decades of social-psychological research (see Bukowski, Motzio, & Meyer, 2009; Graziano & Bruce, 2008) support the proposition that deep-level similarity likely facilitates the development of a strong relational bond and the provision of mentoring support. Although not examined in the present study, we also propose that deep-level similarity is associated with relationship length and interaction frequency (see unshaded arrow in Figure 1). The rationale here is that similarity in values, beliefs, and personality is not readily observable; it takes time to become salient among relational partners and emerge as a consequence of interpersonal interaction (Harrison et al., 1998).

Experiential similarity is depicted as an input variable related to perceived instrumental support and relationship quality. Mentors who are similar to their protégés in terms of educational background, departmental affiliation, or functional area may be better able to provide appropriate technical guidance, help the protégé engage in networking activities, and recommend the protégé for learning opportunities, all of which typify instrumental support. In addition, consistent with Festinger, Schachter, and Back's (1950) classic research on how proximity influences friendship patterns, some aspects of experiential similarity such as being in the same academic department, geographic location, or organization may increase the likelihood that a high-quality relationship will develop between mentor and protégé.

Another mentoring input that is consistently, albeit weakly, related to perceptions of mentoring is relationship formality. Compared to protégés in formal relationships, those in informal relationships perceive more instrumental and psychosocial support and report higher relationship quality. In informal mentorships, the mentor may be more committed to the relationship and as a result is more willing to invest the time and energy needed to help the protégé accomplish his or her goals (Ragins & Cotton, 1999). Informal mentoring relationships also develop spontaneously based on mutual attraction (Kram, 1985), and social psychology research on close relationship formation notes that such attraction processes are important in the development of trusting, satisfying, high-quality relationships (Levinger, 1979).

Performance and motivation are also positively related to both types of perceived support. In addition, greater protégé motivation (but not performance) related to more favorable perceptions of relationship quality. The findings for protégé performance are generally consistent with previous meta-analytic research on workplace mentoring, which has found positive associations between performance and both types of mentoring support (Kammeyer-Mueller & Judge, 2008). However, unlike Kammeyer-Mueller and Judge (2008), we found stronger effects for instrumental support

compared to psychosocial support. As depicted in Figure 1, higher performing or more motivated protégés may receive more mentoring support because they proactively seek out support from mentors, or because they are viewed as more desirable relational partners (Green & Bauer, 1995; Singh, Ragins, & Tharenou, 2009). Our finding of no appreciable relationship between protégé performance and relationship quality suggests that higher quality relationships are not necessarily dependent on the performance of the protégé. Rather, perceptions of relationship quality are likely based upon the manner that partners aggregate, process, and reflect on interactions with each other over time (M. S. Clark & Reis, 1988).

Outputs. A variety of protégé outcomes are depicted in Figure 1. The provision of greater instrumental and psychosocial support may lead to higher protégé performance as well as enhanced motivation. This may be because the receipt of mentoring support helps protégés develop specific skills (Kram, 1985; Lankau & Scandura, 2002; Linnehan, 2001). Mentoring may also build self-confidence and motivation (Kram, 1985; Linnehan, 2003). As protégés learn new skills and demonstrate success, this is likely to strengthen the belief that they can tackle other challenges and achieve success in other domains.

Consistently positive associations also exist between all three aspects of mentoring and attitudinal outcomes. It may be that mentors are a lens by which protégés develop beliefs about the institution in which the relationship is situated (e.g., community, university), as well as the social aggregates that comprise that institution (Baranik, Roling, & Eby, 2010; Orpen, 1997). This might explain why when protégés perceive greater mentoring support and report stronger perceptions of relationship quality, they also report higher satisfaction with the institutions in which the mentoring relationship is embedded as well as the people associated with these institutions (e.g., fellow students, teachers, coworkers). Our findings regarding situational satisfaction are similar to meta-analytic findings from the workplace literature (T. D. Allen et al., 2004; Kammeyer-Mueller & Judge, 2008), although the magnitude of corrected correlations is slightly higher in the present review for all three aspects of mentoring.

In terms of sense of affiliation, social exchange theory (Blau, 1964) suggests that feelings of support and positive affect generated in the mentoring relationship may create a sense of obligation to reciprocate. This may manifest in protégé perceptions of loyalty and psychological attachment toward the social context in which the mentoring relationship exists. Interestingly, the strongest effects here were found for perceived psychosocial support. This may be because this aspect of mentoring is most closely tied to a protégé's sense of identity and self-worth (Kram, 1985). Sense of affiliation shares this emphasis on identification and belongingness.

The behavioral outcomes of learning/socialization and turnover intentions are also associated with perceptions of mentoring. Although the content varies considerably across types of mentoring (e.g., youth mentors may teach how to resist negative peer influences, academic mentors may teach technical skills), learning and accomplishing goals are discussed as important components of mentoring across the life span (Jacobi, 1991; Kram, 1985; Nakkula & Harris, 2005). The process of scaffolding (D. Wood, Bruner, & Ross, 1976) has been applied to mentoring to describe how mentors can create discrete learning experiences that build on one

another and eventually enhance protégés' developmental capacity (Bearman et al., 2007). Likewise, socialization into the academy is a major goal of academic mentoring, particularly in postsecondary education (Austin, 2002). Similarly, learning the ropes and becoming more integrated into an organization are central goals of workplace mentoring (Kram, 1985).

In terms of turnover intentions, most of the primary studies were conducted within the workplace. Protégés who perceive more instrumental support from their mentors may report lower intentions to leave because their career-related development needs are being met. Instrumental support is also associated with tangible gains in one's current organization, including exposure to high-level managers and being selected for high-profile job assignments (Kram, 1985), which may increase perceived costs of leaving. Perceptions of psychosocial support and relationship quality were also associated with lower turnover intentions, perhaps because these increase an individual's sense of embeddedness in the organization, which is related to less likelihood of voluntary turnover (Mitchell, Holtom, Lee, Sablynski, & Erez, 2001). Prior meta-analytic research has only examined turnover intent in relation to psychosocial mentoring in the workplace (T. D. Allen et al., 2004), finding a similar effect.

The associations with career-related outcomes should be interpreted cautiously due to the small effect sizes, inconsistent effects across the three aspects of mentoring, and because almost all of the primary studies are from the workplace. Perhaps not surprisingly due to the emphasis on preparing protégés for advancement and supporting their career development (Kram, 1985), greater perceived instrumental support is related to all three career-related outcomes: compensation, perceptions of career success, and career prospects. This is generally consistent with previous meta-analytic research (T. D. Allen et al., 2004; Kammeyer-Mueller & Judge, 2008). By contrast, we found that greater psychosocial support is only associated with more favorable perceptions of career prospects. One explanation is that psychosocial support strengthens the protégé's beliefs about his or her competence, identity, and effectiveness in a professional role (Kram, 1985). This may instill expectations that career opportunities are available and heighten a protégé's career expectations, rather than influence objective or subjective career success. Finally, we found that higher relationship quality is only associated with stronger perceptions of career success.

The final output in Figure 1 is health-related outcomes, which include strain and self-efficacy. In line with the finding that greater instrumental and psychosocial support is associated with lower strain, a longstanding body of research has found that instrumentally oriented social support (providing tangible help when needed) and emotionally oriented social support (displaying empathy, listening) are associated with less strain (Viswesvaran, Sanchez, & Fisher, 1999). Self-efficacy is also associated with psychosocial support and relationship quality, but not instrumental support. Bandura's theory (1986) delineates four ways that self-efficacy beliefs develop: mastery experiences, role modeling, persuasion, and emotional experiences. Only the first pathway captures the instrumental aspect of mentoring. By contrast, the other three center on socioemotional experiences (Bearman et al., 2007). While speculative, this may help explain the finding that self-efficacy is only associated with the two aspects of mentoring that

have an expressive or emotional component: perceived psychosocial support and relationship quality.

Additional observations.   A few points deserve mention regarding the proposed framework. This includes the notable omission of demographic attributes and human capital constructs, as well as the small number of longitudinal primary studies upon which the framework is based.

Demographic attributes of protégé and mentor.   Although there has been considerable speculation about gender and race differences in protégé perceptions of mentoring (e.g., Girves, Zepeda, & Gwathmey, 2005; Noe, 1988; Thomas, 1990), empirical support is mixed (for a review, see Ragins, 2007). Our review revealed that none of the mentor or protégé demographic characteristics are meaningfully related to perceptions of instrumental support, psychosocial support, or relationship quality. This is generally consistent with previous meta-analytic research (Kammeyer-Mueller & Judge, 2008; O'Brien et al., 2010), although it should be noted that Kammeyer-Mueller and Judge (2008) found that in the workplace, White protégés reported slightly higher instrumental support ($\rho = .11$) than did non-Whites. There are a sufficient number of primary studies to be reasonably confident in our findings for protégé gender, protégé race, and mentor gender. In contrast, the limited number of primary studies, a corrected correlation of .09 for both perceived instrumental and psychosocial support, and a confidence interval that does not include zero suggest that it may be too early to rule out a main effect for mentor race.

Some scholars suggest that it is not the race or gender of either mentoring partner per se that matters but rather the similarity between the two individuals (Ragins, 1997a). Our results indicate that overall surface-level similarity (operationalized as either gender similarity or as race similarity) is not associated with protégé perceptions of mentoring support or relationship quality. However, before dismissing compositional effects of race and gender, it is important to note that there were not enough primary studies to examine cross-race and cross-gender relationships separately.

Human capital constructs.   We also found limited support for mentor or protégé human capital. Kammeyer-Mueller and Judge (2008) also found no support for protégé human capital (job tenure, education) as predictors of instrumental support, psychosocial support, or mentoring quality/satisfaction in workplace studies. One exception in the present study is a weak association between mentor human capital and instrumental support, with greater support reported by protégés when their mentor has less human capital. While speculative, one explanation may be that mentors with less education, experience, and influence may be younger and/or earlier in their own professional career. As a consequence they may have fewer competing demands and thus more time to provide tangible assistance to help their protégés develop. However, because of the weak and isolated association between mentor human capital and protégé perceptions of mentoring, we did not include this variable in our proposed framework.

Limited longitudinal studies.   A final observation is that only 12 studies contributed longitudinal data to the effect sizes reported in the current research. Six of these studies focused on youth (Black, Grenard, Sussman, & Rohrbach, 2010; Blakely et al., 1995; Holt, 2007; Linnehan, 2003; Parra, DuBois, Neville, Pugh-Lilly, & Pavinelli, 2002; Ringenberg, 2004), five involved workplace mentoring (Duster, 2010; Higgins & Thomas, 2001; Orpen,

1995; Tharenou, 2005; Wanberg, Welsh, & Kammeyer-Mueller, 2007), and one was on academic mentoring (Green & Bauer, 1995). Because longitudinal studies provide stronger (but not definitive) evidence for causality, we briefly summarize the findings of these studies to inform our limited understanding of causality.

Several longitudinal studies from the workplace mentoring literature examined protégé perceptions of mentoring as predictors of subsequent protégé career outcomes, yet often reached different conclusions. Orpen (1995) found that more instrumental support predicted subsequent promotions, whereas other longitudinal research failed to find significant effects (Higgins & Thomas, 2001; Tharenou, 1995). In terms of other indicators of career success, Tharenou (2005) reported that although greater instrumental support at Time 1 predicted the length of time to the next promotion and perceived chance of promotion at Time 2, it did not predict whether someone was promoted in the last year or the promotion rate. In terms of the relationship between protégé perceptions of greater psychosocial support and subsequent promotion, research generally has found nonsignificant relationships (Higgins & Thomas, 2001; Orpen, 1995; Tharenou, 1995). An exception is the finding that greater psychosocial support at Time 1 predicted more positive beliefs about the chance of future promotions and the time since one's last promotion, both measured at Time 2 (Tharenou, 1995). The other career outcome that has been examined in two longitudinal studies is compensation. These studies reached different conclusions. Orpen found that greater instrumental support predicted later salary growth, whereas greater psychosocial support did not. By contrast, Tharenou found that higher psychosocial support predicted change in salary over time, whereas greater instrumental support was unrelated to change in salary.

Five longitudinal studies examined perceptions of mentoring in relation to well-being, motivation, attitudinal, and performance outcomes (Black et al., 2010; Duster, 2010; Green & Bauer, 1995; Holt, 2007; Linnehan, 2003). Black and colleagues' (2010) study of the protective role of mentoring on high school students' self-destructive behavior found that more psychosocial support predicted greater subsequent well-being. No other longitudinal studies provide insight into the effect of mentoring on protégé well-being. Several studies have examined mentoring in relation to motivational variables. Using a similar population as Black and colleagues, Holt (2007) found that neither perceptions of greater instrumental support nor higher relationship quality predicted changes in protégé academic motivation. By contrast, more instrumental mentoring predicted increased protégé goal setting at a later point in time (although relationship quality did not). Interestingly, Holt also found that protégés who reported greater instrumental support (but not relationship quality) reported a significant positive change in a sense of belonging at school.

Tackling a different question, Green and Bauer (1995) used a three-wave design to examine whether protégé potential (e.g., GRE scores, commitment to the graduate program, commitment to research, first semester grade point average, prior research experience) predicted perceptions of the amount of mentoring provided. They also examined whether protégés who receive more mentoring perform better in the future. They found consistent support for the idea that mentor advisors look for potential in protégés and provide more mentoring to those who are more capable. Interestingly, they found no support for the rival prediction that greater

mentoring support leads to subsequent performance and commitment. Two other studies examined whether protégé potential relates to subsequent perceptions of mentoring. Duster (2010) examined the association between performance prior to entering a formal mentoring program and subsequent relationship quality as reported by the protégé. No significant relationship was found. Likewise, Linnehan (2003) examined whether changes in protégés' positive attitude toward work predicted relationship quality in a youth–adult mentoring program aimed at preparing students for work. Again, no significant relationship was found. The results from both Duster and Linnehan are somewhat at odds with Green and Bauer.

Four final longitudinal studies provide insight on the association between mentoring perceptions and other variables (Blakely et al., 1995; Parra et al., 2002; Ringenberg, 2004; Wanberg et al., 2007). All four studies focused on relationship quality. The findings indicate that greater protégé self-disclosure (Wanberg et al., 2007), positive changes in protégé human capital (Ringenberg, 2004), and monthly reports of interaction with the mentor (Blakely et al., 1995) predict later reports of relationship quality. Relationship quality, collected monthly and averaged over the course of the relationship, was positively related to relationship length (Parra et al., 2002).

Overall, the longitudinal research examining protégé perceptions of mentoring in relation to career outcomes and protégé motivation is generally inconclusive. It is also noteworthy that no longitudinal research has examined how relationship quality relates to career outcomes. Given the small number of studies and the ways in which longitudinal research can vary, it is not surprising that we are unable to draw definitive conclusions at this juncture. One way that longitudinal studies vary is the time lag(s) used. For example, with regard to workplace studies examining career outcomes, the time lag between Time 1 and Time 2 data collection used by Tharenou (2005) was 1 year while the lag used by Higgins and Thomas (2001) was 7 to 8 years. Another way in which the studies vary is operationalization of the outcome. For example, in their investigations of the career outcome, salary, Orpen (1995) used the percentage difference in salary between the initial (Time 1) and current (Time 2) salary while Tharenou investigated current salary level at Time 2. These differences also exist in the studies reviewed that examined other relationships. For example, there were only several months between Time 1 and Time 2 in Duster (2010) while the research conducted by Green and Bauer (1995) spanned 2 academic years. Moreover, although the time lag used in some studies is based on logic and/or theory (e.g., the beginning and the end of the academic school year; Linnehan, 2003), the time lags used in other studies appear to be based more on convenience or to be without a basis in theory (e.g., Orpen, 1995). As longitudinal research continues to accumulate, greater insight into the way in which mentoring relationships unfold and yield positive benefits should emerge.

Differences Across Academic and Workplace Mentoring

Although the framework presented in Figure 1 is proposed to be broadly applicable to mentoring, several differences across types of mentoring deserve mention. To guide the subsequent discussion, we take a conservative approach and discuss differences that

approach or exceed Cohen's (1988) criterion for a medium effect ($\approx$.30). However, we recommend caution in interpreting differences across academic and workplace mentoring, given the small number of primary studies used to make some of these comparisons.

Referring to Table 7, deep-level similarity demonstrates a stronger positive association with protégé perceptions of instrumental and psychosocial support in academic, compared to workplace, mentoring relationships. Likewise, the positive association between relationship length and relationship quality is considerably stronger for academic mentoring than for workplace mentoring. This may reflect differences in the nature and purpose of mentoring across the two settings. While coursework provides a foundation for learning, a faculty mentor can facilitate broader and deeper involvement in the learning process by encouraging students and providing opportunities for development outside the classroom (Jacobi, 1991). Academic mentoring also utilizes an apprenticeship model where identification and role modeling are essential elements (W. B. Johnson, 2007). Perhaps the more similar the protégé views his or her mentor to be in terms of attitudes, values, beliefs, and personality, the stronger the identification process and the more likely that instrumental and psychosocial support will occur (Turban, Dougherty, & Lee, 2002). Deep-level similarity may also be particularly important in academic settings because full-time faculty members are still disproportionately White and male (University Leadership Council, 2008). Female and racial minority protégés will have difficulty finding demographically similar mentors, so connecting with a majority group member mentor who is similar in other ways may facilitate the development of a supportive mentoring relationship.

In terms of relationship length, academic mentors are needed to support protégés throughout individual programs of study, which are typically multiple years in length and require ongoing mentoring support. In fact, mentoring relationships often last longer in academic settings than in other types of organizations (Erdem & Aytemur, 2008). In addition, academic mentors often help students navigate through a series of difficult and interrelated decisions related to schooling, careers, and occupations, all of which have long-term and far-reaching implications (W. B. Johnson, 2007). This may be why academic mentoring relationships that are sustained over a longer period of time are associated with higher relationship quality. By contrast, in workplace settings, mentors may provide more discrete advice and support to protégés. As such, relationship quality may be less dependent on a long-term mentoring relationship in the workplace.

Interestingly, greater interaction frequency is more strongly related to protégé perceptions of relationship quality in workplace mentoring than in academic mentoring relationships. We also find that a greater sense of affiliation is more strongly related to instrumental support in workplace mentoring compared to academic mentoring. This may be because in the workplace, mentoring occurs beyond the scope of the mentor's and the protégé's normal job duties. Even in formal programs, mentoring is a discretionary activity, requiring both individuals to carve out time from their normal work schedules to interact on a regular basis. As such, interacting frequently with a workplace mentor may not only be highly salient to protégés, it may also be perceived as a visible indicator of their mentors' commitment to the relationship. In contrast, mentoring in academic settings is more embedded in the

pedagogical approach to teaching (Jacobi, 1991), so academic mentors may have more opportunities to interact with student protégés. This may lead protégés to give less weight to interaction frequency when developing perceptions of relationship quality.

Theoretical Implications

Theory and research on other types of helping relationships may have utility for understanding and extending the relationships proposed in Figure 1. In the context of psychotherapy, the concept of the working alliance between counselor and therapist (Greenson, 1965) has been offered to explain the consistent finding that, generally speaking, different therapies produce similar therapeutic gains (Luborsky, Singer, & Luborsky, 1975). In other words, it is the client's perception of the therapist, rather than the specific therapeutic approach, that "is one of the keys, if not *the* key, to the change process" (Bordin, 1979, p. 252). The working alliance has been positioned as a pantheoretical concept that underlies a wide range of helping behaviors (Horvath & Luborsky, 1993) and, by extension, may apply to other types of relationships, such as student–teacher (Bordin, 1979), counselor–supervisor (Bordin, 1983), and perhaps mentor–protégé.

As an illustration, there are several parallels between the concept of the working alliance and the mentoring relationship. The working alliance is characterized by mutual agreement on goals, a focus on tasks that form the substance of the relationship, and an emotional bond between individuals. The components are highly similar to the instrumental support (that focuses on tasks and goals), psychosocial support (that focuses on affirmation, acceptance, and trust), and relationship quality (positive personal attachments) that are at the core of the mentoring process. Given these similarities, we propose that research on the working alliance in therapy and clinical supervision may be a useful theoretical bridge to enhance our understanding of the mentoring process.

Our findings also have links to the broader relationship science literature. Most notably, the consistent finding that deep-level similarity relates to all three aspects of mentoring is mirrored in research on children's friendships (Newcomb & Bagwell, 1995) and romantic relationships (Gaunt, 2006; Gonzaga, Carter, & Buckwalter, 2010). Likewise, our finding that perceptions of mentoring relate to a wide range of positive protégé outcomes is consistent with the broader psychological literature on positive effects of relationships on psychological well-being (Baumeister & Leary, 1995). It is also noteworthy that generally speaking, social support is viewed as consisting of material aid, behavioral assistance, intimate interaction, feedback, and positive social interactions (Barrera & Ainlay, 1983), all of which can be found in mentoring relationships characterized by instrumental support, psychosocial support, and high relationship quality.

Limitations

Methodological and substantive features of primary studies. The results of this research must be viewed within the context of the limitations associated with the literature that comprised this review. The vast majority of effects reported were based on cross-sectional data (93%) and none were based on data from experimental designs, precluding our ability to make causal inferences. For instance, the finding that deep-level similarity relates to all

three aspects of mentoring may mean that individuals who are more similar develop a stronger mentoring relationship. However, it may also mean that protégés who report higher quality relationships tend to recall their mentors as more similar to themselves (Zalesny & Kirsch, 1989). The youth mentoring literature is more likely to use longitudinal or experimental designs, although much of this research involves comparisons of those with and without experience as a protégé rather than examining protégé perceptions of relational experiences (see DuBois et al., 2002). To draw causal inferences about mentoring, more methodologically rigorous research is sorely needed.

Another methodological limitation is that most of the primary studies are based on research in which self-report data were used for both the independent and dependent variables. This raises concerns regarding the potential for common source bias to inflate the size of the relationships observed. One way to help offset these concerns in future research is to include multisource data. For example, owing to the strong effects for deep-level similarity, additional research is needed where data are collected from both mentors and protégés (to allow for direct assessment of similarity). Including data on such issues from both mentors and protégés is important in that mentoring partners often have divergent perspectives on their mentoring relationship (Waters, 2004).

It should also be mentioned that although each area of mentoring scholarship was reasonably well represented, about two thirds of the primary studies were from the workplace mentoring literature ($n = 14$ for youth, $n = 36$ for academic, $n = 117$ for workplace, $n = 6$ for combined academic and workplace). As a consequence, our findings are arguably most representative of workplace mentoring. With that said, our research makes a contribution to the mentoring literature by revealing that subgroup comparisons of academic and workplace mentoring demonstrate potentially important differences between the two types of mentoring. The identification of these differences helps lay the groundwork for additional research. The relatively small number of primary youth mentoring studies that examined mentoring perceptions is also noteworthy because it is not just participation in mentoring that matters for youth but also the quantity and quality of mentor–protégé interactions (Darling, 2005). We hope that identifying this gap in the youth mentoring literature encourages additional research on variability in mentoring experiences among youth. This is important in that the results of the present study demonstrate that relational perceptions are associated with a wide range of antecedents, correlates, and consequences.

Finally, in some cases, our meta-analytic results were based on a small number of primary studies. This was particularly true in the analyses by type of mentoring. The fail-safe Ns further suggest that some of the findings are potentially unstable. However, because we included data from unpublished sources, we were able to compare the results from published and unpublished sources and found no differences. Thus, although in many cases one study with different result could possibly change the weaker effects (e.g., protégé gender and instrumental support, protégé human capital and instrumental support), given that the effect sizes for published studies in this area do not differ considerably from effect sizes in unpublished studies, it is unclear whether the results would actually change if more data were available.

Exclusion of most recent studies of mentoring.   As is often the case with meta-analytic research, by the time the current research was submitted and reviewed, the data were more than a year old. At the suggestion of the Associate Editor, we conducted an additional review of the literature to ensure we had not missed any key studies published between December 2010 and April 2012.

This involved a search of the literature that appeared in 25 journals from December 2010 through April 2012. The journals included were *Academy of Management Journal, Journal of Management Studies, Journal of Management, Journal of Applied Psychology, Personnel Psychology, Journal of Vocational Behavior, Journal of Community Psychology, Journal of Career Development, Journal of Organizational Behavior, Sex Roles, Journal of Applied Social Psychology, Journal of Primary Prevention, Journal of Business Research, BMC Health Services Research, American Journal of Community Psychology, Journal of Managerial Issues, American Journal of Community Psychology, Child Development, Journal of Research on Adolescence, Applied Developmental Science, Journal of Research in Higher Education, Professional Psychology: Research and Practice, Teaching of Psychology, Academic Medicine,* and *Mentoring and Tutoring.* The 25 journals were selected on the basis of several criteria. First we identified the top three ranked journals for each substantive area (e.g., applied psychology, education, social work) based on impact. We next identified the journals that appeared most frequently in our current list of articles included in the meta-analyses. Finally, we contacted prominent authors in the youth and student–faculty mentoring literatures and asked them to identify the top three journals within their field that publish mentoring research. This search resulted in a total of 73 hits. All 73 articles were screened by one of the senior authors. From that screening, a total of three articles were identified that met the criteria consistent with the studies included in the meta-analysis. These three studies are summarized below.

Kwan, Liu, and Yim (2011) investigated supervisory mentoring within the workplace. Consistent with the results of our meta-analysis, their results supported a positive relationship between both perceived psychosocial and instrumental mentoring support with motivation (i.e., organizational citizenship behavior). Weinberg and Lankau (2011) examined mentoring within a formal workplace program. Their results were consistent with our analyses in that they found no relationship between demographic variables and perceived instrumental/psychosocial mentoring support or mentoring quality. In addition, the effect sizes associated with interaction frequency and perceived mentoring support, as well as interaction frequency and relationship quality, were consistent with ours. Kraimer, Seibert, Wayne, Liden, and Bravo (2011) investigated workplace perceived instrumental mentoring support. They reported no relationship between gender and perceived instrumental mentoring support or between voluntary turnover and perceived instrumental mentoring support. However, they did find moderate in magnitude positive relationships between perceived instrumental mentoring support and performance, situational satisfaction, sense of affiliation, and protégé human capital. In sum, the results of these studies were consistent with the results reported in our main analyses.

Future Research

Although dedicated scholarly effort has been applied to the study of mentoring relationships for over a quarter of a century, our findings help demonstrate that the overall knowledge base remains relatively small and somewhat scattered. Moreover, we know considerably more about the correlates and consequences of mentoring than we do about the predictors of protégé perceptions of mentoring. Considerable research has examined the benefits of mentoring. It is now time to turn our attention to predictors.

Better understanding of predictors. There are several related high-priority topics that can increase our understanding of what predicts protégé perceptions of mentoring. Research is sorely needed to examine how mentor and protégé demographics *jointly* influence perceptions of mentoring. For instance, simply comparing same-race or cross-race relationships may obfuscate the unique relational dynamics and outcomes associated with majority mentor–majority protégé relationships, compared to minority mentor–minority protégé relationships. Substantial differences in power and influence between White and Black mentors may manifest in greater tangible benefits (e.g., career success, social capital) for those in White mentor–White protégé and Black mentor–Black protégé relationships. On the other hand, due to the fewer numbers of Blacks in positions of power and authority compared to Whites, Black protégés are disproportionately likely to be in cross-race mentoring relationships (Thomas, 1990). Although the empirical evidence is limited, cross-cultural theory raises concerns about misunderstandings or dysfunctions that can occur in cross-race relationships due to issues around trust, power dynamics, interpersonal styles, and apprehensions about requesting help (Brinson & Kottler, 1993). Blacks may also be more likely to be in formal relationships due to less access to mentors than Whites (Cox & Nkomo, 1991). This is potentially important because as the present review documents, protégés hold less favorable perceptions of mentoring in formal mentoring relationships. Similar arguments can be made for the importance of examining different configurations of gender similarity and dissimilarity in mentoring relationships (see McKeen & Bujaki, 2007).

We also know little about the association between mentor and protégé individual-difference characteristics and perceptions of mentoring support or relationship quality. For example, protégés higher in neuroticism may perceive lower psychosocial support and weaker relationship quality due to a tendency to experience worry, apprehension, fear, sadness, and irritability, and an inclination to view events as threatening (Watson, 2000). Indeed, neuroticism is associated with lower quality romantic relationships (Karney & Bradbury, 1995; Slatcher & Vazire, 2009), friendships (Lopes, Salovey, & Straus, 2003), and supervisor–subordinate relationships (Bernerth, Armenakis, Field, Giles, & Walker, 2008).

Similarly, given preliminary evidence for the influence of protégé narcissism on protégé perceptions of the amount of mentoring support provided and relationship quality, more work is needed linking mentor and protégé dark-side characteristics to perceptions of mentoring (T. D. Allen et al., 2009). Attachment style (Ainsworth, 1989) may also be an important dispositional trait given the importance of trust and disclosure in forging a relational bond among mentor and protégé (Rhodes, 2005). We also encourage researchers to consider how technical and interpersonal skills of both mentor and protégé relate to perceptions of instrumental support, psychosocial support, and relationship quality. This is important in light of research linking the mentor's own career success to protégé performance (Tonidandel, Avery, & Phillips, 2007) as well as research indicating that mentors often select protégés on the basis of potential and ability (T. D. Allen, Poteet, & Russell, 2000).

Another important area for future research involves unpacking the construct of relationship formality. Although consistent across the three aspects of mentoring, effects for relationship formality were small. This may reflect the current practice of making a gross distinction between formal and informal mentoring, rather than examining specific aspects of relationship formality. Formality can exist in how the relationship is initiated (i.e., formally arranged by a third party, spontaneously developed, or some combination thereof) as well as how the relationship is structured (e.g., explicit developmental goals, prearranged relationship length, interaction guidelines; Eby et al., 2007; Sipe, 2005). For instance, a formal mentoring program for undergraduates may use a third-party matching process (high formality) but then provide little guidance or direction in terms of relationship structure (low formality). Alternatively, a formal organizational mentoring program may allow mentors and protégés to provide input into who they are matched with (low formality), yet provide considerable guidance on how often to meet or require a mentoring contract with specific goals and timelines (high formality; Finklestein & Poteet, 2007). The effects of relationship formality on protégé perceptions of mentoring may vary depending on which aspects are emphasized. For example, the natural pairing of mentors and protégés should enhance positive evaluative reactions and psychosocial support due to similarity-attraction effects (Byrne, 1971). In contrast, having goals and specific relationship expectations may predict greater instrumental support.

Identify moderating effects. Our results also indicate that there is a considerable heterogeneity associated with many of the estimated effects, suggesting the importance of examining moderators. Although there is a wide array of variables that could be considered, we focus on relationship formality, protégé gender, and mentor gender because each has been discussed as influencing mentoring processes and outcomes. Although we coded for these variables in our meta-analysis, there were an insufficient number of primary studies to examine any of these as moderators.

As previously discussed, formal and informal mentorships vary in duration, relationship initiation (third-party matching vs. spontaneous attraction), and other features (e.g., formality of mentor–protégé interaction, frequency and intensity of interaction; Ragins & Cotton, 1999; Sipe, 2005). Therefore, in addition to exerting a main effect on mentoring received, relationship formality may influence the extent that various antecedents are associated with perceptions of mentoring. For instance, due to the shorter duration and more instrumental focus, relational attributes such as similarity may be less consistently related to mentoring in formally arranged relationships. Relationship formality may also affect the extent that mentoring is associated with protégé outcomes. As an example, the association between psychosocial mentoring and protégé outcomes may be stronger in informal relationships due to their longer duration and greater emphasis on whole-person development.

In addition to being a predictor of mentoring received, gender may moderate the relationship between mentoring and various

antecedents, correlates, and consequences. The moderating role of gender is most frequently discussed in terms of how the relationship between mentoring support and protégé outcomes may be especially strong for women (W. B. Johnson & Huwe, 2003; O'Neill, Horton, & Crosby, 1999; Ragins, 1997b). However, the moderating role of gender may operate in other ways as well. For instance, relationship attributes such as similarity may be more predictive of relationship quality for women than for men due to women's greater desire for relational connectedness (Canary & Dindia, 1998), or performance may be more highly related to psychosocial support for female protégés than for males due to the affirming and confidence-building aspects of psychosocial support.

Mentor gender may also be a moderator. For example, due to greater social power, the instrumental support provided by male mentors may translate into greater career-related gains for protégés (Ragins & Sundstrom, 1989). Conversely, psychosocial support behaviors such as encouragement and acceptance are more in line with traditional gender-role expectations for women (Eagly & Karu, 2002). Therefore, it is frequently presumed that psychosocial support provided by female mentors is associated with greater protégé benefits since it may be more readily accepted by protégés. Finally, for both mentor and protégé, gender may also influence the reasons for entering into a mentoring relationship, which may have implications for the extent that mentoring received is related to various correlates and consequences (McKeen & Bujaki, 2007).

An expanded perspective on outcomes. Given the modest effect sizes for mentoring outcomes as well as the heterogeneity associated with many of these observed relationships, we also recommend research on the potential problems that can arise in mentoring relationships. Like other types of close relationships, mentoring is likely to be marked by both relational ups and downs. In fact, a growing body of scholarship on negative mentoring experiences highlights various problems that protégés report with mentors and vice versa (for a review, see Eby, 2007). Although there was insufficient primary research to examine relational problems in relation to mentoring received, we echo J. T. Wood and Duck's (1995) concern that examining only the positive aspects of close relationships provides an incomplete and distorted perspective. A particularly important avenue for future research involves exploring the interplay between positive and negative aspects of mentoring and the unique predictors and outcomes of each.

Another way we recommend expanding outcomes is by honing in on gaps in the literature that were uncovered in the present review. We were particularly surprised to see so few primary studies examining the career-related outcomes of protégé perceptions of mentoring in academic settings. Outcomes such as perceptions of career success and indicators of employment quality (e.g., compensation, career prospects) are highly relevant to mentoring experiences in college and university settings. Moreover, mentoring has been studied in relation to academic outcomes such as grade point average, professional skill development, networking, and scholarly productivity (for a review, see W. B. Johnson, 2007), all of which are likely to have downstream effects on protégés' careers. Likewise, although the effects are arguably more distal, research on youth mentoring could benefit from examining career-related outcomes to identify the long-term positive benefits of mentoring for youth. Another surprising omission is the lack of research examining turnover intentions among academic and youth

mentoring. For both of these types of mentoring, it seems reasonable to propose that greater mentoring support might reduce intentions to drop out of school or drop challenging academic classes.

Additional research on relationship quality. Relative to perceived instrumental and psychosocial support, fewer studies ($n = 20$) have examined protégé perceptions of relationship quality. This represents an important avenue for future research for several reasons. First, affective reactions and experiences are central to relationships; they give meaning and purpose to our lives, make us feel validated and valued (Kahn, 2007). Relationships can also generate positive emotions and influence one's sense of identity (Roberts, 2007). Second, we found that the pattern of associations with other variables differs some depending on whether protégés are reporting on perceived instrumental support, psychosocial support, or relationship quality. Therefore, examining relationship quality is not simply replicative of research focusing on perceptions of psychosocial or instrumental support; it likely taps into a related yet distinct aspect of the relational experience. Finally, both the youth (Rhodes, 2002, 2005) and workplace literatures have discussed the importance of high-quality connections in understanding what makes a mentoring relationship effective. We urge researchers to begin dismantling the construct of relationship quality and to examine the specific relational processes (e.g., empowerment, authenticity, trust) that define this experience. Furthermore, high-quality relationships are likely to have positive gains for not just the protégé but also the mentor (Ragins, 2010). Therefore, an important avenue for future research involves examining specific aspects of relationship quality from both the protégé and mentor perspectives. This will allow us to explore common as well as unique antecedents and outcomes.

Practical Implications

A practically important finding is that relatively superficial variables, such as overall surface-level similarity, show little relationship with any of the three aspects of mentoring, while the more psychologically substantive variable of deep-level similarity demonstrates some of the strongest effects with all three aspects of mentoring. This is promising in terms of efforts to use mentoring to affect social change in institutions where mentors are likely to be majority group members and protégés may be minorities. For example, formal university mentoring sometimes targets women and minority undergraduates because they often have greater difficulty adjusting to college than do White males (Campbell, 2007) and both groups may face barriers to obtaining a mentor (Blackwell, 1989; Kalbfleisch & Davies, 1991). If mentors and protégés who are different in terms of race and/or gender can identify commonalities in values, beliefs, personality, and other deep-level characteristics, our findings suggest that these relationships may turn out to be perceived as highly satisfying and supportive by protégés.

Notwithstanding the findings associated with race and gender, several interpretive caveats are in order regarding diversity. With regard to racial diversity in particular, post hoc analysis revealed that youth mentoring studies are more likely to involve diverse samples than are academic or workplace samples, perhaps due to the strong emphasis on targeting high-risk youth for mentoring. For example, while 50% of the youth mentoring

samples contained some racial diversity among both protégés and mentors, only 28% of academic and 13% of workplace studies had any racial diversity among both protégés and mentors. In terms of the number of diverse protégés included in the total data set of 40,737 protégés, 21% of the total sample represents protégés of color (n = 8,503). Of these, 4,054 protégés are from youth mentoring studies, 2,382 are from academic mentoring studies, 1,821 are from workplace mentoring studies, and 246 are from other studies (e.g., combination of academic and workplace). This indicates that although there is some heterogeneity in the racial composition of the samples that comprised the current review, additional research is needed on the experiences of non-White protégés, particularly in the area of academic and workplace mentoring.

Our findings regarding the correlates and consequences of mentoring also provide an important reference point for understanding the potential gains and limits of mentoring relationships. The popular press often makes sweeping claims about the benefits of mentoring, at times referring to mentors as making or breaking an individual's academic, career, or even life success (e.g., Hansen, 2010; McKay, 2010). However, the modest effect sizes associated with mentoring correlates and consequences demonstrate that for the typical protégé, the benefits of mentoring are likely to be more limited in both scope and magnitude. This is an important finding because having unrealistically high expectations about the benefits of mentoring can lead to disappointments and failed relationships, and perhaps even undermine mentor or protégé confidence if such expectations are not realized (Eby & Lockwood, 2005).

In terms of gaining the most from mentoring relationships, the consistent finding that interaction frequency is associated with all three aspects of mentoring highlights the likely importance of regular contact between mentor and protégé. The consistent association between all three aspects of mentoring and both situational satisfaction and sense of affiliation suggests that mentoring may be a strategy to build loyalty and solidarity in community, university, and organizational settings. This may be particularly important for minority group members who may be more likely to feel alienated from these larger social institutions (Jacobi, 1991; Karcher et al., 2002).

Our results also provide some guidance on the structure of formal mentoring programs. Because deep-level similarity was a strong predictor of all three aspects of mentoring, there may be some utility in matching mentors and protégés on characteristics that will foster perceptions of similarity. This might include previous life experiences, values, personality, or interests. Similarity perceptions may also be increased through opportunities to socialize prior to matching or the use of icebreaker activities in training programs. To increase the likelihood that protégés perceive greater instrumental support, it may also be useful to consider matching on characteristics such as functional area, education level, and geographic proximity. This type of matching may help ensure that the skills and learning provided by the mentor are relevant and valued by the protégé. In terms of program design, providing opportunities for mentors and protégés to interact with one another may increase protégé perceptions of instrumental and psychosocial support, as well as positively influence relationship quality. However, given the correlational nature of the data, it may also be that when protégés perceive more support and have more positive evalu-

ations about the mentor or relationship, it leads to more frequent interactions with the mentor.

Conclusion

During the past several decades, interest in the topic of mentoring has flourished as research and practice have highlighted the many positive benefits associated with these relationships across a variety of contexts (T. D. Allen & Eby, 2007). The current research represents an integrative, interdisciplinary meta-analysis of the mentoring literature. Increasing our understanding of the antecedents, correlates, and consequences associated with various aspects of mentoring across the life span has important implications for individuals, institutions, communities, and society. By highlighting what we know and what areas are most in need of further research, we hope the current study will serve as a springboard for the future research and theory development on mentoring relationships.

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