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Does Mentoring Matter? A Multidisciplinary Meta-Analysis Comparing Mentored and Non-Mentored Individuals

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Abstract

The study of mentoring has generally been conducted within disciplinary silos with a specific type of mentoring relationship as a focus. The purpose of this article is to quantitatively review the three major areas of mentoring research (youth, academic, workplace) to determine the overall effect size associated with mentoring outcomes for protégés. We also explored whether the relationship between mentoring and protégé outcomes varied by the type of mentoring relationship (youth, academic, workplace). Results demonstrate that mentoring is associated with a wide range of favorable behavioral, attitudinal, health-related, relational, motivational, and career outcomes, although the effect size is generally small. Some differences were also found across type of mentoring. Generally, larger effect sizes were detected for academic and workplace mentoring compared to youth mentoring. Implications for future research, theory, and applied practice are provided.

Across areas of research, scholars agree that mentoring can be associated with a wide range of positive outcomes for protégés. Mentoring has been discussed as a strategy for positive youth development and as a deterrent of risky youth behavior (DuBois & Karcher, 2005), as a way to improve the academic adjustment, retention, and success of college students (Johnson, in press), and as a means to facilitate career development among employees (Kram, 1985). Despite the widespread study of mentoring and its prevalence in community, academic and organizational contexts, research has progressed within its own disciplinary silos. As a consequence, there is little cross-disciplinary communication among mentoring scholars. There are also no quantitative reviews of the mentoring literature as a whole, even though the same basic assumption applies to all types of mentoring. That is, when a more experienced or senior individual (the mentor) takes an interest in and encourages a less experienced or disadvantaged individual (the protégé), the protégé will benefit (Jacobi, 1991; Kram, 1985; Rhodes, 2005).

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To spark mentoring researchers to think more broadly about the potential role of mentoring in protégés' lives and to advance mentoring theory, a comprehensive multi-disciplinary meta-analysis was conducted. Our primary objective was to answer the question, "Looking across different areas of mentoring scholarship, does mentoring matter, and if so, how much?" This is an important question because the popular press makes strong claims about the importance of mentoring and both public and private funds are used to support many different types of mentoring initiatives (Rhodes, 2005). We were also interested in documenting whether or not there are differences in how much mentoring matters across protégé outcomes. For example, does mentoring have a stronger relationship with protégé attitudes (e.g., attitudes toward school, satisfaction with college, job satisfaction), protégé behaviors (e.g., grades in school, deviant behavior, job performance), or protégé motivational variables (e.g., aspiration level, time spent on educational pursuits, career commitment)? This information has implications for theory development and refinement. It may also alert practitioners as to the protégé outcomes that may be most likely affected by mentoring when designing formal programs. Finally, we were interested in examining whether mentoring outcomes vary by the type of relationship (youth mentoring, workplace mentoring, academic mentoring). This will provide a more fine-grained assessment of the conditions under which mentoring matters the most.

Overview of the Mentoring Literature

Because individuals may experience mentoring at various life stages, it is not surprising that there are three distinct streams of mentoring scholarship: youth mentoring, academic mentoring, and workplace mentoring. Youth mentoring involves a relationship between a caring, supportive adult and a child or adolescent (Rhodes, 2002). Youth mentoring assumes that supportive relationships with adults are important for personal, emotional, cognitive, and psychological growth (Ainsworth, 1989; Rhodes, 2002). Academic mentoring typifies the apprentice model of education where a faculty member imparts knowledge, provides support, and offers guidance to a student protégé on academic (e.g., classroom performance) as well as non-academic (e.g., personal problems, identity issues) issues (Jacobi, 1991). This type of mentoring may facilitate psychological adjustment and foster a sense of professional identity (Austin, 2002). Finally, workplace mentoring occurs in an organizational setting and the purpose is the personal and professional growth of the protégé (Kram, 1985). The mentor may be a supervisor, someone else within the organization but outside the protégé's chain of command, or an individual in another organization (Eby, 1997).

Several narrative reviews of the youth, academic, and workplace mentoring literature exist. Some narrative reviews summarize research findings associated with youth, academic or workplace mentoring in a particular area, such as diversity (e.g., Ragins, 2002), formal mentoring relationships (e.g., Miller, in press), or naturally occurring mentoring relationships (e.g., Mullen, in press; Zimmerman, Bingenehimer, & Behrendt, 2005). Other reviews focus on a specific type of mentoring (e.g., academic, workplace) more broadly (e.g., Jacobi, 1991; Wanberg, Welsh, & Hezlett, 2003). Several quantitative reviews also exist. This includes quantitative reviews of formal youth mentoring (DuBois, Holloway, Valentine & Cooper, 2002), academic mentoring (Dorsey & Baker, 2004; Sambunjak, Straus, & Marusic, 2006), and workplace mentoring (Allen, Eby, Poteet, Lentz, & Lima, 2004; Underhill, 2006). Collectively these represent important efforts to synthesize the literature. However, there are no reviews that incorporate diverse areas of mentoring scholarship or compare mentoring outcomes across youth, academic and workplace mentoring. The present study addresses this issue.

Hypothesized Effects of Mentoring on Outcomes

We expect a wide range of outcomes to be related to mentoring. This includes behavioral, attitudinal, health-related, relational, motivational, and career outcomes.

Behavioral outcomes

Mentoring is often discussed as a means to increase desirable behavior (e.g., academic performance, job performance) and decrease undesirable behavior (e.g., school drop-out, substance use). In fact, formal mentoring programs for youth and college students often target "at risk" individuals (cf. Campbell, in press; Rhodes, 1994). The hope is that mentoring will deter negative outcomes such as drug use, teen pregnancy, college drop-out, and academic failure while simultaneously encouraging alternative positive behaviors. Another way that protégé behavior may be affected is through instrumental assistance provided by mentors (e.g., helping to publish articles, complete homework, successfully finish work tasks) (Cohen & Willis, 1985). This leads us to propose:

Hypothesis 1: Mentoring is associated with positive behavioral outcomes.

Attitudinal outcomes

Mentoring may also have a positive effect on protégé attitudes. For instance, it is presumed that protégés will develop positive attitudes toward the activity that they engage in with their mentors. This might include activities associated with school (Blinn-Pike, in press; Tennenbaum, Crosby, & Gliner, 2001), graduate training (Johnson, Koch, Fallow, & Huwe, 2000), or job assignments (Chao, Walz, & Gardner, 1992). Having a mentor may also foster psychological attachment to the context in which the relationship is embedded, such as one's school, university, or organization (e.g., Payne & Huffman, 2005). Thus, we expect:

Hypothesis 2: Mentoring is associated with positive attitudinal outcomes.

Health-related outcomes

Another facet of the mentoring relationship involves the provision of emotional and other forms of health-related support to the protégé. A mentor may listen and offer advice during times of stress or provide counseling on personal or job-related issues (Kram, 1985). Mentors can also enhance overall well-being by challenging protégés' negative self views (Rhodes, 2002, 2005) which may enhance protégé self-confidence or self-esteem (Johnson, in press). Furthermore, mentors may be able to promote protégé physical health by engaging in activities such as exercise with the protégé or by facilitating protégé access to health services (DuBois & Silverthorn, 2005). As such we propose:

Hypothesis 3: Mentoring is associated with positive health-related outcomes.

Relational outcomes

Mentoring also may enhance interpersonal relationships with parents, siblings, and peers (Rhodes, 2002, 2005). For example, mentors may help protégés figure out appropriate strategies to deal with interpersonal problems at work, home or school. Moreover, the experience of a trusting, close relationship with a mentor may lead the protégé to develop positive expectations about interpersonal relationships with others (Rhodes, Grossman, & Rensch, 2000) which in turn may promote positive relationships. This leads us to propose:

Hypothesis 4: Mentoring is associated with positive relational outcomes.

Motivational outcomes

Protégé motivation and involvement may also be influenced by mentoring. Role modeling can expose protégés to educational and social opportunities, which may open their eyes to different possibilities and motivate them to seek out new experiences (Spencer, in press). Motivation also may be enhanced by helping protégés set achievable goals and realize personally relevant outcomes (Ramaswami & Dreher, in press). Moreover, mentors may help protégés stay focused on tasks and steer them away from superfluous activities (Bearman, Blake-Beard, Hunt & Crosby, in press). Based on this, we propose:

Hypothesis 5: Mentoring is associated with positive motivational outcomes.

Career outcomes

Finally, mentoring relationship may promote career success. Mentors can impart specific knowledge and expertise which contributes to protégé learning and skill development (Kram, 1985; Johnson, in press; Mullen, in press). Mentors can also facilitate professional networking by introducing protégés to influential individuals within academic and organizational contexts (Kram, 1985; Tennenbaum e al., 2001). These important career contacts can in turn lead to career success in terms of salary, promotions, and job offers. With youth or college students, mentors also may introduce protégés to different possible careers and help them to explore those, thus enhancing their development in this area. Thus, we propose:

Hypothesis 6: Mentoring is associated with positive career outcomes.

Differences in Youth, Academic and Workplace Mentoring

Although similar in some respects, youth, academic, and workplace mentoring also differ. One salient difference is the developmental stage of the protégé. Developmental theories suggest that people progress through relatively orderly periods of transition marked by unique challenges (Erikson, 1963; Levinson, Darrow, Klein, Levinson, & McKee, 1978). These developmental transitions represent critical turning points and if not navigated successfully there are psychological and social consequences (Erikson, 1963). From middle childhood to adolescence the primary developmental issues involve learning how to cultivate healthy peer relationships, master academic challenges, and develop a sense of personal responsibility (Erikson, 1963; Spencer, in press). In early adulthood the transitions revolve around psychological and physical separation from one's parents, learning to develop close emotional bonds with non-family members, and identity development (Erikson, 1963; Levinson et al., 1978). By the time one enters the workforce, the transition generally focuses on developing a stable occupational self-image and finding a niche for oneself in society (Levinson et al., 1978).

Mentoring at different developmental stages also tends to serve different functions or purposes. Youth mentoring is often aimed at reducing risky behavior or improving social and academic functioning (DuBois & Karcher, 2005). Academic mentoring tends to target student retention, academic performance, and adjustment to college life (Jacobi, 1991). Finally, workplace mentoring aims to enhance employees' personal and career development (Kram, 1985). Based on the unique developmental transitions individuals face across the lifespan and the varying purposes of different types of mentoring we propose the following research question:

Are there differences in protégé outcomes when comparing youth, academic, and workplace mentoring?

Method

Literature Search

A comprehensive search of articles published from 1985–2006 was conducted to identify articles examining differences between protégés and non-protégés on a wide range of outcomes. PsycINFO, Business Source Premier, ERIC, Educational Abstracts, Medline, PubMed, Sociological Abstracts, and Social Sciences Abstracts were searched to identify relevant articles Search terms included “mentor” and all derivations of this word (e.g., mentoring, mentored), “Big Brother”, “Big Sister”, “non-parental adult” and “buddy” in a relevant search field (i.e., title, abstract, keyword, descriptor, major topic). We also cross-referenced quantitative reviews (Allen et al., 2004; Dorsey & Baker, 2004; DuBois et al., 2002; Sambunjak et al., 2006; Underhill, 2006), narrative reviews (e.g., Jacobi, 1991; Wanberg et al, 2003) and other major compendiums (e.g., Allen & Eby, in press; DuBois & Karcher, 2005) to identify additional articles. Finally, the websites of several nationwide formal mentoring programs (e.g., Big Brothers/Big Sisters) as well as organizations that routinely evaluate or fund research in the area of mentoring (Public/Private Ventures) were searched for articles and reports. Unpublished research such as conference papers, dissertations and theses were excluded. Because of this we conducted a file drawer analysis. The fail safe N (FSN) represents the number of missing studies averaging null results that would be needed to reduce the effect size to a specified level (Rosenthal, 1984). In the present study we used an alpha level of $p = .05$.

Eligibility Criteria

The initial search process yielded 15,131 articles and reports. To be considered for inclusion the study had to compare mentored and non-mentored individuals on an individual-level outcome (e.g., academic success, drug use, work attitudes). The study also had to be written in English and quantify the relationship between mentoring and the outcome 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 1 *df*). For studies that met the inclusion criteria but did not report usable statistics (e.g., multivariate findings only), we attempted to obtain such data by contacting the study authors. Individual studies also had to meet all of the following criteria:

1. The study had to involve youth, academic, or workplace mentoring.
2. Neither protégés nor mentors suffered from a major physical or psychological disability (e.g., studies of seriously cognitively impaired individuals were excluded).
3. The study involved a focus on traditional one-on-one non-parental mentoring relationships. As such, studies focusing exclusively on peer, group/team, or reverse mentoring were excluded. Also excluded were studies focusing exclusively on parents as mentors, professional caregivers or specialists as mentors, and social support from teachers for youth.
4. For intervention studies, mentoring had to be the sole or primary intervention (e.g., interventions that included academic counseling, special coursework, financial aid, and mentoring to improve student retention were excluded).
5. Research on teacher induction programs, on-the-job training, and internship programs was excluded because these studies do not necessarily involve one-on-one mentoring.

One hundred and twelve studies and reports met all of the eligibility criteria. Three studies included multiple samples, for a total of 116 independent samples for the meta-analysis. If authors published different studies from the same dataset or a smaller sub-set of the same dataset, only the effect size based on the larger sample size was included. A full list of the studies included in the present meta-analysis is available from the first author.

Operationalization of Constructs

Mentoring—Mentoring was operationalized as non-mentored (coded 1) or mentored (coded 2). As such, positive correlations indicated that being mentored was associated with a higher level of each criterion variable (e.g., more favorable career attitudes, higher self-esteem).

Outcomes—Similar to other published meta-analyses (Ng, Eby, Sorensen, & Feldman, 2005; Valentine, DuBois, & Cooper, 2004) variables that were conceptually similar were combined. This was necessary in order to draw general conclusions about the relationship between mentoring and protégé outcomes across different types of mentoring.

Table 1 lists the six broad categories of outcomes examined. Within each category we list the specific outcomes examined and examples of how these outcomes were operationalized. Some of the outcomes listed in Table 1 are applicable across different types of mentoring (e.g., withdrawal behavior, motivation/involvement) whereas other outcomes are more specific to a particular type of mentoring (e.g., deviance was examined exclusively in studies of youth mentoring). If two (or more) effect sizes from the same study were combined into an outcome category, the effect sizes were averaged so that each sample only contributed one effect size (DuBois et al., 2002;Underhill, 2006).

Grouping variable—The type of mentoring relationship was also coded so that it could be examined so that we could examine whether the relationship between mentoring and protégé outcomes varied across youth, academic, and workplace mentoring. The 166 independent samples were coded into one of three categories: youth mentoring (n=40, 34.5%), workplace mentoring (n=53, 45.7%), academic mentoring (n=23, 19.8%). Youth mentoring was defined as a naturally occurring (informal) or formally arranged (e.g., Big Brother/Big Sister) relationship between a non-parental adult and a child, adolescent, or young adult (Blinn-Pike, in press). Academic mentoring studies were those that examined relationships among undergraduate or graduate students and teachers or faculty members in community colleges, four year colleges, and universities (Johnson, in press) (including medical schools and nursing programs). Studies were coded as workplace mentoring if they focused on formal or informal mentoring relationships between working adults in an organizational setting (Allen et al., 2004).

Meta-Analysis Procedure

The 15,131 articles were screened by two of the study authors. The first and second authors were responsible for coding all studies included in the meta-analysis. These two coders independently double-coded articles until they reached over 90% agreement. After reaching over 90% agreement each person single-coded his or her assigned articles. Spot checking throughout the coding process revealed minimal coding errors. Coding discrepancies were resolved through re-examination of the data and when necessary, discussion. The effect size used in the current analysis was the product-moment correlation coefficient.

Hunter and Schmidt's (1990) meta-analysis technique was used. To compute a meta-analytic correlation at least three studies were required. Each correlation was first corrected for unreliability in the measurement of the outcome variable. If coefficient alpha was not reported for a study we used the average coefficient alpha for the other studies in that outcome category, as is commonly done in meta-analysis (e.g., Ng et al., 2005). Some outcomes did not require disattenuation (e.g., organizational turnover, number of days skipped). Next, the sample size weighted correlation was calculated. A corrected correlation was judged to be significant at alpha=.05 when the 95% confidence interval did not include zero.

Sub-Group Analyses

The *Q* statistic (Hedges & Olkin, 1985) indicated if there was sufficient variability in each meta-analytic effect size to warrant a search for sub-group differences. For effect sizes associated with a significant *Q* statistic, meta-analytic correlations were computed separately for studies focusing on youth, academic, and workplace mentoring (Hunter & Schmidt, 2000). As with the primary analyses, a minimum of three studies was necessary to compute sub-group meta-analytic correlations. To determine if the effect sizes associated with a particular mentoring-outcome relationship differed significantly across youth, academic, and workplace mentoring, the 95% confidence intervals for each effect size were examined. Non-overlapping confidence intervals provides evidence of significant sub-group differences (cf. Ng et al., 2005).

Results

Table 2 provides the results of the meta-analysis of outcomes associated with mentoring. For each relationship we report the total sample size cumulated across studies included in the analysis of that relationship (*N*), number of studies included in the analysis of that relationship (*k*), sample size weighted corrected correlation (r_c), standard deviation of the r_c (SD_c), the upper and lower 95% confidence interval (95% LCI, 95% UCL), the *Q* statistic, and the Fail-Safe N. We used the Cohen's (1988) conventional standards for interpreting correlation-based effect sizes as small (absolute value of .10 to .23), medium (absolute value of .24 to .36) and large (absolute value of .37 or higher). For four outcomes we encountered studies with sample sizes over 3,000 (Bhatta & Washington, 2003;Brashear, Bellinger, Boles, & Barksdale, 2006;Clotfelter, 2001). We computed effect sizes with and without these large samples.

An important consideration is whether to adopt a fixed-effects or random-effects meta-analytic model. These methods differ in terms of whether the error term is considered to be homogeneous or heterogeneous across studies (Hedges & Vevea, 1998). With fixed-effects methods, the effect sizes in the population are unknown constants but are fixed, presumed to be the same for all studies included in the meta-analysis. With random-effects methods effect sizes are assumed to vary randomly from study to study and are therefore only a sample of all possible studies that exist on a topic (Hunter & Schmidt, 2000). The random-effects method is generally preferred since it allows generalizations beyond the studies included in a meta-analysis (Field, 2001). However, when fewer than 30 effect sizes are used in calculating meta-analytic correlations, random-effects methods have some serious limitations (i.e., low power to detect small effect sizes, inflated Type I error) (Field, 2001). These problems are exacerbated with the Hunter and Schmidt technique (Field, 2001). Thus, meta-analytic correlations were computed using both fixed-effects (see Table 2) and random-effects (see Table 3).

Hypotheses 1–6 were supported. Regardless of the meta-analytic method used (fixed- or random-effects), mentoring was significantly related to favorable behavioral, attitudinal, health-related, interpersonal, motivational, and career outcomes (note that negative correlations with withdrawal behavior, withdrawal intentions, deviance, substance use, and psychological stress & strain indicate more desirable outcomes). The only exception was the non-significant effect size associated with psychological stress & strain when estimated using a random-effects method (see Table 3). The largest effect sizes were between mentoring and helping others (large sample removed), school attitudes, and career attitudes. The smallest (but still statistically significant) effect sizes were between mentoring and psychological stress & strain (when estimated using fixed-effects only), career recognition & success, deviance, and self-perceptions. All of the effect sizes were small in magnitude. In most cases our Fail-Safe N analysis indicated that a substantial number of null result studies would need to be added to bring significance to p = .05. However, in some cases only a small number of studies (e.g., school attitudes) or even none (psychological stress & strain) would be required. In such cases,

confidence in the stability of the observed effect is questionable and the results should be viewed with caution (Rosenthal, 1979).

Sub-Group Difference Results

Examining the *Q* statistics in Tables 2 and 3 provides mixed evidence with respect to moderation. When using a fixed-effects method several *Q* statistics are significant. In contrast, when using a random-effects method none of the *Q* statistics are significant. Due to the concern over using random-effect methods with fewer than 30 *k*s (Field, 2001), we proceeded with the sub-group analysis for those outcomes in Table 2 that yielded a significant *Q* statistic using the fixed-effect method. There is evidence of sub-group differences for all of the mentoring-outcome relationships except withdrawal intentions, substance use, and skills/competence development. Therefore, except for the outcomes just noted, we conducted sub-group analyses by type of mentoring relationship (youth, academic, workplace) if there was an adequate number of studies ($k \geq 3$) to do so. For some outcomes (e.g., performance) there were adequate sub-sample sizes to compare all three types of mentoring. In other situations only two of the three types of mentoring could be examined (e.g., school attitudes). Because the effect sizes associated with the three large studies was not appreciably different from the total sample and in all cases the inclusion of the three samples led to more conservative estimates (smaller effect sizes), these studies were included in the sub-group analyses, where appropriate.

Table 4 reveals several patterns of results across different types of mentoring. First, with regard to behavioral outcomes, all three types of mentoring demonstrated significant effect sizes for performance. However, as evidenced by the nonoverlapping confidence intervals, academic mentoring was more highly related to performance than was youth or workplace mentoring. Both youth and academic mentoring were significantly associated with withdrawal behavior, whereas workplace mentoring was not. However, all three types of mentoring shared overlapping confidence intervals. Workplace and youth mentoring shared overlapping confidence intervals regarding helping others, but the effect size associated with workplace mentoring was significant whereas that associated with youth mentoring was not. With regard to attitudinal outcomes, all of the effect sizes were significant. However, the effect size associated with attitudes was stronger for academic than for youth mentoring. Regarding the health outcome of psychological stress & strain, the effect sizes were not significantly different from each other, but the workplace effect size was significant whereas the youth effect size was not. With regard to interpersonal relations, both were significant, but the effect size was stronger for workplace mentoring than for youth mentoring. Finally, with regard to motivational involvement, all three types of mentoring shared overlapping confidence intervals. However, whereas the effect sizes were significant for academic and workplace mentoring, the effect size was not statistically significant for youth mentoring. It is also noteworthy that when examining the specific types of mentoring, several medium effect sizes were detected. This pertains to the relationship between workplace mentoring and helping others ($r_c = .26$, $p<.05$) and to that between academic mentoring and school attitudes ($r_c = .36$, $p<.05$). Finally, for approximately half of the effect sizes list in Table 4 a significant *Q* statistic was found, indicating that additional moderators may exist.

Discussion

Four conclusions can be reached from our findings. First, we found that mentoring is significantly correlated in a favorable direction with a wide range of protégé outcomes. Second, although the overall effect sizes are small, mentoring appears to be more highly related to some protégé outcomes (e.g., school attitudes) than to others (e.g., psychological stress & strain). Third, there is evidence (albeit mixed) that there may be moderators of some mentoring-outcome relationships. Finally, there is tentative evidence of differences in the extent to which

mentoring is associated with some outcomes across youth, academic, and workplace relationships.

Overall Findings

Our findings are generally consistent with previous reviews focusing on a specific type of mentoring (youth, academic, workplace). Both Allen et al. (2004) and Underhill (2006) found significant relationships between workplace mentoring and career attitudes, work attitudes, and some career outcomes. Reviews of youth (DuBois et al., 2002) and academic (Sambunjak et al., 2006) mentoring found an association between mentoring and both career and employment outcomes. There are also reviews linking youth (DuBois et al., 2002), academic (Dorsey & Baker, 2004; Sambunjak et al., 2006) and workplace (Underhill, 2006) mentoring to psychological outcomes such as positive self-image, emotional adjustment, and psychological well-being, although similar to our findings, several of these reviews found small effect sizes. Finally, previous research on youth finds that being mentored is related to more positive social relationships, higher performance, and less problem behavior (DuBois & Silverthorn, 2005).

Interestingly, our results suggest that mentoring is more strongly related to protégé attitudes than to behavior, health, and career outcomes. It may be that attitudes are more amenable to change than are outcomes that are more contextually-dependent or more influenced by stable person variables. For instance, an individual's decision to engage in substance use may be strongly influenced by peer pressure, access to drugs, and parental role modeling, making it difficult for a mentoring relationship to have substantial impact. Likewise, research shows that career recognition and success is influenced by factors that may be outside one's control (e.g., gender, race) and by factors not easily malleable (e.g., cognitive ability) (Ng et al., 2005).

Differences by Type of Mentoring

Some interesting differences in effect sizes were found across the three types of mentoring included in the present review. The absolute value of the effect sizes associated with youth mentoring ranged from .03 to .14 while those associated with academic mentoring and with workplace mentoring ranged from .11 to .36 and .03 to .19, respectively. This pattern seems to suggest that generally speaking academic mentoring has stronger associations with outcomes than does youth mentoring and that workplace mentoring is somewhere in between. One possible explanation for these differences centers on the typical context under which these different types of mentoring occur. Specifically, youth who are mentored are often "at risk" for behavioral, social, or academic problems due to a poor family and/or socioeconomic situation. Thus, youth who are mentored commonly face numerous challenges (e.g., academic problems, parental conflict, unhealthy peer relationships) that may be difficult to overcome with mentoring alone (DuBois et al., 2002). In fact, there is some evidence that youth mentoring leads to greater benefits when accompanied by other support services (Kuperminc et al., 2005).

Given that youth may have many needs it may also be more difficult for mentors to offer focused and tailored guidance, especially when compared to the typical protégé within an academic or workplace setting. For example, academic mentoring relationships can generally be highly focused on a behavioral outcome such as performance because adolescents who have made it to a higher-level educational context have likely already surmounted or never faced some of the same obstacles. Thus, they are functioning at a higher level that does not require mentoring to be more diffuse and focused on multiple issues as may be the case in youth relationships. Another factor that could favor the effectiveness of academic mentoring is that this type of mentoring is often considered to be a core component of an institution's mission (Sambunjak et al., 2006). Moreover, mentors within the academic context may be better

equipped to provide the functions associated with mentoring as it often part of their own job training. Often individuals who mentor youth or serve as informal mentors within the workplace setting do so on a volunteer basis with little or no training.

A final potential explanation for the pattern of effects centers on methodological differences in typical youth mentoring studies versus studies of other types of mentoring. Youth mentoring studies are more frequently based on a single mentoring relationship within a specific program and are often highly controlled in the form of random assignment of youth to receive or not receive a mentor. In contrast, in studies of academic or workplace mentoring the participant is often asked to simply report whether or not he or she has had a mentor. Youth mentoring studies are thus less likely to be influenced by self-selection biases (e.g., healthier individuals attract mentors) that have the potential to artificially inflate associations between mentoring and outcomes. In addition, intervention studies by their nature typically involve longitudinal associations between mentoring and outcomes at a later point in time, a factor that may further attenuate effect size estimates.

Implications for Multidisciplinary Research on Mentoring and Theory

The finding that mentoring is significantly correlated with a variety of positive protégé outcomes is consistent with conventional wisdom that close relationships are important for individuals across the lifespan (Baumeister & Leary, 1995). As Allen and Eby (in press) note, individuals possess a universal and fundamental “need to belong” (p. 399). This need can be met through mentoring relationships and it may be an important driver of affective, cognitive, and behavioral outcomes for protégés. This desire for affiliation and acceptance from others can be met across the lifespan for those involved in youth, academic, and workplace mentoring relationships. This suggests that in order to acquire a broader understanding of the full range of mentoring benefits, researchers may profit from taking a more developmental lifespan approach to the study of mentoring. Such an approach will require greater cross-disciplinary dialogue.

The present meta-analytic review also identifies some outcomes of mentoring that deserve greater attention both *across* and *within* specific areas of mentoring scholarship. For example, it may be useful to further explore the link between mentoring and helping others since mentoring has been discussed as a form of prosocial behavior (Allen, 2003). Examining helping behavior as a consequence of mentoring could lead to the further integration of existing research on altruism and organizational citizenship with mentoring. There also appear to be outcomes of mentoring that deserve greater attention *within* particular areas of mentoring scholarship. For example, career attitudes have been almost exclusively studied in workplace mentoring. However, a major goal of academic mentoring is career preparation. Therefore, it seems important to examine the relationship between mentoring received in college and subsequent career attitudes such as how satisfying one finds his or her career, expectations for career advancement, and perceived employment opportunities.

Applied Implications

There are several practical implications of our findings. Perhaps most importantly, we caution scholars, practitioners, and policy makers not to overestimate the potential effect of mentoring. Consistent with more focused reviews of the literature we found that the overall magnitude of association between mentoring and outcomes was small in magnitude. Moreover, due to the cross-sectional, non-experimental nature of many of the studies involved it is unknown whether significant correlations between mentoring and outcomes reflect a causal effect of mentoring. We are not suggesting that mentoring does not have value – the evidence presented here suggests that it may. However, we believe the results underscore the need to temper what are sometimes seemingly unrealistic expectations about what mentoring can offer to protégés,

institutions, and society at large. We recommend that decision-makers think carefully when developing policies and programs about how to deal with pressing problems such as gang violence, teenage drug use, drop-out rates among diverse college students, and the loss of top talent in organizations. Mentoring may (or may not) be the best (or only) solution to a particular problem.

Our findings also provide guidance on the types of outcomes we might reasonably expect mentoring to influence. This could inform policy makers about the types of goals that formal mentoring programs might aim for with the greatest chance of success. In general, attitudes (e.g., work satisfaction, attitudes toward school, career expectations), interpersonal relations, and motivation/involvement may be the most easily influenced by mentoring, whereas health-related (e.g., substance use, psychological stress & strain) and career outcomes (e.g., promotions, salary) may be less influenced by mentoring. Looking at our findings by type of mentoring, we see that youth mentoring may be most likely to affect school attitudes and least likely to affect the performance, psychological stress & strain, or the motivation/involvement of protégés. In the academic arena mentoring may have the most utility in terms of improving performance and attitudes toward school and decreasing withdrawal behavior. Finally, in terms of workplace mentoring we find that larger gains may be likely in terms of enhancing helping behavior, situational satisfaction & attachment, and interpersonal relationships whereas smaller gains may be likely in terms of enhancing job performance and deterring withdrawal behavior.

Study Limitations

The current study has several limitations that should be noted. First, and most critically given the correlational nature of many of the studies included in this review, our findings do not provide unambiguous evidence that mentoring *causes* protégé outcomes. Rather, they provide encouragement to investigate this possibility within future research using more controlled designs (e.g., experimental) and investigating outcomes over time. The existing literature on mentoring literature has not widely adopted such designs. Second, we operationalized mentoring as the presence or absence of a mentor. However, there are other ways to examine mentoring such as the amount of mentoring received, relationship length, or relationship quality. The relationship between mentoring and protégé outcomes may differ based on how mentoring is operationalized. We encourage additional cross-disciplinary research that uses different conceptualizations of mentoring. Third, there were an insufficient number of studies to conduct sub-group analyses for all protégé outcomes or to compare all three types of mentoring. This leaves unexplored questions about the relative importance of mentoring across youth, academic, and workplace mentoring. Another limitation involves the trade-offs associated with using fixed-effects versus random-effects meta-analytic methods and the inconsistent findings these two methods provided with regard to our search for sub-group differences. Until additional studies become available for analysis, our sub-group analyses should be viewed tentatively. Likewise, the Fail-Safe N analysis calls into question the stability of several mentoring-outcome relationships. As such, the results reported in Tables 2 and 3 should be considered in light of the number of unpublished studies estimated as necessary to obtain a p=.05.

In conclusion, our study represents the first attempt to quantitatively summarize the outcomes associated with mentoring across the three major areas of research: youth, academic, and workplace. The results suggest both similarities and differences in the benefits associated with different types of mentoring relationships, thus setting the stage for new areas of integration and future inquiry. The many positive benefits that our findings suggest could be associated with mentoring, albeit the small effect sizes, suggest that continued research that further helps

us understand the dynamics and processes associated with mentoring across the lifespan is a worthwhile endeavor.

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Table 1

Outcomes of Mentoring

Behavioral	
Performance	*e.g.*, scholarly productivity, raw profit, business success, sales performance, academic achievement, college grade point average
Withdrawal behavior	*e.g.*, school drop out, organizational turnover, skipping school, absences
Withdrawal intentions	*e.g.*, intent to leave organization, intent to leave military
Helping others	*e.g.*, mentoring others, organizational citizenship behavior, community service
Deviance	*e.g.*, suspensions, property damage, stealing, lying to parents, aggressive behavior, recidivism
Attitudinal	
Situational satisfaction & attachment	*e.g.*, job satisfaction, university satisfaction, satisfaction with academic experience, sense of community, organizational commitment
School attitudes	*e.g.*, attitude toward school, attitude toward research, perceived value of school
Career attitudes	*e.g.*, career satisfaction, career expectations, career expectations, perceived employment opportunity
Health-related	
Substance use	*e.g.*, drug use, alcohol use, positive attitudes toward drug/alcohol use
Psychological stress & strain	*e.g.*, depression, anxiety, life dissatisfaction, pessimistic world view, work stress, role conflict
Self-perceptions	*e.g.*, self-esteem, self-worth, self-efficacy, self-report scholastic competence, locus of control
Relational	
Interpersonal relations	*e.g.*, parent trust, parent communication, positive peer relations, peer intimacy, satisfaction with coworkers, peer support, supervisor support, relationship quality
Motivational	
Motivation/ involvement	*e.g.*, hours worked, time spent on educational pursuits, number of semesters to graduate, number of hours spent on homework, career planning, job involvement, motivation, aspiration, career commitment
Career	
Career recognition & success	*e.g.*, academic rank, pay, promotion rate, prestige of first job
Skill/Competence development	*e.g.*, socialization, communication skills, problem-solving skills, work knowledge, goal setting ability

Table 2

Fixed-Effects Method Meta-Analytical Relationships between Mentoring and Outcomes

	N	k	r_c	SDc	(95% LCI	95% UCI)	Q	Fail-Safe N
Behavioral								
Performance	10250	31	.08*	.12	(.06	.10)	166.89*	159
Performance (without large sample)	6925	30	.10*	.14	(.07	.12)	159.97*	124
Withdrawal behavior	4423	18	−.07*	.08	(−.10	−.04)	38.86*	39
Withdrawal intentions	3152	7	−.10*	.03	(−.14	−.05)	7.70	48
Helping others	5792	10	.13*	.12	(.10	.16)	69.98*	45
Helping others (without large sample)	2753	9	.20*	.12	(.15	.24)	42.29*	44
Deviance	3494	15	−.06*	.02	(−.10	−.03)	15.76*	72
Attitudinal								
Situational satisfaction & attachment	16694	31	.16*	.07	(.14	.17)	102.76*	1005
Situational satisfaction & attachment (without large sample)	10194	30	.17*	.08	(.15	.19)	95.36*	791
School attitudes	4245	11	.19*	.22	(.16	.23)	185.50*	9
Career attitudes	11540	16	.14*	.15	(.12	.16)	187.38*	111
Career attitudes (without large sample)	5040	15	.19*	.18	(.16	.22)	159.76*	72
Health-Related								
Substance use	2889	7	−.08*	.02	(−.12	−.03)	6.99	25
Psychological stress & strain	6232	20	−.04*	.06	(−.07	−.01)	41.85*	0
Self-perceptions	4626	19	.06*	.09	(.03	.09)	53.47*	15
Interpersonal								
Interpersonal relations	8416	22	.12*	.09	(.10	.14)	89.26*	222
Motivational								
Motivation/involvement	11267	19	.11*	.08	(.09	.13)	63.68*	208
Motivation/involvement (without large sample)	4767	18	.14*	.10	(.11	.17)	57.59*	124
Career								
Career recognition & success	5833	18	.05*	.15	(.02	.08)	130.69*	20
Skills/competence development	2238	13	.11*	.08	(.07	.16)	23.89	84

*$p<.05$.

Note. *N* = cumulative sample size; *k* = number of studies cumulated; r_C = sample-size weighted corrected correlation; *SDc* = standard deviation of r_C; *LCI* = lower bound of confidence interval; *UCI* = upper bound of confidence interval; *Q* = *Q* statistic.

Table 3

Radom-Effects Method Meta-Analytical Relationships between Mentoring and Outcomes

	N	k	r_c	SDc	(95% LCI	95% UCI)	Q	Fail-Safe N
Behavioral								
Performance	10250	31	.11*	.12	(.05	.17)	50.02	159
Performance (without large sample)	6925	30	.11*	.14	(.05	.18)	41.63	124
Withdrawal behavior	4423	18	−.07*	.08	(−.13	−.02)	20.88	39
Withdrawal intentions	3152	7	−.10*	.03	(−.15	−.05)	5.67	48
Helping others	5792	10	.17*	.12	(.07	.26)	6.64	45
Helping others (without large sample)	2753	9	.18*	.12	(.08	.29)	6.07	44
Deviance	3494	15	−.07*	.02	(−.11	−.03)	14.66	72
Attitudinal								
Situational satisfaction & attachment	16694	.17	.07*	(.14	.21)	38.58	.17	1005
Situational satisfaction & attachment (without large sample)	10194	.18	.08*	(.14	.22)	32.72	.18	791
School attitudes	4245	11	.16*	.22	(.00	.31)	11.27	9
Career attitudes	11540	16	.19*	.15	(.10	.28)	23.34	111
Career attitudes (without large sample)	5040	15	.20*	.18	(.09	.31)	16.62	72
Health-Related								
Substance use	2889	7	−.08*	.02	(−.13	−.03)	5.86	25
Psychological stress & strain	6232	20	−.03*	.06	(−.07	.02)	19.96	0
Self-perceptions	4626	19	.06*	.09	(−.00	.12)	17.71	15
Interpersonal								
Interpersonal relations	8416	22	.14	.09	(.09	.19)	18.12	222
Motivational								
Motivation/involvement	11267	19	.14	.08	(.09	.19)	22.64	208
Motivation/involvement (without large sample)	4767	18	.15	.10	(.08	.21)	17.54	124
Career								
Career recognition & success	5833	18	.09	.15	(.01	.18)	11.61	20
Skills/competence development	2238	13	.13	.08	(.06	.20)	13.25	84

* $p<.05$.

Note. N = cumulative sample size; *k* = number of studies cumulated; r_C = sample-size weighted corrected correlation; *SDc* = standard deviation of r_C; *LCI* = lower bound of confidence interval; *UCI* = upper bound of confidence interval; *Q* = *Q* statistic.

Table 4

Fixed-Effects Method Sub-Group Analyses

	N	k	r_c	SDc	(95% LCI	95% UCI)	Q
Behavioral							
Performance-Youth	2319	12	.05*	.03	(.01	.10)	12.31
Performance-Workplace	6487	11	.06*	.12	(.03	.09)	76.69*
Performance-Academic	1444	8	.19*	.22	(.13	.26)	55.06*
Withdrawal behavior-Youth	1877	9	−.08*	.00	(−.13	−.02)	6.98
Withdrawal behavior-Workplace	1458	4	−.03	.12	(−.11	.05)	16.45*
Withdrawal behavior-Academic	1088	5	−.11*	.11	(−.19	−.02)	11.62*
Helping others-Youth	961	3	.12	.00	(−.02	.26)	1.60
Helping others-Workplace	1653	5	.26*	.13	(.19	.33)	26.31*
Attitudinal							
Situational satisfaction & attachment-Workplace	14603	24	.16*	.08	(.15	.18)	90.48*
Situational satisfaction & attachment-Academic	2091	7	.11*	.03	(.06	.17)	7.36
School attitudes-Youth	3207	8	.14*	.12	(.10	.18)	46.94*
School attitudes-Academic	1038	3	.36*	.42	(.22	.49)	102.17*
Health-related							
Psychological stress & strain-Youth	2820	9	−.03	.04	(−.07	.02)	11.93
Psychological stress & strain-Workplace	3146	9	−.07*	.06	(−.11	−.03)	17.56
Interpersonal							
Interpersonal relations-Youth	4991	11	.07*	.06	(.04	.10)	26.70*
Interpersonal relations-Workplace	3359	10	.19*	.10	(.15	.23)	34.86*
Motivational							
Motivation/involvement-Youth	1166	3	.04	.05	(−.09	.16)	2.94
Motivation/involvement-Workplace	350	7	.12*	.08	(.09	.14)	26.69*
Motivation/involvement-Academic	1444	9	.14*	.13	(.08	.20)	26.64*

* $p<.05$.

Note. *N* = cumulative sample size; *k* = number of studies cumulated; r_C = sample-size weighted corrected correlation; *SDc* = standard deviation of r_C; *LCI* = lower bound of confidence interval; *UCI* = upper bound of confidence interval; *Q* = *Q* statistic.