An Ecological Systems Perspective on Mentoring at Work:
A Review and Future Prospects

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Abstract

After nearly 30 years as a subject of inquiry, mentoring remains a mainstay in the organizational literature, as relationships are arguably more important than ever to employees' personal and career growth. In this paper, we take an ecological perspective to situate and review topical areas of the literature with the intention of enhancing our understanding of how mentoring outcomes for protégés and mentors are determined not only by individual differences (e.g., personality) and dyadic factors (e.g., the quality of a relationship)—both of which represent the most frequently examined levels

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of analyses—but also the influences of the people from various social spheres comprising their developmental network, the larger organization of which they are a part, and macrosystem factors (e.g., technological shifts, globalization) that enable, constrain, or shape mentoring and other developmental relationships. Our review examines multi-level influences that shape mentoring outcomes, and brings into focus how the study of mentoring can be advanced by research at the network, organizational, and macrosystem levels. To help guide future research efforts, we assert that adult development and relational schema theories, Positive Organizational Scholarship, a social network perspective, signaling theory, and institutional theories can help to address emerging and unanswered questions at each ecological level.

Introduction

Today's turbulent career environment, characterized by numerous career transitions, technological shifts, and globalization, among other forces, heightens the need for people to engage others in their career and personal development (Arthur, Khapova, & Wilderom, 2005; Higgins & Kram, 2001). The current reality is that at some point in time, everyone is a novice, and individuals will experience mini-learning cycles throughout their careers as they transition between and within organizations (Hall & Chandler, 2007). Individuals are faced with the choice to manage their career development in isolation of others or to foster developmental alliances. In spite of the current economic downturn in which organizations have slashed their budgets for employee training and development (Capelli, 2008), human-resources professionals continue to design formal mentoring programs that match mentors and protégés in order to aid employee career growth and advancement and to shape their contexts to provide conditions in which both formal and informal mentoring can flourish. These continue to be recognized as essential to effective talent development and succession planning.

After roughly 30 years of research since Levinson, Darrow, Klein, Levinson, and McKee (1978) identified a mentor as developmentally critical in early adulthood, a significant body of scholarship highlights the value of mentoring for individuals and organizations, as well as the challenges associated with it (Allen, Eby, Poteet, Lentz, & Lima, 2004; Kammeyer-Mueller & Judge, 2008; Ragins & Kram, 2007; Underhill, 2006). Reflecting enthusiasm for mentoring scholarship, between 2002 and 2010, over a dozen reviews and meta-analyses have taken stock of various topical areas, the value of having or being a mentor, and the methods used to study it (e.g., Allen et al., 2004; Allen, Eby, O'Brien, & Lentz, 2008; Eby & Allen, 2007; Kammeyer-Mueller & Judge, 2008; Molloy, 2005; Ng, Eby, Sorenson, & Feldman, 2005; Noe, Greenberger & Wang, 2002; Ragins & Kram, 2007). Our goal here is not simply to review the reviews. Rather, we take a unique vantage point, an ecological systems

perspective, to: (1) synthesize mentoring topics on the basis of how they relate to ecological levels; (2) highlight the systemic nature of mentoring and how mentoring outcomes are determined not only by individual differences and dyadic factors, but also by the support and structure of people's network, as well as the organizational and societal contexts in which they work; and (3) pinpoint gaps in what is currently known and offer emerging or underutilized perspectives to fill them.

An ecological systems perspective—as first introduced by Bronfenbrenner (1977, 1979, 1994)—has been used to explore a number of phenomena, including work–family facilitation (Wayne, Grzywacz, Carlson, & Kacmar, 2007), leadership (K. E. Allen, Stelzner, & Wielkiewicz, 1999), suicide (Ayyash-Abdo, 2002), sexual revictimization (Grauerholz, 2000), and child abuse and neglect (Tann & Ray, 1991); we are unaware of its application to mentoring. Mentoring, from an ecological systems perspective, requires us to consider how person and environmental systems are not independent from each other, but rather reciprocal and interdependent. This suggests that we consider patterns of relationships between systems and what happens at their interface.

With an ecological systems perspective, we propose a shift from thinking about mentoring as an interaction between individuals to mentoring as a property of whole systems. As such, our review considers how the mentoring is enacted and shaped by systems at multiple levels—at the individual level (ontogenic system), the immediate social context (microsystem), and broader societal influences (macrosystem) (Bronfenbrenner, 1979). Our review from an ecological systems perspective illustrates that most of the research to date has focused on the ontogenic system (individual differences) and dyadic exchanges within the microsystem, with less emphasis on extended microsystems (developmental networks and the organizational context) and societal macrosystem. (See Table 1 for an overview of key concepts, and Figure 1 for a visual depiction of the ecological systems model.) In addition, we propose lenses at each ecological level of analysis to guide future research efforts.

Given the breadth of factors explored in mentoring research to date, we necessarily limit our review to key relevant factors and trends emergent in the past five years. We begin by providing a short overview of existing reviews and meta-analyses that have helped to bring order to the mentoring literature.

Key Contributions of Reviews and Meta-Analyses (2002–2010)

Until just after the start of the new millennium, mentoring research proliferated in topical areas, leading to a sizeable literature. A dozen reviews and meta-analyses were published between 2002 and 2010, taking stock of what is known about mentoring. The first two—Noe et al. (2002) and Wanberg,

Table 1 Levels of Analysis, Key Associated Concepts, and New Concepts and Perspectives

Ecological System	Key Associated Concepts (Reviewed)	New Concepts and Perspectives
Ontogenic system	Personality, gender, race, desirable mentor and protégé characteristics, human capital variables	Developmental position, age, stage, mentoring schemas
Microsystem	*Dyadic*	*Dyadic*
	Mentoring functions, phases, studies on the impact of cross-gender and race pairings, protégé/mentor agreement, relationship characteristics, formal versus informal mentors, black box of mentoring alternative relational options, mentoring as a relational quality continuum	Relational mentoring; *relational processes* (i.e., reciprocity, mutual learning, and empathic teaching), *relational behaviors* (i.e., empathy, disclosure, sensitivity, and empowerment), and *relational outcomes* (zest, tensility); mentoring episodes
	Network	*Network*
	Network structure (e.g., diversity, strength of tie, multiplexity), structural and developmental support outcomes, developer functions, group mentoring	Use of career communities model to elicit studies involving a wide range of developers Negative and a broader array of network outcomes Empirical research on network antecedents
	Organizational	*Organizational*
	Organizational mentoring program characteristics (e.g., volunteerism, training, high versus low facilitation)	Research on peer coaching, peer mentoring, and reverse mentoring program characteristics, Social information processing, Signaling Theory, Mentoring Climate
Macrosystem	Societal norms, social barriers to mentoring, power dynamics, technological advances, cultural differences in mentoring	Critical studies of mentoring, interactions between virtual and face-to-face mentoring; mentoring in multicultural workplaces, institutional influences and shifts in mentoring

Welsh, and Hezlett (2003), published in *Research Personnel and Human Resources Management*—provided broad reviews of the field, focusing on theoretical perspectives applied to the literature, the evolution of the construct of mentoring, methodological issues and approaches (Noe et al., 2002), and key
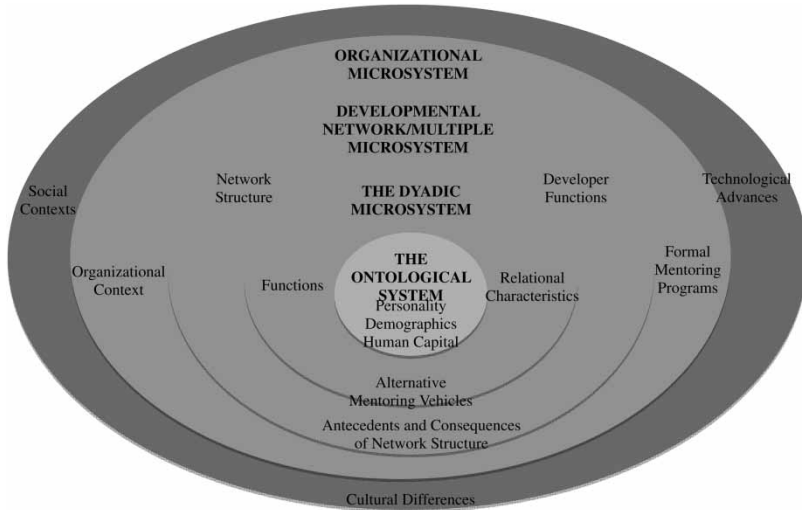
Figure 1   Mentoring: Ontogenic, Microsystem, and Macrosystem Levels of Analysis.

questions driving the field (individual antecedents, mentoring dynamics, diversity and mentoring, outcomes, and formal mentoring) (Wanberg et al., 2003). Wanberg et al. (2003) integrated the various literature streams into a conceptual model of formal mentoring relationships, which has inspired a stream of papers exploring formal programs since.

Five meta-analyses published in the *Journal of Applied Psychology* (Allen et al., 2004) and the *Journal of Vocational Behavior* (Eby, Allen, Evans, Ng, & DuBois, 2008; Kammeyer-Mueller & Judge, 2008; Ng et al., 2005; Underhill, 2006) examined whether mentoring matters by comparing mentored to non-mentored individual in terms of mentoring function received and career outcomes. Prior to the first meta-analysis (Allen et al., 2004), earlier qualitative reviews (e.g., Noe et al., 2002; Wanberg et al., 2003) noted equivocal findings between mentoring and career outcomes. These five studies collectively redressed this ambiguity and substantively furthered the literature by substantiating that beyond the variance accounted for by individual factors (e.g., human capital and demographics), mentoring has positive, typically small-to-moderate effect sizes on objective (e.g., promotions and salary) and subjective (e.g., career and job satisfaction) outcomes.

The first of the five (Allen et al., 2004) found that having a mentor and receiving more career and psychosocial support are related to positive career outcomes. More specifically, Allen et al. (2004) found that career support is more strongly related to the objective outcomes of compensation and promotion than psychosocial support. Conversely, they found that psychosocial support is more strongly related to the subjective outcomes of job satisfaction than

career support. In addition, they found that effect sizes are larger for subjective outcomes than for objective outcomes. This suggests that mentoring has the more positive impact on psychological views of one's career. In a meta-analysis examining the effects of numerous factors (e.g., human capital and stable individual differences on career success), Ng et al. (2005) found that career sponsorship (the extent to which an employee receives sponsorship from senior-level employees) was positively related to salary and had a positive yet weak relationship with promotions. In a meta-analytic comparison between formal and informal mentoring, Underhill (2006) found that informal mentoring results in significant and larger effects on career outcomes than formal mentoring. Eby et al. (2008) compared across mentoring studies conducted with workplace, academic, and youth populations. They found that workplace and academic mentoring produced larger effects than youth mentoring, but suggested that this could be due to the nature of youth mentoring, which focuses on disadvantaged youth populations. Across the three contexts, they found that mentoring had a greater effect on protégé attitudes than on behavioral, health, and career outcomes. The most recent meta-analysis conducted by Kammeyer-Mueller and Judge (2008) examined 341 mentoring studies conducted between 1987 and 2007. They found similar results to Allen et al. (2004)—that mentoring has the strongest impact on career attitudinal measures. Additionally, they found that mentoring produced consistent effects beyond covariates, ranging from weak to moderate in size. However, tenure, education, and core self-evaluation had stronger effects on career outcomes than did mentoring. The authors concluded, among others, that research on multiple mentors (Baugh & Scandura, 1999; Higgins & Kram, 2001) or the mentor's position within the organization (Podolny & Baron, 1997) may provide more substantial insight into how mentoring affects career outcomes.

Two handbooks published in 2007—*Handbook of Mentoring at Work: Research, Theory and Practice* (Ragins & Kram, 2007) and *The Blackwell Handbook of Mentoring: A Multiple Perspectives Approach* (Allen & Eby, 2007)—brought together preeminent scholars to assess the state of the field. While the former focused solely on workplace relationships, the latter included reviews of academic and youth mentoring as well. *The Handbook on Mentoring at Work* reviewed core topics, including personality and mentoring, leadership and mentoring, and formal and peer mentoring; extended the literature by applying related perspectives and disciplines (e.g., personal change theory, work–family theory); and discussed best practices on building successful formal mentoring programs. *The Blackwell Handbook of Mentoring: A Multiple Perspectives Approach* reviewed recent research on mentoring in the three domains, highlighting similarities and differences across them. Chapters dedicated to workplace mentoring included benefits, diversity, best practices in formal mentoring programs, naturally occurring mentoring relationships, and theoretical perspectives and methodological approaches.

Three more recent review papers have examined gender (O'Brien, Biga, Kessler, & Allen, 2010), research methods and study content focus (Allen et al., 2008), and the evolving definition of mentoring (Haggard, Dougherty, Turban, & Wilbanks, 2011). O'Brien et al. (2010) focused their meta-analysis on gender differences in mentoring. They found no significant differences by gender in protégé receipt of career development or experience as a protégé, and, in most case, small effect sizes for gender differences in receipt of psychosocial support (male protégés receive less than women). Reviewing more than 200 published studies, Allen et al.'s (2008) qualitative review of methods and content focus found that studies generally employ "quantitative, correlational, cross-section research designs in field settings where data are collected from a single source (typically the protégé) using a single method of data collection" (p. 355). They conclude that mentoring research may still be in a relatively formative state, in essence, examining relationships among variables. Haggard et al. (2011) tackled researchers' varying definitions of a mentor in their respective studies in the past 20 years and the implications of those variations for the literature. They asserted that while numerous definitions have been utilized over time, three common attributes—reciprocity (mutuality of exchange), regular/consistent interaction over some period of time, and developmental benefits (tied to the protégé's career)—distinguish mentoring relationships.

Beyond substantial variation in defining a mentor, the only other formal definition proposed in the mentoring literature is that of a developmental network as a group of people who take an active interest in and action to advance a focal individual's career (Higgins & Kram, 2001). As will be discussed later, numerous alternatives to a traditional mentor (e.g., peers, group mentoring) have been proposed (e.g., Eby, 1997; Hall & Kahn, 2001) and are often referred to as "developmental relationships," that is, relationships that aid personal and professional development. We agree with Haggard et al.'s (2011) assessment that the literature should acknowledge many definitions rather than assert one is better than others; what is therefore critical is that researchers are clear about what definition drives their work so that studies' findings can be interpreted based on the one chosen.

Taken together, these reviews have further clarified what we know and do not know about mentoring. Consistent with the field's evolution to date, most of the reviews focus on what we know about ontogenic individual-level (e.g., personality, gender, and race) and microsystem dyadic-level (e.g., amount of mentoring support provided in the relationship, formal vs. informal relationships, type of relationship) factors and mentoring. Yet topics at these levels tend to be reviewed in isolation of each other without consideration of what topics at each level collectively suggest about what we know (Allen & Eby, 2007; O'Brien et al., 2010; Ragins & Kram, 2007). In addition, emerging topics since late 2006 such as proactive behaviors by individuals (e.g.,

Blickle, Witzki, & Schneider, 2009), studies on formal mentoring program design factors (e.g., Allen, Eby, & Lentz 2006), and the burgeoning literature on developmental networks (e.g., Higgins & Kram, 2001) have not yet been reviewed. More generally, network and organizational context (second and third microsystems) and societal-level factors have received relatively little attention. However, none of the reviews aptly highlights this limitation of the literature. To provide a clearer view of the need to consider additional microsystem and macrosystem considerations, we introduce an ecological perspective as a tool to review the literature in a new light.

An Ecological Systems Perspective of Mentoring

An ecological systems perspective, first introduced by Bronfenbrenner (1977, 1979, 1994), allows us to situate the phenomenon of mentoring at the intersection of complex social and psychological systems. Bronfenbrenner's ecological systems framework identifies five interrelated systems. In our application, the ecological systems model can be depicted as a series of concentric circles with the person at the center (see Figure 1). The circle closest to the person is the ontogenic system (representing psychological and demographic individual characteristics) (Tinbergen, 1951), followed by the microsystem (the immediate environment in which a person interacts), and the macrosystem (cultural, societal, and other factors).

With an ecological systems perspective, the phenomenon of mentoring can be seen as an activity embedded in complex interactions between systems. Although the ecological model was originally used to understand how the environment interacts with individual processes of change, it is applicable to mentoring. Thus, with the ecological perspective as our organizing framework, we review research on individual and environmental forces that interact to shape mentoring outcomes. In organizing our review with an ecological systems perspective, we acknowledge the composite of individual and environmental forces that mutually influence and constitute the phenomenon of mentoring at work.

Our review starts with a discussion of ontogenic development factors (e.g., personality, race, and gender) that offer individual-level explanations for mentoring outcomes. Microsystem factors represent the immediate context within which a protégé or mentor interacts, and include dyadic (e.g., mentor-protégé agreement, relational characteristics, quality of a relationship), network (e.g., the diversity of social spheres represented in a person's developmental network), and organizational influences (e.g., formal mentoring program attributes). At the macrosystem level, we discuss cultural, technological, and societal factors that exert influence on mentoring outcomes through their effect on ontogenic development and the microsystems. Within each system

review, we overview key topics that represent what we know, highlight gaps in our understanding, and suggest avenues for future research.

Ontogenic System

What individual characteristics and behavior affect how a person experiences mentoring? Ontogenic factors are individual-level characteristics that shape how people respond to their social environment. In the mentoring literature, a sizeable amount of research has examined individual-level antecedents such as personality (e.g., Turban & Lee, 2007; Wanberg, Kammeyer-Mueller, & Marchese, 2006), demographic factors (e.g., Blake-Beard, Murrell, & Thomas, 2007; Ragins, 1997a), desirable mentor and protégé attributes (e.g., Allen, 2003), human capital variables like education and tenure (Dreher & Ash, 1990; Fagenson, 1989), willingness to mentor (Lapierre, Bonaccio, & Allen, 2009), and emotional intelligence (Cherniss, 2007) among others. Here, we briefly review personality, demographic (gender and race), desirable mentor and protégé attributes, and human capital antecedents as representative of the core of ontogenic system influences.

The Core Influences

Personality. A limited body of research has investigated how *personality* affects the ways in which individuals experience mentoring, although more needs to be conducted to draw generalizable conclusions (e.g., Turban & Lee, 2007; Wu, Foo, & Turban, 2008). The theoretical premise of these studies is that personality traits, measured using the Five Factor Model (FFM), influence the extent to which individuals are likely to initiate relationships (Turban & Dougherty, 1994), have or be a mentor (T. D. Allen, Poteet, Russell, & Dobbins, 1997; Fagenson, 1989, 1992), foster close developmental relationships (Wu et al., 2008), and reap benefits in the form of developmental support (e.g., Day & Allen, 2004). As examples, Five Factor traits like neuroticism, agreeableness, and extraversion are associated with intimacy with developers and mentoring received (Bozionelos, 2004; Wu et al., 2008); extroversion and conscientiousness (Niehoff, 2006) are associated with participation as a mentor.

Demographics. Studies examining the influence of *demographic* variables on mentoring began in the 1980s concomitant to the rise of formal mentoring programs in organizations with the aim of aiding women's and minorities' professional growth and career advancement, the premise of these programs being that organizational life favored white men to the exclusion of other groups (Chandler & Kram, 2007; Finkelstein & Poteet, 2007). Most research in this area has explored the impact of gender and race on mentoring, and, in addition, age and nationality have received slightly more attention in recent years.

As noted earlier, recent meta-analyses have helped to clarify relationships between gender and mentoring. In spite of potential barriers to gaining a mentor, women and men are equally likely to be protégés and to experience career benefits (Kammeyer-Mueller & Judge, 2008; O'Brien et al., 2010); in addition, due to women's seemingly unique relational skills, they are more likely to gain psychosocial support (O'Brien et al., 2010). Since men are still more often in positions of higher rank than women, they are more likely to provide career-related support and act as mentors (O'Brien et al., 2010). In spite of positive evidence of certain parities between genders in terms of having a mentor and support provided, researchers have suggested that moderating variables such as formal versus informal relationships (O'Brien et al., 2010), gender similarity (e.g., Scandura & Williams 2001), mentor gender (Kammeyer-Mueller & Judge, 2008), and overall relationship composition (O'Brien et al., 2010) may influence the effect of gender on career outcomes.

While research on gender has recently benefitted from meta-analytical analysis, the literature on race and mentoring has shown considerable ambiguity and has substantial unanswered questions (Blake-Beard et al., 2007). Findings have been mixed on race and access to mentoring. Whereas some research suggests people of color have difficulty gaining access to mentors (e.g., Catalyst, 2001; Dreher & Cox, 1996; Thomas, 1990), others find no race-based differences in access (Blake-Beard, 1999; Koberg, Boss, Chappell, & Ringer, 1994). Access to a mentor may be challenging due to insufficient numbers of people of color in managerial and senior positions (Catalyst, 1999), catapulting individuals into cross-race relationships (Thomas, 1990, 1993) or into situations where they must seek out mentors in other departments (Murrell, Blake-Beard, Porter, & Williamson, 2006; Thomas, 1990) or outside the organization (Murrell, Blake-Beard, Porter, & Williamson, 2008). Networks of high-potential minorities tend to include cross-race and same-race relationships, suggesting that people of color often foster complementary networks of whites who facilitate career support and people of color who facilitate psychosocial support (Ibarra, 1995). In terms of mentoring support, a meta-analysis found that whites receive more developmental support than do people of color (Kammeyer-Mueller & Judge, 2008). Research on outcomes and race for mentors and protégés is similarly mixed; whereas some research suggests people of color are not able to experience substantial mentoring benefits because of racial dynamics (e.g., Thomas & Gabarro, 1999), other studies suggest the impact of race on objective and subjective outcomes is ambiguous (Blake-Beard et al., 2007).

Desirable mentor and protégé attributes. Social exchange theory (Blau, 1964), which suggests potential and existing mentors and protégés weigh the costs and benefits of engaging in their relationships, has been used to explain why certain individuals are more attractive as relationship partners.

These studies suggest willingness to learn, honesty, confidence, ability, and competence are desirable protégé characteristics (Allen, 2003, 2004; T. D. Allen, Poteet, & Burroughs, 1997; Olian, Carroll, & Giannantonio, 1993) because these characteristics heighten perceived benefits of relationship engagement. Although we know less about what makes a potential mentor desirable, a set of experimental studies found that interpersonal competence is associated with protégé attraction (Olian, Carroll, Giannantonio, & Feren, 1988) and characteristics such as patience, knowledge of an organization and industry, and an ability to understand others are effective mentor attributes (Allen & Poteet, 1999).

Human capital. Similar to the aforementioned line of research, human capital variables such as education and organizational tenure (and other job/career variables) are considered relevant to mentoring, as greater capital is considered to make individuals more attractive as protégés (Allen, Poteet, & Burroughs, 1997; Kammeyer-Mueller & Judge, 2008). As an example of *human capital variables*, a recent study examining the rising star hypothesis—that people on the fast track to career success are more likely to obtain informal mentoring—found that individuals who have never been mentored and have strong promotional histories and greater advancement expectations and those who are on the fast track to promotion are more likely to later gain a mentor than those who do not possess the same characteristics (Singh, Ragins, & Tharenou, 2009a). This study and others (e.g., LaPierre et al., 2009; Olian et al., 1993) represent a long-standing debate within the field around causation, that is, whether ability/competence attracts mentors or whether mentors build competence.

Proactive behaviors. Finally, recognizing the role of individuals as active agents in shaping their work situations, a small group of more recently published studies have examined the impact on career success of proactive behaviors such as networking and self-initiated mentoring (Blickle et al., 2009), self-efficacy for development (Maurer, Weiss, & Barbeite, 2003), and developmental proactivity and managing interactions (Chandler, Hall, & Kram, 2010) on career success. These studies identify ontogenic protégé characteristic variables that explain developmental support received from mentors. They suggest that effective mentoring is a much a function of protégés as it is the mentors.

In sum, although empirical studies have demonstrated how individual antecedents predict mentoring outcomes, much of the research has centered on demographic and personality variables. Other ontogenic factors such as education and individual competence have been given less attention. In addition, such variables have been examined as antecedents to mentoring, and further research in needed to consider individual-level variables as mediators and

moderators of mentoring outcomes. This could help explain contradictory findings in the existing research around the effects of demographic variables on mentoring outcomes.

Future Research on the Ontogenic System

The ontogenic system as a whole has received quite a substantial amount of scholarly attention. In spite of numerous studies on individual-level antecedents, however, a number of gaps exist at this level of analysis in mentoring. For example, many studies have collectively examined personality, race, and gender. However, what are the implications of religion, personal values, disability, sexual orientation, and nationality (Ramaswami, & Dreher, 2009 as a notable exception) as individual antecedents? Although we know that many women and minorities engage in cross-gender and cross-race relationships with white men, we know little about what makes diversified relationships successful (a notable exception being Thomas, 1993). In addition, research tends to group people of color (e.g., African-American, Hispanic) together as a single unit rather than parsing out ethnicities. This methodological tendency obscures true differences between the groups. We do not know much about the intersection of race and gender, as most studies treat them as separate demographic factors (Shields, 2008). For example, how do female Hispanics differentially experience mentoring in relation to African-American women? Researchers interested in examining unique intersections of particular sub-identities need to develop multi-method approaches that allow for consideration of the combined and interactive influences of gender, race, and ethnicity (Cole, 2009).

Adult development and relational schema theories. In addition to the ideas set forth above, we believe that two lenses—adult development and relational schema theories, which offer insights into how people approaches relationships and what relational perspectives they brings to interactions with others—can be particularly useful in future research of the ontogenic system. In contrast to the literature's emphasis on the impact of stable or trait-like factors, an adult development perspective highlights stage and phase factors, among others, that can or do vary over the course of a person's lifetime; relational schemas represent perspectives driven by historical involvement with mentoring and caretaker figures that can similarly influence ongoing mentoring interactions.

A developmental perspective provides insight into how a person experiences mentoring by illuminating how an individual's developmental position—most often categorized as either phase or stage—shapes the preferences, behaviors, and resources brought to a particular relationship. Although few papers have explored developmental theories and mentoring (e.g., McGowan, Stone, & Kegan, 2007; Wang, Noe, Wang, & Greenberger,

2009), these perspectives remain relatively unexamined. Phase theories of development highlight how individuals face unique developmental tasks during different periods of life (Gould, 1978; Levinson et al., 1978; Vaillant, 1977, 2002) and/or during a particular career (Dalton & Thompson, 1986; Dalton, Thompson, & Price, 1977; Hall, 2002; Schein, 1978; Super, 1957). The developmental tasks are often age related and manifest in specific goals, preferences, and orientations to work and life. These tasks, in turn, shape what individuals bring to relationships, their interest in being a mentor or protégé (e.g., people in early adulthood may be more inclined to be a protégé as they strive to solidify an identity and competence, while people in mid-adulthood may find meaning and purpose in guiding novices as mentors) (Levinson et al., 1978), as well as what kind of guidance and/or support they can offer to others. Under what conditions do individual seek out opportunities to be mentor versus mentored? Does effectiveness as a mentor or protégé vary on the basis of life phase? This same theoretical framework can help explain why particular mentoring relationships can become dysfunctional, as one or the other party enters a life or career transition and is no longer able or willing to participate in the relationship in the same manner (Chandler & Kram, 2007; Eby, McManus, Simon, & Russell, 2000). Are dysfunctional relationship outcomes associated with transitions of either party between phases?

Stage theories of development offer a different yet complementary focus for inquiry (e.g., Kegan, 1982; Loevinger, 1978; Torbert, 1991). These stage theories are hierarchical in that one stage is more advanced than its predecessor is, and each successive stage incorporates the "know-how" from earlier stages. Cognitive and meaning making capacities increase as individuals move toward an increasingly complex and integrative position or "order of mind." In contrast to phase theories, developmental position is not strictly aligned with age or career stage, and many stay at a middle stage of development throughout life. These theories suggest that at higher stages, individuals are better able to create and follow their own agendas and to engage in mutual and interdependent relationships with others.

Although a handful of conceptual papers have begun to delineate how developmental position influences the quality and evolution of mentoring relationships (Ghosh, Hayes, & Kram, 2010; McGowan et al., 2007), research has yet to explore systematically the many variations of parties' developmental positions and their influences on relationship dynamics. What impact does a person's developmental stage have on the quality of his/her mentoring and other developmental relationships? Are people operating at higher stages more satisfied with their relationships? Do higher stage protégés receive more (or different) mentoring? Are lower-stage mentors less effective than higher-stage mentors? Are higher-stage individuals better able to manage diversified mentoring relationships?

  Mentoring schemas represent a second lens that can uniquely add value to the mentoring literature. Building on Baldwin's (1992) concept of relational schemas, Ragins and Verbos (2007) define mentoring schema as the relational knowledge individuals bring to mentoring that influence their expectations, behaviors, and evaluation of particular relationships (Ragins, 2009; Ragins & Verbos, 2007). In other words, mentoring schemas are the "rules of the road" for interactions in mentoring relationships (Ragins & Verbos, 2007). Mentoring schemas combine with mentoring identities and mentoring as possible selves to create mentoring self-structures, which are the social cognitive mechanisms that drive behaviors, expectations, experiences in mentoring relationships, as well as the motivation to enter a mentoring relationship (Ragins, 2009). Mentoring schema theory and the self-structures of mentoring offer a promising approach for explaining the variation in mentoring relationships we have already noted. For example, those who are engaged in more satisfying and effective relationships (e.g., cross-race or gender relationships) are likely to have mentoring schema, scripts, and identities quite different from those engaged in traditional mentoring relationships or dysfunctional mentoring relationships. A systematic study of the distinctive mental maps both parties bring to a mentoring relationship would further our understanding of variations that have been observed. Furthermore, investigating what mentoring schemas look like for formally assigned mentoring relationships, supervisory mentoring relationships, and heterogeneous mentoring relationships would be useful.

The Dyadic Microsystem

What does mentoring entail for two dyadic parties and what consequences are associated with it? Since the introduction of mentoring into the contemporary literature (Hunt & Michael, 1983; Kram, 1983; Levinson et al., 1978), significant interest has been directed at understanding mentoring phases, functions, relational characteristics, and formal versus informal mentoring, primarily aimed at the traditional mentoring relationship between a senior mentor and junior, less-experienced protégé (Ragins & Kram, 2007). Here, we briefly review these traditional topics, and we also consider emerging research on newer dyadic topics such as the black box surrounding processes and interactions. (See Table 1 for key concepts reviewed at the dyadic microsystem.)

The Mentoring Dyad

  Phases and functions. Kram's early work on informally cultivated relationships, which resulted in an understanding of mentoring phases (1983) and functions (1985), paved the way for subsequent examination of the relationship between mentoring and career-related outcomes, both positive and negative.

Subsequent studies empirically tested the four phases of mentoring—initiation, cultivation (the first two being the five years during which most guidance occurs), separation (a period marked by distress on the part of both parties), and re-definition (when it occurs, the relationship evolves into one of peer status) (Chao, 1997; Pollock, 1995)—and developed measures of career (e.g., sponsorship, challenging opportunities, coaching) and psychosocial support (friendship, counseling) used to capture the nature of developmental guidance (Dreher & Ash, 1990; Noe, 1988; Ragins & McFarlin, 1990; Scandura & Ragins, 1993). Researchers have called for revisiting mentoring phases, asserting they may be truncated in light of today's career content and because they were unearthed in an examination of informal mentoring relationships and thus may not fully generalize to other relational vehicles for development (e.g., Chandler & Kram, 2007). Although the mentoring functions have proven robust over time as predictors of mentoring outcomes, Scandura and Ragins's (1993) study, as well as a few others (e.g., Pellegrini & Scandura, 2005; Scandura, 1992), suggested role modeling as a third function. In addition, researchers have asserted that mentoring functions may vary on the basis of race (Blake-Beard et al., 2007) and whether the focal person is an expatriate (Shen, 2010).

Relational characteristics, dyadic composition, and protégé mentor agreement (PMA). As mentoring evidence has mounted around the importance of the quality of a dyadic relationship (e.g., Higgins & Kram, 2001; Kram, 1996), researchers have begun to consider relational characteristics such as trust (Wang, Tomlinson, & Noe, 2010), satisfaction with the relationship (Ragins, Cotton, & Miller, 2000), closeness (Wu et al., 2008), and interpersonal comfort (Allen, Day, & Lentz, 2005), and their effects on mentoring outcomes. For example, studies show that mentors' affect-based trust is associated with protégés' reports of the extent of mentoring provided (Wang et al., 2010), and relationship closeness is associated with developmental assistance received (Wu et al., 2008).

In addition, research on dyadic composition underscores how the latter impacts processes and outcomes (Feldman, Folks, & Turnley, 1999). The gender and race composition of a dyad has a significant effect on functions and outcomes (McKeen & Bujaki, 2007; Ragins, 1997a, 1997b; Thomas, 1993). For example, cross-gender mentoring relationships have been shown to face obstacles same gender relationships do not, including intimacy concerns and potential peer resentment (Clawson & Kram, 1984; Kram, 1985). Most research on heterogeneous relationships centers on gender and race; more research should explore cross-cultural pairings and additional pairings involving individuals of unequal power, as well as pairings involving deep-level similarity or differences (Cole, 2009; Harrison, Price, & Bell, 1998; Shields, 2008).

A few more recent studies have explored protégé–mentor agreement and congruence of perceptions of frequency of communication and developmental support (Fagenson-Eland, Baugh, & Lankau, 2005; Godshalk & Sosik, 2000; Sosik & Godshalk, 2004; Waters, 2004). For example, agreement is positively associated with job satisfaction and organizational commitment (Waters, 2004). These studies highlight that the degree to which a mentor and a protégé share similar views of the relationship has implications for that relationship.

Considering mentoring schema theory at the dyadic level, research has yet to clarify the impact of congruence or incongruence of both parties' mentoring schema. For example, some scholars indicate that congruence of expectations is essential for a high-quality connection between mentor and protégé (McGowan et al., 2007; Ragins & Verbos, 2007)—that only with this congruence will both parties find satisfaction and valued outcomes forthcoming (Waters, 2004). However, as a result of differing mentoring schema, a relationship may actually catapult one of the partners to a more advanced stage of development (Chandler & Kram, 2005; Ghosh et al., 2010; McGowan et al., 2007). Under what conditions will incongruence in mentoring schema be a positive factor, and when will it be an obstacle to relationship development? To what extent does perceptual congruency matter in determining relationship outcomes?

Black box of mentoring. In spite of the substantial body of research conducted at the dyadic level, a black box exists concerning dyadic mentoring processes, interactions, and boundary conditions (Eby & Allen, 2007; Ragins & Kram, 2007; Ramaswami & Dreher, 2007). For example, Eby and Allen (2007) note the need to understand "why mentoring relationships have the positive effects that they do" (p. 400), suggesting a need for an understanding of mediating and moderating factors and interpersonal interactions. Recent work, including that on self-structuring as mentoring (Ragins, 2009), perceived organizational support as a mediator between mentoring support and affective organizational commitment and job satisfaction (Baranik, Roling, & Eby, 2010), and self-efficacy as a dual moderator on the impact of supervisory mentoring on subordinate outcomes (Pan, Sun, & Chow, 2010) are recent efforts to understand the black box. More generally, more research is needed on mentoring processes and interactions.

Differences between formal and informal mentoring. Research has explored the differential effects of having an informal or formal mentor and not having one at all (Baugh & Fagenson-Eland, 2007; Chao, Walz, & Gardner, 1992; Fagenson-Eland, Marks, & Amendola, 1997; Ragins & Cotton, 1999; Ragins et al., 2000). Research suggests participating in a formally assigned relationship is more beneficial than not having one (e.g., Chao et al., 1992; Seibert, 1999).

However, some research suggests formally mentored protégés may receive fewer mentoring functions relative to informally mentored protégés and that formal mentoring has a smaller effect on career outcomes than does informal mentoring (e.g., Allen, Day & Lentz, 2005; Chao et al., 1992; Ragins & Cotton, 1999; Underhill, 2006). Of particular importance, however, satisfaction with a relationship has a stronger influence on job-related attitudes than simply the presence of a mentor (Ragins et al., 2000), suggesting the quality of a relationship is a critical factor.

Newer Dyadic Topics

Mentoring as a relational quality continuum. Emergent research in the past decade illustrates that not all mentoring relationships are positive experiences, and some can have a destructive impact on one or both parties (Eby et al., 2000; Eby, Butts, Lockwood, & Simon, 2004; Ragins et al., 2000). Researchers have examined negative mentoring experiences perpetrated by mentors and protégés, including negative relations, credit taking and sabotage, and their impact on the offended party (e.g., Burk & Eby, 2010; Eby, Butts, Durley, & Ragins, 2010; Eby et al., 2004; Eby & McManus, 2004). Negative mentoring experiences are associated with lower career and psychosocial support, lower job satisfaction, and increased turnover intentions, among others (Eby & Allen, 2002; Eby et al., 2004). A recent study suggesting bad experiences are more predictive than good ones of protégé outcomes highlights the need to continue exploration of negative experiences and their impact (Eby et al., 2010).

The foregoing and more recent research on marginal mentoring that examined the role of relationship satisfaction underscores a continuum of mentoring relationships ranging from highly satisfying to marginally satisfying to dissatisfying (the latter arguably resulting from negative experiences) (Ragins, 2005; Ragins et al., 2000; Ragins & Verbos, 2007). This notion of mentoring as a continuum is arguably one of the key recent developments in the field. As will be discussed in the next section, on the highly satisfying end of the continuum, mentoring, at its best, is a high-quality connection (Dutton & Ragins, 2007). Ragins and Verbos (2007) suggest that relational mentoring anchors the end of the continuum characterized by high-quality connections, and dysfunctional relationships anchor the other end.

Alternative dyadic mentoring vehicles. As it has become clear that today's turbulent environment requires learning from concurrently held relationships that provide varying types and amounts of support (Eby, 1997; Higgins & Kram, 2001), researchers have turned their attention to alternative dyadic relational vehicles, including peer coaching (Parker, Hall, & Kram, 2008) and peer mentoring (Allen & Finkelstein, 2003; Kram & Isabella, 1985), reverse mentoring (in which junior employees mentor senior-ranking ones) (Meister & Willyerd, 2010), and e-mentoring. Peers have long been considered a valuable

source of mentoring support (Kram & Isabella, 1985) and have recently gained more research attention. Studies on peer mentoring in the workplace can benefit from examining the concomitantly growing literature on peer mentoring in academia (e.g., Murray, Ma, & Mazur, 2009; Sanchez, Bauer, & Paronto, 2006).

Bierema and Hill (2005) described the growing phenomenon of virtual mentoring as a technologically enabled alternative to traditional face-to-face mentoring. This includes the practice of e-mentoring, computer-mediated mentoring, tele-mentoring, and mentoring in virtual environments. In their study of e-mentoring relationships, Hamilton and Scandura (2003) suggest that e-mentoring dyads can provide similar support functions to face-to-face mentoring, such as role modeling, guidance, and encouragement. Similarly, Ensher, Heun, and Blanchard (2003) suggest that online mentoring can be as effective as face-to-face mentoring. Headlam-Wells, Gosland, and Craig (2006) found that while e-mentoring fulfilled similar functions to traditional mentoring, the availability of the online system enabled protégés to be more proactive in their mentor-seeking behavior. These and other studies suggest that the functions of traditional mentoring still hold for technological-mediated mentoring, but require further investigation to unpack differences in processes and mechanisms.

Future Research on the Dyadic Microsystem

Although a substantial body of research on the dyadic microsystem exists, many unanswered questions remain. Two key areas for future research at the dyadic microsystem level relate to better understanding the black box of mentoring and the continuum of mentoring relationships. We view Positive Organizational Scholarship (POS) as particularly valuable to addressing these gaps in the literature.

Concurrent with the maturing of mentoring as a field of study, as well as changes in the workplace, the emergence of POS (Cameron, Dutton, & Quinn, 2003; Cameron & Sprietzer, 2011) has offered a new approach to understanding relational processes, interactions, and outcomes. POS is defined as "a new movement in organizational science that focuses on the dynamics leading to exceptional individual and organizational performance such as developing human strength, producing resilience and restoration, and fostering vitality" (Cameron & Caza, 2004, p. 731).

High-quality connections and relational mentoring. High-quality connections (HQCs), a domain of research within POS, are characterized by mutuality, interdependence, and empathic and empowering processes that lead to personal growth and learning for both parties (Dutton, 2003; Dutton & Heaphy, 2003; Dutton & Ragins, 2007). In the last decade, researchers have defined and begun to measure the relational processes, behaviors, and relational outcomes that distinguish high-quality connections from other dyadic

interactions (Stephens, Heaphy, & Dutton, forthcoming). POS researchers argue that the subjective experience of the parties in the relationship (including positivity, mutual regard, and vitality), as well as structural features of the connection (including emotional carrying capacity, tensility, and connectivity) define connection quality. To date, mentoring scholars have invested little effort toward leveraging this perspective. Relational mentoring, a key theoretical application of POS to mentoring, represents the relational state of high-quality mentoring and is defined as an interdependent and generative developmental relationship that can promote mutual learning, growth, and development within the career context (Ragins, 2005, unpublished).

Relational mentoring perspectives hold that the majority of mentoring relationships are in the traditional relationship state in which the primary behaviors involve career and psychosocial support of the protégé, and social exchange dominates the relationship dynamic, which is primarily instrumental and one-sided. Importantly, Ragins (2005, unpublished) argues that nearly all of the empirical mentoring research implicitly measures traditional mentoring ("average") relationships rather than high-quality connections. In contrast, mutual learning and growth, based on communal norms of caring and concern for the other without emphasizing an exchange, characterize the relational mentoring state, and outcomes extend beyond the career advancement of the protégé to include broader outcomes related to life satisfaction, role integration and balance, relational competence, vitality, and resilience for both parties (Ragins, 2005, unpublished; Ragins & Verbos, 2007). Such relational outcomes have received little to no empirical attention by mentoring researchers.

This relational approach to mentoring urges scholars to examine the cognitive and affective processes underlying mentoring that have not yet been explicated by the social exchange approach used to describe traditional mentoring relationships (Young & Perrewé, 2000a, 2004). Stephens et al. (forthcoming) argue that we must focus on the cognitive, emotional, and behavioral *mechanisms* that characterize high-quality connections at work. These mechanisms are the microprocesses that lead to the range of promising positive outcomes. Although HQCs do not assume ongoing relationships, but rather micro-bits of interrelating at work, we can extrapolate that repeated interactions of this kind would lead to an ongoing mentoring relationship of high quality.

Mentoring episodes. In addition, recent conceptual research on mentoring episodes, underpinned by POS—one-time interactions characterized by authenticity, mutuality, and positive engagement, among others and involving the provision of developmental guidance—underscores mentoring as a vehicle for learning (Fletcher & Ragins, 2007). Empirical research exploring the impact of mentoring episodes can help the field by considering mentoring support

outside the context of an established relationship and assess, for example, the relative effectiveness of seeking out mentoring episodes versus that of participating in a formal relationship. Fletcher and Ragins (2007) propose a possible tipping point—when the number of mentoring episodes over time leads to the acknowledgement of a mentoring relationship characterized by ongoing growth-enhancing episodes. This theory, however, has not been tested or examined empirically, in part because no instrument has yet been developed and validated. What are positive outcomes of these episodes? When do mentoring episodes lead to outcomes of zest, empowered action, increased sense of worth, new knowledge, and the desire for more connection (Fletcher & Ragins, 2007)?

POS offers several new approaches to the study of mentoring. An application of POS to mentoring focuses attention on new and underexplored *relational processes* (i.e., reciprocity, mutual learning, and empathic teaching), *relational behaviors* (i.e., empathy, disclosure, sensitivity, and empowerment), *relational outcomes* (i.e., tensility, zest), and *relational mentoring episodes* as a construct, as well as the potential of new measures for all of the foregoing and more. In particular, POS centers our attention away from the mentoring literature's emphasis on average quality relationships toward HQCs. The foregoing contributions can help address the black box of mentoring and further an understanding of the emergent view of mentoring as a continuum. To date, we are aware of only one empirical study that links POS to mentoring. Higgins, Dobrow, and Roloff (2010) found higher amounts of career and psychosocial support to be associated with greater levels of optimism. The study examines optimism at the interpersonal/multiple level of analysis, the latter of which is the subject of the next section.

Developmental Networks/Multiple Relationships as an Intermediate Microsystem

This microsystem includes alternative mentoring vehicles involving more than two people, including but not limited to developmental networks (e.g., Blickle et al., 2009; Cotton, Shen, & Livne-Tarandach, 2011; Higgins et al., 2010), group mentoring (Meister & Willyerd, 2010; Sontag, Vappie, & Wanberg, 2007), team mentoring (Williams, Scandura, & Gavin, 2009), and group professional association mentoring (Eby, 1997). It is characterized by a constellation of developers from various social spheres—for example, friends, family, subordinates, senior ranking employees, peers, religious or spiritual organizations, community or industrial associations, among others—who provide developmental support to a focal individual. Group mentoring refers to a set of individuals who face similar career challenges whose shared purpose is to help one another, and these "mentoring circles" often have a more senior individual who convenes and mentors the group as a whole (Sontag et al., 2007).

Until the millennium, this microsystem had not been explored and, as a subset of the literature, is still a small part of the overall mentoring literature compared to the ontogenic and dyadic microsystem levels.

Relatively small effect sizes in meta-analyses examining the dyadic mentoring relationship and outcomes (Allen et al., 2004; Kammeyer-Mueller & Judge, 2008), as well as a few studies finding that a person's network accounts for more variability in some outcomes than does a focal mentor (e.g., Bozionelos, 2006; Higgins & Thomas, 2001), suggest that examining alternative relational vehicles like peer mentoring groups and developmental networks as a form of career capital (e.g., Singh, Ragins, & Tharenou, 2009b) may provide a deeper understanding of the role relationships play in career and personal growth. Research on these alternatives is a reminder that in this career context, people need to and do seek out multiple, simultaneously held relationships to meet their relational learning needs; they cannot rely solely on a single mentoring or other dyadic relationship (Higgins & Kram, 2001).

While researchers have proposed group-level properties of mentoring at the conceptual level (e.g., Eby, 1997; Hall & Kahn, 2001; Parker, Kram, and Hall, 2010) and noted their presence in practice, as is the case with Menttium's use of *circles* (e.g., Sontag et al., 2007), empirical research has been virtually non-existent. By comparison, a growing body of literature in need of review promisingly points to numerous insights regarding developmental networks: egocentric networks involving a portfolio of advisors who provide support to focal individuals (Higgins & Kram, 2001). Developmental network studies over the past decade can be categorized into four themes: (1) network structure; (2) antecedents and consequences of network structure; (2) career and psychosocial support and associated outcomes; and (4) developer functions.[1]

Developmental Network Themes

Network structure. The first theme includes studies whose main aims include identifying structural characteristics of developmental networks. Higgins and Kram (2001) offered the earliest representation of network structure, proposing two network dimensions—strength of tie (closeness and affect) and diversity—and a resulting typology of four network types: entrepreneurial (strong-tie, diverse), opportunistic (weak-tie, diverse), traditional (strong-tie, dense), and receptive (weak-tie, dense). A small number of studies have extended Higgins and Kram's (2001) work by identifying additional structural properties of developmental networks (e.g., Cotton et al., 2011; Cummings & Higgins, 2006; Shen, 2010). For example, a longitudinal study of networks found evidence for an inner–outer core, in which relational ties characterized by low career support and high psychosocial support represented the inner core (Cummings & Higgins, 2006). More recently, a study of expatriates' developmental networks found a number of relationships, termed developmental

alters (i.e., individuals the focal person perceives as important in his/her career and personal development), that can be distant, inactive, negative, and sporadic (Shen, 2010). Another study applying a career community perspective to developmental networks introduced a broader array of social spheres from which developers can stem, including core (family, occupational, company, and virtual career communities) and peripheral (ideological, project/service, alumni/school, and industrial) career communities (Cotton et al., 2011). Taken together, these studies aid an understanding of how developmental networks are conceived and the breadth of developers comprising them.

Antecedents and consequences of network structure. The second theme of research includes studies that explore antecedents and consequences of various structural aspects of the network, the latter including types of networks (Higgins & Kram, 2001), multiplexity (Cotton et al., 2011; Obodaru, Murphy, & Halgin, 2009), density (Dobrow & Higgins, 2005; Higgins et al., 2010), range (van Emmerik, 2004), network size (Cotton et al., 2011; van Emmerik, 2004), network status (Higgins & Thomas, 2001), and core versus peripheral effects (Cotton et al., 2011). This strand of research is similar to the first except that it primarily explores relationships in the nomological network (e.g., outcomes associated with structural aspects of networks) rather than examination of the structure itself.

Although Higgins and Kram (2001) posited a model of antecedents (including individual factors, such as demographic characteristics) and consequences of the four networks, including career change in the case of entrepreneurial and opportunistic networks and personal learning in the case of traditional networks, no empirical research has tested their propositions. Conceptually, however, a handful of studies have extended their work, suggesting that protégé factors such as personality traits (e.g., introversion/extroversion, conscientiousness) (Dougherty, Cheung, & Florea, 2008), an individual's developmental stage (Chandler & Kram, 2005), age, gender, expatriate status, socioeconomic status (Higgins, Chandler, & Kram, 2007), and relational expectations (Cotton, 2010) influence the type of network individuals are likely to form, as well as their expectations for particular developers. A few other papers have elaborated on contextual influences, suggesting the type of developmental network needed by a focal individual depends upon the industry or profession (Baker & Lattuca, 2010; Higgins, 2007), the organization's culture, and/or characteristics of the host country (Shen, 2010).

While antecedents have almost exclusively been considered conceptually, a number of empirical studies have explored network structure and outcomes. A few papers have considered the impact of multiplexity, the extent to which two actors in a network are connected through more than one kind of relationship (a relationship involving the provision of career and psychosocial support as opposed to solely one or the other) (Wasserman & Faust, 1994) and

developmental networks (e.g., Cotton et al., 2011; Obodaru et al., 2009). For example, recent research found that extraordinary career achievement was associated with developmental networks featuring greater multiplexity, suggesting, for one, that having a network with multiple ties that provide "supplementary types of support" aids receiving timely, on-demand support (Cotton et al., 2011, p. 40).

Researchers have also examined network density, range, and size as structural properties. Network density, that is, the extent to which developers in a network know each other or reside in the same social spheres, and range, the number of social spheres from which developers stem, are structural elements associated with Higgins and Kram's (2001) notion of diversity. Although arguably the numbers are too few to make definitive assertions about the density and range of networks, empirical studies show clarity of identity and optimism are related to less dense networks (Dobrow & Higgins, 2005; Higgins et al., 2010) and greater range is associated with intrinsic career success (van Emmerik, 2004). The size of a person's network has been associated with extraordinary career achievement (Cotton et al., 2011), work satisfaction (Higgins, 2000), and intrinsic career success (van Emmerik, 2004). Studies have shown that higher-status networks and networks with higher-level contacts have positive benefits, including career advancement (Higgins & Thomas, 2001) and career sponsorship and career satisfaction (Seibert, Kraimer, & Liden, 2001). Although these studies may suggest larger, more diverse, higher-status networks are more conducive to career success, a contingency approach to developmental networks suggests the type of network a person should foster depends upon her specific developmental needs and professional context (Higgins, 2007).

Career and psychosocial support and associated outcomes. In the third strand of research, a handful of studies have examined the relationship between the amount of career and psychosocial support received (Higgins et al., 2010) and various outcomes. Increasing amounts of career and psychosocial support from networks over time is associated with optimism (Higgins et al., 2010), greater perceptions of career success and career self-efficacy (Higgins, Dobrow, & Chandler, 2008), and work satisfaction (Higgins, 2000; Higgins & Thomas, 2001). Support provided by work and non-work developers has a differential impact on outcomes; non-work developers' support is associated with life and career satisfaction, while work developers' support is associated with career satisfaction and salary (Murphy & Kram, 2010). In the only empirical study of expatriate developmental networks to date, Shen (2010) proposed a person–network fit perspective on expatriates, predicting the degree of fit between desired and actual support (amount and types of career and psychosocial support) affects outcomes such as adjustment, organizational commitment, and relocation satisfaction.

Developer functions. The fourth theme of research emphasizes a variety of developmental support provided by developers that had not yet been unearthed due to a prior focus on the traditional mentoring relationship. Recent qualitative research, for example, suggests that the developers comprising a developmental network provide additional sub-functions not provided by traditional mentoring relationships (Cotton et al., 2011; Murphy & Kram, 2010; Shen, 2010). For example, "freedom-and-opportunity for skill development" (a career sub-function), "inspiration-and-motivation" (a psychosocial sub-function) (Cotton et al., 2011), and "anti-role modeling" (Shen, 2010) represent sub-functions that developers provide.

Future Research on the Developmental Networks/Multiple Microsystem

Given the near absence of empirical studies on group-level mentoring, future inquiry should be directed at examining these alternative vehicles in action. Qualitative research may be the most appropriate starting point as group-level characteristics, functions, and processes may differ from those involving dyadic relationships. Questions for understanding group mentoring include: under what conditions is group mentoring successful? Does group mentoring provide the same functions provided by dyadic mentoring? What proximal and distal outcomes are associated with group mentoring?

Researchers have only "scratched the surface" in terms of applying a social network perspective to mentoring, arguably due to both the subarea's relative youth as a subject of mentoring inquiry and a comparably more advanced literature on social networks. Because a developmental network's structure is conceived of on the basis of social network concepts such as diversity, range, and strength of tie, a continued application of social network perspectives and methods seem logically critical to the growth of the subarea. Numerous avenues for applying a network perspective exist, including further exploration of antecedents and outcomes and Higgins and Kram's (2001) typology of networks.

First, Cotton et al.'s (2011) study that integrates research on career communities (Parker, Arthur, & Inkson, 2004) as a means of introducing an increased breadth of developers, including company, family, occupational, and virtual, opens the door for richer exploration of the diversity dimension, as well as the types of support provided. In a consistent line of exploration, few studies have explored the role of non-work relationships—for example, family and friends—in a network in terms of types and amount of support provided and associated outcomes (Cotton et al., 2011; Higgins et al., 2008; Murphy & Kram, 2010). This is a critical area of inquiry requiring further examination.

Social network studies measure strength of tie—the quality of a relationship—using various measures, including closeness, duration of a relationship,

and frequency of activity, begging questions that are consistent with Higgins and Kram's (2001) typology of developmental networks of varying strength of relationships. For example, under what conditions is a network of close developers with frequent contact (e.g., entrepreneurial and traditional networks) more beneficial than one with less-than-close developers (opportunistic)? What outcomes are associated with receptive networks (which are characterized by weak ties)?

The field is ripe for more empirical studies that explore antecedents and outcomes of developmental networks. Does a person's developmental position affect the structure of his or her network, as well as the quality of the dyadic relationships? What are the implications of various types of networks—those with a greater proportion of intra- versus extra-organizational developers, diverse versus dense—for a wide array of objective and subjective outcomes?

Similarly, a gap exists in terms of how antecedents such as nationality, personality, race, and gender affect people's networks and outcomes associated with them. For example, are Chinese employees' developmental networks typically denser and stronger than U.S. employees' networks, given Chinese society is dually characterized by sparse weak ties and dense strong ties (Lin & Si, 2010)? Developmental initiation, "a set development-seeking behaviors undertaken by a focal individual that are intended to enhance his or her skills, knowledge, task performance, and/or personal learning" (Higgins et al., 2007, p. 354), can be examined either as a mediator of antecedents such as proactive personality and career outcomes, or as a main effect, using Murphy's (2011) recently developed measure.

Research on developmental networks has focused primarily on positive outcomes, and further research is needed to examine potential limitations and negative consequences. In our review, we have only come across two studies that have done so. Dobrow and Higgins (2005) examined how early career, general density, and increasing density over time in one's network can be negatively associated with professional identity. In a related study, Higgins et al. (2008) found that maintaining ties with one's elite graduate institution is negatively associated with perceptions of career success, as such ties result in prolonged comparisons to other successful individuals, leading to a sense of "not being good enough."

Research on this intermediate microsystem represents exciting prospects for further inquiry. In spite of the burgeoning literature on developmental networks since the millennium, many unanswered questions at this level warrant attention. To date, only a relatively small number of scholars have contributed to this systemic level of research. We urge more scholars to devote attention to this subarea, as we believe that microsystemic influences on mentoring include a constellation of relationships beyond the dyad. By considering configurations of developmental networks, as well as various forms of groups designed to provide support and guidance to its members,

mentoring scholars might also account for greater variations in mentoring outcomes. Furthermore, we view a developmental network perspective as consistent with how people use mentoring in the contemporary career context in that they engage numerous developers to assist them rather than having a single mentor.

The Organization as an Extended Microsystem

Although significant advances have occurred in understanding the micro dynamics of dyads and some early headway has been made with developmental networks in mentoring, relatively few studies have considered how the organizational context shapes these relationships. We consider the organizational context as an extended microsystem to the mentoring relationship. The first qualitative study of mentoring relationships suggested that the workplace has a direct influence on how the mentoring relationship unfolds through formal and informal structures such as mentoring programs, HR policies, formal hierarchy and design of jobs, and the culture of the organization (Kram, 1985). Existing research at the organizational level focuses primarily on the design effects of formal mentoring programs and, to a much lesser extent, computer-mediated programs.

Primary Research at the Organizational Microsystem Level

Design effects of organizational mentoring programs. Formal mentoring programs most often involve an organizationally sanctioned relationship in which mentors and protégés are matched through a standardized process (see Baugh & Fagenson-Eland, 2007, for an elaborated review). Although still a small body, research on formal programs in terms of factors that affect and promote their effectiveness seems to be proliferating as a result of calls for research to understand them (e.g., Wanberg et al., 2003). While much has been written on how to design programs effectively, until recently, most has originated from anecdotal evidence (Baugh & Fagenson-Eland, 2007).

Some studies examining organizational-level factors (Allen, Eby, & Lentz, 2006; Murrell, Forte-Trammell, & Bing, 2009; Parise & Forrett, 2008) suggest implications for effectively designing programs. For example, voluntary participation (Parise & Forrett, 2008; Ragins et al., 2000), input into the matching process (Allen, Eby, & Lentz, 2006; Ragins et al., 2000), training (Allen et al., 2006; Parise & Forrett, 2008), an emphasis on specific goals linked to strategic objectives (Eby & Lockwood, 2005; Kram & Bragar, 1992), greater perceptions of organizational support (Eby, Lockwood, & Butts, 2006; Parise & Forrett, 2008), and programs aimed at career development as opposed to socialization (Ragins et al., 2000) are associated with positive outcomes such as mentorship quality, career and psychosocial support,

and willingness to mentor others in the future. One study suggests high-level facilitation mentoring programs—those that provide ongoing facilitation and training versus a basic matching process at a program's onset—have more positive effects than low-level facilitation programs on work-related attitudes, cognition, and behavior (Egan & Song, 2008). In contrast to the above studies that examine design factors for traditional formal mentoring programs, recent research suggests that a low-cost alternative to talent development is to create programs that train employees to build their own developmental networks (Chandler et al., 2010). Collectively, these studies indicate a number of practical guidelines for leveraging organizational mentoring programs.

Virtual and blended mentoring programs have emerged as a popular alternative to face-to-face relationships (Clutterbuck & Hussain, 2009). Although little empirical research on factors that affect the effectiveness of e-mentoring programs exists, a handful of studies suggests that e-training (Kasprisin, Single, Single, & Muller, 2003), organizational support for e-mentoring programs (Ensher & Murphy, 2007; MentorNet, 2007), and match quality (Ensher & Murphy, 2007) all impact the program quality and participant outcomes.

Further Research on the Organizational Microsystem

Although studies have begun to look more closely at organizational mentoring program design factors, researchers have suggested the need for a focus on the organizational context in which mentoring occurs (e.g., Sosik, Lee, & Bouquillon, 2005). Similarly, Noe et al. (2002) emphasize that HRD professionals and managers should consider both organizational structure and culture in examining the effectiveness of mentoring. Kram's (1985) research on mentoring suggests formal and informal mentoring relationships are embedded in an organization's context characterized by its (1) culture and beliefs, (2) hierarchy, (3) reward systems, (4) task designs, and (5) performance management systems. Yet, little follow-up testing or systematic examination of these factors has occurred.

Also, as more organizations create formal peer mentoring, peer coaching, e-mentoring, and reverse mentoring programs, as well as encourage informal mentoring among peers (DeLong, Gabarro, & Lees, 2008; DiRenzo, Linnehan, Shao, & Rosenberg, 2010; Meister & Willyerd, 2010; Parker et al., 2008), these areas of research are timely and reflect opportunities for scholars to influence practice. What design factors for such programs positively affect individual and organizational outcomes? One study suggests, for example, that input into the choice of a peer coach leads to more positive participant outcomes (Parker et al., 2008). On what basis should matching occur for reverse mentoring programs in which juniors mentor senior employees or for e-mentoring programs? How should juniors and seniors for reverse mentoring and e-mentoring programs be selected? More generally, are design features relevant

for successful traditional mentoring programs (pairing senior mentors with junior protégés) likewise relevant for emerging mentoring program alternatives?

To make progress in our understanding of the impact of the organizational context on mentoring, we suggest three theoretical perspectives that can better inform the organizational dynamics of both formal and informal mentoring. These three organizational perspectives are (1) social information processing theory, (2) signaling theory, and (3) work climate theory.

Social information processing theory. A fundamental premise of social information processing theory is that "individuals, as adaptive organisms, adapt attitudes, behaviors, and beliefs to their social context and to the reality of their own past and present behavior and situation" (Salancik & Pfeffer, 1978, p. 226). In the context of mentoring, interactions between mentors and protégés are shaped by social information cues from their organizational environment. As such, organizational cues are useful sources of data to understand how mentors and protégés interpret and adapt to their organizational environment.

A social information perspective on mentoring suggests that mentoring behaviors at work are influenced by the saliency of available information, as well as the evaluations of significant others (Salancik & Pfeffer, 1978, p. 248). Social information processing theory provides an important perspective on how informational cues influence mentoring behavior, as well as psychological responses to mentoring. To understand organizational influences on mentoring, we need to consider what information is available and how individuals respond to such information. In addition, social information processing theory suggests that we need to understand the variety of information signals that are monitored, interpreted, and incorporated in relation to mentoring behaviors at work.

Signaling theory. Building on social information processing theory, signaling theory suggests that people and organizations constantly send information signals about themselves and what constitutes social value. The theory has its origins in Spence's (1973) research on "applicant signaling" in labor markets. Spence (1973) suggests that in an asymmetric information environment, job applicants have to engage in costly signaling activity to inform others of their value. The strength of these signals varies by the position of the signaler and the social context in which he or she is. Similarly, the act of mentoring sends organizational signals about protégés and has implications for the career success of those involved. Inquiry on variations in signal strength and effect would require an examination of the organizational context in which mentors and protégés are embedded.

In applying signaling theory to the study of mentoring, Ramaswami, Dreher, Bretz, and Wiethoff (2010) introduced the concept of "signal strength" and

"signal visibility" to examine specific organizational dynamics related to a mentor's status and power. The authors describe signal strength as "the extent to which a mentor is powerful and determines who (or what type of mentor) can most influence a protégé's career" and signal visibility as "the extent to which a mentor's attention will be noteworthy, or salient, in a given context" (p. 387). They emphasize that the organizational context is a critical determinant of both signal strength and visibility. For example, they found that in male-gendered industries with competitive "up-or-out" cultures, senior male mentors provided stronger and more visibility signals than other mentors. This calls attention to the possibility that the organizational context, rather than solely individual competency, accounts for the nature of mentoring and its impact.

Ramaswami et al.'s (2010) research is a good example of how signaling theory can further an understanding of how organizational position, policies, and programs shape the practice of mentoring. Furthermore, Guzzo and Noonan (1994) suggest that employees can interpret organizational signals in unintended ways. Ambiguity in signals leads to mixed perceptions of behavior–reward relationships, as well as unstable judgments about appropriate behaviors (Guzzo & Noonan, 1994). This requires researchers to go beyond monocausal explanations of practices and outcomes to models that account for interaction between competing signals.

Although signaling theory addresses a number of dynamics in mentoring research, scholars, with the exception of Ramaswami et al. (2010), have not formally examined it. We suggest this is a promising avenue for further research. What constitutes a mentoring-related signal in an organization? In what forms does it come and from where? Why are certain signals more reliable than others? By integrating signaling theory with perspectives from mentoring research, scholars can advance a better understanding of how organizational signals shape mentoring behavior and performance.

Work climate theory. As social information processing and signaling theory suggest, informational cues in the organization can shape mentoring behaviors and outcome. This can be further examined through the theory of work and organizational climate, described by scholars as a set of shared perceptions of the policies, practices, and procedures that an organization rewards, supports, and expects (James, Joyce, & Slocum, 1988; Schneider & Reichers, 1983). As Pritchard and Karasick (1973) note, the work climate serves as a basis for interpreting situations and acts as a source of pressure for directing activity. Work climate is posited to influence the cognitive and affective states of employees in the workplace, in particular, motivation, and these psychological states serve to shape individual behaviors.

By considering the work climate for mentoring, researchers can use individual and relational analysis of mentoring relationships to examine unexplored

group-level outcomes. Two studies exemplify this approach. O'Neill (2005) found a positive association between cooperative contexts and four psychosocial mentoring functions and between competitive contexts and nine primarily career-related functions. Welsh and Wanberg (2009) found that new job-market entrants in developmental climates are more likely to find informal mentors in their post-college careers.

Research has suggested climate may also influence the relationship between diversity—for example, gender, race, age, and national differences and similarities—in organizations and mentoring. For example, corporate masculinity may lead to perceptions of mentoring in terms of instrumental outcomes versus relational outcomes that represent a feminine view of mentoring (Maier, 1991; McKeen & Bujaki, 2007). As organizational demography continues to shift (Bell, 1997; Blake-Beard, 2003), organizations must create climates that foster meaningful relationships within a diverse workforce (Blake-Beard et al., 2007).

By considering shared perceptions of mentoring at the group and organizational level, mentoring research from a climate perspective can open up new levels of analysis. First, it allows researchers to examine antecedents and variations in mentoring climates within an organization. How might mentoring programs impact mentoring work climates? How might climates vary across an organization and why? Second, it allows us to examine how mentoring climates relate to group and organizational outcomes. What is the relationship between mentoring climates and other climate constructs, such as service climate, diversity climate, and climates for innovation?

The Societal Macrosystem

The macrosystem from an ecological perspective represents "a societal blueprint for a particular culture, subculture, or other broader social context" (Bronfenbrenner, 1989, p. 228). From a sociological perspective, the macrosystem embodies the institutional patterns, bodies of knowledge, opportunity structures, beliefs, and norms that underlie the social processes and functions of mentoring. Examples of macrosystemic influences include social structures, cultural values, technological shifts, social inequalities, and changing social contracts between individuals and organizations. While macrosystemic influences may appear distal to the micro-level phenomenon of mentoring, they play a critical role in shaping the organizational and relational microsystems in which mentoring takes place. These influences differ by ecological niches (societies, cultures, and subcultures) and are best studied by looking at aggregate patterns of behaviors, beliefs, and relationships. This requires researchers to have access to large population samples and the methodological tools to conduct multi-level analysis of individuals nested within macrosystemic clusters.

In this section, we examine theoretical perspectives and research on societal, cultural, and institutional influences on mentoring relationships and practice. Despite recognition that the macro environment plays a critical role in affecting mentoring relationships, research in this domain is either limited (societal context) or has emerged in the past decade (technological advances and cultural differences). Because there are significant opportunities for advancement at this systemic level, we emphasize proposing new theoretical perspectives for future research. We also suggest the need for historical, cross-organizational, and cross-cultural studies of mentoring, to comprehend fully the social, cultural, and institutional context of mentoring.

Existing Research on the Societal Macrosystem

The social context of mentoring. A primary social influence on mentoring has been that of diversity and social identity. Mentoring has its origins as a social practice with the intent of addressing social inequalities, facilitating the advancement and development of minority groups in the workplace. It also has a history of reproducing social inequalities, as Darwin (2000) suggested:

> Mentoring flourished in the English feudal system as favored pages and squires became knights. The apprenticeship model was practiced by the Guilds in Medieval times. During the Renaissance and Baroque periods, patron families supported talented artists. There has been a strong reproductive element attached to mentoring, well suited to societies relying on ritualized behavior to protect the status quo. (pp. 197–198)

Similarly, Kanter (1977) noted the old boy network in organizations serves as a barrier for women and other minority groups. Oakley (2000, p. 328) describes the old boy network as "an informal male social system that stretches within and across organizations, and excludes less powerful males and all women from membership." The members of the network reinforce the social structure of inequality, where entry to the elite membership is easier for men than women. More generally, research suggests access to mentors is contingent upon the social status that minorities and women receive in the workplace (Blake-Beard et al., 2007).

Societal norms and existing organizational structures (privileging some social groups over others) exacerbate gender-role conflicts (Baugh, Lankau, & Scandura, 1996). Studies show a lack of mentoring is a key barrier to women's advancement in the workplace. In researching barriers to mentoring, Ragins and Cotton (1991) found that women perceive more barriers than men do when trying to develop such relationships. They found that women mentors are scarce, and the requests for female mentors often overwhelm the supply; therefore, women are left to seek male mentors or do without. Ragins and Cotton (1991) also suggest many women hesitate to request a male for fear

of the request being misinterpreted as a sexual advance. Women marginalized further by other status variables (race/ethnicity, sexual orientation, disability) tend to be the least likely to find and form successful mentoring relationships (McGlowan-Fellows & Thomas, 2005). We suggest that such barriers to mentoring are predominantly a function of broader social norms and might shift with the upward mobility of women and minority groups in the work-force. An investigation into such shifts over time is a much-needed area for further research.

Ragins (1997a) suggests a sociological perspective on power dynamics in mentoring relationships is an important lens to understand diversified mentoring relationships. She proposes the concept of diversified mentoring, which she defines as relationships between mentors and protégés from groups of different power. Ragins (1997a) calls for mentoring research to recognize that organizational experiences are a function of intergroup status and power relations within the organization and society. Similarly, Darwin (2000) suggests the importance of a critical perspective to question power dynamics in mentoring relationships.

Technological advances and mentoring. Advances in communication technology through the medium of the Internet has significantly shaped the form and content of mentoring relationships. Various scholars have documented this shift (Bierema & Hill, 2005; DiRenzo et al., 2010; Ensher et al., 2003; see Ensher & Murphy, 2007, for a review; Smith-Jentsch, Scielzo, Yarbrough, & Rosopa, 2008). The prominence of the Internet as a macrosystemic infrastructure for communication has allowed mentoring relationships to develop across traditional organizational boundaries. Boundaries within and across organizations have become more permeable as mentoring relationships span across traditional organizational and geographical lines. This has resulted in a variety of online platforms for protégés and mentors to meet and interact.

While the microsystemic effects of technology have been examined through research on e-mentoring, we suggest that a macro perspective on technology and mentoring would allow scholars to examine broader (and often unintended consequences) of technology. A macrosystemic perspective would suggest that changes in technology not only enable new forms of relational practice, they also disrupt and transform existing practice (Barley, 1986). An example would be how changes in technology can inadvertently disrupt professional and occupation roles (see Black, Carlile, & Repenning, 2004) in ways that fundamentally reshape the nature of workplace relationships. What we describe as mentoring today may be quite different with the transformative influences of technology. Fundamental questions of what constitutes mentoring and how mentoring occurs need to be critically examined with continued advances in technology.

Cultural differences in mentoring. As organizations become more global and multicultural, mentoring research has begun to examine cultural differences in mentoring approaches and effectiveness. Whereas management research on mentoring is primarily North America centric, a body of research has begun to emerge, largely since the new millennium, that examines the organizational practice of mentoring in different cultural contexts and across cultures. Examples include studies of mentoring in Australia (MacGregor, 2000), Japan, (Bright, 2005; Darling, Hamilton, Toyokawa, & Matsuda, 2002); Nigeria (Okurame & Balogun, 2005), Singapore (Choy & Hean, 1998), China (Bozionelos & Wang, 2006), and India (Ramaswami & Dreher, 2010). Researchers have documented how dynamics of social exchange and reciprocity and differences related to gender roles and expectations differ across cultures (Chua, Morris, & Ingram, 2009; Gelfand, Erez, & Aycan, 2007; Ho, 1993; Yuki, Maddux, Brewer, & Takemura, 2005). These cultural factors affect how mentoring plays out at all of the aforementioned levels of analysis. Salient cultural dimensions include that of individualism–collectivism, long-/short-term orientation, power distance, gender egalitarianism, and uncertainty avoidance (Hofstede, 1997; House, Hanges, Javidan, Dorman, & Gupta, 2004). For example, collectivist cultures prefer harmonious relationships to direct confrontation. In contrast, individualist cultures believe that speaking the truth openly, even if it causes conflict, is both virtuous and healthy (Hofstede, 1997). Such beliefs inevitably shape the dynamics of mentoring relationships.

Cross-cultural studies of mentoring are primarily conducted through survey methods. P. B. Smith, Peterson, and Schwartz (2002) surveyed managers in 47 countries and found that cultural values of collectivism and power distance are related to reliance on vertical sources of guidance (i.e., formal rules and superiors), rather than reliance on peers or tacit sources of guidance. Gentry, Weber, and Sadri (2008) conducted a cross-cultural examination of mentoring using samples from 33 countries in the GLOBE study. They found societal emphasis on performance orientation moderates the relationship between subordinates' reports of career mentoring their managers provide and the performance ratings of managers the managers' bosses report.

In a comparative analysis of mentoring literature between the United States and Japan, Bright (2005) identified three forms of social obligations that uniquely shape the practice of mentoring in Japan: *on* (obligation to be repaid), *giri* (obligations with equivalence), and *ninjo* (human feelings). Bright (2005) suggests such cultural beliefs uniquely shape the practice of mentoring in Japan, such that mentoring is viewed as a chain of relationships and social obligations, organized by seniority—seniors mentor juniors, who in turn are obligated to mentor those who are more junior to them. The foregoing is an example of a collectivist practice. In contrast, individualist cultures such as the United States and the UK may emphasize task accomplishment between the mentor and protégé over social obligation.

Further Research on the Societal Macrosystem

Numerous areas for research on the social context of mentoring and technological advances and cultural differences in mentoring exist. In addition, the application of institutional theory as an emerging theoretical perspective can aid future research at this systemic level.

Social context. Underlying the call for a critical perspective on mentoring and the study of power dynamics is the phenomenon of social inequality and how such inequalities shape and are shaped by the practice of mentoring. Although mentioned in papers on mentoring, the phenomenon of social inequality is under-theorized and has not been examined directly. Further research should situate mentoring within this context and, in particular, unpack the mechanisms and processes by which societal inequalities are reproduced through mentoring. However, examining the transformative effects of mentoring is equally important, and as such, we suggest the following question for research going forward. How are societal inequalities reproduced *and* transformed through mentoring?

Technological advances. As organizational relationships become virtual, blended, and mediated through technology, it is critical for mentoring scholars to stay abreast with technological changes and its impact on mentoring relationships; for example, research on extra-organizational platforms such as Facebook, SecondLife, LinkedIn, and Twitter as more recent advances is lacking. We view these platforms as promising channels for further research on how mentoring differs across technologically enabled platforms. An ecological perspective could help in this endeavor. For example, Bennett and Bierema (2010) utilized an ecological perspective to describe how virtual human-resource environments interact with traditional human-resource practices. They suggest that research is needed to explain how ecological influences from virtual environments shape workplace behavior and relationships. We suggest the following questions that could be examined in this context. How do macro-level changes in technology shape the micro dynamics of mentoring relationships? How are mentoring processes and outcomes different in and across technologically mediated environments?

Cultural differences. Significantly more research is needed to examine mentoring relationships *across* cultures and in multicultural contexts. For one, Hofstede's (1997) framework can facilitate cross-cultural comparisons. We also suggest researchers could conduct more in-depth studies through anthropological methods such as ethnography and participant observation. Allen et al. (2008) conducted a review of the mentoring literature and found that qualitative studies only accounted for 4.5% of workplace studies on mentoring. To unpack cultural processes fully, we suggest the need for more

qualitative studies along this dimension. Such studies could help address a number of broad questions. How is mentoring similar or different across cultures? What constitutes effective mentoring practice in a multicultural workplace? With advances in technology, global mentoring systems have increased in prevalence, presenting further opportunities for mentoring research across cultures.

Institutional theory. In addition to the perspectives discussed earlier, we have identified the institutional dynamics of mentoring as a potent field for further exploration and one that has remained under-theorized. Especially in professional, academic, and religious institutions, mentoring has been a medium for the reproduction of institutional values and practices. With institutional theory, we are sensitized to a critical-historical perspective on mentoring and the duality of social reproduction and change. Through an institutional lens, mentoring is viewed as a practice subjected to the institutional norms of the field in order to establish legitimacy and survive.

A neo-institutional perspective suggests that multiple logics of action shape social order, stability, and change (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). This allows us to understand competing logics regarding mentoring in organizations. For example, a market logic is evident in how organizations focus their mentoring initiatives disproportionately on high potentials. In contrast, a distributive justice logic is represented by a belief that mentoring should be equally available to employees across the firm. Such logics shape how mentoring is viewed within and across organizations. Once an institutional logic becomes dominant, the subsequent attention and behaviors of actors become isomorphic with it.

An exemplary application of this perspective is Cotton and Glynn's (2009) research on the changing institutional logic in professional baseball and how such changes shape the developmental networks of players. Cotton and Glynn (2009) examined 80 years of archival data (from 1922 to 2006) of Major League Baseball (MLB) in the United States. In addition, they analyzed baseball players', managers', and broadcasters' Hall of Fame induction speeches. Their research reveals how a shift from a "game" logic to a "market" logic is associated with commensurate changes in players' developmental networks. We suggest this line of inquiry has great promise for further extension to various domains, for example, examining competing logics of mentoring within professions such a law, medicine, accounting, and education, or comparing across professions.

An institutional theory perspective would require researchers to consider the social and historical context of mentoring and examine mentoring as an evolving social practice. It requires a tracking of institutional logics and practices over time. The foregoing suggests new methodologies such as longitudinal and archival studies, examining mentoring practices over time and across

multiple organizations and/or industries. Researchers could conduct similar studies to examine variation in the enactment of mentoring in different settings and over time.

What institutional logics shape the practice of mentoring? How are these logics created, maintained, and disrupted? How have these logics evolved over time in various professions? These are some questions researchers can explore further through an institutional lens.

Next Steps in Research: The Study of Mentoring Across Ecological Systems

In order to understand the phenomenon of mentoring, it is not enough just to describe related variables or processes; we must take into account systemic relationships and how processes and variables interact. Understanding how contexts combine is as important as understanding their individual effects. A good example of this challenge is found in questions related to gender and mentoring, race and mentoring, and cross-cultural mentoring. At the individual level, researchers have empirically demonstrated that individuals' gender, race, or ethnic identity, for example, shape access to and benefits of mentoring (see, e.g., Blake-Beard et al., 2007 and McKeen & Bujaki, 2007, for thorough recent reviews). At the dyadic level, cross-gender (e.g., McKeen & Bujaki, 2007) and cross-race (Blake-Beard et al., 2007) considerations are relevant for understanding differences in relationship dynamics. Yet such findings can vary by organizational context (e.g., masculine vs. feminine cultures) and cultural context (e.g., social inequities), suggesting the need to consider macro organizational and societal variables. Considering the dynamics created by the intersectionality of gender, race, and national group memberships will lead to more complex (and accurate) understanding of these macro-level effects (Cole, 2009; Shields, 2008). In our review of the mentoring literature, we find that studies tend to focus on parts of the ecological model but not across levels. Furthermore, scholars tend to stay within their levels of analysis, with a primary focus on examining microsystemic influences and outcomes of mentoring.

What accounts for the lack of multi-level studies of mentoring? We conclude they can be traced back to our professional training as social scientists and to the limits of our capacities as scholars and practitioners as we develop deep expertise over time. As young scholars, we learn a wide range of methodological techniques and develop deep expertise in some of these as we develop our own programs of research. Over time, new methods are discovered and developed, which only some of us have the time and inclination to master, including hierarchical linear modeling (Hofmann, 1997), experience sampling (Csikszentmihalyi & Larson, 1987), subject–object interviewing (Lahey, Souvaine, Kegan, Goodman, & Felix, 1988), and process research (Langley, 1999). We must seek to collaborate with scholars who have similar interests

and complementary methodological skills if we are going to address this fundamental challenge effectively as we move forward on the research agenda outlined here.

We also note that, to date, research has relied too much on cross-sectional, single-source (protégé), and single-method studies, and a paucity of longitudinal, experimental, and qualitative studies persists (Allen et al., 2008; Allen & Eby, 2007; Ragins & Kram, 2007). Most important, of course, is the need to be selective and systematic in choosing a research strategy that is optimal for the question at hand. Topics that are relatively understudied—such as the relational dynamics of developmental networks—will require process research, whereas topics aimed at discerning multi-level effects on mentoring will require the use of hierarchical linear models.

In this review, we have found some recent studies that combine qualitative and quantitative methods, consider multiple sources of data on relationship quality, dynamics, and outcomes, and/or involve multiple data-collection points over time, allowing for longitudinal analyses (e.g., Cotton et al., 2011; Gentry et al., 2008; Higgins et al., 2010; Shen, 2010; Singh et al., 2009a, 2009b). This trend is encouraging, given that the mentoring phenomenon is occurring in an increasingly turbulent and complex context.

By taking an ecological systems approach to mentoring, organizational scholars could consider how multiple contexts work together in ways that have not yet been explored. In particular, we suggest that researchers consider the interactions between relational and organizational microsystems, in what Bronfenbrenner (1979) describes as the meso-system—the set of interrelations between two or more microsystems. Within the meso-system, "Special attention is focused on the synergistic effects created by the interaction of developmentally instigative or inhibitory features and processes present in each setting" (Bronfenbrenner, 1993, p. 22). This level of analysis may be particularly helpful in advancing our understanding of the role of developmental networks in contributing to valued individual and organizational outcomes. Members of individuals' developmental networks represent microsystems other than that of the focal protégé. The interaction among these developers, in turn can be viewed as mirroring interrelations between the microsystems that they represent. Advancements in social network analysis now make it possible to examine patterns of multiple exchanges in developmental networks. Further research from this perspective could seek to examine some of the following questions. How do developmental networks shape dyadic relationships? How are developmental networks shaped by the micro-organizational settings of each developer? How do developmental networks influence the organizations of the focal individuals?

Our progress in understanding the phenomenon of mentoring depends on regular interaction with practitioners to keep abreast of how individuals are actually learning through relationships, of the alternative relational vehicles

that are evolving, and of how social and economic trends are shaping developmental practices and developmental relationships across organizations, industries, and the globe (c.f. Allen & Eby, 2007; Ragins & Kram, 2007). Indeed, the now familiar constructs of developmental networks, mentoring episodes, formal mentoring programs, and HR talent development practices have their origins in observation and experimentation in practical settings.

Concluding Thoughts

We have reviewed the vast literature on mentoring through the lens of an ecological perspective, by which we highlight how individual attributes shape mentoring (ontogenic system), how dyadic mentoring relationships unfold, alternative forms of mentoring and developmental networks (microsystem), as well as the organizational, technological, and societal forces (macrosystem) that shape the mentoring phenomenon. In considering each of these major domains of mentoring scholarship, we have compartmentalized levels of analysis to discern what we know and what we still need to learn. Although this focused review has clarified a rich agenda for future research, we also realize the limitations of specific research questions that prioritize a particular level of analysis. The challenge for all who continue to work in this field is to find ways to pursue these important questions with methodological approaches that enable us to consider the impact of multiple levels of analysis and the interacting systems that they represent.

Our primary purposes here were to provide a substantive review of what is known about mentoring and also to suggest theoretical lenses and new research directions that will enhance our understanding of mentoring at the ontogenic, micro-, and macrosystemic levels. For example, at the ontogenic level, an adult development lens could shine a light on how the developmental position of each party to a relationship shapes expectations individuals bring to the relationship, as well as how the dynamics are likely to unfold. And we can speculate that the composition of a developmental network—in terms of the developmental position of the focal person and the developers—will shape the developmental functions sought and provided at the network level of analysis.

At the dyadic microsystemic level, POS offers concepts and mechanisms that can help us characterize the relational dynamics that up to now have been described in terms of developmental functions. POS suggests we consider constructs such as relational mentoring episodes, relational functions, relationship quality, tensility, and empathy, as well as a broader range of outcome measures including compassion, adaptability, and a range of relational skills that will further enrich the potential of mentoring (Dutton & Ragins, 2007; Stephens et al., forthcoming, 2011; Ragins, 2005, unpublished).

Our review surfaced gaps in organizational microsystem and macrosystemic levels, and we find early applications of signaling and institutional

theory to be promising areas for future research. With macrosystemic lenses, we suggest research questions designed to clarify how the historical and current social contexts shape what we see as the benefits and consequences for mentoring. For example, these theoretical perspectives call for studies that go beyond interpersonal and psychological explanations for observed gender differences in mentoring dynamics and outcomes. Similarly, they require scholars to engage in cross-organizational and cross-country comparisons to discern the macro-level forces that lead to patterns that vary across settings.

Although the mentoring phenomenon can be traced back to Homer's (1996) *Odyssey*, and there is now a history of three decades of social science research on the topic, many unanswered questions remain. There now exists a rich ecology of mentoring research on which researchers can build. Future inquiry from an ecological perspective promises to enhance our understanding of mentoring, as well as actions designed to enhance the value of mentoring for individuals and organizations. Our aims here have been to review research on mentoring and to identify new research questions that are informed by underutilized theoretical lenses and approaches, and to convey both excitement and a sense of urgency. Indeed, there is much work yet to be done.

Endnote

1. We spend comparatively more space in this section to review research on developmental networks as it has received increasing empirical attention in the past decade but little review attention (sans Molloy, 2005, as an exception).

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