5-15-2023

Chapter 3- Cultivating Diverse Forms and Functions of Mentoring Relationships Within Academia

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CULTIVATING DIVERSE FORMS AND FUNCTIONS OF MENTORING RELATIONSHIPS WITHIN ACADEMIA

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Abstract

While mentoring is shown to have several positive benefits within academia, it is necessary to focus on the range of different high-quality relationships that are a necessary yet complex aspect of mentoring relationships. Thus, mentoring represents a complex, dynamic, and diverse range of mutually beneficial developmental relationships across diverse functions (career and psychosocial) and types (hierarchical, peer, group, and reverse) of mentoring. The impact of mentoring within academia demonstrates that these relationships are essential for developing a wide range of knowledge, skills, and abilities and developing social relationships and networks that are significant for learning, development, success, and well-being. Our chapter looks at the various forms and functions of mentoring within an academic context that includes hierarchical, peer, group, and reverse mentoring. In addition, we outline directions for future research and practice that explore the ideas of mentoring as a buffer, a tool for social influence, and a catalyst for identity work as people journey throughout their academic and professional pathways.

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Cultivating Diverse Forms and Functions of Mentoring Relationships Within Academia

Traditionally, mentoring is defined as a relationship between a mentor, as a more experienced individual, and a mentee, as a less experienced individual, aimed at promoting personal and professional development (Allen et al., 2017; Chan et al., 2015; Ragins & Kram, 2007). In traditional academic mentoring relationships, a single and more senior or experienced mentor often acts as a role model and adviser, to help the mentee navigate academic and career pathways (Gammel & Rustein- Riley, 2016). However, ongoing mentoring work has expanded the types of relationships beyond the traditional hierarchical mentoring to include different forms such as peer mentoring (Kram & Isabella, 1985; McManus & Russell, 2007), virtual mentoring (Ensher et al., 2003), group mentoring (Friedman et al., 1998; Mitchell, 1999), and reverse mentoring (Murphy, 2012). Our chapter examines various forms of mentoring within an academic context. We suggest that when mentoring is viewed from a traditional lens, it fails to capture the complex and reciprocal nature of high-quality mentoring relationships and thus may limit the impact of diverse forms and functions of mentoring relationships within academia (Ragins, 1997; Murrell et al., 1999).

Our understanding of mentoring relationships continues to evolve based on research and practice that shifts our view away from traditional forms to examining mentoring as diverse and dynamic relationships (Ragins, 1997) within a developmental network (Ragins & Kram, 2007) or mentoring constellations (Higgins & Kram, 2001). Emerging work clearly provides a necessary shift in how we view mentoring from a one-dimensional and transactional perspective to a multidimensional and relational perspective. A relational approach challenges us to view mentoring as a series of mutually interdependent and diverse arrays of reciprocal and complex relationships that can support both the mentor's and the mentee's development (Fletcher & Ragins, 2007; Allen et al., 2004). A relational view of mentoring also includes the mutually interdependent and complex types of mentoring relationships that are dynamic and involve diverse forms or types of mentoring (Gammel & Rustein-Riley, 2016). Also, a relational view is consistent with work by Ragins (2016), who views mentoring as an interdependent series of relationships that supports mutual learning, growth, career, and psychosocial functions. Thus, when the focus is on students, faculty, and staff within an academic context, key outcomes are realized and enhanced through a diverse array of both formal and informal mentoring relationships (Denton et al., 2020).

As a core part of a relational perspective, Kram (1988) originally conceptualized mentoring as providing distinct purposes or functions that are defined by two categories: career and psychosocial. Career functions are those aspects of mentoring that enhance learning the ropes and preparing the individual for advancement within an organization. In Kram's original model, career functions include activities such as sponsorship, exposure and visibility, coaching, protection, and challenging assignments. Psychosocial functions are those aspects of the relationship that enhance a sense of competence, clarity of identity, and effectiveness in a professional role. Psychosocial functions include activities such as role modeling, acceptance and confirmation, counseling, and friendship (Allen & Eby, 2011; Chun et al., 2012; Fowler & O'Gorman, 2005). This perspective is crucial to expanding our view of mentoring as dynamic, diverse, and reciprocal yet often complex developmental relationships (Higgins & Kram, 2001).

For example, Young and Perrewé (2000) found that mentors typically focused their expectations more on career-oriented outcomes while the mentees emphasized psychosocial benefits. In a similar

study, researchers found that mentees' high expectations for receiving both career and psychosocial functions directly influenced their level of satisfaction with each relationship and shaped expectations for future mentoring relationships (Santos et al., 2020). Some scholars eventually pointed to the need to look at mentoring as a series of diverse relationships, as reflected by Ragins's (1997) notion of diversified mentoring and Higgins and Kram's (2001) concept of mentoring constellations. These perspectives allow us to expand our view of mentoring to include a broad array of forms and functions of mentoring that can provide a range of different outcomes from social support, career development, identity formation, a sense of belonging, and social influence across different types of mentoring relationships. Thus, how we define and facilitate mentoring within academic settings must consider not only the relational perspective but also a multidimensional and dynamic view of the forms, functions, and impact of these significant relationships.

We explore several forms or types of mentoring relationships that are frequently used within academic and other related settings. We include research that challenges us to broaden our view of mentoring beyond the traditional one-to-one mentoring to include other relationships such as peer mentoring (Collins et al., 2014; Kram & Isabella, 1985; McManus & Russell, 2007), group mentoring (Friedman et al., 1998) and reverse mentoring (Marcinkus, 2012). Within our chapter, we examine these various forms of mentoring relationships frequently used within academic settings: hierarchical, peer, group, and reverse mentoring (see Figure 3.1). Our goal is to better understand the positive impact of these diverse forms of mentoring relationships that are relational, mutually beneficial, and provide the full range of mentoring functions and beneficial outcomes. We also explore some opportunities for future research and practice by reexamining mentoring relationships as a buffer, as a source of social influence, and as identity work for both mentors and mentees within academic settings and beyond.

Figure 3.1

Diverse Forms of Mentoring Relationships

Types of Mentoring Relationships

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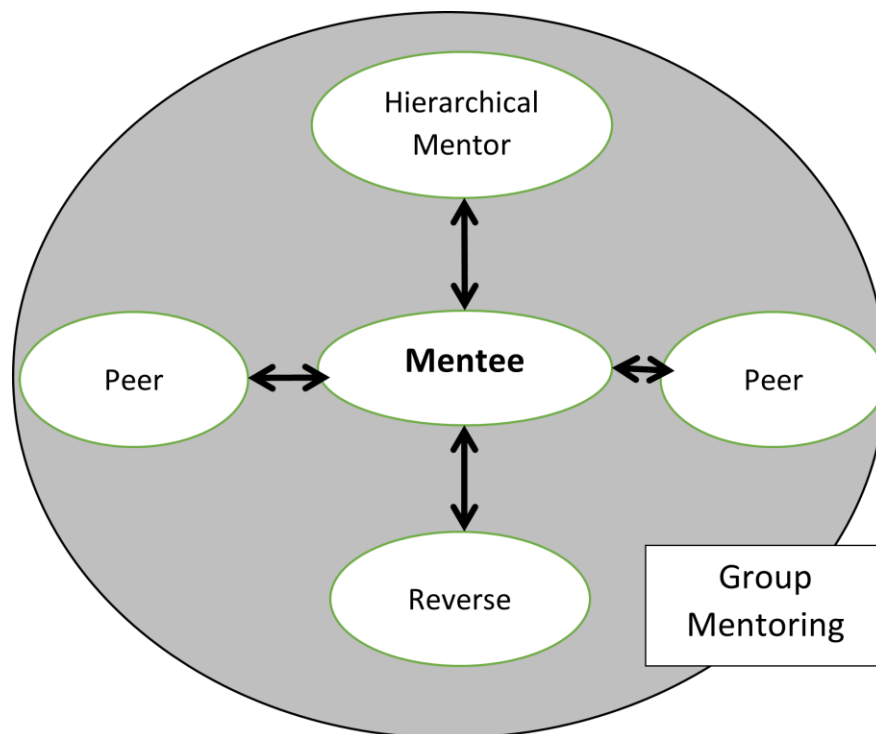
Hierarchical Mentoring Relationships

Mentoring has traditionally been defined as a one-to-one hierarchical relationship where a more senior or knowledgeable individual uses their influence and experience to help with the advancement of a protégé or mentee (Kram, 1988). These traditional mentoring relationships have been linked to several positive outcomes that include socialization, learning, personal development, well-being, and positive performance outcomes (Allen et al., 2004; Wanberg et al., 2003). Within both academic and work contexts, prior research shows that mentoring is an imperative source of academic, social, career, and emotional growth for both mentors and mentees (Jones, 2013). For example, research shows that individuals receiving mentoring support acquire new skills, self-efficacy, and positive career clarity (Scandura, 1992; Chun et al., 2012). Wang and Shibayama (2022) also observed that mentoring was an important factor in transferring creativity skills between mentors and mentees. Individuals can also develop valuable professional and leadership skills through the mentoring process (Murrell, Blake-Beard, et al., 2008). Thus, developing traditional hierarchical mentoring relationships is relevant to effective mentoring efforts within academic settings.

While traditional hierarchical mentoring has been shown to have a range of positive benefits, there are noted limitations as identified by existing research. Hierarchical mentoring is typically between individuals who differ in organizational level, experience, status, and power within the institution (Lopez & Duran, 2021; Turner, 2015; Wilson et al., 2012). For example, Wilson et al. (2012) investigated hierarchical mentoring as a tool for improving diversity and retention rates for undergraduate students within STEM (science, technology, engineering, and math) fields. They found that students who participated in the hierarchical mentoring program improved significantly in their academic performance. Students in academic programs that included mentoring gained both academic and psychosocial support from these mentoring relationships.

Similarly, hierarchical mentoring programs positively impacted the academic effectiveness of students who participated in the disciplined-based mentoring programs (Sorte et al., 2020). Mentoring also opens up an opportunity for the mentor and the mentee to expand their social networks, which are significant for personal and professional development (Allen & Eby, 2011; Dobrow & Tosti-Kharas, 2012). Other studies found that mentoring positively affected intellectual and social capital development in a program developed for nursing students (Thomka, 2007). Clearly, these types of traditional hierarchical relationships as part of formal programs within academic settings are central to both the personal and professional development of individuals within academia and within their chosen professions (Abalkhail & Allan, 2015; Liu et al., 2020; Giscombe, 2007).

Despite the benefits of traditional hierarchical mentoring, a major challenge of these relationships is the unequal power status between the mentors and the mentees, especially when the relationship involves individuals from underrepresented or marginalized groups (Jones, 2013; Rekha & Ganesh, 2019; Wilson et al., 2012). Some suggest that there is a significant difference in traditional hierarchical mentoring between formal versus informal mentoring relationships, especially in the degree to which they are supported by the institution (Chandler et al., 2011). Whereas informal hierarchical mentoring organically develops between parties in a relationship, formal mentoring is facilitated by the institution between individuals who typically differ in power, status, knowledge, and experience (Burke, 1984; Thomka, 2007; Haggard et al., 2010; Haggard & Turban, 2012).

Pololi and Knight (2005) argue that traditional one-to-one mentoring can produce a range of issues, including unequal power dynamics, diversity clashes, over-dependency, and "cloning" behaviors (trying to duplicate ones own behaviors or approach within the mentee) rather than beneficial developmental relationships. These behaviors are similar to those identified within the typology of negative mentoring relationships outlined by Eby and her colleagues (Eby et al., 2004). Factors such as dominance, exploitation, unconscious bias, and other forms of discrimination can contaminate traditional hierarchical mentoring relationships within academia. Often noted is a failure of traditional mentoring dyads to move beyond the embedded hierarchical structure and relationships found in many academic institutions. We suggest that an exclusive reliance on hierarchical dyadic relationships may perpetuate power differences that produce homogeneity, especially if mentors are allowed to select or are matched to mentees who are similar to themselves, which merely perpetuates sameness within the academy and the workplace (Higgins & Thomas, 2001).

Some suggest that coupling traditional hierarchical mentoring with other types of mentoring, such as facilitated peer-to-peer mentoring, can offer significant benefits, especially for mentees from diverse or underrepresented backgrounds versus traditional hierarchical mentoring alone (Bussey-Jones et al., 2006). Our discussion points to the need for diverse forms and functions of mentoring to be developed within academia to realize the positive outcomes and offset any barriers and potential threats to mutually beneficial and inclusive mentoring relationships. Thus, in addition to understanding the impact of traditional hierarchical mentoring, we expand our discussion to include other forms such as peer, group, and reverse mentoring relationships.

Peer Mentoring

Peer mentoring occurs between individuals operating at similar levels, experience, or power status within the institution (Arthur & Kram; 1985; Kram & Isabella,1985). Relationships that develop as part of peer mentoring can often provide a safe environment for listening, sharing, and developing trust, which helps peers enhance confidence and self-efficacy (Buck, 2020). Peer mentoring has been shown to be mutually beneficial for academic, career, and professional advancement (Lunsford et al., 2017). For example, a study that used a multilevel meta-analytic approach to examine cross-age peer mentoring found clear benefits for those engaged in any formal academic program (Burton et al., 2021). Lagally (2000) evaluated the impact of peer mentoring for trainees within a midwestern organization. The findings from their study found a strong connection between peer mentoring and the development of self-confidence, positive performance, and overall effectiveness among these trainees.

Similarly, Voldsund and Bragelien (2022) explored the role of peer mentoring in fostering effective learning techniques using experiential learning methods. The findings from their research support the notion that when peer mentoring is applied as a learning tool, it can positively affect academic outcomes for students. Their finding is also similar to consistent findings that peer mentoring was identified as the most valued experience during their development among now senior faculty members within a study of academia (Pololi & Knight, 2005).

While we tend to view peer relationships from the broadly defined category, Kram and Isabella (1985) identify several distinct types of peer relationships as effective tools for mentoring within academia and in work settings. They argue that peer relationships can serve the same functions as traditional hierarchical mentoring relationships yet can be more readily available to individuals because of both

sheer numbers and overall accessibility. In addition, Files et al. (2008) suggest that peer relationships may achieve a greater degree of communication, support, and collaboration than hierarchical mentoring relationships. They examined peers across various career and life stages by conducting in-depth interviews of a "focal person" and significant others who were identified during the interview process. Their results supported the notion that peer mentoring provides much of the same range of career and psychosocial support functions as traditional hierarchical mentoring relationships. Peer relationships were shown to provide information sharing, career advice, exposure, coaching, and some aspects of sponsorship and emotional support, feedback, and friendship (Ensher & Murphy, 2011).

Previously, Kram and Isabella (1985) identified several types of peer relationships that help to capture the range of mentoring functions that are also relevant for academic settings. *Information peers* focus on exchanging information or knowledge about work and the institution. These types of peer relationships involve very little personal exchange and may have moderate to infrequent amounts of contact between individuals. Examples in academia include early socialization programs, student peer groups, and efforts to provide career or academic coaching and tutoring (Sachdeva, 1996; Straus et al., 2006). Kram and Isabella argue that individuals can maintain a large number of these types of relationships, which appear to be essential for socialization, knowledge development, and information sharing (Swap et al., 2001).

In contrast, *special peers* involve strong interpersonal ties and a sense of bonding between individuals. Unlike information peers, special peers are involved in more self-disclosure, intimacy, and emotional connection. One may have fewer special peers within academia compared to information peers. Examples of special peers may include programs that directly link peers together with others who share similar academic aspirations or social interests (Lunsford et al., 2017). Their approach is frequently used within campus efforts toward early exposure and socialization, especially for underrepresented students within the academy.

Lastly, they identify *collegial peers* that involve both moderate amounts of self-disclosure and information sharing. While not to the extent of special peers, the personal exchange among collegial peers allows for developing trust and opportunity for honest feedback. Their results find that collegial peers tend to be people with whom a person has worked, shared information, and formed some type of identification through the relationship as both knowledge and personal information was being shared. These types of collegial peer mentoring relationships are often part of ongoing career development efforts within academia that involve partnering with young professionals for early socialization and recruitment efforts. Findings from the interviews conducted by Kram and Isabella (1985) also showed that during early career stages, collegial peers helped individuals define themselves in terms of professional identity, career clarity, and aspirations.

Since early descriptive and conceptual work, a focus on peer mentoring, or what has been labeled "lateral mentoring," has received increased attention, especially as a critical source of both career and psychosocial functions of mentoring (Eby, 1997; Eby et al., 2013; McManus & Russell, 2007). Within academia, peer relationships are a frequently tapped source of both career and psychosocial functions of mentoring involving individuals who may differ by academic discipline or areas of focus within the institution but are similar or equivalent within the organizational hierarchy (Pullins & Fine, 2002).

Peer mentoring can lead to valuable personal feedback, long-lasting friendships, and feelings of support that can fill some of the gaps left by a lack of access to senior or high-status mentors (Bussy-Jones et al., 2006). These findings suggest that paying attention to the impact of peers is a vital area for beneficial academic and career-related outcomes, especially for individuals from diverse backgrounds and identities within both the academic and work settings (Murrell et al., 2021).

Interestingly, some argue that given the changing nature of organizations in terms of being more networked and flatter peer or lateral mentoring is more readily available within the environment and thus provides critical social and career support (Eby, 1997; Ensher & Murphy, 2011; Higgins & Kram, 2001; Higgins & Thomas, 2001). Peer mentoring relationships can provide invaluable task-related knowledge (Eby, 1997) and be a valuable resource for learning, knowledge sharing, and knowledge transfer that are essential for individuals to be effective within their chosen academic pursuits (Young & Perrewé, 2000, 2004). Especially within academia, peer mentoring should be viewed as an essential component of program offerings especially given that peers can be a powerful conduit for the transfer of what is known as tacit knowledge into explicit knowledge (Nonaka, 1994). Some of the knowledge shared between peers is learned from personal experiences and thus not typically part of the formal knowledge management processes within academia (Swap et al., 2001). More importantly, peers may actually compensate for an absence of hierarchical mentoring because peer relationships are less dependent on status, power, and access to formal institutional resources (Ensher & Murphy, 2011; Murrell et al., 2021). In fact, McManus and Russell (2007) argue that mutuality may be more commonly found in peers compared to traditional one-to-one mentoring relationships. Reciprocity may serve as a defining feature of peer mentoring that distinguishes it from traditional hierarchical types of mentoring (Burton et al., 2021).

The notion of reciprocity has been noted as essential for effective mentoring relationships in general (Young & Perrewé, 2000, 2004), we agree that reciprocity, defined in a manner similar to McManus and Russell's (2007), is uniquely facilitated by peer mentoring. However, Ragins and Verbos (2007) argue that what may be central is what is being reciprocated rather than the presence or absence of reciprocity in making any direct comparisons of traditional versus peer mentoring. In some earlier research, three distinct types of peer mentoring (information, collegial, and special peers) were identified by Kram and Isabella (1985) and McDougall and Beattie (1995) as having significant benefits, including reciprocity among peers engaged in these lateral mentoring relationships.

One of the clear benefits of mentoring, especially among peer or lateral relationships, is the access to relational or social ties that provide mutual benefits for both parties. These social ties among peers are not only a strong source of social exchange but also for social influence (Collins et al., 2014). While the strength of these peer mentoring relationships may vary across time and among different individuals, the presence of reciprocal social ties could be a key indicator of effective peer mentoring and social influence (Zagenczyk et al., 2008). Such assumptions of reciprocity have typically not been the case for traditional hierarchical mentoring. Thus, the focus on reciprocity and strong social ties may be another way to distinguish peer from hierarchical mentoring relationships in terms of benefits within academia. Peers may influence the behavior of others in ways that can support individuals' personal and professional development yet not pose a threat to social status or position. There is also some evidence to suggest that peer mentoring may better meet the needs of the millennial and later generations for whom structure, position, and hierarchy are not strongly emphasized (Bussey-Jones et

al., 2006). Frequently, peer mentoring is facilitated within educational programs and other efforts that place students into formal academic, social, or identity groups (Lagally, 2000). Thus, it is vital for us to also explore the impact of group mentoring within academia.

Group Mentoring

There is a wide array of research and educational programs that utilize group-based mentoring approaches used in academia. Typically, group mentoring happens within the collection of individuals who share some affinity (e.g., academic major, social interests, geographical similarity) or identity group (e.g., race, gender, gender identity, culture, ethnicity). These types of group mentoring are the basis for mentoring relationships that could include both peer and hierarchical mentoring (Lunsford et al., 2017; Lutz et al., 2017). Diverse types of group mentoring have been used extensively in both academia and workplace settings. For example, Lutz et al. (2017) found that well-designed group mentoring programs are essential to improving academic and professional development. In a qualitative study of women in academia who participated in group mentoring, Collins et al. (2014) found that the women experienced a strong sense of psychological safety, which was beneficial to career development and overall satisfaction.

Similarly, Kupermine et al. (2020) showed the importance of group mentoring in promoting resilience among vulnerable student populations. Their study found that although participants experience role-modeling benefits with senior mentors who have more experience, group mentoring provided access to individuals who may be at the same level and those who may be more advanced within the institution. Their findings also showed that there was an improvement in problem-solving abilities among peers within group mentoring academic programs. Perhaps a unique aspect of group mentoring provides exposure to a wide array of mentoring forms (e.g., hierarchical, peer-to-peer, reverse) while simultaneously supporting a range of different mentoring functions (career and psychosocial).

Huizing (2012) reviewed the diverse array of definitions and typologies of mentoring relationships, including what they termed one-to-many mentoring, many-to-one mentoring, and many-to-many mentoring. Huizing points out that group mentoring has the unique advantage of facilitating a wide array of mentoring functions that include both career (e.g., personal and professional advice) and psychosocial (support, identity development, validation) dimensions. Mentors within group structures can also play a range of different roles, including ally, champion, role model, advocate, and guide. Group mentoring can include multiple functions (career and psychosocial) as well as multiple forms (peer, traditional hierarchical, reverse mentoring) of mentoring. In addition, these multiple functions and forms can be provided by multiple and diverse relationships with the group mentoring context. The various forms of group mentoring has been cited as a clear advantage on dimensions such as flexibility, inclusiveness, shared knowledge, personal growth, and building organizational capacity (Limbert, 1995).

A significant advantage of various forms of group mentoring within academia that has been noted by previous scholars is the diverse range of skills and competencies that can be developed among both mentors and mentees within these various group structures. Competencies such as knowledge sharing, collaborations, high impact communication, negotiation, and creativity are examples of essential skills

that can be facilitated across various forms or in group mentoring (Huizing, 2012). While these skills can also be developed in traditional one-to-one mentoring (hierarchical, peer, reverse mentoring), the complexity of various forms of group mentoring can provide unique and dynamic context for the development of these competencies, which are essential, for example, given the importance and increase in the use of team science within academic settings and research endeavors (Hall et al., 2018). There is also significant relevance of group mentoring for the development of diversity, equity, and inclusion as group mentoring often cuts across traditional boundaries such as title, rank, position, academic discipline, location, and demographic differences (Fernandez et al., 2019). The use of group mentoring for supporting the development of core competencies among mentors and mentees as well as supporting academic objectives such as diversity and inclusion or effectiveness of team science are valuable areas for attention by future research and practice.

One frequent example of group mentoring within academia is the use of affinity, resource, or identity-based mentoring groups (Denton et al., 2020). Research shows that utilizing group-based mentoring has been a preferred tool for increasing the diversity of women and people of color, especially within science, technology, engineering, and math (STEM) professions. There has also been significant work that shows the positive impact of academic group-based mentoring for supporting first-generational college students and students with disabilities (Byars-Winston et al., 2010). Increased support for diverse student populations reflects a shift in focus within academic programs from what is called an asset-based view is in contrast to a deficit-based approach (Gandara & Contreras, 2009; Valencia, 2010). Having identity-based group mentoring that is sponsored by the institution or organization can be a strong signal of value, legitimacy, and support for diversity as an asset within the institution (Randel et al., 2020; Roberts & Creary, 2011). Some also argue that traditional socialization approaches are often more focused on helping people adapt to the dominant culture versus valuing diverse cultures and identities. Using group mentoring as a tool to support diversity, equity, and inclusion has been extensively used in disciplines and professional fields that are viewed as unwelcoming or lacking inclusiveness of diverse racial, gender, cultural, abilities, or ethnic groups (Denton et al., 2020).

Developing a sense of belonging, inclusion, and overcoming stigmatization are also cited as critical outcomes of group mentoring as part of diversity efforts (Murrell & Blake-Beard, 2017). Group-based mentoring can provide access to relational role models, which are vital for diverse groups within academia to connect with role models of success and resilience. These identity-based mentoring groups can help mitigate feelings of marginalization that individuals from diverse backgrounds experience, especially within higher education, where some argue that issues of privilege are extremely prominent (Randel et al., 2020; Roberts et al., 2009). Others suggest that group mentoring can be a powerful tool for developing interdisciplinary collaboration and knowledge sharing as transferrable experiences that are highly valued in numerous professional settings (Ragins, 2016). Interestingly, affinity groups may also provide a unique opportunity for what is called *reverse mentoring*, where less experienced or positioned individuals "mentor up" to more experienced or advanced mentees.

Reverse Mentoring

Reverse mentoring frequently involves an intergenerational mentoring relationship that occurs where a mentee (less experienced) becomes the provider of skills and knowledge to a mentor (more

experienced) within the mentoring relationship (Chaudhuri, 2019; Chaudhuri & Ghosh, 2012; Chen, 2013). Recently, because of generational differences in the workforce, reverse mentoring has become a valuable tool for personal, academic, and career development (Cismarut & Iunius, 2019; Chaudhuri & Ghosh, 2012). For example, research on reverse mentoring shows that it be helpful for older and more experienced mentors to gain new technological skills or become enlightened about diversity- related issues and emerging social or workplace trends (Baily, 2009). Chaudhuri and Ghosh (2012) observed in their research that mentors gain new and updated skills through these reverse mentoring relationships. Using a qualitative study to investigate the effect of reverse mentoring on development for generations X and Y individuals, Chen (2013) found evidence of both career development and psychological support that allow intergenerational learning to occur within these relationships. For example, a study of dyads by Chen (2013) clearly showed the presence of several mentoring functions (career, psychosocial, and role modeling support) as part of these relationships. While reverse mentoring has some clear benefits, other research finds that individuals had high expectations for reverse mentoring relationships as part of a formal program but often lack trust in their institutions to effectively implement a nontraditional mentoring approach (Cismaru & Iunius, 2019).

Research on reverse mentoring has increased in recent years, yet we still need a great deal of additional research to document both its benefits and its challenges. Some emerging research directly links the benefits of reverse mentoring to the goals of diversity, equity, and inclusion. For example, Murphy (2012) theorized that in reverse mentoring relationships, cultural insights are often shared and, as a result, institutions may better understand and support ongoing diversity efforts. The idea is best illustrated by ongoing research on identity or affinity groups, which may include the potential for reverse mentoring as part of the other mentoring functions that take place within these groups (Chan et al., 2015).

Mentoring as Developmental Networks

Once we acknowledge the diverse forms and functions of mentoring relationships that have been identified by previous research and best practice, it becomes clear that mentoring is beyond a single mentor-mentee relationship and the result of a diverse range of multiple relationships that can form a social network of both personal and career support. Diverse types of mentoring were essential to the redefinition and reconceptualization of mentoring, as outlined by Higgins and Kram (2001). Based on extensive theories and research on social networks, a reconceptualization of mentoring creates a powerful lens through which mentoring programs can be envisioned, designed, and evaluated within academic settings. For example, the extensive research on social network theory within an education context has created a necessary change in perspective on mentoring that moves away from traditional single mentor-mentee approaches toward looking at multiple mentoring relationships that can simultaneously involve group, hierarchical, peer, reverse, and other mentoring forms (Daly, 2010; Paquette et al., 2022). Thus, once we acknowledge and reconceptualize mentoring as diverse forms via a developmental network, we can further expand our perspective toward better understanding the different benefits and resources that are provided by these diverse mentoring networks.

For example, the act of asking for advice, which is core to mentoring relationships, involves the advice-seeker's expectations that a mentor as an advice-giver possesses potentially valuable information and specific competencies to provide useful information. Thus, the exchange of knowledge

is valuable in academic mentoring relationships and often involves the transfer of knowledge, the creation of new knowledge, and reciprocal learning. Also, the sharing of expertise and building a sense of efficacy within these developmental relationships is another resource provided by networked mentoring (Zagenczyk et al., 2008). In fact, Chanland (2022) argues that effective formal programs should include opportunities for multiple relational dimensions across all forms and functions of mentoring as an explicit criterion of overall effectiveness. Reenvisioning mentoring via a social network lens means designing programs that facilitate a range of diverse relationships that enhance personal learning, and provide career clarity and a beneficial educational experience. In addition, Paquette et al. (2022) recommend a targeted approach to mentoring programs that deliberately employs a networked approach to support the diversity of students across both demographic characteristics and developmental stages in order to create an inclusive mentoring community.

Taking a network perspective for understanding diverse forms and functions of mentoring is essential as we look toward building effective formal mentoring programs within academia. These mentoring networks can build an individual's sense of competence or self-efficacy and create a sense of shared capabilities or what has been identified by previous research as collective efficacy (Moolenaar et al., 2010). Looking toward the future, we must expand our view of mentoring beyond specific relationships and toward the value and importance of these networked relationships as an essential element for effective program design, delivery, and long-term impact. Thus, we expand our view to examine mentoring as diverse developmental networks that serve as a buffer, as a means of social influence, and as an opportunity for identity work.

Expanding our View of Mentoring Within Academia

Once we view mentoring as a dynamic and diverse network of developmental relationships that takes on different forms and provides a range of functions, we can then explore some interesting ideas as we look toward future research and practice in academia. While paying attention to the different functions of mentoring relationships (career, psychosocial) and the different types (hierarchical, peer, group, reverse, networked, etc.) is relevant, it is not the only lens through which we can view the design and overall effectiveness of formal mentoring programs. Thus, we outline three emerging perspectives on mentoring and mentoring networks that can expand our existing knowledge about mentoring and its impact within academia: mentoring as a buffer, mentoring as social influence, and mentoring as identity work.

Mentoring as a Buffer

While mentoring has been well-documented to provide both career and psychosocial support, more recent work has examined mentoring as a buffer. The core idea is that mentoring can serve as a buffer, especially for the negative effects of novel, nonsupportive, discriminatory, or even toxic institutions or programs (South-Paul et al., 2021). High-quality mentoring relationships can not only provide support but help mentees cope with the negative impact of an unwelcoming environment or institutions that lack diversity and/or an inclusive culture. The buffering effect means that negative experiences do not derail the advancement and well-being of diverse individuals by providing a buffer against any negative effects on core dimensions such as psychological safety, commitment, and perceptions of institutional support. A buffering effect is impactful in situations where both blatant and subtle forms of bias or

discrimination occur. Research also shows that individuals can experience ambient discrimination, which is the knowledge or awareness of discrimination in the external environment that is aimed at others similar to oneself can trigger the same reactions as if direct actions of bias or discrimination occurred (Ragins et al., 2017; Randel et al., 2020).

Mentoring as a buffer for both direct and ambient experiences of discrimination provides a safe space from potential negative consequences in order to offset the impact of noninclusive cultures and unwelcoming environments. For example, peer mentoring relationships can be a source of empathy that provides much-needed confirmation and validation, especially in the face of subtle forms of discrimination, harassment, and microaggressions. In addition, formal academic mentoring programs that provide senior role models can serve as a buffer by sharing experiences, insights, and advice that helps mentees make sense of negative experiences and effectively navigate the environment (Murrell et al., 2021).

The idea of mentoring as a buffer is documented by research studies examining the notion of psychological contract breach (Zagenczyk et al., 2009). The concept of the psychological contract is based on a person's expectation and perception that a reciprocal relationship exists between them and their institution. Research shows that mentors are able to help individuals recognize a "breach" in the psychological contract when it occurs. These breaches occur when people feel that the institution does not reciprocate with the support that equals their investment and efforts on their behalf. The impact of these breaches produces a negative impact on engagement, satisfaction, commitment, and retention. While having a mentor does not guarantee that all promises by an organization will be kept, mentoring can help with the recognition, interpretation, and identification of coping behaviors that may offset the negative consequences of a psychological contract breach (Zagenczyk et al., 2009).

Coping with the consequences of a psychological contract breach is especially valuable for underrepresented and minoritized individuals who are often the target of both direct and ambient discrimination along with the consequences. In fact, recent research has shown that mentors and role models can reduce the negative impact of psychological contract breaches more effectively than formal relationships such as supervisors and advisors (Haggard & Turban, 2012; Haggard et al., 2010). Thus, mentoring relationships can help diverse mentees to recognize, interpret, and cope with discriminatory experiences that take place within the organization, profession, or external environment. Thus, the need for organization-sponsored mentoring that provides both direct and indirect benefits of different mentoring relationships (e.g., hierarchical, peer, or group mentoring) is both necessary and beneficial as a buffer for the experience of diverse individuals within academia. In explaining the benefit of such formal sponsored programs, McCormack and West (2006) described the impact of a women's group mentoring program at a university where women worked with both mentors and peers to develop and advance their careers into leadership roles. Some formal group mentoring programs reflect elements of the networked mentoring program discussed in Chapter 13. Understanding the working of networked mentoring is a significant aspect that needs to be considered in expanding the view of mentoring within academia.

Mentoring as Social Influence

Looking at mentoring from a relational view can provide a unique perspective that regards these relationships not simply as a resource for support or information but also as having an impact on shaping learning and knowledge-sharing as central to social influences processes. The idea that mentoring relationships can act as agents of social influence is supported by several well-known theoretical perspectives that include social learning theory, social cognitive theory, social information processing theory, and social comparison theories (Bandura, 1986; Nonaka, 1994; Ostroff & Kozlowski, 1992).

Social learning emphasizes the importance of observing and modeling behaviors and interactions as part of the learning and personal development process. For example, a study by Bommer et al. (2003) showed that the likelihood that individuals will perform collaborative citizenship behaviors is directly related to the frequency and consistency of organizational citizenship behavior performed by peers within their environment. Clearly, social learning can influence behaviors, attitudes, and perceptions of individuals who share a social connection within mentoring relationships (Zagencyk et al., 2008). In addition, when these relationships involve some level of reciprocity, the strength of social influence is enhanced (Higgins & Thomas, 2001). Shifting away from a behavioral understanding of social learning, Bandura's (1986) social cognitive theory explained that learning occurs in a social context. Bandura's social cognitive framework viewed the social learning process as triadic reciprocity, which involves a cognitive process that balances the relationship between personal, environmental, and behavioral, thus viewing social learning broadly (Bandura, 1986). Based on their discovery, the social learning theory was revised and renamed social cognitive theory (Kihlstrom & Harackiewicz, 1990). Looking at mentoring through the lens of social influence also focuses on the ideas of knowledge development, knowledge sharing, and knowledge transfer, which have also been associated with effective mentoring programs (Viator, 1999, 2001). It is true that mentoring involves traditional hierarchical relationships, peer-to-peer mentoring, and reverse as well as group mentoring. For example, Files and her colleagues conducted a pilot program for the advancement of women in academic medicine. They found that peer mentoring facilitated knowledge sharing, academic productivity, and enthusiasm for the profession as focal outcomes (Files et al., 2008). Peer mentoring is especially relevant for disciplines where often the types of knowledge shared are complex, dynamic, and contextual in nature (Jarvis-Selinger et al., 2012; MacPhee et al., 2013). We have seen mentoring used as an explicit component of various traditional academic development efforts, such as the preceptor model that is frequently used within training programs for medical and health care professionals (Sachedeva, 1996). Clearly, the power of social influence within mentoring relationships is seen as a core aspect that facilitates knowledge exchange and socialization, which ultimately leads to social influence (Zagenczyk et al., 2008). Knowledge sharing and social influence processes are enhanced where there is a strong connection among those involved based on vital social, professional, or personal identity-based affiliations or identities (Ragins & Verbos, 2007). Thus, we see mentoring as "identity work" as a critical area for future research and practice in academia.

Mentoring as Identity Work

Illeris's notion of identity transformation shows a clear connection between different types of mentoring relationships and identity work that includes personal identity, professional identity, and social group identity (Illeris, 2014). The idea is that challenges of identity formation and

transformation, which often take place within academic settings, can create distinct challenges or "developmental triggers" that require resources, support, and awareness of identities in order to have positive and productive outcomes (Randel et al., 2020; Roberts et al., 2009). For example, work by Onosu (2021) shows that students who are exposed to cultural immersion experiences engage in facilitated identity work together with both faculty and their peers as mentors. Existing research showed that these cultural immersion experiences impacted students' views of themselves and their relationships with others as part of an identity transformation process. These experiences were facilitated by faculty via hierarchical mentoring relationships coupled together with peer-to-peer mentoring as part of a formal academic program. Evidence supports the role of both hierarchical and peer mentoring as providing a safe space for identity work to occur as students were challenged to understand diverse cultures, reevaluate assumptions, and correct misjudgments about themselves in relationship to others from different backgrounds.

Similarly, feminist models of mentoring and leadership development advocate for developing effective and inclusive leadership development efforts that require providing a safe environment for critical "identity work" to take place (Ely et al., 2011; Murrell & Onosu, 2022). The notion of identity work has also been found to be essential for a range of pipeline development programs, especially those that seek to increase racial diversity in emerging leadership positions (Murrell et al., 2021) and for the identity development of ethical leadership among undergraduate students (Murrell et al., 2020). More research is needed to better understand how different forms of mentoring can support the critical identity work within academic settings that would include diverse forms, functions, and types of mentoring.

Practical Considerations for Mentoring Program Coordinators

Clearly, we have known about the importance of mentoring in developing people for decades. Mentoring has a range of different forms and provides a wide variety of important functions for both mentors and mentees. Yet few organizations have successfully leveraged it as part of their overall approach to enhance academic outcomes and experiences. Our review reminds us that mentoring programs are about more than a single program that is able to solve all of the academic and developmental needs of mentors and mentees in any higher education organization. It is also not about how mentoring programs are used only to make up for lack of support or insufficient infrastructure for academic development and other essential objectives such as diversity, equity, and inclusion. We suggest that practical considerations for mentoring program coordination should take into account the need for *intelligent mentoring*, or developing a comprehensive approach for how institutions can leverage mentoring in a way that aligns with its mission, strategy, and overall institutional (or academic unit) culture (Murrell et al., 2008). Considering any specific mentoring program or effort should begin with moving beyond the ease of one-shot mentoring programs or efforts. These types of approaches may provide an isolated or temporary solution and reinforce the myth that a single mentor or sponsor can address all of the needs of the individual. In order to address the individual's or the organization's diverse and dynamic needs, we should focus on comprehensive mentoring efforts that include a number of different approaches that are grounded in both research and best practices (Murrell & Blake-Beard, 2017).

Intelligent mentoring defines as its core goal the development of a fully integrated, diverse portfolio

of mentoring initiatives into academic goals, program objectives, and the development of students, faculty, and staff across the organization. The efforts toward effective program development must focus on building a diverse portfolio of effective mentoring programs, using mentoring to strengthen institutional capacity, creating sustainable communities of mentors and mentees via training and ongoing support and linking mentoring to core values within the institution, such as diversity, equity, and inclusion. While there are a number of different approaches or strategies to achieve these goals, there are four important keys to intelligent mentoring that are relevant to coordinators who are designing and delivering mentoring programs: *purpose*, *process*, *participation*, and *portfolio*.

Once mentoring has been identified as a tool for use in an organization or within a unit or team, there needs to be significant clarification on what the *purpose* of mentoring is. While it may seem obvious and perhaps easy, it takes a focused effort that engages a diverse array of stakeholders (e.g., students, faculty, staff, alumni, employers, and external partners) to help develop a clear purpose or vision for the overall purpose and desired outcomes of any mentoring program. Thus, intelligent mentoring means first understanding the link between the needs of the organizations and the specific mentoring tool or program that can best fit these needs across essential stakeholders (e.g., students, faculty, etc.) and the organization's culture. Too often, we think of mentoring in a homogeneous fashion, which takes power out of the range of different mentoring structures, types, functions, and methods. Intelligent mentoring means spending a significant amount of time thinking, discussing, clarifying, and reaching a consensus on what the mentoring *purpose* is.

Once clarity and consensus over the purpose of mentoring has been reached, intelligent mentoring then turns a program coordinator's attention to the *process*. The process involves how the program coordinator or leader becomes knowledgeable about the current work of mentoring within their institution as well as best practices across other organizations. It requires a process where stakeholders are not merely surveyed but actively engaged in the process of design, implementation, and ongoing improvement as part of the mentoring program. A focus on customizing the process is significant because mentoring programs should not be considered a one-size-fits-all tool. Instead, program coordinators should engage critical partners and stakeholders to engage in an ongoing process that is evidence-based so the program and its outcomes fit within the organization's culture. Clearly understanding how decisions are made, how successful initiatives have been done in the past, and gaining clarity on the unspoken rules within the institution's culture must be part of the process for developing effective mentoring programs. Thus, a mentoring program coordinator must move beyond "doing some mentoring" or merely copying what has worked for other institutions. The process of learning from other institutions but adapting to the current culture, history, and environment in creating a quality mentoring program is essential and begins with a commitment to an effective and inclusive *process*.

Along with focusing on purpose and process, intelligent mentoring must put forth effort to ensure that there is diversity of stakeholders and perspectives across all stages of program design and implementation as inclusive *participation*. Often, mentoring programs or efforts are designed and delivered in a vacuum. A leader or small planning team often designs a mentoring program without meaningful engagement from the individuals who will be responsible for delivering the program. In addition, these decisions are often made without input from the targets of the mentoring effort. Effective tools for program coordinators mean understanding how to engage a broad array of

individuals who actively participate not only in providing input into the need for mentoring but also into the design, delivery, and ongoing assessment of mentoring programs. Often ongoing assessment is overlooked by program coordinators because active and inclusive participation takes time, effort, and resources. However, the irony is that programs designed without active and inclusive participation are often unsuccessful and create a future need for program redesign, which is ultimately more costly in terms of time, resources, and ongoing support. A central lesson of intelligent mentoring is that effective design, delivery, and assessment of high-quality mentoring programs requires active and inclusive *participation*.

The fourth key for effective program design and delivery is what we have labeled as *portfolio*. Based on valuable lessons learned from examining and facilitating actual mentoring programs across different types of organizations over the years. Effective mentoring programs should not be considered a one-shot or a one-off initiative. Mentoring is most effective when it is part of a holistic portfolio of programs, resources, and efforts to achieve the overall objective outlined by the program coordinator and engaged stakeholders. Thus, designing, implementing, and providing resources for not just a single mentoring effort but for a *mentoring portfolio*. A one-shot approach to mentoring may help a small segment of individuals in the short term; however, to have a lasting and transformational impact, there must be a commitment to address the wide range of needs with different and distinct mentoring tools. Each mentoring tool must be selected to meet the specific purpose, be designed using a clear process, and involve diverse participation to be most effective. No one mentoring program, single design, or web-based platform can accomplish a core objective. Intelligent mentoring means a long- term commitment to providing the strategy, resources, and support for any effort to be sustained over time and to complement ongoing efforts across targeted academic outcomes. Thus, program coordinators should focus on moving beyond a one-shot or quick-fix approach and toward building a mentoring *portfolio*.

Conclusions

While mentoring has been shown to have a number of positive benefits within academia, it is necessary to focus on the importance of developing diverse, high-quality relationships as a necessary aspect of formal mentoring within academia. As we have discussed, mentoring represents a complex, dynamic, and diverse range of mutually developmental relationships across all functions of mentoring (career and psychosocial) and types of mentoring (hierarchical, peer, group, and reverse) within both formal and informal efforts. Mentoring as a resource focuses on the development of different knowledge, skills, and abilities, as well as the cultivation of networks of people and communities that are essential for the development of both knowledge as intellectual capital and relationships as social capital within academia (Swap et al., 2001; Yosso, 2016). Looking at mentoring as a buffer from the negative experience or toxic environments, as a tool for social influence, and as a catalyst for identity work to take place are exciting opportunities for future research and practice within academia that utilize the powerful and beneficial impact of mentoring.

References

Abalkhail, J. M., & Allan, B. (2015). Women's career advancement: Mentoring and networking in Saudi Arabia and the UK. *Human Resource Development International*, *18*(2), 153–168. https://doi.org/10.1080/13678868.2015.1026548

Allen, T. D., & Eby, L. T. (2011). *The Blackwell handbook of mentoring: A multiple perspectives approach*. John Wiley & Sons.

Allen, T. D., Eby, L. T., Chao, G. T., & Bauer, T. N. (2017). Taking stock of two relationship aspects of organizational life: Tracing the history and shaping the future of socialization and mentoring research. *Journal of Applied Psychology*, *201*, 324–337. https://doi.org/10.1037/0021-9010.91.3.567

Allen, T. D., Eby, L. T., Poteet, M. L., Lentz, E., & Lima, L. (2004). Career benefits associated with mentoring for protégé: A meta-analysis. *Journal of Applied Psychology*, *89*, 127–136.

Arthur, M. B., & Kram, K. E. (1985). Mentoring at work: Developmental relationships in organizational life. *Administrative Science Quarterly*, *30*(3), 454. https://doi.org/10.2307/2392687

Baily, C. (2009). Reverse intergenerational learning: A missed opportunity? *AI & SOCIETY*, *23*(1), 111–115. https://doi.org/10.1007/s00146-007-0169-3

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Pearson.

Bommer, W. H., Miles, E. W., & Grover, S. L. (2003). Does one good turn deserve another? Coworker influences on employee citizenship. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, *24*(2), 181–196.

Buck, G. (2020). *Peer mentoring in criminal justice*. Routledge.

Burke, R. J. (1984). Mentors in organizations. *Group & Organization Studies*, *9*(3), 353–372. https://doi.org/10.1177/105960118400900304

Burton, S., Raposa, E. B., Poon, C. Y., Stams, G. J., & Rhodes, J. (2021). Cross-age peer mentoring for youth: A meta-analysis. *American Journal of Community Psychology*. https://doi.org/10.1002/ajcp.12579

Bussey-Jones, J., Bernstein, L., Higgins, S., Malebranche, D., Paranjape, A., Genao, I., Lee, B., & Branch, W. (2006). Repaving the road to academic success: The IMeRGE approach to peer mentoring. *Academic Medicine*, *81*(7), 674–679.

Byars-Winston, A., Estrada, Y., Howard, C., Davis, D., & Zalapa, J. (2010). Influence of social cognitive and ethnic variables on academic goals of underrepresented students in science and engineering: A multiple-groups analysis. *Journal of Counseling Psychology*, *57*(2), 205.

Chan, A. W., Yeh, C. J., & Krumboltz, J. D. (2015). Mentoring ethnic minority counseling and clinical psychology students: A multicultural, ecological, and relational model. *Journal of Counseling Psychology*, *62*(4), 592–607. https://doi.org/10.1037/cou0000079

Chandler, D. E., Kram, K. E., & Yip, J. (2011). An ecological systems perspective on mentoring at work: A review and future prospects. *Academy of Management Annals*, *5*(1), 519–570. https://doi.org/10.5465/19416520.2011.576087

Chanland, D. (2022). Networked mentoring programs in academia. In N. Dominguez & D. Law (Eds.), *Making connections: A handbook for effective formal mentoring programs in academia*. Mentoring Institute at the University of New Mexico.

Chaudhuri, S. (2019). Perspectives in HRD—reverse mentoring: Hallmarks for implementing an intergenerational intervention. *New Horizons in Adult Education and Human Resource Development*, *31*(3), 65–71. https://doi.org/10.1002/nha3.20256

Chaudhuri, S., & Ghosh, R. (2012). Reverse mentoring. *Human Resource Development Review*, *11*(1), 55–76. https://doi.org/10.1177/1534484311417562

Chen, Y. (2013). Effect of reverse mentoring on traditional mentoring functions. *Leadership and Management in Engineering*, *13*(3), 199–208. https://doi.org/10.1061/(asce)lm.1943-5630.0000227

Chun, J. U., Sosik, J. J., & Yun, N. Y. (2012). A longitudinal study of mentor and protege outcomes informal mentoring relationships. *Journal of Organizational Behavior*, *33*(8), 1071–1094. https://doi.org/10.1002/job.1781

Cismaru, L., & Iunius, R. (2019). Bridging the generational gap in the hospitality industry: Reverse mentoring—an innovative talent management practice for present and future generations of employees. *Sustainability*, *12*(1), 63. https://doi.org/10.3390/su12010263

Collins, A., Lewis, I., Stracke, E., & Vanderheide, R. (2014). Talking career across disciplines: Peer group mentoring for women academics. *International Journal of Evidence Based Coaching and Mentoring*, *12*(1), 92–108.

Daly, A. J. (2010). *Social network theory and educational change*. Harvard University Press.

Denton, M., Borrego, M., & Boklage, A. (2020). Community cultural wealth in science, technology, engineering, and mathematics education: A systematic review. *Journal of Engineering Education*, *109*(3), 556–580.

Dobrow, S. R., & Tosti-Kharas, J. (2012). Listen to your heart? Calling and receptivity to career advice. *Journal of Career Assessment*, *20*(3), 264–280. https://doi.org/10.1177/1069072711434412

Eby, L. T. (1997). Alternate forms of mentoring in changing organizational environments: A conceptual extension of the mentoring literature. *Journal of Applied Psychology*, *75*, 539–546.

Eby, L. T., Allen, T. D., Hoffman, B. J., Baranik. L. E., Sauer, J. B., Baldwin, S., & Evans, S. C. (2013). An interdisciplinary meta-analysis of the potential antecedents, correlates, and consequences of protégé perceptions of mentoring. *Psychological Bulletin*, *139*, 441–476. https://doi.org/10.1037/a0029279

Eby, L., Buits, M., Lockwood, A., & Simon, S. A. (2004). Protégés negative mentoring experiences: Construct development and nomological validation. *Personnel Psychology*, *57*(2), 411–447.

Ely, R. J., Ibarra, H., & Kolb, D. M. (2011). Taking gender into account: Theory and design for women's leadership development programs. *Academy of Management Learning & Education*, *10*(3), 474–493.

Ensher, E. A., Heun, C., & Blanchard, A. (2003). Online mentoring and computer-mediated communication: New directions in research. *Journal of Vocational Behavior*, *63*(2), 264–288. https://doi.org/10.1016/s0001-8791(03)00044-7

Ensher, E. A., & Murphy, S. E. (2011). The mentoring relationship challenges scale: The impact of mentoring stage, type, and gender. *Journal of Vocational Behavior*, *79*(1), 253–266. https://doi.org/10.1016/j.jvb.2010.11.008

Fernandez, A., Chen, V., Quan, J., Martinez, A., Flowers, L., & Aronson, L. (2019). Evaluation of a medical student research and career development program to increase diversity in academic medicine. *Academic Medicine*, *94*(8), 1220–1228.

Files, J. A., Blair, J. E., Mayer, A. P., & Ko, M. G. (2008). Facilitated peer mentorship: A pilot program for academic advancement of female medical faculty. *Journal of Women's Health*, *17*, 1009–1015.

Fletcher, J., & Ragins, B. R. (2007). Stone Center relational cultural theory: A window on relational mentoring. In B. R. Ragins & K. E. Kram (Eds.), *The handbook of mentoring at work: Theory, research, and practice* (pp. 373–399). SAGE Publications.

Fowler, J. L., & O'Gorman, J. G. (2005). Mentoring functions: A contemporary view of the perceptions of Mentees and mentors. *British Journal of Management*, *16*(1), 51–57. https://doi.org/10.1111/j.1467-8551.2005.00439.x

Friedman, R., Kane, M., & Cornfield, D. B. (1998). Social support and career optimism: Examining the effectiveness of network groups among black managers. *Human Relations*, *51*(9), 1155–1177.

Gammel, J. A., & Rutstein-Riley, A. (2016). A relational approach to mentoring women doctoral students. *New Directions for Teaching and Learning*, *2016*(147), 27–35. https://doi.org/10.1002/tl.20196
Gandara, P. C., & Contreras, F. (2009). *The Latino education crisis: The consequences of failed social policies*. Harvard University Press.

Giscombe, K. (2007). Advancing women through the glass ceiling with formal mentoring. In B. R. Ragins & K. E. Kram (Eds.), *The handbook of mentoring at work: Theory, research, and practice* (pp. 549–571). SAGE Publications.

Haggard, D. L., Dougherty, T. W., Turban, D. B., & Wilbanks, J. E. (2010). Who is a mentor? A review of evolving definitions and implications for research. *Journal of Management*, *37*(1), 280–304. https://doi.org/10.1177/0149206310386227

Haggard, D. L., & Turban, D. B. (2012). Mentor relational and transactional obligations measure. *PsycTESTS Dataset*. https://doi.org/10.1037/t33198-000

Hall, K. L., Vogel, A. L., Huang, G. C., Serrano, K. J., Rice, E. L., Tsakraklides, S. P., & Fiore, M. (2018). The science of team science: A review of the empirical evidence and research gaps on collaboration in science. *American Psychologist*, *73*(4), 532.

Higgins, M. & Kram, K. (2001). Reconceptualizing mentoring at work: A developmental network perspective. *Academy of Management Review*, *26*, 264–298. https://doi.org/10.2307/259122

Higgins, M. C. & Thomas, D. A. (2001). Constellations and careers: Toward understanding the effects of multiple developmental relationships. *Journal of Organizational Behavior*, *22*, 223–247.

Huizing, R. L. (2012). Mentoring together: A literature review of group mentoring. *Mentoring and tutoring: Partnership in learning*, *20*(1), 27–55. https://doi.org/10.1080/13611267.2012.645599

Illeris, K. (2014). Transformative learning and identity. *Journal of Transformative Education*, *12*(2), 148–163.

Jarvis-Selinger, S., Pratt, D. D., & Regehr, G. (2012). Competency is not enough. *Academic Medicine*, *87*(9), 1185–1190. https://doi.org/10.1097/acm.0b013e3182604968

Jones, J. (2013). Factors influencing mentees' and mentors' learning throughout formal mentoring relationships. *Human Resource Development International*, *16*(4), 390–408. https://doi.org/10.1080/13678868.2013.810478

Kihlstrom, J. F., & Harackiewicz, J. M. (1990). An evolutionary milestone in the psychology of personality. *Psychological Inquiry*, *1*(1), 86–92. https://doi.org/10.1207/s15327965pli0101_23

Kram, K. E. (1988). *Mentoring at work: Developmental relationships in organizational life*. University Press of Amer.

Kram, K. E., & Isabella, L. A. (1985). Mentoring alternatives: The role of peer relationships in career development. *Academy of Management Journal*, *28*(1), 110–132. https://doi.org/10.5465/256064

Kuperminc, G. P., Chan, W. Y., Hale, K. E., Joseph, H. L., & Delbasso, C. A. (2020). The role of school-based group mentoring in promoting resilience among vulnerable high school students. *American Journal of Community Psychology*, *65*(1–2), 136–148. https://doi.org/10.1002/ ajcp.12347

Lagally, C. M. (2000). *Evaluation of a peer mentoring system to train operators in a midwestern manufacturing environment* [Doctoral dissertation, Purdue University]. Purdue e-Pubs. https://docs.lib.purdue.edu/dissertations/AAI3018233/

Limbert, C. A. (1995). Chrysalis, a peer mentoring group for faculty and staff. *NWSA Journal*, *7*(2), 86–99.

Liu, Y., Abi Aad, A., Maalouf, J., & Abou Hamdan, O. (2020). Self- vs. other-focused mentoring motives in informal mentoring: Conceptualizing the impact of motives on mentoring behaviors and beneficial mentoring outcomes. *Human Resource Development International*, *24*(3), 279–303. https://doi.org/10.1080/13678868.2020.1789401

Lopez, P. D., & Duran, A. (2021). The role of mentoring on the retention of women from diverse backgrounds in STEM. *Implementation Strategies for Improving Diversity in Organizations*, 271–310. https://doi.org/10.4018/978-1-7998-4745-8.ch010

Lunsford, L., Crisp, G., Dolan, E. L., & Wuetherick, B. (2017). Mentoring in higher education. In D. A. Clutterbuck, F. Kochan, L. G. Lunsford, N. Dominguez, & J. Haddock-Millar (Eds.), *The SAGE handbook of mentoring*. SAGE.

Lutz, G., Pankoke, N., Goldblatt, H., Hofmann, M., & Zupanic, M. (2017). Enhancing medical students' reflectivity in mentoring groups for professional development – a qualitative analysis. *BMC Medical Education*, *17*(1). https://doi.org/10.1186/s12909-017-0951-y

MacPhee, M., Chang, L., Lee, D., & Spiri, W. (2013). Global health care leadership development: Trends to consider. *Journal of Healthcare Leadership*, *2013*(5), 21. https://doi.org/10.2147/jhl.s23010

Marcinkus M.W. (2012). Reverse mentoring at work: Fostering cross-generational learning and developing millennial leaders. *Human Resource Management*, *51*(4), 549-573. https://doi.org/10.1002/ hrm.21489

McCormack, C., & West, D. (2006). Facilitated group mentoring develops key career competencies for university women: A case study. *Mentoring & Tutoring: Partnership in Learning*, *14*(4), 409–431. https://doi.org/10.1080/13611260600739290

McDougall, M., & Beattie, R. S. (1995). Learning from learning groups. *Journal of Management Development*, *14*(8), 35–41. https://doi.org/10.1108/02621719510097406

McManus, S. E., & Russell, J. E. A. (2007). Peer mentoring relationships. In B. A. Ragins & E. Kram (Eds)., *The handbook of mentoring at work* (pp. 273–295). Sage Publications.

Mitchell, H. J. (1999). Group mentoring: Does it work? *Mentoring & Tutoring: Partnership in Learning*, *7*(2), 113–120. https://doi.org/10.1080/1361126990070202

Moolenaar, N. M., Daly, A. J., & Sleegers, P. J. C. (2010). Occupying the principal position: Examining relationships between transformational leadership, social network position, and schools' innovative climate. *Educational Administration Quarterly, 46*, 623–670.

Murphy, W. (2012). Reverse mentoring at work: Fostering cross-generational learning and developing millennial leaders. *Human Resource Management*, *51*(4), 549–573. https://doi.org/10.1002/hrm.21489

Murrell, A. J., & Blake-Beard, S. (2017). *Mentoring diverse leaders: Creating change for people, processes, and paradigms*. Routledge Press.

Murrell, A. J., Blake-Beard, S., & Porter, D. M. (2021). The importance of peer mentoring, identity work and holding environments: A study of African American leadership development. *International Journal of Environmental Research and Public Health*, *18*(9), 4920.

Murrell, A. J., Blake-Beard, S., Porter, D. M., & Perkins-Williamson, A. (2008). Inter-organizational formal mentoring: Breaking the concrete ceiling sometimes requires support from the outside. *Human Resource Management*, *47*(2), 275–294. https://doi.org/10.1002/hrm.20212

Murrell, A. J., Crosby, F. J., & Ely, R. J. (Eds.). (1999). *Mentoring dilemmas: Developmental relationships within multicultural organizations*. Psychology Press.

Murrell, A. J., Jones, R., & Petrie-Wyman, J. (2020). Developing inclusive ethical leaders. *Inclusive Leadership*, 354–362. https://doi.org/10.4324/9780429449673-24

Murrell, A. J., & Onosu, G. O. (2022). Mentoring diverse leaders: The necessity of identity work. In R. Ghosh & H. M. Hutchins (Eds.), *HRD perspectives on developmental relationships: Connecting and relating at work* (pp. 175–195). Palgrave Macmillan.

Murrell, A. J., Trammel-Forte, S., & Bing, D. (2008). *Intelligent mentoring: How IBM adds value through people, knowledge and relationships*. Pearson Publishers.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, *5*, 12–37.

Onosu, G. (2021). The impact of cultural immersion experience on identity transformation process. *International Journal of Environmental Research and Public Health*, *18*(5), 2680.

Ostroff, C., & Kozlowski, S. W. J. (1992). Organizational socialization as a learning process: The role of information acquisition. *Personnel Psychology*, *45*, 849–874.

Paquette, V., Murphy, W., & Duffy, (2022). Networked mentoring programs: Targeted developmental relationships and building a broader community. In N. Dominguez & D.Law (Eds.), *Making connections: A handbook for effective formal mentoring programs in academia.* Mentoring Institute at the University of New Mexico.

Pololi, L. H., & Knight, S. (2005). Mentoring faculty in academic medicine: A new paradigm? *Journal of General Internal Medicine*, *20*, 866–870.

Pullins, E. B., & Fine, L. M. (2002). How the performance of mentoring activities affects the mentor's job outcomes. *Journal of Personal Selling & Sales Management*, *22*(4), 259-271.

Ragins, B. R. (1997). Diversified mentoring relationships in organizations: A power perspective. *Academy of Management Review*, *22*(2), 482–521. https://doi.org/10.5465/amr.1997.9707154067

Ragins, B. R. (2016). From the ordinary to the extraordinary: High-quality mentoring relationships at work. *Organization Dynamics*, (45), 228–244. DOI:10.1016/J.ORGDYN.2016.07.008

Ragins, B. R., Ehrhardt, K., Lyness, K. S., Murphy, D. D., & Capman, J. F. (2017). Anchoring relationships at work: High-quality mentors and other supportive work relationships as buffers to ambient racial discrimination. *Personnel Psychology*, *70*(1), 211–256.

Ragins, B. R., & Kram, K. E. (2007). *The handbook of mentoring at work: Theory, research, and practice.* SAGE.

Ragins, B. R., & Verbos, A. K. (2007). Positive relationships in action: Relational mentoring and mentoring schemas in the workplace. In J. E. Dutton & B. R. Ragins (Eds.), *Exploring Positive Relationships at Work: Building a theoretical and research foundation* (p. 26). Taylor & Francis Group.

Randel, A. E., Galvin, B. M., Gibson, C. B., & Batts, S. I. (2020). Increasing career advancement opportunities through sponsorship: An identity-based model with illustrative application to cross-race mentorship of African Americans. *Group & Organization Management*, *1*, 1–38. https://doi.org/10.1177/1059601120978003

Rekha, K. N., & Ganesh, M. P. (2019). Factors influencing mentors' learning from mentoring relationships: Insights from a serial mediation study in India. *International Journal of Training and Development*, *23*(3), 221–239. https://doi.org/10.1111/ijtd.12159

Roberts, L. M., Cha, S. E., Hewlin, P. F., & Settles, I. H. (2009). Bringing the inside out: Enhancing authenticity and positive identity in organizations. In L. M. Roberts & J. E. Dutton (Eds.), *Exploring positive identities and organizations: Building a theoretical and research foundation* (pp. 149–170). Routledge.

Roberts, L. M., & Creary, S. J. (2011). Positive identity construction: Insights from classical and contemporary theoretical perspectives. In K. S. Cameron & G. Spreitzer (Eds.), *The Oxford handbook of positive organizational scholarship* (pp. 70–83). Oxford University Press.

Sachdeva, A. K. (1996). Preceptorship, mentorship and the adult learning in medical and health sciences education. *Journal of Cancer Education*, *11*, 131–136.

Santos, J. C., Goulart, L. F., Giansante, L., Lin, Y. H., Sirico, A. C. A., Ng, A. H., Tsapaki, V., Bezak, E., & Ng, K. H. (2020). Leadership and mentoring in medical physics: The experience of a medical physics international mentoring program. *Physica Medica*, *76*, 337–344.

Scandura, T. A. (1992). Mentorship and career mobility: An empirical investigation. *Journal of Organizational Behavior*, *13*(2), 169–174. https://doi.org/10.1002/job.4030130206

Sorte, C. J., Aguilar-Roca, N. M., Henry, A. K., & Pratt, J. D. (2020). A hierarchical mentoring program increases confidence and effectiveness in data analysis and interpretation for undergraduate biology students. *CBE—Life Sciences Education*, *19*(3), 1–12. https://doi.org/10.1187/cbe.19-10-0201

South-Paul, J. E., Campbell, K. M., Poll-Hunter, N., & Murrell, A. J. (2021). Mentoring as a buffer for the syndemic impact of racism and COVID-19 among diverse faculty within academic medicine. *International Journal of Environmental Research and Public Health*, *18*(9), 4921.

Straus, S. E., Straus, C., & Tzanetos, K. (2006). Career choice in academic medicine. *Journal of General Internal Medicine*, *21*, 1222–1229.

Swap, W., Leonard, D., Shields, M., & Abrams, L. (2001). Using mentoring and storytelling to transfer knowledge in the workplace. *Journal of Management Information Systems*, *18*(1), 95–114. https://doi.org/10.1080/07421222.2001.11045668

Thomka, L. A. (2007). Mentoring and its impact on intellectual capital. *Nursing Administration Quarterly*, *31*(1), 22–26. https://doi.org/10.1097/00006216-200701000-00008

Turner, C. S. (2015). Mentoring as transformative practice: Supporting student and faculty diversity. *Journal of Transformative Leadership & Policy Studies*, *5*(1), 76. https://doi.org/10.36851/jtlps.v5i1.473

Valencia, R. R. (2010). *Dismantling contemporary deficit thinking: Educational thought and practice*. Routledge.

Viator, R. E. (1999). An analysis of formal mentoring programs and perceived barriers to obtaining a mentor at large public accounting firms. *Accounting Horizons*, *13*(1), 37–53. https://doi.org/10.2308/acch.1999.13.1.37

Viator, R. E. (2001). The association of formal and informal public accounting mentoring with role stress and related job outcomes. *Accounting, Organizations and Society*, *26*(1), 73–93. https://doi.org/10.1016/s0361-3682(00)00002-7

Voldsund, K. H., & Bragelien, J. J. (2022). Student peer mentoring in an entrepreneurship course. *Procedia Computer Science*, *196*, 856–863. https://doi.org/10.1016/j.procs.2021.12.085

Wanberg, C. R., Welsh, E. T., & Hezlett, S. A. (2003). Mentoring research: A review and dynamic process model. In J. J. Martocchio & G. R. Ferris (Eds.), *Research in Personnel and Human Resources Management*, Vol. 22 (p. 39–124).

Wang, J., & Shibayama, S. (2022). Mentorship and creativity: Effects of mentor creativity and mentoring style. *Research Policy*, *51*(3), 104451. https://doi.org/10.1016/j.respol.2021.104451

Wilson, Z. S., Holmes, L., DeGravelles, K., Sylvain, M. R., Batiste, L., Johnson, M., McGuire, S. Y., Pang, S. S., & Warner, I. M. (2012). Hierarchical mentoring: A transformative strategy for improving diversity and retention in undergraduate STEM disciplines. *Journal of Science Education and Technology*, *21*(1), 148–156. https://doi.org/10.1007/s10956-011-9292-5

Young, A. M., & Perrewé, P. L. (2000). What did you expect? An examination of career-related support and social support among mentors and proteges. *Journal of Management*, *26*(4), 611–632. https://doi.org/10.1177/014920630002600402

Young, A. M., & Perrewé, P. L. (2004). The role of expectations in the mentoring exchange: An analysis of mentor and protégé expectations in relation to perceived support. *Journal of Managerial Issues*, *16*, 103–126.

Yosso, T. J. (2016). Whose culture has capital?: A critical race theory discussion of community cultural wealth. In *Critical race theory in education* (pp. 113-136). Routledge.

Zagenczyk, T., Gibney, R., Kiewitz, C., & Restubog, S. (2009). Mentors, supervisors and role models:Do they reduce the effects of psychological contract breach? *Human Resource Management Journal*, *19*(3), 237–259. https://doi.org/10.1111/j.1748-8583.2009.00097.x

Zagenczyk, T. J., Gibney, R., Murrell, A. J., & Boss, S. (2008). Friends don't make friends good citizens, but advisors do. *Group & Organization Management*, *33*, 760–780.