



# Understanding Workplace Relationships

An Examination of  
the Antecedents and  
Outcomes

Edited by  
Alexandra Gerbasi  
Cécile Emery  
Andrew Parker

palgrave  
macmillan

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# Introduction

Andrew Parker , Alexandra Gerbasi, and Cécile Emery

## Why Do Workplace Relationships Matter?

Workplace relationships are critical to how work gets done in organizations (Cross & Parker, 2004). In today's, flatter, team-based organizations it is often the relationships that people have that result in access to advice that enables the completion of high-quality work. The advice relationships that people have contain knowledge that is important for problem-solving and these relationships have been shown to enhance the

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productivity of organizational units as well as increase the performance and innovativeness of individuals and teams (Argote et al., 2003; Maurer et al., 2011; Tortoriello & Krackhardt, 2010). Furthermore, in organizations with matrix structures, as well as those typified by distributed or emergent leadership, the ability to influence colleagues comes from the informal workplace relationships as opposed to the formal hierarchical structure (Carnabuci et al., 2018).

While there is considerable evidence that suggests instrumental workplace relationships such as advice are important for problem-solving and influencing colleagues, there is also a growing understanding that affective workplace relationships such as friendship provide social support and are a major determinant of wellbeing in organizations (Bakker & Demerouti, 2007). For example, friendship relationships can mitigate the emotional demands of work (Parker et al., 2022). In addition, the chitchat that occurs between colleagues in organizations has been shown to be critical to well-being, although it can have a negative effect on employee engagement in work routines (Methot et al., 2021). Furthermore, evidence suggests that being embedded in a network of energizing ties at work helps employees stay engaged and perform better (Cullen-Lester et al., 2016). Overall, an individual's need to belong is a fundamental driver of human behavior and this need is often satisfied in the relationships that people form in the workplace (Baumeister & Leary, 1995).

Much of the research on workplace relationships has examined their positive outcomes. This is not the full story, though. Negative social relationships such as dislike, distrust, and rivalry also exist in organizations and have a significant impact on the workplace (Labianca & Brass, 2006). For example, de-energizing ties have been shown to have a negative effect on performance, although this can be mitigated if individuals have a sense of thriving (Gerbasì et al., 2015). Even positive relationships can have a negative impact. Indeed, they can have insular properties and individuals can get trapped in their own network of relationships hence missing out on opportunities and new information outside of their closed networks (Gargiulo & Benassi, 2000). In contrast, research has shown that problem-solving advice from difficult colleagues can have positive effects on individual performance (Brennecke, 2020).

In summary, workplace relationships do matter, although which relationships are important and whether they have a positive or negative impact is not fully understood.

## Defining Networks of Workplace Relationships

When defining workplace relationships, we need to consider the people in the organization, the relationships that they have with each other, and the network structure of those relationships. From a network perspective, people are sometimes referred to as the nodes in the network. In technical terms, the focal individual is called ego and all the individuals they are connected to are the alters. Earlier research on social networks tended to focus on how the people (nodes) relate to each other within the network structure. For example, research examined whether the probability of people joining or leaving a group depended upon the number and strength of social network ties within that group (McPherson et al., 1992). This stream of research on structural position emphasized the importance of being in the right place in the network, but neglected the possibility that the network positions occupied by individuals might be influenced by their individual characteristics. Today, however, it is more generally accepted that individual characteristics and cognitions are important in understanding how workplace relationships are formed and sustained (Tasselli et al., 2015). For example, research has shown that high self-monitors (chameleon-like individuals who easily change and adapt to fit a social situation) are more likely than low self-monitors (individuals who remain true to themselves and who they are no matter the social circumstances) to occupy central positions in social networks (Mehra et al., 2001).

The types of relationships or network ties that individuals have with each other in organizations are almost limitless. Research, however, has tended to focus on instrumental ties such as seeking advice, information, or knowledge; and affective ties such as friendship, like versus dislike, energizes versus de-energizes, or trust versus distrust. One of the earliest examples of research on network relationships was a study by

Roethlisberger and Dickson (1939) where they examined interactions of workers in the bank wiring room of the Hawthorne Works of the Eastern Electric Company in Chicago. These interactions included: who played games with whom; who traded jobs with whom; who helped whom; who displayed friendly behavior toward whom; and who was antagonistic toward whom. Research suggests that relationships such as advice seeking or helping can have one type of impact, whereas a relationship such as friendship can have a different impact. In many instances, however, a network tie can encapsulate more than one relationship such as both friendship and advice, this is known as a multiplex relationship.

The structure of workplace relationships includes both microstructures and the overall macrostructure of a network. The microstructures of workplace relationships include various building blocks. One important building block is reciprocal relationships. Reciprocity occurs when one person forms a tie with a colleague, and this results in the colleague forming a tie with the focal individual (Blau, 1964; Caimo & Lomi, 2015). For instance, when one person seeks advice from another it can result in the latter person also seeking advice in return. Friendship is another good example where reciprocity often takes place, as when friendship is not reciprocated it often diminishes over time, although there are instances when this is not the case.

A second key building block is that of transitivity (Coleman, 1988; Simmel, 1902/1950). Here, the microstructure includes three individuals and the ties between them. Transitivity is important because having three people involved in the relationship can increase the level of normative influence. For example, if person  $i$  is friends with person  $j$  and with person  $k$ , then it increases the likelihood that  $j$  and  $k$  will be friends. If  $j$  and  $k$  do not like each other then it results in an unbalanced triad and it is much harder for person  $i$  to remain friends with both  $j$  and  $k$ . This important insight is the basis of balance theory (Cartwright & Harary, 1956; Heider, 1946). The extent to which triadic structures are open or closed underlies the influential network theory of structural holes (Burt, 1995, 2000, 2004). Here person  $i$  benefits from being connected to  $j$  and  $k$  when  $j$  and  $k$  are themselves not connected, as person  $i$  is more likely to benefit from receiving more diverse information or knowledge.

A third building block is a cluster of individuals (Newman, 2003), where there are more ties between a group of individuals than there are to others in the network. For example, in organizations individuals in one location or functional unit are likely to have more ties to each other than to colleagues in other locations or functions. There are various technical definitions of network clusters such as a clique, an  $n$ -clique, and a  $k$ -plex, however, these need not concern us here (for more details see Kilduff & Tsai, 2003, pp. 44–46).

The overall pattern of microstructures in a network helps to define the macrostructure. For example, networks that are made up of many closed triadic structures will be more densely connected than those with fewer closed triadic structures. An illustration of this is a co-located department within an organization where there is a likelihood of many closed triadic structures of information-sharing ties. This type of network will have a much higher network density than a random selection of individuals within an organization that works in offices throughout the world. Another important measure of network macrostructure is based on the geodesic distance between two individuals, i.e., the number of relations on the shortest possible path from one actor to another (Freeman, 1978). Knowledge and advice tend to flow much quicker in networks where the average geodesic distance between all pairs of actors in the network is lower. Another important property of the macrostructure of a network is the extent to which it is considered a small world structure (Watts, 2004). A small world structure is one in which there are clusters of densely connected individuals with very few ties to other clusters. This often occurs in large business units that are divided by location or function (Cross & Parker, 2004).

## Theories of Workplace Relationships

For readers interested in learning more about social networks and workplace relationships there are some excellent review articles that cover the existing research in detail (for example, Borgatti & Foster, 2003; Brass, 2022; Brass et al., 2004; Tasselli & Kilduff, 2021). One helpful categorization of network theories is that of Borgatti and Halgin (2011).

They differentiate, on the one hand, theories where the network is the predictor of a nonnetwork outcome, for example, the effect of an individual having more structural holes in their network on individual performance (Burt, 1995). On the other hand, are theoretical explanations where the outcome being predicted is a network tie and the predictor is a nonnetwork concept. For example, how an individual's level of performance predicts whether they add or drop network ties (Parker et al., 2016). We briefly summarize below two of the more influential network theories that relate to workplace relationships, one for each of the categories outlined by Borgatti and Halgin (2011).

*Social capital:* The overarching theme of the social capital literature is that network ties are a source of resources (Adler & Kwon, 2002; Borgatti & Foster, 2003; Kwon & Adler, 2014). For example, being central in the network, i.e., having more network ties gives individuals access to more resources. These resources allow individuals to benefit in comparison to those with fewer network ties. Benefits include higher individual performance (Mehra et al., 2001; Shah et al., 2017; Sparrowe et al., 2001), individual creativity (Perry-Smith & Shalley, 2003), and team performance (Hansen, 1999; Tsai, 2001). An alternative stream of research within the overarching idea of social capital is the benefit of being connected to individuals who are not themselves connected to each other. Here the benefits come from an individual's position in the topography of the network (Borgatti & Foster, 2003). The most influential line of research that takes this view is structural hole theory (Burt, 1995, 2000). The notion of structural holes, where individuals benefit from having open networks, sits in contrast to the benefits of closed networks that create obligations and social norms that enhance the flow of complex information (Coleman, 1988).

*Network agency, individual characteristics, and cognitions:* While social capital theory is an explanation as to why network ties and structural position lead to beneficial outcomes; a separate stream of research has focused on the antecedents of network ties, i.e., what explains why people add, sustain, and also drop network ties. This stream of research has frequently adopted an agency perspective (Tasselli & Kilduff, 2021; Tasselli et al., 2015). Here the actors make choices within the constraints of existing network structures. The focus has been on how individual



characteristics and cognitions influence network choices. For example, it has been shown that an individual's personality can influence their network choices. An illustration of this is that actors with the personality trait of openness to experience—one of the personality characteristics in the five-factor model (Costa & McCrae, 1992)—prefer open networks where their friends tend to be unconnected with each other (Lönngqvist et al., 2014). Furthermore, extroverts—another personality characteristic in the five-factor model—tend to have more friends compared to introverts (Lönngqvist et al., 2014) and tend to be more popular as friends (Feiler & Kleinbaum, 2015). In addition to personal characteristics, cognition has also been shown to influence network choices. For example, individuals have a tendency to perceive both close and distant friendship relations as being reciprocated and transitive (Krackhardt & Kilduff, 1999). Furthermore, when people are under threat it has been shown that low status individuals are more likely to activate smaller and tighter subsets of their networks, compared to high status individuals (Smith et al., 2012).

## Network Practice

There is a considerable amount of applied research that underlies network practice in organizations. Applied journals such as *Harvard Business Review*, *MIT Sloan Management Review*, *California Management Review*, and *Organizational Dynamics*, have frequently published articles that examine workplace relationships and social networks. For example, applied research has examined communities of practice (Cross et al., 2006); wellbeing and collaborative overload (Cross et al., 2016); and change agents within organizations (Battilana & Casciaro, 2013). Other applied research has focused on formal versus informal networks (Krackhardt & Hanson, 1993), competent versus likable workplace relationships (Casciaro & Lobo, 2005), energizing (Cross et al., 2003) and de-energizing relationships (Parker et al., 2013), and how gender influences workplace relationships (Carboni et al., 2020, 2021). In addition, several books have examined the role of networks in organizations from an applied perspective (Cross & Parker, 2004; Cross & Thomas, 2008).

## Bringing Theory and Practice Together

While current academic research gives rigorous theoretical and empirical insights regarding workplace relationships, these papers include only limited details of the practical applications of workplace relations. Likewise, applied research focusing on network practice tends to give limited details of the theoretical implications. This edited collection provides readers with cutting-edge theoretical and practical insights from the latest research on social networks and workplace relationships. We present two different perspectives regarding the role of workplace relationships. First, we examine the work-based outcomes of workplace relationships, such as individual performance, as well as how social network relationships affect attitudes and behaviors. Second, we examine how workplace relationships are formed and sustained and the implications this has for knowledge creation and exchange as well as friendship and trust. Drawing on innovative research on social networks, leading authors in the field examine the importance of workplace relationships across a broad selection of institutional settings in a practical and accessible format for academic scholars, and students alike.

## Networks and Individual Performance

In the first section of this edited volume, we examine the effect of network relationships on individual performance in organizations. A long tradition of management research has examined the effect of network topographies and positions of individuals in networks and how these are associated with individual outcomes. Over the last four decades, the networks literature has shown extensive evidence that individuals' position within intraorganizational social networks is beneficial for their individual work-based performance (see Fang et al., 2015 for a meta-analysis). Yet, there is still much that is not known about moderators (boundary conditions) and mediators (mechanisms) regarding the association between individual network position and performance. To address this, our first set of chapters examines the effect of network relationships on individual performance in organizations.

First, in chapter ‘[Unpacking the Link Between Intrinsic Motivational Orientation and Innovation Performance](#)’ Carnabuci, Nedkovski, and Guerci explore the relationship between intrinsic motivational orientation and innovative performance. Existing research has theorized the psychological explanations for a positive relationship between intrinsic motivational orientation and employee innovative performance. In contrast, Carnabuci and colleagues draw from social capital theory, suggesting that network position is the key link between intrinsic motivational orientation and innovative performance. While many studies have shown network centrality is important for performance, its relationship with intrinsic motivational orientation is less well established. Carnabuci et al. find that employees with an intrinsic motivational orientation tend to become more central within the organization’s informal advice network, which in turn aids their innovative performance. The findings in the paper have important managerial implications. The paper demonstrates that having intrinsically motivated individuals may not be sufficient to maximize performance. Rather, it is important for managers to help employees grow a network of informal advice relationships with colleagues across the organization.

In the next chapter, ‘[Brokering One’s Way to Trust and Success](#)’ Parker, Ferrin, and Dirks examine how helping behaviors and brokerage in organizational networks aid in developing trusting relationships that will in turn impact individual performance. A substantial body of research over the last two decades has examined the determinants and outcomes of interpersonal trust within organizations. However, little of this research has considered how the social network that surrounds an interpersonal relationship might influence the interpersonal trust within that relationship and ultimately the effectiveness and success of individuals within an organization. Parker et al., address this gap by examining the role of helping behaviors and brokerage—connections to otherwise unconnected subnetworks within the organization. Utilizing a social exchange framework, they find that brokers can identify individuals who need information and other resources, act to satisfy those needs by performing organizational citizenship behaviors (OCBIs) toward those individuals, and by doing so, earn others’ trust. And it is this trust that enables brokers to gain performance advantages by maximizing the resource

benefits of their structural position. The findings in the paper have important implications for practice. While there is recognition that an individual's network position provides many potential opportunities. What is less well recognized is what employees do with these opportunities. Parker and colleagues show that network brokers use their position to increase performance by helping others as opposed to maximizing their own benefits. This suggests that managers should promote the importance of network brokerage as opposed to being wary that brokerage will lead to some individuals benefiting at the expense of others.

Next, '[Women Alone in the Middle](#)', Carboni explores gender difference in the occupation and use of social network brokerage roles. For decades, researchers have known that organizational networks that are characterized by brokerage provide important advantages. People who occupy brokerage roles reap significant career rewards, including faster rates of promotion, larger bonuses, more involvement in innovation, and greater likelihood of being identified as top talent. However, recent evidence has emerged to suggest that women are less likely than men to occupy brokerage positions and, even when they do occupy them, are less likely to leverage brokerage for career success. Several mechanisms have been advanced to explain these findings, including structural constraints caused by systemic discrimination and gender role expectations. Carboni reviews the research on brokerage as it relates to gender and posits that a gendered socio-emotional experience of the brokerage role may also contribute to systematic disadvantage for women. Carboni highlights the need for firms to invest in the success of women by enabling them to develop brokerage relationships. For example, by implementing mentoring and sponsorship programs that include training on the advantages of brokerage for mentors, sponsors, and protégées.

## The Effect of Network Relationships on Attitudes and Behaviors

In the second section of this edited volume, we further develop how networks can result in beneficial outcomes. We build upon the existing body of literature on how employee relationships impact employees' attitudes and behaviors. Contributing to this line of research, chapters 'Satisfied in the Outgroup: How Co-worker Relational Energy Compensates for Low-Quality Relationships with Managers' and 'Business Before Pleasure? Bringing Pleasure Back into Workplace Relationships' explore the role high-quality relationships in organizations can have on attitudes and behaviors, while chapter 'Structural Embeddedness and Organizational Change: The Role of Workplace Relations and the Uptake of New Practices' examines how relationships impact the diffusion of workplace behaviors.

In chapter 'Satisfied in the Outgroup: How Co-worker Relational Energy Compensates for Low-Quality Relationships with Managers', Gerbasi, Emery, Cullen-Lester, and Mahdon explore how relationships with co-workers can mitigate against low-quality relationships with a supervisor. Research on Leader-Member Exchange (LMX) suggests that employees who establish a high-quality relationship with their supervisor are more likely to feel energized and are also more satisfied at work. Employees, however, have relationships with many colleagues at work, not just their supervisor. To take this into account Gerbasi and colleagues show how relational energy from other colleagues—that is, the heightened level of psychological resourcefulness generated from interpersonal interactions that enhances one's capacity to do work—is a link between LMX and employee job satisfaction. Despite the importance of the quality of an individual's relationship with their supervisor, Gerbasi and colleagues, find that even those who receive lower levels of relational energy from their supervisor, can still be satisfied at work if they are embedded in a larger network of energizing relationships with co-workers. The authors also develop a number of individual and organizational strategies to develop relational energy. These include individuals

taking stock of the energizing relationships in their network, and leaders creating a high-energy environment.

Rowe and White, in chapter ‘[Structural Embeddedness and Organizational Change](#)’ explore the critical issue of how workplace relationships influence the acceptance of organizational changes. They explore how actors’ workplace relations influence their adoption of new practices. They focus on how structural embeddedness, with its focus on the degree to which actors are engrained in cohesive groups, impacts this adoption. The chapter examines UK hospital trusts that are attempting to introduce and integrate new practices to enhance the quality and provision of patient care. Rowe and White find that individuals in cohesive groups are more likely to take on these new practices as opposed to being resistant to change. From a managerial perspective, the authors highlight the importance of managers creating initiatives to develop cohesiveness within groups, as well as key individuals acting as brokers in order to increase the uptake of new organizational practices.

In chapter ‘[Business Before Pleasure? Bringing Pleasure Back into Workplace Relationships](#)’, Moser, Deichmann, and Jurriens focus on the importance of bringing pleasure back into the workplace. There is a substantial body of research that has embraced the positive side of work. Play, passion, commitment, enjoyment, and meaningfulness are only a few examples of how work can be beneficial for people. Moser et al. provide a review of this literature. They note that past literature has largely neglected the very essence of pleasure; that is, pleasure as an end in itself. They argue the absence of pleasure in the study of work leads to an impoverished and incomplete understanding of the workplace. Based on the tradition of ethical hedonism, Moser et al. argue that organizations should commit to pleasure in the workplace and, most importantly, decouple pleasure from outcomes related to effectiveness and efficiency, thus allowing pleasure for the sake of pleasure. The authors make suggestions at both the relational and team level as to how to improve the experience of pleasure within organizations.

## Knowledge Relationships in Organizations

The third section explores the importance of knowledge relationships in organizations. As advice flows through informal relationships at work, it is not surprising that social networks have been shown to influence knowledge creation and knowledge exchange. Yet, access to a network is a necessary but not sufficient condition for the exchange and creation of knowledge; organizational members must be able to recognize and assimilate knowledge when it is shared by others. The following three chapters further develop our understanding of networks as enablers of knowledge creation and exchange in organizations.

In chapter ‘[Multiple Identities and Multiple Relationships: An Exploratory Study of Freelancers’ Knowledge-Seeking Behavior](#)’, Zappa, Tonellato, and Tasselli explore the unique world of freelancers, who hold multiple jobs and navigate the work environment as independent workers. Freelancers’ opportunities to build work-related relationships are typically different from conventional, full-time employees. Yet, little is known about how freelancers forge the social relationships that give them access to the knowledge needed to perform their daily tasks. Zappa and colleagues suggest that freelancers are the catalysts of knowledge-seeking relationships involving colleagues at the (temporary) employer, contacts in work-like environments (i.e., coworking spaces), and personal work-related ties accumulated over time, thus brokering across boundaries in ways not typical of conventional, full-time employees. From a practice-orientated perspective, the authors make suggestions as to the issues that need to be considered to empower freelancers to maximize the contributions they make and their personal satisfaction.

Knowledge exchange among employees in organizations is critical to employees’ ability to solve problems and innovate. In the next chapter, ‘[In the Mind of the Beholder](#)’, Kaše and Quintane explore the possibility that employees may have different perceptions regarding the existence of knowledge exchanges between them and the factors that may reduce these differences. Based on a socio-cognitive approach, they argue that misalignments in perceptions of knowledge transfer are likely to be common in organizations. They find that misalignment in perceptions of complex knowledge transfers is more common than alignment. They

further find that mutual trust contributes to increasing the alignment of dyadic knowledge transfer perceptions. The authors make suggestions as to how misalignment can be addressed through targeted conversations; enhancing mutual trust; and developing greater prosocial behavior, perspective taking, and empathy.

Considerable research has examined the antecedents and benefits of knowledge sharing in organizations. In chapter ‘[Networks, Knowledge, and Rivalry: The Effect of Performance and Co-Location on Perceptions of Knowledge Sharing](#)’, Parker, Gerbasi, and Cullen-Lester approach the workplace as a competitive arena. It is generally recognized that rivalry between employees occurs as a result of them jostling for resources, opportunities, and promotion, which can reduce knowledge sharing. The authors theorize that rivalry, i.e., two high-performing individuals competing for the same resources and opportunities, can result in individuals perceiving that others are unwilling to share knowledge. They also examine the effect of co-location on a focal actor’s perception of others’ willingness to share knowledge. Parker et al., suggest the need for culture change away from performance-driven organizational environments to more collaborative environments. They highlight the need for HR policies that incorporate team-based rewards rather than those based on individual performance, as well as the introduction of rewards and recognition for sharing knowledge.

## Friendship and Trust in Organizations

In section four, our chapters explore friendship and trust in organizations. Humans have an innate desire to form and maintain lasting and positive interpersonal relationships (Baumeister & Leary, 1995), which leads them to create friendship relationships in the context of work. Friendship is a trust-based exchange relation where affective trust creates a safe environment for people to share ideas, information, and gossip (Ellwardt et al., 2012). Empirical studies have shown that friendship enhances the cooperation, information sharing, and open communication between individuals (Jehn & Shah, 1997) which has positive



benefits for work-related outcomes (Brass, 2022). The final three chapters build on this prior research to develop new insights into friendship and trust in the workplace.

In chapter ‘[Workplace Friendships: Antecedents, Consequences, and New Challenges for Employees and Organizations](#)’, David, Brennecke, and Coutinho explore workplace friendships by providing an overview of their antecedents and consequences at the individual, the group, and the organizational level, and review the smaller body of research on multiplex workplace friendships. They critically discuss the practical implications of workplace friendships, focusing on their relevance to three current challenges for employees and organizations: the increase in virtual work, social inequalities in organizations, and the increased overlap of professional and private life. Finally, they provide recommendations for organizations on how to address these challenges and effectively manage workplace friendships.

Building on the prior chapter, ‘[Friend-ship at Work](#)’, Mehra, Kang, and Dolgova answer the question “What explains friendship at work?” The answer based upon the principle of homophily is that friendships are more likely among individuals who are similar. Classic work on homophily assessed similarity in terms of both demographic indicators and underlying cognitive perceptions. Recent organizational research, however, has tended to rely on a narrower, structural interpretation of homophily, one that assumes that perceptions of similarity can be bypassed because demography is a good proxy for these underlying perceptions. Using data from an organization located in North America, Mehra and colleagues open the black box of homophily. They do not find support for the idea that the relationship between gender and friendship choice is mediated by underlying cognitive perceptions of similarity. Instead, they find that similarity in gender and perceptions of similarity were independently related to friendship choice. They also find evidence of heterophily when it comes to self-monitoring personality; the greater the difference in the self-monitoring scores of two individuals, the more likely they are to be friends. The findings suggest that if managers want to encourage friendship among their employees, they should focus on

shaping people's sense of interpersonal similarity by helping them see what they have in common despite their demographic differences.

Finally, in our last chapter, 'A Network Perspective on Interpersonal Trust Dynamics', Jiao, van Riel, Aalbers, and Sasovova explore the development and repair of interpersonal trust in an organizational context. Trust violations are one of the major difficulties that plague organizational life and challenge effective workplace relationships. It is imperative to understand how trust develops and decays, and how it can be repaired. Despite a surge of research in recent years that investigates trust dynamics from psychological and behavioral perspectives, less is known about how trust dynamics may be influenced by the social context. Jiao and colleagues draw upon a systematic literature review to identify a set of network-related factors that influence trust formation. They build a conceptual framework that summarizes how these factors affect trust and which aspects require further study. They further identify ways individuals and managers can build trust in their organizations, as well as repair it in the case of a violation.

## References

- Adler, P. S., & Kwon, S. W. (2002). Social capital: Prospects for a new concept. *Academy of Management Review*, 27(1), 17–40. <https://doi.org/10.5465/amr.2002.5922314>
- Argote, L., McEvily, B., & Reagans, R. (2003). Managing knowledge in organizations: An integrative framework and review of emerging themes. *Management Science*, 49(4), 571–582. <https://doi.org/10.1287/mnsc.49.4.571.14424>
- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, 22(3), 309–328. <https://doi.org/10.1108/02683940710733115>
- Battilana, J., & Casciaro, T. (2013). The network secrets of great change agents. *Harvard Business Review*, 91(7), 62–68.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497–529. <https://doi.org/10.1037/0033-2909.117.3.497>

- Blau, P. M. (1964). *Exchange and power in social life*. Wiley.
- Borgatti, S. P., & Foster, P. C. (2003). The network paradigm in organizational research: A review and typology. *Journal of Management*, 29(6), 991–1013. [https://doi.org/10.1016/S0149-2063\(03\)00087-4](https://doi.org/10.1016/S0149-2063(03)00087-4)
- Borgatti, S. P., & Halgin, D. S. (2011). On network theory. *Organization Science*, 22(5), 1168–1181. <https://doi.org/10.1287/orsc.1100.0641>
- Brass, D. J. (2022). New developments in social network analysis. *Annual Review of Organizational Psychology and Organizational Behavior*, 9, 225–246. <https://doi.org/10.1146/annurev-orgpsych-012420-090628>
- Brass, D. J., Galaskiewicz, J., Greve, H. R., & Tsai, W. (2004). Taking stock of networks and organizations: A multilevel perspective. *Academy of Management Journal*, 47(6), 795–817. <https://doi.org/10.5465/20159624>
- Brennecke, J. (2020). Dissonant ties in intraorganizational networks: Why individuals seek problem-solving assistance from difficult colleagues. *Academy of Management Journal*, 63(3), 743–778. <https://doi.org/10.5465/amj.2017.0399>
- Burt, R. S. (1995). *Structural holes: The social structure of competition*. Harvard University Press.
- Burt, R. S. (2000). The network structure of social capital. *Research in Organizational Behavior*, 22, 345–423. [https://doi.org/10.1016/S0191-3085\(00\)22009-1](https://doi.org/10.1016/S0191-3085(00)22009-1)
- Burt, R. S. (2004). Structural holes and good ideas. *American Journal of Sociology*, 110(2), 349–399. <https://doi.org/10.1086/421787>
- Caimo, A., & Lomi, A. (2015). Knowledge sharing in organizations: A Bayesian analysis of the role of reciprocity and formal structure. *Journal of Management*, 41(2), 665–691. <https://doi.org/10.1177/0149206314552192>
- Carboni, I., Cross, R., Page, A., & Parker, A. (2020). Invisible network drivers of women's success. *Organizational Dynamics*, 49(4), 1–8. <https://doi.org/10.1016/j.orgdyn.2019.100735>
- Carboni, I., Parker, A., & Langowitz, N. S. (2021). Mapping exclusion in the organization: Organizational network analysis can reveal ways to bolster inclusivity. *MIT Sloan Management Review*, 63(2), 59–63.
- Carnabuci, G., Emery, C., & Brinberg, D. (2018). Emergent leadership structures in informal groups: A dynamic, cognitively informed network model. *Organization Science*, 29(1), 118–133. <https://doi.org/10.1287/orsc.2017.1171>

- Cartwright, D., & Harary, F. (1956). Structural balance: A generalization of Heider's theory. *Psychological Review*, 63(5), 277. <https://doi.org/10.1037/h0046049>
- Casciaro, T., & Lobo, M. S. (2005). Competent jerks, lovable fools, and the formation of social networks. *Harvard Business Review*, 83(6), 92–99.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, S95–S120. <https://doi.org/10.1086/228943>
- Costa, P. T., & McCrae, R. R. (1992). Normal personality assessment in clinical practice: The NEO Personality Inventory. *Psychological Assessment*, 4, 5–13. <https://doi.org/10.1037/1040-3590.4.1.5>
- Cross, R., Baker, W., & Parker, A. (2003). What creates energy in organizations? *MIT Sloan Management Review*, 44(4), 51–56.
- Cross, R., Laseter, T., Parker, A., & Velasquez, G. (2006). Using social network analysis to improve communities of practice. *California Management Review*, 49(1), 32–60.
- Cross, R., & Parker, A. (2004). *The hidden power of social networks: Understanding how work really gets done in organizations*. Harvard Business School Press.
- Cross, R., Rebele, R., & Grant, A. (2016). Collaborative overload. *Harvard Business Review*, 94(1), 16–20.
- Cross, R. L., & Thomas, R. J. (2008). *Driving results through social networks: How top organizations leverage networks for performance and growth*. Jossey-Bass.
- Cullen-Lester, K. L., Leroy, H., Gerbasi, A., & Nishii, L. (2016). Energy's role in the extraversion (dis) advantage: How energy ties and task conflict help clarify the relationship between extraversion and proactive performance. *Journal of Organizational Behavior*, 37(7), 1003–1022. <https://doi.org/10.1002/job.2087>
- Ellwardt, L., Steglich, C., & Wittek, R. (2012). The co-evolution of gossip and friendship in workplace social networks. *Social Networks*, 34(4), 623–633. <https://doi.org/10.1016/j.socnet.2012.07.002>
- Fang, R., Landis, B., Zhang, Z., Anderson, M. H., Shaw, J. D., & Kilduff, M. (2015). Integrating personality and social networks: A meta-analysis of personality, network position, and work outcomes in organizations. *Organization Science*, 26(4), 1243–1260. <https://doi.org/10.1287/orsc.2015.0972>
- Feiler, D. C., & Kleinbaum, A. M. (2015). Popularity, similarity, and the network extraversion bias. *Psychological Science*, 26(5), 593–603. <https://doi.org/10.1177/0956797615569580>

- Freeman, L. C. (1978). Centrality in social networks conceptual clarification. *Social Networks*, 1(3), 215–239.
- Gargiulo, M., & Benassi, M. (2000). Trapped in your own net? Network cohesion, structural holes, and the adaptation of social capital. *Organization Science*, 11(2), 183–196. <https://doi.org/10.1287/orsc.11.2.183.12514>
- Gerbasi, A., Porath, C. L., Parker, A., Spreitzer, G., & Cross, R. (2015). Destructive de-energizing relationships: How thriving buffers their effect on performance. *Journal of Applied Psychology*, 100(5), 1423–1433. <https://doi.org/10.1037/apl0000015>
- Hansen, M. T. (1999). The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits. *Administrative Science Quarterly*, 44(1), 82–111. <https://doi.org/10.2307/2667032>
- Heider, F. (1946). Attitudes and cognitive organization. *The Journal of Psychology*, 21(1), 107–112. <https://doi.org/10.1080/00223980.1946.9917275>
- Jehn, K. A., & Shah, P. P. (1997). Interpersonal relationships and task performance: An examination of mediation processes in friendship and acquaintance groups. *Journal of Personality and Social Psychology*, 72(4), 775–790. <https://doi.org/10.1037/0022-3514.72.4.775>
- Kilduff, M., & Tsai, W. (2003). *Social networks and organizations*. Sage.
- Krackhardt, D., & Hanson, J. R. (1993). Informal networks: The company behind the chart. *Harvard Business Review*, 71(4), 104–111.
- Krackhardt, D., & Kilduff, M. (1999). Whether close or far: Social distance effects on perceived balance in friendship networks. *Journal of Personality and Social Psychology*, 76(5), 770–782. <https://doi.org/10.1037/0022-3514.76.5.770>
- Kwon, S. W., & Adler, P. S. (2014). Social capital: Maturation of a field of research. *Academy of Management Review*, 39(4), 412–422. <https://doi.org/10.5465/amr.2014.0210>
- Labianca, G., & Brass, D. J. (2006). Exploring the social ledger: Negative relationships and negative asymmetry in social networks in organizations. *Academy of Management Review*, 31(3), 596–614. <https://doi.org/10.5465/amr.2006.21318920>
- Lönnqvist, J. E., Itkonen, J. V., Verkasalo, M., & Poutvaara, P. (2014). The five-factor model of personality and degree and transitivity of Facebook social networks. *Journal of Research in Personality*, 50, 98–101. <https://doi.org/10.1016/j.jrp.2014.03.009>
- Maurer, I., Bartsch, V., & Ebers, M. (2011). The value of intra-organizational social capital: How it fosters knowledge transfer, innovation performance,

- and growth. *Organization Studies*, 32(2), 157–185. <https://doi.org/10.1177/0170840610394301>
- McPherson, J. M., Popielarz, P. A., & Drobnic, S. (1992). Social networks and organizational dynamics. *American Sociological Review*, 57(2), 153–170. <https://doi.org/10.2307/2096202>
- Mehra, A., Kilduff, M., & Brass, D. J. (2001). The social networks of high and low self-monitors: Implications for workplace performance. *Administrative Science Quarterly*, 46(1), 121–146. <https://doi.org/10.2307/2667127>
- Methot, J. R., Rosado-Solomon, E. H., Downes, P. E., & Gabriel, A. S. (2021). Office chitchat as a social ritual: The uplifting yet distracting effects of daily small talk at work. *Academy of Management Journal*, 64(5), 1445–1471. <https://doi.org/10.5465/amj.2018.1474>
- Newman, M. E. (2003). The structure and function of complex networks. *SIAM Review*, 45(2), 167–256. <https://doi.org/10.1137/S003614450342480>
- Parker, A., Gerbasi, A., & Porath, C. L. (2013). The effects of de-energizing ties in organizations and how to manage them. *Organizational Dynamics*, 42(2), 110–118.
- Parker, A., Halgin, D. S., & Borgatti, S. P. (2016). Dynamics of social capital: Effects of performance feedback on network change. *Organization Studies*, 37(3), 375–397. <https://doi.org/10.1177/0170840615613371>
- Parker, A., Waldstrøm, C., & Shah, N. P. (2022). The coevolution of emotional job demands and work-based social ties and their effect on performance. *Journal of Management*. <https://doi.org/10.1177/01492063221087636>
- Perry-Smith, J. E., & Shalley, C. E. (2003). The social side of creativity: A static and dynamic social network perspective. *Academy of Management Review*, 28(1), 89–106. <https://doi.org/10.5465/amr.2003.8925236>
- Roethlisberger, F. J., & Dickson, W. J. (1939). *Management and the worker*. Harvard University Press.
- Shah, N. P., Parker, A., & Waldstrøm, C. (2017). Examining the overlap: Individual performance benefits of multiplex relationships. *Management Communication Quarterly*, 31(1), 5–38. <https://doi.org/10.1177/0893318916647528>
- Simmel, G. (1902/1950). *The sociology of Georg Simmel*. Free Press.
- Smith, E. B., Menon, T., & Thompson, L. (2012). Status differences in the cognitive activation of social networks. *Organization Science*, 23(1), 67–82. <https://doi.org/10.1287/orsc.1100.0643>

- Sparrowe, R. T., Liden, R. C., Wayne, S. J., & Kraimer, M. L. (2001). Social networks and the performance of individuals and groups. *Academy of Management Journal*, 44(2), 316–325. <https://doi.org/10.5465/3069458>
- Tasselli, S., & Kilduff, M. (2021). Network agency. *Academy of Management Annals*, 15(1), 68–110. <https://doi.org/10.5465/annals.2019.0037>
- Tasselli, S., Kilduff, M., & Menges, J. I. (2015). The microfoundations of organizational social networks: A review and an agenda for future research. *Journal of Management*, 41(5), 1361–1387. <https://doi.org/10.1177/0149206315573996>
- Tortoriello, M., & Krackhardt, D. (2010). Activating cross-boundary knowledge: The role of Simmelian ties in the generation of innovations. *Academy of Management Journal*, 53(1), 167–181. <https://doi.org/10.5465/amj.2010.48037420>
- Tsai, W. (2001). Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance. *Academy of Management Journal*, 44(5), 996–1004. <https://doi.org/10.5465/3069443>
- Watts, D. J. (2004). *Small worlds: The dynamics of networks between order and randomness*. Princeton University Press.

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# **The Effect of Network Relationships on Individual Performance in Organizations**





# Unpacking the Link Between Intrinsic Motivational Orientation and Innovative Performance: A Social Network Perspective

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and Marco Guerci 

## Introduction

A considerable body of research found a positive relationship between intrinsic motivation and innovative performance (e.g., Amabile, 1985; Amabile & Mueller, 2008; Gong et al., 2017; Grant & Berry, 2011; Prabhu et al., 2008; Tierney et al., 1999). When performing work, intrinsically motivated employees are mainly driven by curiosity, interest, and an aspiration to learn (Grant & Berry, 2011; Ryan & Deci, 2000) and such intrinsic rewards have been shown to enhance employees' ability to generate original and novel ideas (Collins & Amabile, 1999). Although everyone may experience intrinsic motivational states because

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of particular stimuli or situations, prior literature posits that individuals have relatively stable *motivational orientations*, that is, “trait-like” tendencies reflecting how much they focus on intrinsic rewards in general (Amabile, 1988; Amabile et al., 1994; Gong et al., 2017). This argument suggests that differences in intrinsic motivational orientation contribute to explaining why some employees are systematically more innovative than others. Consistent with this view, several prior studies found that employees characterized by high intrinsic motivational orientation tend to be more innovative than otherwise-comparable colleagues whose intrinsic motivational orientation is low (Amabile, 1985; Amabile et al., 1994; Gong et al., 2017; Prabhu et al., 2008; Tierney et al., 1999).

Existing theoretical explanations for the link between intrinsic motivational orientation and innovative performance have predominantly adopted a psychological perspective (George, 2007). In particular, a rich body of research examined how intrinsic motivation triggers intra-individual mechanisms, such as increased cognitive flexibility (Gagné & Deci, 2005), task persistence (Deci & Ryan, 2008), and creativity aspirations (Gong et al., 2017), which are conducive to individual innovativeness. Whereas this line of work made considerable progress in elucidating the psychological mechanisms linking intrinsic motivation to employee innovation, it paid scant attention to the context of social relationships *around* employees with high intrinsic motivational orientation (Grant & Berry, 2011). It remains unclear whether network positions that motivated people come to occupy may act as structural mechanisms that link motivation and innovative performance. This is an important omission because it does not inform us about the innovative output that intrinsically motivated individuals can provide because of their engagement in knowledge sharing processes. Indeed, organizational creativity scholars have noticed that examining the role of interpersonal relations is important in order to capture the social nature of creative processes within real-life organizations (Baer, 2012; Perry-Smith & Shalley, 2003; Stea & Pedersen, 2017). Accordingly, the objective of the present paper is to advance current understandings of the relationship between intrinsic motivational orientation and employee innovation by bringing interpersonal context to the forefront of the analysis.

Our proposed theoretical argument integrates the role of interpersonal context in two main ways. On the one hand, following Grant and Berry (2011, p. 73), we recognize that the value of an employee's creative ideas ultimately depends on whether "they solve problems for other people inside...an organization." Whereas existing research on the link between intrinsic motivation and innovation has tended to focus exclusively on the idea creation process, we join a growing stream of organizational scholarship that conceptualizes employee innovation as encompassing not only an employee's ability to generate creative ideas, but also to get others within the organization to appreciate and use those ideas (Baer, 2012; Obstfeld, 2017; Perry-Smith & Mannucci, 2017). On the other hand, complementing the predominant psychological focus of prior studies, we leverage extant social network theory to examine the role of interpersonal networks—and specifically employees' networks of informal advice relations—as a possible mediating factor in the relationship between intrinsic motivational orientation and employee innovative performance.

Extant social network literature offers two insights that are especially relevant for our theoretical argument. First, individual-level traits and orientations tend to systematically influence how *central* employees become within the informal advice network, as indicated by the number of colleagues who turn to the focal employee as a source of advice<sup>1</sup> (Fang et al., 2015). Second, an employee's centrality within the informal advice network affects her or his innovative performance (Ibarra & Andrews, 1993). Extending these arguments, we advance and test a novel hypothesis for why intrinsically motivated employees tend to be systematically

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<sup>1</sup> The network literature has used two definitions of network centrality in informal advice networks. One, "degree centrality," conceptualizes advice relations as bi-directional, such that an individual is more or less central depending on the number of colleagues with whom she or he regularly *exchanges* advice. The other, "in-degree centrality," conceptualizes advice relations as directed and focuses on the number of colleagues who regularly turn to a focal individual as a *source* of advice. Whereas both definitions are legitimate, each captures a distinct aspect of employees' networks (Wasserman & Faust, 1994). Here, we adopt the latter definition for two reasons. First, most relevant work on employee innovation adopts this particular definition (see, e.g., the meta-analysis by Fang et al. [2015] and Ibarra and Andrews's [1993] discussion on this point). Second, as we elaborate in the next sections, it leads to a straightforward theoretical integration. It may also be useful to note that some scholars prefer to use the term "network size" to refer to "network centrality."

more innovative than employees who have a lower intrinsic motivational orientation. Specifically, we theorize that intrinsically motivated employees are more likely to be recognized as a valued source of advice by many of their colleagues and, thereby, gain more central positions within the organization's informal advice network relative to employees who have a low intrinsic motivational orientation. In turn, being more central in the informal advice network enhances their innovative performance by providing them with superior access to information and greater influence within the organization.

In line with the recent emphasis of management scholars on the importance of testing theoretical arguments across empirical settings (Bettis et al., 2016a; Ethiraj et al., 2016; Quintane & Carnabuci, 2016), we test our hypotheses in two distinct organizations. Both organizations value employee innovation and are similar along dimensions such as size and geographical location. However, they differ markedly in terms of task environment, culture, and structure. Despite such differences, our empirical tests lend support to our hypotheses in both settings. We find that employees' advice network centrality significantly mediates the effect of intrinsic motivational orientation on employee innovation. Namely, employees with an intrinsic motivational orientation are systematically more central within the informal advice network in both organizations and such heightened network centrality explains a considerable share (33% in one organization, 81% in the other) of the positive association between intrinsic motivational orientation and employee innovative performance. These results advance current theoretical understandings of why intrinsically motivated employees tend to be more innovative and bear practical implications for managers striving to foster employees' innovativeness.

## Theory and Hypotheses

### Intrinsic Motivational Orientation and Advice Network Centrality

A core tenet of social network research is that the network of informal advice relations that develops “behind the company chart” is a key conduit of information and influence and that, consequently, employees who gain more central positions within such network have a structural advantage relative to less central colleagues (e.g., Chiu et al., 2017; Ibarra, 1993; Sparrowe et al., 2001). In the context of informal advice networks, network centrality refers to the number of colleagues who consider a focal individual a valuable source of advice whom they regularly turn to for professional, technical, or work-related matters. Increasing one’s centrality in the informal advice network is difficult for at least two reasons. First, providing advice to many colleagues takes time and energy (Shah et al., 2018). Second, employees tend to be highly selective in who they turn to for advice within the workplace because advice seeking may be interpreted as admitting ignorance or signaling weakness (Borgatti & Cross, 2003; Lee, 1997).

Given that people are selective when choosing their sources of advice, who is more likely to become central within an organization’s informal advice network? That is, who is more likely to become a source of advice for many colleagues? Borgatti and Cross (2003) present an extensive review of the social network literature on advice seeking and advance a model synthesizing the key factors guiding employees’ advice-seeking choices. The authors emphasize three factors that are particularly pertinent to our argument. They posit that whether employees turn to a given colleague to seek advice depends on, first, the usefulness of the advice they expect to receive from that colleague; second, that colleague’s accessibility and willingness to help; and third, the quality of the interpersonal interaction they expect to experience. As we articulate below, intrinsically motivated employees are likely to be perceived as high in all the three dimensions. Consequently, employees characterized by higher levels of intrinsic motivational orientation should gain more central positions within the organization’s informal advice network.

**Advice usefulness.** A primary reason why employees seek advice from colleagues is gaining access to knowledge and information that may help them to more competently address the work-related problems or opportunities facing them (Agneessens & Wittek, 2012; Cross et al., 2001; Shah et al., 2018). Accordingly, the likelihood that an employee will become central in the informal advice network depends on whether colleagues perceive her or him to be competent about the tasks at hand (Agneessens & Wittek, 2012; Bonaccio & Dalal, 2006; Borgatti & Cross, 2003). Two reasons suggest that, *ceteris paribus*, intrinsically motivated employees are more likely to be perceived as having task-relevant competencies relative to individuals who are less intrinsically motivated. On the one hand, being driven by interest and curiosity for the work itself, intrinsically motivated employees more often engage in continuous learning, which both enriches and keeps up to date their pool of domain-relevant expertise and knowledge (Ryan & Deci, 2000). On the other hand, intrinsically motivated employees are more persistent and more engaged when performing work (Dysvik & Kuvaas, 2013; Grant, 2008) and, hence, more likely to *demonstrate* their competencies when interacting with others. Because an intrinsic motivational orientation leads employees to both acquire and show greater competencies relative to employees who have a low intrinsic motivational orientation, a larger number of colleagues should turn to them when seeking work-related advice. Consequently, having a high intrinsic motivational orientation should lead to increased centrality in the informal advice network.

**Accessibility and willingness to help.** Research suggests that colleagues are more likely to turn to an employee as a source of advice if they expect that she or he will eagerly make herself or himself available and show genuine willingness to help. Conversely, employees who are perceived to be hard to access or reluctant to help are less likely to become a regular source of advice for their colleagues (Borgatti & Cross, 2003). Since intrinsically motivated individuals draw satisfaction and enjoyment from being engaged in work-related activities, providing work-related advice will often represent an intrinsically valued activity for them. Consequently, relative to individuals with a low intrinsic motivational orientation, intrinsically motivated employees are more likely to

show greater accessibility and willingness to help when receiving advice-seeking requests from colleagues. In line with this view, prior studies found a strong positive association between employees' intrinsic motivation and their willingness to help others, as measured by their prosocial motivation (e.g., Grant, 2008; Grant & Berry, 2011). Similarly, extant literature found that intrinsic motivation is an important predictor of employees' willingness to share one's knowledge with colleagues (Jeon et al., 2011; Ozlati, 2015). Insofar as intrinsically motivated individuals show greater willingness to help when colleagues seek advice from them, the latter should be more likely to turn to intrinsically motivated colleagues as sources of advice.

**Quality of the interaction.** Finally, the likelihood that an employee will become central in the informal advice network depends on the quality of the interaction colleagues expect to experience when asking for and receiving advice (Borgatti & Cross, 2003). Research shows that, in the workplace, people engage in interpersonal exchanges not only for instrumental purposes but also as a means for satisfying emotional and psychological needs (Colbert et al., 2016; Deci & Ryan, 1985). For example, Casciaro (2014) posits that task-related interactions, such as advice seeking, always comprise an affective component. Building on Collins (1981), she posits that employees are more likely to choose to engage in task-related exchanges with a colleague if they expect to experience high levels of "emotional energy" and enjoyment while interacting with her or him. Taken together, these arguments suggest that the more an employee's colleagues expect to experience a high-quality (i.e., an enjoyable and energizing) interaction when receiving advice from her or him, the more likely is that employee to become a source of advice for many colleagues within the organization.

We propose that employees are more likely to expect high-quality interactions when seeking advice from colleagues who have an intrinsic motivational orientation. Wild and co-authors argue that intrinsically motivated individuals behave in ways that are conducive to satisfying the basic psychological needs of others (Wild et al., 1997). In a model that links social perceptions, expectancy formation, and motivational orientation, the authors posit that when employees perceive a colleague to be intrinsically motivated, they anticipate feelings of enjoyment from

engaging in work-related interactions with that colleague. Furthermore, because intrinsically motivated employees find it enjoyable and inherently gratifying to engage in work-related activities (Ryan & Deci, 2000), colleagues are likely to experience more authentic and energizing interactions when seeking work-related advice from intrinsically motivated individuals than when seeking advice from less intrinsically motivated employees. Insofar as colleagues expect advice-seeking interactions to be of higher quality when the advice giver is intrinsically motivated, employees characterized by higher levels of intrinsic motivational orientation should become a source of advice for a larger number of colleagues relative to employees with a low intrinsic motivational orientation. Consequently, their centrality in the organization's informal advice network should increase.

In sum, the arguments above suggest that employees who have an intrinsic motivational orientation are more likely to become central in the informal advice network because colleagues experience them as offering (i) more valuable advice; (ii) greater willingness to help; and (iii) higher-quality interactions. We therefore advance the following hypothesis:

**Hypothesis 1** Everything else constant, higher levels of intrinsic motivational orientation lead to increased centrality in the organization's informal advice network

## Network Centrality and Innovative Performance

Whereas our first hypothesis links an employee's intrinsic motivational orientation to her or his centrality within the informal advice network, our second hypothesis posits that advice network centrality has a positive effect on employee innovative performance. Prior studies argued that central network positions are conducive to superior employee innovation (see Baer et al., 2015 for a comprehensive review and meta-analysis of the literature). As we elaborate below, this research highlights that advice network centrality provides employees with two main advantages—better access to other employees' knowledge and greater influence



within the organization—that are less easily available to employees in less central network positions. As a result, employees who are more central within the informal advice network are more likely to generate creative ideas and to get those ideas implemented within the organization, that is, they have a higher innovative performance.

Several streams of literature indicate that advice network centrality is conducive to generating more creative ideas. Scholars examining the link between network structure and employee creativity have argued that, once formed, advice relationships act as “pipes” through which knowledge flows within organizations (Podolny, 2001). According to this view, employees who gain more central network positions are exposed to a wider set of knowledge stemming from multiple sources throughout the organization and, therefore, are more likely to envision creative knowledge combinations compared to employees who hold less central network positions (Fleming et al., 2007). This structural view dovetails with micro-level research on the link between advice giving and employee creativity. This latter line of research finds that, as they provide advice to many colleagues, central employees do not merely help those colleagues by *transferring knowledge* to them. They also *acquire knowledge* from those colleagues and become more creative because of their advice-giving efforts (Sparrowe et al., 2001). Thus, although providing generic help sometimes detracts from an employee’s own performance, Shah et al. (2018) show that providing problem-solving advice to many colleagues fosters the provider’s own learning and expands her or his knowledge base.

Creativity and innovation scholars concur that employees’ ability to generate creative ideas requires enough cognitive flexibility to be able to combine seemingly disparate perspectives and ideas (Fleming, 2001; Perry-Smith & Mannucci, 2017). By engaging with multiple advice seekers, central employees learn to deal with different viewpoints and to apply their own knowledge to disparate contexts, problems, and opportunities, which increases their cognitive flexibility and sustains creativity through conceptual combination, expansion, and reframing (Singh et al., 2016). Furthermore, engaging with multiple advice seekers helps central employees identify analogies between the tasks facing the advice seekers

and their own and, thereby, facilitates creative transfers of solutions to one's own tasks (Hargadon, 1999).

Holding a more central position within the organization's informal advice network not only aids employees to generate creative ideas. It also increases their effectiveness at promoting and implementing those ideas so they are actually put to use by the organization. Ensuring that one's creative ideas find use within the organization requires key stakeholders to buy into those ideas (Baer, 2012). Sometimes, it also requires organizational decision makers to mobilize scarce resources, such as money and personnel, to support those ideas and turn them into organizational action (Kanter, 1983). Being central in the organization's advice network facilitates this process in two main ways. On the one hand, central employees engage in conversations with a broader set of colleagues; consequently, they receive more comprehensive and accurate information about who is more likely to see their ideas favorably within the organization or, by contrast, who might oppose them (Krackhardt, 1990). As they have a better purview of the interests with which their ideas might interfere, or which it might facilitate, centrally positioned employees can frame their novel ideas in ways that are more likely to be supported or at least accepted by relevant organizational stakeholders.

On the other hand, being a source of advice for many of their colleagues increases central employees' influence within the organization (Brass, 1984). One reason is that providing advice to others is a form of help and, as such, it is based on a norm of reciprocity (Gouldner, 1960). Since central employees regularly provide advice to many colleagues, they can potentially elicit reciprocity-based support from a broad set of contacts throughout the organization. A second reason is that seeking advice is a form of deference that confers status to the advice provider (Agneessens & Wittek, 2012; Borgatti & Cross, 2003). Because central employees are a source of advice for many colleagues, their status within the organization tends to be higher than that of colleagues holding comparable formal positions (Flynn et al., 2006), resulting in two main advantages. First, central employees have greater informal power than do less central employees (Baer, 2012; Ibarra, 1993). Second, the goodness of their ideas is systematically overrated (Podolny, 2010). Therefore, the more central an employee becomes in the advice network, the more

effective she or he should be at promoting creative ideas among relevant organizational stakeholders and ensuring they get used by the organization.

In sum, the above arguments suggest that holding a more central position within the organization's informal advice network leads employees to both generate more creative ideas and to get the organization to put those ideas to work, i.e., it enhances employees' innovative performance. Accordingly, we advance the following hypothesis:

**Hypothesis 2** Everything else constant, employees who hold a more central position within the organization's informal advice network exhibit higher levels of innovative performance

Considered together, the hypotheses put forward so far imply a mediation path linking intrinsic motivational orientation to employee innovative performance through advice network centrality. Specifically, our third hypothesis is that higher levels of intrinsic motivational orientation lead to superior innovative performance via increasing employee's centrality within the organization's informal advice network.

**Hypothesis 3** Advice network centrality mediates the positive relationship between employees' intrinsic motivational orientation and innovative performance

## Data and Methods

### Research Settings

We test our hypotheses using data from two distinct organizations, which we dub Energetica and Metallica to preserve anonymity. Prior to designing and administering our surveys, we carried out extensive interviews in each organization, across departmental and hierarchical levels, and consulted all accessible archival records. The two organizations are similar in several important aspects. They are both based in the same

northern Italian region (Lombardy) and their workforce size is comparable: Energetica has 134 employees, while Metallica 142. Furthermore, both organizations explicitly recognize the value of employee innovation. Despite these similarities, as we summarize below, there are important differences in the task environment, structure, and culture across the two organizations. Recent research argued that differences in organizational contexts may influence the effect of informal networks on individual innovation (Soda et al., 2019). Therefore, replicating our analyses across both organizations is important to test the generalizability of our results.

Founded in 2008, Energetica is a leading consulting firm active in the Italian energy market. Its mission is to provide clients with innovative and customized solutions for optimizing energy consumption. Energetica resembles the ideal type of an “organic” organization (Burns & Stalker, 2011), in which extensive lateral communication and mutual adjustment mechanisms form the basis for coordinating decision making and work processes. Confirming this description, our analysis shows that over 60% of all advice-seeking relationships span departmental boundaries. Energetica makes extensive use of teams of experts from different specializations whose goal is to design and generate new, customizable solutions. Metallica, by contrast, is a manufacturing company producing quick disconnect couplings for all varieties of sizes and port configurations for fluid connections and control. Its products are used for machineries and systems across multiple industries including oil and gas, hydraulic tools, vehicles, and agriculture. Founded during the so-called “Italian industrial revolution” in the 60s, Metallica is a family-run company that conforms relatively well to the “mechanistic” organization ideal type (Burns & Stalker, 2011). It features clearly defined functional boundaries and a high degree of formalization and standard operating procedures. Unlike Energetica, advice-seeking relationships in Metallica are largely confined within formal organizational units, with only 28.54% of those relationships spanning across departmental boundaries.

We followed the same data collection process in both organizations. The only exception is that in Energetica all surveys were administered through an online questionnaire, whereas in Metallica this was possible only for white-collar employees but not for blue-collar ones. For the latter (50.70% of the total sample in Metallica), we collected survey data

through paper and pencil questionnaires. We administered two surveys in each organization. The first survey was administered to all employees and was designed to collect information on a wide range of individual-level characteristics as well as people's workplace social networks (described later). The second survey was administered only to employees with a supervisory role; in this survey, supervisors were asked to evaluate each of their reports using a validated scale of employee innovative performance. The second survey was administered two weeks after the first. We obtained a very high response rate in both organizations. For the first survey, the response rate was 89% (119/134) in Energetica and 83% (118/142) in Metallica. For the second survey, the response rate was 97% (30/31) in Energetica and 100% (10/10) in Metallica. Recent studies that analyzed complete social networks have drawn their empirical data from samples of similar or smaller size (e.g., Carnabuci & Diószegi, 2015).

We collected network data through a "roster method." Specifically, we presented each respondent with the following text (here translated from Italian): "At work, people often turn to colleagues or supervisors for advice. Looking back to the last year, whom among your colleagues or supervisors did you turn to for advice on technical or work-related matters?" We then provided a roster with the name and surname of all the employees in each respective company. For each selected colleague, respondents were then asked to report the frequency of advice seeking, and for this purpose, we asked the following question: "How often did you turn to this colleague for advice?" The provided answers were: 3 = "At least once a week"; 2 = "At least once a month"; and 1 = "Less than once a month." We emphasize three methodological aspects inherent in our approach. First, prior research has shown that the roster method is preferable to the "free-recall" approach as it produces more accurate and reliable data (Marsden, 1990). Second, we followed Marsden's recommendation (1990) and did not impose any restriction on the number of contacts that could be nominated by a respondent, as such restrictions result in less complete and more biased responses. Third, we phrased the question to emphasize a stable, relatively long-term relationship ("Looking back at the last year, whom among your colleagues did you turn to for..."), which prior research has shown to yield high respondent

accuracy unlike phrasings that emphasize short-term events (Marsden, 1990).

We then coded this data into an adjacency matrix for each organization (Wasserman & Faust, 1994) and used UCINET 6.651 to analyze the resulting valued, directed networks.

## Measures

**Innovative performance.** We measured employee innovative performance using the original 9-items scale adopted by Janssen (2000). The assessment was carried out by each employee's supervisor. Supervisory ratings have higher validity and reliability relative to self-reported ones (Heidemeier, 2005), and are widely accepted as a way to measure employee innovative performance (Anderson et al., 2014). A sample item included "Searches out new working methods, techniques, or instruments." The response format was a value scale that ranged from 1 "Strongly disagree" to 8 "Strongly agree." (If not differently stated, such a format was used for all the scales in this study.) Similar to Janssen (2000), we constructed our dependent variable as a sum of all item responses. Cronbach's alpha was 0.94 and 0.96 in Energetica and Metallica, respectively.

**Intrinsic motivational orientation.** Employees completed the 15-items intrinsic motivational orientation scale developed by Amabile et al. (1994). Sample items included "The more difficult the problem, the more I enjoy to solve it," and "I prefer to figure things out for myself." Cronbach's alphas were 0.70 and 0.71 in Energetica and Metallica, respectively.

**Network centrality.** Prior to calculating network centrality, we dichotomized tie strength values so that 1 referred to a reported relationship and 0 reflected no relationship. An employee's centrality in the informal advice network is measured as the number of colleagues who nominated him or her as a source of advice. Since our focus is specifically on the informal advice network, and seeking task-related advice

from one's supervisor can be an inherent part of formal supervisory relations, we excluded nominations directed toward supervisors (Oh et al., 2006).

**Control variables.** We controlled for a number of demographic, contextual, and personal characteristics that might influence our estimates of interest. We controlled for *Age* because several studies argued that younger employees are more innovative (but see Ng & Feldman, 2013a, for a meta-analysis that challenges this view). We control for *Gender* (male = 1) because it may affect both an individual's creativity ratings and her/his network characteristics (Ibarra, 1993). Similarly, we kept the level of education constant as it has been associated with greater creativity (Ng & Feldman, 2009). Reflecting the Italian educational system, we operationalize *Educational level* as follows: 1 = junior high school; 2 = high school; 3 = bachelor's degree; 4 = master's or post-graduate degree. We control for *Organizational tenure* because the years spent with a company may affect an employee's innovative performance (Ng & Feldman, 2013b), and centrality in the informal advice network (Rollag, 2004). *Hierarchical level* was included as prior research has shown that it relates to network position and innovative performance (Ibarra & Andrews, 1993). This variable in our study ranged from 1 to 4 in an ascending order, where 1 = employees without supervisory roles, 2 = middle managers, 3 = top managers, i.e., managers with no direct supervisor other than the CEO, and 4 = the cofounders and CEO (in Metallica) or the CEO (in Energetica).

Extant research has shown that friendship ties affect an individual's performance (Baldwin et al., 1997) and may influence her or his advice-seeking choices (Rank et al., 2010). We therefore collected data on friendship relations. To construct the variable *Number of friends*, we used a roster method and asked employees to indicate "...the colleagues you regard as your friends"). We imposed no restriction on how many friends could be nominated and, following prior research, we consider two employees as friends only if both reported to be friends (Balkundi et al., 2007). We also control for *Out-degree centrality*, which indicates the number of colleagues a focal employee turns to as sources of work-related advice. We include this variable because prior studies suggest

that having many sources of advice may enhance one's creativity (Perry-Smith, 2006). Furthermore, by seeking advice from many colleagues the focal employee may trigger a reciprocity cycle whereby those colleagues ask for advice in return, thereby influencing our variable of theoretical interest—*Network centrality*. By controlling for *Out-degree centrality*, we eliminate this potential confound.

We also control for three individual-level variables that prior studies suggest might influence employees' workplace networks. The first, *Self-monitoring*, captures an employee's ability to adapt and relate to different kinds of people and social situations. As a result of this ability, extant literature shows that high self-monitors tend to gain more central network positions (Oh & Kilduff, 2008). We operationalize *Self-monitoring* using the 12-items scale by O'Cass (2000). Cronbach's alphas were 0.84 and 0.78 for Energetica and Metallica, respectively. Following Vissa (2012), we also measure two key aspects of employees' networking styles. The first, called *Network broadening*, pertains to actions aimed at expanding one's professional network, such as reaching out to new contacts and establishing interpersonal knowledge about new contacts. This variable was measured using the 6-items scale developed by Vissa (2012); Cronbach's alphas were 0.78 and 0.71 for Energetica and Metallica, respectively. The second, *Network deepening*, pertains to actions aimed at strengthening one's existing professional network and was measured using an adapted 7-items scale developed by Vissa (2012). Cronbach's alphas were 0.62 and 0.59 for Energetica and Metallica, respectively. While these values are not high, Hair et al. (2006) consider a Cronbach's alpha close to 0.60 to be an acceptable indicator of internal reliability.

## Results

Tables 1 and 2 present descriptive statistics and correlations for Energetica and Metallica, respectively. At Energetica, 63% of the employees are men; the average employee is almost 34 years old, holds a master's or post-graduate degree, and has been with the company for little over 2 years. The range of advice-seeking ties in Energetica is 32, and on



average, an employee nominates 6.18 colleagues as a regular source of advice (SD = 6.01). Correlations (highlighted in bold when significant at the 0.05 level) provide preliminary evidence for our hypotheses. *Intrinsic motivational orientation* is positively correlated with both *Innovative performance* and *Network centrality* and the latter, in turn, is positively correlated with *Innovative performance*. Correlations among our independent variables are relatively low and the few significant ones are in the expected directions. For example, *Network centrality* is positively correlated with *Organizational tenure*, *Hierarchical level*, and *Number for friends*, and *Self-monitoring* is positively correlated with both *Network deepening* and *Network broadening*. Intriguingly, we also find a positive correlation between these three variables and *Intrinsic motivational orientation*. We are not aware of any prior study relating these variables and find this to be a potentially interesting lead, although we have no strong theoretical interpretation.

Compared to Energetica, Metallica's workforce is more male-dominated (82% is male), older (average age is over 40), less educated (modal degree is high school diploma), and has longer tenure (average tenure is close to 10 years). The range of advice-seeking ties in Metallica is 57, and on average, an employee nominates 6.20 colleagues as a regular source of advice (SD = 8.28). Looking at correlations, *Intrinsic motivational orientation* is associated with *Network centrality* and the latter, in turn, is positively correlated with *Innovative performance*, which provides preliminary evidence for our hypotheses. The correlation between *Intrinsic motivational orientation* and *Innovative performance* is positive but, unlike in Energetica, not significant. Pairwise correlations among the independent variables are generally low also in the case of Metallica and the pattern of significant correlations is remarkably similar across both organizations. *Gender* and *Age* appear to matter more in Metallica than in Energetica, which might reflect the more traditional culture of the former.

**Table 1** Descriptive statistics and correlations (Energetica)

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	Innovative performance	46.95	11.08	1												
2	IMO	85.84	9.51	<b>0.21</b>	1											
3	Network centrality	5.25	4.22	<b>0.32</b>	<b>0.18</b>	1										
4	Age	33.91	7.84	0.17	0.06	0.16	1									
5	Gender	0.63	0.49	0.12	-0.01	0.13	-0.02	1								
6	Educational level	2.79	0.62	0.15	0.06	0.09	-0.12	0.13	1							
7	Organizational tenure	2.20	1.98	0.14	-0.03	<b>0.30</b>	<b>0.22</b>	-0.10	-0.09	1						
8	Hierarchical level	1.25	0.55	<b>0.18</b>	0.02	<b>0.40</b>	<b>0.33</b>	0.04	<b>0.23</b>	<b>0.27</b>	1					
9	Out-degree centrality	6.18	6.01	0.09	0.13	0.11	0.07	0.12	-0.01	0.08	0.15	1				
10	Number of friends	2.17	2.20	0.02	0.00	<b>0.24</b>	-0.05	-0.04	-0.02	0.11	-0.04	0.17	1			
11	Self-monitoring	51.20	7.42	0.02	<b>0.38</b>	0.02	0.06	-0.04	0.12	-0.01	0.06	0.15	0.09	1		
12	Network broadening	13.90	4.04	0.09	<b>0.34</b>	-0.06	-0.03	-0.01	0.20	-0.08	0.00	0.12	<b>0.26</b>	<b>0.50</b>	1	
13	Network deepening	11.42	1.97	0.03	<b>0.25</b>	-0.06	0.04	-0.26	-0.12	0.00	-0.05	0.10	<b>0.27</b>	<b>0.32</b>	<b>0.42</b>	1

*IMO* Intrinsic motivational orientation; All coefficients above  $|0.18|$  are significant at 0.05 level. Bold font indicates statistical significance

**Table 2** Descriptive statistics and correlations (Metallica)

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Innovative performance	39.94	15.20	1												
2 IMO	84.28	9.97	0.09	1											
3 Network centrality	10.62	10.43	<b>0.57</b>	<b>0.19</b>	1										
4 Age	40.67	9.29	-0.05	-0.00	0.12	1									
5 Gender	0.82	0.38	0.01	0.07	<b>0.23</b>	-0.08	1								
6 Educational level	2.27	0.65	<b>0.20</b>	0.12	<b>0.20</b>	-0.00	-0.03	1							
7 Organizational tenure	9.87	7.73	0.14	-0.05	<b>0.30</b>	<b>0.49</b>	-0.05	-0.08	1						
8 Hierarchical level	1.19	0.52	<b>0.33</b>	0.10	<b>0.25</b>	<b>0.30</b>	0.13	<b>0.21</b>	<b>0.30</b>	1					
9 Out-degree centrality	6.20	8.28	<b>0.27</b>	0.09	<b>0.22</b>	0.04	0.01	<b>0.32</b>	<b>0.19</b>	<b>0.52</b>	1				
10 Number of friends	2.03	2.19	0.11	0.05	<b>0.20</b>	-0.26	0.12	-0.07	0.11	-0.14	-0.00	1			
11 Self-monitoring	50.58	7.24	-0.01	<b>0.33</b>	0.13	0.09	0.11	0.07	-0.05	0.10	0.02	0.04	1		
12 Network broadening	13.58	4.14	-0.08	<b>0.32</b>	0.04	-0.08	<b>0.18</b>	-0.03	-0.06	0.02	0.00	0.10	<b>0.29</b>	1	
13 Network deepening	13.19	2.79	-0.05	0.05	-0.02	-0.15	-0.07	-0.02	-0.05	-0.05	0.09	<b>0.28</b>	-0.15	0.17	1

*IMO* Intrinsic motivational orientation; All coefficients above |0.18| are significant at 0.05 level. Bold font indicates statistical significance

## Hypotheses Test

Table 3 shows the results of OLS estimations within Energetica and Metallica, respectively. In the table, we present a sequence of three models following the logic of mediation analyses: in Model 1, *Innovative performance* is regressed on *Intrinsic motivational orientation* plus the full set of control variables; in Model 2, we regress *Network centrality* on *Intrinsic motivational orientation*; and in Model 3, we augment Model 1 with *Network centrality*. Since *Innovative performance* is assessed by supervisors and each supervisor assesses several reports, we present models with robust standard errors clustered at the supervisor level (White, 1984).

Confirming prior literature, Model 1 shows that *Intrinsic motivational orientation* is positively associated with *Innovative performance* (In Energetica,  $b = 0.24$ ,  $p = 0.031$ ; in Metallica,  $b = 0.16$ ,  $p = 0.015$ ). Model 2 tests our first hypothesis, which posits that intrinsically motivated employees tend to become more central within the organization's informal advice network. We find support for Hypothesis 1 in both Energetica and Metallica. The estimated coefficient is 0.12 ( $p = 0.004$ ) in Energetica and 0.15 ( $p = 0.006$ ) in Metallica. These coefficients indicate a noticeable effect size: a one standard deviation increase in *Intrinsic motivational orientation* is associated with a 1.14 (in Energetica) and 1.50 (in Metallica) more colleagues who turn to the focal employee as a source of advice. Moving to the control variables, Model 2 shows several effects that are consistent with prior literature. Specifically, we find that in both organizations, an employee's *Network centrality* increases with *Organizational tenure*, *Hierarchical level*, and *Number of friends* (Ibarra, 1993; Rank et al., 2010; Rollag, 2004). Besides these similarities, we also observe a few differences across the two organizations. *Network broadening* has a marginally significant negative effect on *Network centrality* in Energetica but not in Metallica. By contrast, males and more highly educated employees tend to be more central in Metallica but not in Energetica. We do not have a strong theoretical interpretation for these different findings. However, we notice that prior studies found men and more highly educated employees to gain higher levels of network centrality (e.g., Ibarra, 1993).

Table 3 OLS regression models (Energetica and Metallica)

	MODEL 1 Innovative performance		MODEL 2 Network centrality		MODEL 3 Innovative performance	
	Energetica	Metallica	Energetica	Metallica	Energetica	Metallica
Intrinsic motivational orientation	<b>0.24*</b> (0.11)	<b>0.16*</b> (0.05)	<b>0.12**</b> (0.04)	<b>0.15**</b> (0.04)	0.16 (0.12)	0.03 (0.07)
Network centrality					<b>0.71†</b> (0.38)	<b>0.85**</b> (0.11)
Age	0.19 (0.16)	-0.33 (0.25)	0.01 (0.05)	0.02 (0.06)	0.19 (0.17)	-0.34 (0.24)
Gender	2.59 (2.54)	-3.31 (4.58)	1.14 (0.81)	<b>6.02**</b> (1.53)	1.78 (2.64)	<b>-8.44†</b> (4.63)
Educational level	2.64 (2.00)	1.21 (2.02)	0.30 (0.64)	<b>2.70*</b> (1.20)	2.43 (2.07)	-1.09 (2.13)
Organizational tenure	0.66 (0.54)	0.30 (0.21)	<b>0.41†</b> (0.22)	<b>0.34†</b> (0.16)	0.38 (0.49)	0.01 (0.26)
Hierarchical level	1.25 (2.89)	<b>9.87**</b> (1.02)	<b>2.52**</b> (0.78)	<b>2.86**</b> (0.92)	-0.53 (2.92)	<b>7.43**</b> (1.12)
Out-degree centrality	0.04 (0.13)	0.30 (0.23)	-0.02 (0.07)	0.16 (0.17)	0.06 (0.12)	0.16 (0.14)
Number of friends	0.06 (0.45)	<b>0.71*</b> (0.28)	<b>0.60**</b> (0.21)	<b>0.85*</b> (0.32)	-0.37 (0.54)	-0.01 (0.46)
Self-monitoring	-0.18 (0.14)	-0.13 (0.19)	-0.00 (0.03)	0.06 (0.09)	-0.18 (0.13)	-0.18 (0.12)
Network broadening	0.13 (0.33)	-0.38 (0.37)	<b>-0.20†</b> (0.11)	-0.15 (0.30)	0.27 (0.32)	-0.25 (0.39)

(continued)

Table 3 (continued)

	MODEL 1 Innovative performance		MODEL 2 Network centrality		MODEL 3 Innovative performance	
	Energetica	Metallica	Energetica	Metallica	Energetica	Metallica
Network deepening	0.19 (0.65)	-0.59 (0.43)	-0.16 (0.14)	-0.17 (0.22)	0.31 (0.64)	-0.45 (0.31)
Intercept	12.47 (12.00)	41.34 (24.66)	-7.16 <sup>†</sup> (3.78)	<b>-22.00*</b> (8.27)	17.54 (13.98)	<b>60.09**</b> (17.75)
N	119	118	119	118	119	118
R-squared	0.13	0.21	0.35	0.30	0.18	0.45

Robust standard errors are shown in parentheses

<sup>†</sup>  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ . Bold font indicates statistical significance

Model 3 tests our second hypothesis, which posits that employees who hold a more central position within the organization's informal advice network exhibit higher levels of innovative performance. We find broad support for Hypothesis 2 in both organizations. The effect of *Network centrality* on *Innovative performance* is both larger and reaches a higher statistical significance level in Metallica ( $b = 0.85, p = 0.000$ ) than in Energetica ( $b = 0.71, p = 0.071$ ). Specifically, a one standard deviation increase in *Network centrality* leads to a 27% of a standard deviation increase in *Innovative performance* in Energetica and to a 58% of a standard deviation increase in Metallica.

Our third and final hypothesis posits that intrinsic motivational orientation has an indirect positive effect on innovative performance via increasing employee's network centrality. Baron and Kenny (1986) developed what is perhaps the most widely used approach to test indirect effects such as the one we hypothesized. According to the Baron and Kenny test, *Network centrality* mediates the effect of *Intrinsic motivational orientation* on *Innovative performance* when the following four conditions occur. First, *Intrinsic motivational orientation* has a positive effect on *Innovative performance* when the mediator variable (*Network centrality*) is not part of the model. Model 1 shows that this is the case. Second, *Intrinsic motivational orientation* has a positive effect on *Network centrality*, as shown by Model 2. Third, the effect of *Network centrality* on *Innovative performance* is positive after controlling for *Intrinsic motivational orientation*, as shown in Model 3. Fourth, the coefficient estimate of *Intrinsic motivational orientation* on *Innovative performance* is smaller when controlling for *Network centrality* than when not controlling for it. Comparing the estimate of *Intrinsic motivational orientation* on *Innovative performance* in Model 1 versus Model 3 shows that also this fourth condition is met (in fact, introducing *Network centrality* entirely wipes away the positive effect of *Intrinsic motivational orientation* on *Innovative performance* in both Energetica and Metallica). Based on Baron and Kenny (1986), we can therefore conclude that Hypothesis 3 is supported.

Albeit widely used, the test developed by Baron and Kenny (1986) has been criticized and several scholars called for supplementing this approach with alternative testing strategies (e.g., MacKinnon et al., 2002). In particular, the so-called Sobel product of coefficients test

**Table 4** Sobel test of significance of the indirect effect

	Indirect effect	$\rho$	CI (lower)	CI (upper)
Energetica	0.09	0.104	0.00	0.21
Metallica	0.13	0.026	0.06	0.21

The estimates are based on standard errors at the supervisor level; *CI* confidence interval

(Sobel, 1982) has gained increasing recognition as a viable alternative for testing mediation processes. We therefore tested Hypothesis 3 also using the Sobel test. As shown in Table 4, in Metallica, the Sobel test indicates that *Network centrality* mediates the effect of *Intrinsic motivational orientation* on *Innovative performance*. The mediation effect is significant at the 5% level in Metallica and at the 10% level in Energetica. In interpreting these results, it is important to remember that a feature of the Sobel test is that it has low statistical power, meaning that it produces overly conservative estimates of mediation effects in small samples. According to MacKinnon et al. (2002), a sample of 1000 is necessary to detect small mediation effects, whereas with sample sizes like the ones used here one may detect only medium-to-large mediation effects. Thus, we can safely interpret the results of the Sobel test as providing support to Hypothesis 3.

## Discussion

We proposed and tested empirically a novel theoretical link between employees' motivational orientation, defined as the extent to which individuals are inclined to focus on and value intrinsically rewarding aspects of their job, and employee innovative performance. Specifically, we theorized that intrinsically motivated employees are more likely to gain central positions within their organization's informal advice network, which in turn enhances their innovative performance by aiding them in the generation, promotion, and implementation of innovative ideas. We tested our hypotheses in two independent organizations which, albeit similar in size and geographical location, are markedly different in terms of task environment, structure, and culture. Energetica is a consulting



service resembling the ideal type of an “organic” organization; Metallica is a production company based on a more “mechanistic” organization (Burns & Stalker, 2011). In both organizations, we found support for our argument. First, employees with an intrinsic motivational orientation tended to occupy a more central position within the informal advice networks. Second, advice network centrality enhances employees’ innovative performance, as assessed by supervisors. As a result, and third, advice network centrality mediates the effect of intrinsic motivational orientation on employee innovative performance.

## Limitations

In designing this study, we tried to maximize our ability to produce valid and generalizable results. To this end, we developed a research design involving two independent organizations in which we collected an unusually rich combination of individual and social network data, ensuring that the same constructs could be measured in a fully comparable fashion in both organizations. In collecting network data, we used the roster method because it has been shown to be significantly more accurate than the less time-consuming alternative, the so-called ego-network approach (Hammer, 1984). An important tradeoff for such intensive data collection effort is that we were unable to collect longitudinal data. This represents a limitation because it hampers our identification strategy, that is, our ability to demonstrate causality through our empirical tests. In particular, in the absence of longitudinal data, it is hard to account for possible sources of unobserved heterogeneity and endogeneity that might affect our results.

This acknowledged, we notice that our key independent variable—*intrinsic motivational orientation*—captures a stable (i.e., time-invariant) trait of individuals. This consideration is important because it indicates that the empirical relationship we found between *intrinsic motivational orientation* and *advice network centrality* runs in the direction we theorized. That is, given that *intrinsic motivational orientation* is a fixed trait that does not change over time, then it must be the case that *intrinsic motivational orientation* affects *advice network centrality*, not

the other way around. Similarly, because employees' intrinsic motivational orientation is stable over time, then we can safely rule out the possibility that the association between intrinsic motivational orientation and network centrality is driven by common unobserved factors. While these considerations alleviate endogeneity concerns with regard to the test of our first hypothesis, the test of our second hypothesis—that advice network centrality increases innovative performance—is susceptible to endogeneity. For example, it is in theory possible that more innovative employees become more central over time. Unfortunately, we have no way to conclusively rule out this possibility empirically within the context of this study. Indeed, doing so would require a different research design altogether, notably a natural or a field experiment, enabling the researcher to create an exogenous source of variation in employees' network centrality. In the absence of such designs, caution must be used in interpreting correlational associations as evidence of causality.

We focused our attention on the role of intrinsic motivational orientation because it offers a useful and logically straightforward point of integration between psychological and social network perspectives on employee innovation. By so doing, however, we did not consider the possible role of individuals' *extrinsic* motivational orientation. Contrary to widespread beliefs, individuals' intrinsic and extrinsic motivational orientations are not opposite ends of a bipolar dimension but, rather, orthogonal dimensions (Amabile et al., 1994). Intriguingly, a recent study by Gong et al. (2017) found that intrinsic and extrinsic motivational orientations interact in complex ways in shaping individual creativity. Whereas examining these interactions was beyond the scope of this study, doing so might help us develop a more complete understanding of how social networks mediate the link between employees' motivational orientation and innovative performance.

The paper integrates insights from social network theory into the motivation literature. In so doing, our goal was to delineate a clear and logically straightforward basis for theoretical integration. Toward this end, we focused our theory and empirical analysis on a well-established network concept—centrality—and left aside other potentially relevant aspects of workplace social networks that might affect individual innovation. Furthermore, we adopted a broad conceptualization of innovative

performance that considers not only idea generation but also idea promotion and implementation. However, we did not examine if and under what conditions an intrinsic motivational orientation may lead to diverging outcomes across these three components of individual innovation. In light of these limitations, we highlight three directions in which our arguments may be fruitfully extended. First, extant research suggests that tie strength matters for innovation and, specifically, that strong and weak ties may be beneficial in different phases of the creative process (Baer, 2012; Perry-Smith, 2014; Perry-Smith & Mannucci, 2017). When considered in light of our proposed mediation model, this consideration prompts the question, are intrinsically motivated employees more likely to attract strong or weak advice ties? Second, we focused on employees' network centrality but did not consider whether employees' contacts are mutually connected or separated by structural holes. However, evidence suggests these structural differences affect employees' innovative performance and, once again, that each type of network structure may be beneficial in different phases of the innovation process (Obstfeld, 2005; Perry-Smith & Mannucci, 2017). Finally, and third, we examined employees' networks from a static perspective, but it is possible that employees' motivational orientations influence the *dynamics* through which interpersonal interactions unfold and evolve over time (Quintane & Carnabuci, 2016). While it was impossible to examine these directions within the context of the present paper, we hope that our study will spur research around these important questions.

## Contributions

The theory and evidence presented in this study advance the extant literature in several ways. By showing that intrinsic motivational orientation affects employee innovative performance via advice network centrality, the study extends and qualifies current understandings of how intrinsic motivational orientation affects innovative performance. Our results dovetail with and extend recent research emphasizing the pivotal role of other-focused processes in shaping the relationship between intrinsic

motivation and individual innovation (George, 2007; Grant & Berry, 2011). By emphasizing the role of “perspective taking,” Grant and Berry (2011) examined other-focused processes from an intra-individual, psychological perspective. Complementing their approach, the present paper examined the role of other-focused processes from a network-structural perspective, namely, it showed that intrinsic motivational orientation shapes the network of interpersonal relations within which employees are embedded and through which they relate to others.

We argued that intrinsic motivational orientation affects employees’ innovation by helping them become a valued source of work-related advice for others in the organization and, hence, a central node in the organization’s informal advice network. Although psychological literature on intrinsic motivation has recognized the importance of interpersonal relationships (Gagné & Deci, 2005; Weinstein & Ryan, 2010), to the best of our knowledge ours is the first study to theorize employees’ networks as a mediating factor linking intrinsic motivation to individual innovation. Whereas we focused on employee innovative performance, there are theoretical reasons to believe that employees’ networks may play a similar mediation role with respect to other performance outcome variables. Indirect evidence for this conjecture comes from a recent meta-analysis by Fang et al. (2015) showing that network position, and in particular network centrality, partially mediates the relationship between several personality and performance variables. Insofar as employees with an intrinsic motivational orientation are perceived to be more attractive exchange partners, it seems theoretically plausible that networks may mediate the effects of intrinsic motivational orientation on other outcome variables of organizational interest, such as productivity or turnover. We hope that our study will spur new research in this promising direction.

Our study contributes to a growing stream of research aimed at building a micro-founded, psychologically informed theories of informal networks in organizations (Casciaro et al., 2015; Kilduff & Krackhardt, 2008). Research in this area has identified several psychological attributes affecting how individuals mentally represent, build, and use networks (Oh & Kilduff, 2008; Simpson et al., 2011). Still, the extant literature lack knowledge on “Why do some individuals have social networks

that appear to foster creativity to greater extent than other individuals” (George, 2007, p. 460). Responding to Tasselli and colleagues’ call for studies that examine the relation between individual-level motivational dispositions and networks (Tasselli et al., 2015), we argued and showed that the position employees come to occupy within the organization’s informal advice network reflects, at least in part, their motivational orientation. Whereas network research has traditionally assumed away the role of individual motivation (see Burt, 1992, p. 36), our study testifies to the importance of accounting for motivational factors in network studies. By illuminating what drives people’s cognitive and affective responses, the literature on motivation is rich in insights that may help us shed light on why there are such large differences in the kinds of networks people build around themselves and in how they use them (Tasselli et al., 2015). We see our study as a first step in the direction of integrating motivation theories into current network explanations.

An important feature of our study is that it was designed to replicate its empirical tests across two different organizations. Collecting high-quality primary data from independent organizations is highly time-consuming and, sometimes, unfeasible. This is especially true when collecting *network* data, since network questionnaires require respondents to answer questions not only about themselves but also their contacts. Furthermore, complete-network studies such as the ones we carried out necessitate very high response rates, since low response rates may lead to inaccurate network representations (Wasserman & Faust, 1994). For all these reasons, replication analyses are extremely rare in management and even rarer in organizational network studies. This is a major hurdle in the way of scientific progress because scholars often make universalistic arguments but the estimated network effects may be contingent on the characteristics of the particular organizational setting examined (Emirbayer & Goodwin, 1994; Soda et al., 2019). We were able to collect the exact same data in two distinct companies and to obtain a very high response rate in both. The fact that our hypotheses are confirmed in different organizational settings adds credibility to our

empirical results and reassures us about the general validity of our arguments. As multiple scholars emphasized (Bettis et al., 2016a, 2016b; Hubbard et al., 1998), developing research designs that enable empirical replication is crucial for the advancement of rigorous evidence-based management knowledge.

## Practical and Managerial Implications

Our findings bear practical implications for managers and firms aiming to enhance employees' innovative performance. Whereas prior research identified intrinsic motivation as an important antecedent of employee innovation (Amabile, 1985; Amabile et al., 1994; Gong et al., 2017; Prabhu et al., 2008; Tierney et al., 1999), it failed to recognize the mediating role of networks in this process. We argued and showed that intrinsically motivated employees are more innovative partly because they tend to occupy more central positions in the informal advice network. This finding is important because it suggests that to maximize employee innovative performance, having intrinsically motivated individuals may not be sufficient. It is also important to help employees grow a network of informal advice relationships with colleagues across the organization. We argued that intrinsically motivated individuals have a natural inclination to become central in the organization's informal advice network because they are both able and willing to provide valued work-related advice, which induces others to turn to them as preferred sources of advice. However, managers and organizations may facilitate the effects of this natural inclination through a range of both formal and informal levers.

For example, we reckon that intrinsically motivated employees are more likely to increase their network centrality when their managers afford them greater job autonomy or provide them with enough time and opportunities to interact with and provide advice to colleagues. Furthermore, recent research on "semi-formal" organizational design suggests another way in which managers may help intrinsically motivated employees gain network centrality (Biancani et al., 2014). This

research highlights how semi-formal organizational arrangements—formally sponsored projects or groups that employees elect to join on a purely voluntary basis—are an important innovation driver because they enable employees to forge new interpersonal ties and knowledge exchange patterns from the bottom up. Although the authors did not explicitly consider employees’ motivational orientation as part of their explanatory framework, it is interesting to notice that their analysis presumes that employees who join semi-formal arrangements will often do so “because they have the greatest motivation for the work” (Biancani et al., 2014, p. 1312), i.e., because they are intrinsically motivated. In addition to highlighting a potentially useful theoretical connection with the work presented here, this observation suggests that semi-formal organizational arrangements may represent a powerful managerial lever to help intrinsically motivated employees expand their network centrality and, thereby, maximize their innovative potential.

More generally, our results suggest that to leverage the creative potential of intrinsically motivated employees, managers and organizations should create work environments conducive to expanding the informal workplace network. This can be done, for example, by designing physical spaces for employees to interact with each other and socialize, by organizing social events and party mixers (Ingram & Morris, 2007), or by imparting executive education programs designed to sensitize employees to the importance of networks and how to build them (Burt & Ronchi, 2007). With the rapid shift to remote work that followed the Covid-19 pandemic, a question of increasing practical importance is, what approaches or tools can managers use to help intrinsically motivated employees working remotely to gain centrality in the informal workplace network? Even as virtual collaboration and networking tools become increasingly powerful as a way to interact with colleagues, a hybrid setup involving a modicum of face-to-face interaction remains likely to be the most effective pathway to network centrality (Kirkman et al., 2004).

## Conclusion

We hypothesized that employees with a high intrinsic motivational orientation tend to be especially innovative because they have a natural inclination to become central within the organization's informal advice network. Using intra-organizational network data from two distinct organizations, we found support for this hypothesis. A key implication of our study is that, to unleash the full creative potential of intrinsically motivated employees, managers and organizations should afford intrinsically motivated employees with greater job autonomy and more opportunities to expand their networks through semi-formal organizational arrangements and informal socializing.

## References

- Agneessens, F., & Wittek, R. (2012). Where do intra-organizational advice relations come from? The role of informal status and social capital in social exchange. *Social Networks*, *34*(3), 333–345. <https://doi.org/10.1016/j.socnet.2011.04.002>
- Amabile, T. M. (1985). Motivation and creativity: Effects of motivational orientation on creative writers. *Journal of Personality and Social Psychology*, *48*(2), 393–399. <https://doi.org/10.1037/0022-3514.48.2.393>
- Amabile, T. M. (1988). A model of creativity and innovation in organizations. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (pp. 123–167). JAI Press.
- Amabile, T. M., & Mueller, J. S. (2008). Studying creativity, its processes, and its antecedents: An exploration of the componential theory of creativity. In J. Zhou & C. E. Shalley (Eds.), *Handbook of organizational creativity* (pp. 33–64). Lawrence Erlbaum Associates.
- Amabile, T. M., Hill, K. G., Hennessey, B. A., & Tighe, E. M. (1994). The Work Preference Inventory: Assessing intrinsic and extrinsic motivational orientations. *Journal of Personality and Social Psychology*, *66*(5), 950–967. <https://doi.org/10.1037/0022-3514.66.5.950>
- Anderson, N., Potočník, K., & Zhou, J. (2014). Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and



- guiding framework. *Journal of Management*, 40(5), 1297–1333. <https://doi.org/10.1177/0149206314527128>
- Baer, M. (2012). Putting creativity to work: The implementation of creative ideas in organizations. *Academy of Management Journal*, 55(5), 1102–1119. <https://doi.org/10.5465/amj.2009.0470>
- Baer, M., Evans, K., Oldham, G. R., & Boasso, A. (2015). The social network side of individual innovation: A meta-analysis and path-analytic integration. *Organizational Psychology Review*, 5(3), 191–223. <https://doi.org/10.1177/2041386614564105>
- Baldwin, T. T., Bedell, M. D., & Johnson, J. L. (1997). The social fabric of a team-based MBA program: Network effects on student satisfaction and performance. *Academy of Management Journal*, 40(6), 1369–1397. <https://doi.org/10.2307/257037>
- Balkundi, P., Kilduff, M., Barsness, Z. I., & Michael, J. H. (2007). Demographic antecedents and performance consequences of structural holes in work teams. *Journal of Organizational Behavior*, 28(2), 241–260. <https://doi.org/10.1002/job.428>
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. <https://doi.org/10.1037//0022-3514.51.6.1173>
- Bettis, R. A., Ethiraj, S., Gambardella, A., Helfat, C., & Mitchell, W. (2016a). Creating repeatable cumulative knowledge in strategic management. *Strategic Management Journal*, 37(2), 257–261. <https://doi.org/10.1002/smj.2477>
- Bettis, R. A., Helfat, C. E., & Shaver, J. M. (2016b). The necessity, logic, and forms of replication. *Strategic Management Journal*, 37(11), 2193–2203. <https://doi.org/10.1002/smj.2580>
- Biancani, S., McFarland, D. A., & Dahlander, L. (2014). The semiformal organization. *Organization Science*, 25(5), 1306–1324. <https://doi.org/10.1287/orsc.2013.0882>
- Bonaccio, S., & Dalal, R. S. (2006). Advice taking and decision-making: An integrative literature review, and implications for the organizational sciences. *Organizational Behavior and Human Decision Processes*, 101(2), 127–151. <https://doi.org/10.1016/j.obhdp.2006.07.001>
- Borgatti, S. P., & Cross, R. (2003). A relational view of information seeking and learning in social networks. *Management Science*, 49(4), 432–445. <https://doi.org/10.1287/mnsc.49.4.432.14428>

- Borgatti, S. P., Everett, M. G. & Freeman, L. C. (2002). Ucinet for windows: Software for social network analysis. *Analytic Technologies*.
- Brass, D. J. (1984). Being in the right place: A structural analysis of individual influence in an organization. *Administrative Science Quarterly*, 29(4), 518–539. <https://doi.org/10.2307/2392937>
- Burns, T., & Stalker, G. M. (2011). Mechanistic and organic systems of management. In M. Godwyn, & J. H. Gittel (Eds.), *Sociology of organizations: Structures and relationships* (Chapter 2). SAGE.
- Burt, R. S., & Ronchi, D. (2007). Teaching executives to see social capital: Results from a field experiment. *Social Science Research*, 36(3), 1156–1183. <https://doi.org/10.1016/j.ssresearch.2006.09.005>
- Burt, R.S. (1992). *Structural holes: The social structure of competition*. Harvard University Press.
- Carnabuci, G., & Diószegi, B. (2015). Social networks, cognitive style, and innovative performance: A contingency perspective. *Academy of Management Journal*, 58(3), 881–905. <https://doi.org/10.5465/amj.2013.1042>
- Casciaro, T. (2014). Affect in organizational networks. In D. J. Brass, G. J. Labianca, A. Mehra, D. S. Halgin, & S. P. Borgatti (Eds.), *Research in the sociology of organizations: Contemporary perspectives on organizational social networks* (pp. 219–238). Emerald.
- Casciaro, T., Barsade, S. G., Edmondson, A. C., Gibson, C. B., Krackhardt, D., & Labianca, G. J. (2015). The integration of psychological and network perspectives in organizational scholarship. *Organization Science*, 26(4), 1162–1176. <https://doi.org/10.1287/orsc.2015.0988>
- Chiu, C. Y. C., Balkundi, P., & Weinberg, F. J. (2017). When managers become leaders: The role of manager network centralities, social power, and followers' perception of leadership. *Leadership Quarterly*, 28(2), 334–348. <https://doi.org/10.1016/j.leaqua.2016.05.004>
- Colbert, A. E., Bono, J. E., & Purvanova, R. K. (2016). Flourishing via workplace relationships: Moving beyond instrumental support. *Academy of Management Journal*, 59(4), 1199–1223. <https://doi.org/10.5465/amj.2014.0506>
- Collins, R. (1981). On the microfoundations of macrosociology. *American Journal of Sociology*, 86(5), 984–1014. <http://www.jstor.org/stable/2778745>
- Collins, M. A., & Amabile, T. M. (1999). Motivation and creativity. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 297–312). Cambridge University Press.

- Cross, R., Borgatti, S. P., & Parker, A. (2001). Beyond answers: Dimensions of the advice network. *Social Networks*, 23(3), 215–235. [https://doi.org/10.1016/S0378-8733\(01\)00041-7](https://doi.org/10.1016/S0378-8733(01)00041-7)
- Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality*, 19(2), 109–134. [https://doi.org/10.1016/0092-6566\(85\)90023-6](https://doi.org/10.1016/0092-6566(85)90023-6)
- Deci, E. L., & Ryan, R. M. (2008). Facilitating optimal motivation and psychological well-being across life's domains. *Canadian Psychology*, 49(1), 14–23. <https://doi.org/10.1037/0708-5591.49.1.14>
- Dysvik, A., & Kuvaas, B. (2013). Intrinsic and extrinsic motivation as predictors of work effort: The moderating role of achievement goals. *British Journal of Social Psychology*, 52(3), 412–430. <https://doi.org/10.1111/j.2044-8309.2011.02090.x>
- Emirbayer, M., & Goodwin, J. (1994). Network analysis, culture, and the problem of agency. *American Journal of Sociology*, 99(6), 1411–1454. <https://doi.org/10.1086/230450>
- Ethiraj, S. K., Gambardella, A., & Helfat, C. E. (2016). Replication in strategic management. *Strategic Management Journal*, 37(11), 2191–2192. <https://doi.org/10.1002/smj.2581>
- Fang, R., Landis, B., Zhang, Z., Anderson, M. H., Shaw, J. D., & Kilduff, M. (2015). Integrating personality and social networks: A meta-analysis of personality, network position, and work outcomes in organizations. *Organization Science*, 26(4), 941–1261. <https://doi.org/10.1287/orsc.2015.0972>
- Fleming, L. (2001). Recombinant uncertainty in technological research. *Management Science*, 47(1), 117–132. <https://doi.org/10.1287/mnsc.47.1.117.10671>
- Fleming, L., Mingo, S., & Chen, D. (2007). Collaborative brokerage, generative creativity, and creative success. *Administrative Science Quarterly*, 52(3), 443–475. <https://doi.org/10.2189/asqu.52.3.443>
- Flynn, F. J., Reagans, R. E., Amanatullah, E. T., & Ames, D. R. (2006). Helping one's way to the top: Self-monitors achieve status by helping others and knowing who helps whom. *Journal of Personality and Social Psychology*, 91(6), 1123–1137. <https://doi.org/10.1037/0022-3514.91.6.1123>
- Gagnè, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, 26(4), 331–362. <https://doi.org/10.1002/job.322>
- George, J. M. (2007). Creativity in organizations. *Academy of Management Annals*, 1(1), 439–477. <https://doi.org/10.1080/078559814>

- Gong, Y., Wu, J., Song, J. W., & Zhang, Z. (2017). Dual tuning in creative process: Joint contributions of intrinsic and extrinsic motivational orientations. *Journal of Applied Psychology, 102*(5), 829–844. <https://doi.org/10.1037/apl0000185>
- Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review, 25*(2), 161–178. <https://doi.org/10.2307/2092623>
- Grant, A. M. (2008). Does intrinsic motivation fuel the prosocial fire? Motivational synergy in predicting persistence, performance, and productivity. *Journal of Applied Psychology, 93*(1), 48–58. <https://doi.org/10.1037/0021-9010.93.1.48>
- Grant, A. M., & Berry, J. W. (2011). The necessity of others is the mother of invention. *Academy of Management Journal, 54*(1), 73–96. <https://doi.org/10.5465/amj.2011.59215085>
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (6th ed.). Pearson University Press.
- Hammer, M. (1984). Explorations into the meaning of social network interview data. *Social Networks, 6*(4), 341–371. [https://doi.org/10.1016/0378-8733\(84\)90008-X](https://doi.org/10.1016/0378-8733(84)90008-X)
- Hargadon, A. B. (1999). Group cognition and creativity in organizations. *Research on Managing Groups and Teams, 2*, 137–155.
- Heidemeier, H. (2005). *Self and supervisor ratings of job-performance: Meta-analyses and a process model of rater convergence*. Unpublished doctoral dissertation, Universität Erlangen-Nürnberg.
- Hubbard, R., Vetter, D. E., & Little, E. L. (1998). Replication in strategic management: Scientific testing for validity, generalizability, and usefulness. *Strategic Management Journal, 19*(3), 243–254. [https://doi.org/10.1002/\(SICI\)1097-0266\(199803\)19:3%3c243::AID-SMJ951%3e3.0.CO;2-0](https://doi.org/10.1002/(SICI)1097-0266(199803)19:3%3c243::AID-SMJ951%3e3.0.CO;2-0)
- Ibarra, H. (1993). Network centrality, power, and innovation involvement: Determinants of technical and administrative roles. *Academy of Management Journal, 36*(3), 471–501. <https://doi.org/10.2307/256589>
- Ibarra, H., & Andrews, S. B. (1993). Power, social influence, and sense making. Effects of network centrality and proximity on employee perceptions. *Administrative Science Quarterly, 38*(2), 277–303. <https://doi.org/10.2307/2393414>
- Ingram, P., & Morris, M. W. (2007). Do people mix at mixers? Structure, homophily, and the “life of the party.” *Administrative Science Quarterly, 52*(4), 558–585. <https://doi.org/10.2189/asqu.52.4.558>

- Janssen, O. (2000). Job demands, perceptions of effort-reward fairness and innovative work behaviour. *Journal of Occupational and Organizational Psychology*, 73(3), 287–302. <https://doi.org/10.1348/096317900167038>
- Janssen, O., van de Vliert, E., & West, M. (2004). The bright and dark side of individual and group innovation: A special issue introduction. *Journal of Organizational Behavior*, 25(2), 129–145. <https://doi.org/10.1002/job.242>
- Jeon, S. H., Kim, Y. G., & Koh, J. (2011). Individual, social, and organizational contexts for active knowledge sharing in communities of practice. *Expert Systems with Applications*, 38(10), 12423–12431. <https://doi.org/10.1016/j.eswa.2011.04.023>
- Kanter, R. M. (1983). The change masters. *Simon & Schuster*. <https://doi.org/10.1002/hrm.3930220311>
- Kilduff, M., & Krackhardt, D. (2008). Interpersonal networks in organizations: Cognition, personality, dynamics, and culture. *Cambridge University Press*. <https://doi.org/10.1017/CBO9780511753749>
- Kirkman, B. L., Rosen, B., Tesluk, P. E., & Gibson, C. B. (2004). The impact of team empowerment on virtual team performance: The moderating role of face-to-face interaction. *Academy of Management Journal*, 47(2), 175–192. <https://doi.org/10.2307/20159571>
- Krackhardt, D. (1990). Assessing the political landscape: Structure, cognition, and power in organizations. *Administrative Science Quarterly*, 35(2), 342–369. <https://doi.org/10.2307/2393394>
- Lee, F. (1997). When the going gets tough, do the tough ask for help? Help seeking and power motivation in organizations. *Organizational Behavior and Human Decision Processes*, 72(3), 336–363. <https://doi.org/10.1006/obhd.1997.2746>
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, 7(1), 83–104. <https://doi.org/10.1037/1082-989X.7.1.83>
- Marsden, P. V. (1990). Network data and measurement. *Annual Review of Sociology*, 16, 435–463. <https://doi.org/10.1146/annurev.so.16.080190.002251>
- Ng, T. W. H., & Feldman, D. C. (2009). How broadly does education contribute to job performance? *Personnel Psychology*, 62(1), 89–134. <https://doi.org/10.1111/j.1744-6570.2008.01130.x>

- Ng, T. W. H., & Feldman, D. C. (2013a). A meta-analysis of the relationships of age and tenure with innovation-related behaviour. *Journal of Occupational and Organizational Psychology*, 86(4), 585–616. <https://doi.org/10.1111/joop.12031>
- Ng, T. W. H., & Feldman, D. C. (2013b). Does longer job tenure help or hinder job performance? *Journal of Vocational Behavior*, 83(3), 305–314. <https://doi.org/10.1016/j.jvb.2013.06.012>
- O’Cass, A. (2000). A psychometric evaluation of a revised version of the Lennox and Wolfe revised self-monitoring scale. *Psychology & Marketing*, 17(5), 397–419. [https://doi.org/10.1002/\(SICI\)1520-6793\(200005\)17:5%3c397::AID-MAR3%3e3.0.CO;2-D](https://doi.org/10.1002/(SICI)1520-6793(200005)17:5%3c397::AID-MAR3%3e3.0.CO;2-D)
- Obstfeld, D. (2005). Social networks, the tertius iungens orientation, and involvement in innovation. *Administrative Science Quarterly*, 50(1), 100–130. <https://doi.org/10.2189/asqu.2005.50.1.100>
- Obstfeld, D. (2017). Getting new things done: Networks, brokerage, and the assembly of innovative action. *Stanford University Press*. <https://doi.org/10.1177/0001839218757461>
- Oh, H., & Kilduff, M. (2008). The ripple effect of personality on social structure: Self-monitoring origins of network brokerage. *Journal of Applied Psychology*, 93(5), 1155–1164. <https://doi.org/10.1037/0021-9010.93.5.1155>
- Oh, H., Labianca, G., & Chung, M. H. (2006). A multilevel model of group social capital. *Academy of Management Review*, 31(3), 569–582. <https://doi.org/10.2307/20159229>
- Ozlati, S. (2015). The moderating effect of trust on the relationship between autonomy and knowledge sharing: A national multi-industry survey of knowledge workers. *Knowledge and Process Management*, 22(3), 191–205. <https://doi.org/10.1002/kpm.1474>
- Perry-Smith, J. E. (2006). Social yet creative: The role of social relationships in facilitating individual creativity. *Academy of Management Journal*, 49(1), 85–101. <https://doi.org/10.5465/AMJ.2006.20785503>
- Perry-Smith, J. E. (2014). Social network ties beyond nonredundancy: An experimental investigation of the effect of knowledge content and tie strength on creativity. *Journal of Applied Psychology*, 99(5), 831–846. <https://doi.org/10.1037/a0036385>
- Perry-Smith, J., & Mannucci, P. V. (2017). From creativity to innovation: The social network drivers of the four phases of the idea journey. *Academy of Management Review*, 42(1), 53–79. <https://doi.org/10.5465/amr.2014.0462>

- Perry-Smith, J. E., & Shalley, C. E. (2003). The social side of creativity: A static and dynamic social network perspective. *Academy of Management Review*, 28(1), 89–106. <https://doi.org/10.5465/amr.2003.8925236>
- Podolny, J. M. (2001). Networks as the pipes and prisms of the market. *American Journal of Sociology*, 107(1), 33–60. <https://doi.org/10.1086/323038>
- Podolny, J. M. (2010). *Status signals: A sociological study of market competition*. Princeton University Press.
- Prabhu, V., Sutton, C., & Sauser, W. (2008). Creativity and certain personality traits: Understanding the mediating effect of intrinsic motivation. *Creativity Research Journal*, 20(1), 53–66. <https://doi.org/10.1080/10400410701841955>
- Quintane, E., & Carnabuci, G. (2016). How do brokers broker? Tertius gaudens, tertius iungens, and the temporality of structural holes. *Organization Science*, 27(6), 1343–1360. <https://doi.org/10.1287/orsc.2016.1091>
- Rank, O. N., Robins, G. L., & Pattison, P. E. (2010). Structural logic of intraorganizational networks. *Organization Science*, 21(3), 745–764. <https://doi.org/10.1287/orsc.1090.0450>
- Rollag, K. (2004). The impact of relative tenure on newcomer socialization dynamics. *Journal of Organizational Behavior*, 25(7), 853–872. <https://doi.org/10.1002/job.280>
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54–67. <https://doi.org/10.1006/ceps.1999.1020>
- Shah, N. P., Cross, R., & Levin, D. (2018). Performance benefits from providing assistance in networks: Relationships that generate learning. *Journal of Management*, 44(2), 412–444. <https://doi.org/10.1177/0149206315584822>
- Simpson, B., Markovsky, B., & Steketee, M. (2011). Power and the perception of social networks. *Social Networks*, 33(2), 166–171. <https://doi.org/10.1016/j.socnet.2010.10.007>
- Singh, H., Kryscynski, D., Li, X., & Gopal, R. (2016). Pipes, pools, and filters: How collaboration networks affect innovative performance. *Strategic Management Journal*, 37(8), 1649–1666. <https://doi.org/10.1002/smj.2419>
- Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. In S. Leinhardt (Ed.), *Sociological methodology* (pp. 290–312). Jossey-Bass.

- Soda, G., Stea, D., & Pedersen, T. (2019). Network structure, collaborative context, and individual creativity. *Journal of Management*, *45*(4), 1739–1765. <https://doi.org/10.1177/0149206317724509>
- Sparrowe, R. T., Liden, R. C., Wayne, S. J., & Kraimer, M. L. (2001). Social networks and the performance of individuals and groups. *Academy of Management Journal*, *44*(2), 316–325. <https://doi.org/10.2307/3069458>
- Stea, D., & Pedersen, T. (2017). Not all brokers are alike: Creative implications of brokering networks in different work functions. *Human Relations*, *70*(6), 668–693. <https://doi.org/10.1177/0018726716672921>
- Tasselli, S., Kilduff, M., & Menges, J. I. (2015). The microfoundations of organizational social networks: A review and an agenda for future research. *Journal of Management*, *41*(5), 1361–1387. <https://doi.org/10.1177/0149206315573996>
- Tierney, P., Farmer, S. M., & Graen, G. B. (1999). An examination of leadership and employee creativity: The relevance of traits and relationships. *Personnel Psychology*, *52*(3), 591–620. <https://doi.org/10.1111/j.1744-6570.1999.tb00173.x>
- Vissa, B. (2012). Agency in action: Entrepreneurs' networking style and initiation of economic exchange. *Organization Science*, *23*(2), 492–510. <https://doi.org/10.1287/orsc.1100.0567>
- Wasserman, S., & Faust, K. (1994). Social network analysis: Methods and applications. *Cambridge University Press*. <https://doi.org/10.1017/CBO9780511815478>
- Weinstein, N., & Ryan, R. M. (2010). When helping helps: Autonomous motivation for prosocial behavior and its influence on well-being for the helper and recipient. *Journal of Personality and Social Psychology*, *98*(2), 222–244. <https://doi.org/10.1037/a0016984>
- White, H. (1984). Asymptotic theory for econometricians. *Academic Press*. <https://doi.org/10.1016/C2009-0-21869-1>
- Wild, T. C., Enzle, M. E., Nix, G., & Deci, E. L. (1997). Perceiving others as intrinsically or extrinsically motivated: Effects on expectancy formation and task engagement. *Personality and Social Psychology Bulletin*, *23*(8), 837–848. <https://doi.org/10.1177/0146167297238005>

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# Brokering One's Way to Trust and Success: Trust, Helping, and Network Brokerage in Organizations

Andrew Parker , Don Ferrin, and Kurt Dirks

## Introduction

Over the last two decades, research on trust has accelerated dramatically to the point that trust is now one of the most frequently studied concepts in organizational research (e.g., Ferrin, 2013). Interest in trust is based in part on the recognition that organizations are systems that

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require collaboration between individuals, and trust is a key facilitator of this collaboration. Existing research has extensively examined the potential importance of trust for individuals and organizations, as well as the determinants of trust (e.g., Dirks et al., 2022; Fulmer & Gelfand, 2012; Gillespie et al., 2020; Lyu & Ferrin, 2018). A widely accepted definition of trust, “a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another” (Rousseau et al., 1998, p. 395), has helped to guide this research. As highlighted by the definition, trust involves a trustor, a trustee, and the relationship between them. Thus, researchers have focused on these three factors—the trustor, the trustee, and particularly the relationship between them—to understand its determinants and outcomes. Organizations, however, are larger social systems comprised of relationships between many individuals who are (or are not) connected to each other in complex ways. This observation provides a different and potentially important way of understanding trust: as a concept that involves the broader social network.

A handful of studies has utilized a social network perspective to understand trust (McEvily et al., 2020). For instance, research has found that two individuals who are linked via trusted third parties are more likely to trust each other (Ferrin et al., 2006), and that an individual’s reputation for trustworthiness among his or her peers is associated with the density and heterogeneity of the networks of the individuals’ advocates (Wong & Boh, 2010). However, the literature presently lacks insight into how one’s position within an organization—the structure of the relationships surrounding the interpersonal tie—may influence both trust and the outcomes of trust. Understanding this effect may be important because it implies that it’s not only who you are and what you do (both of which are suggested by prior research), but also where you are located—or have proactively located yourself—in the organizational network, that determines your perceived trustworthiness and your effectiveness and success within an organization.

We address this gap by examining the role of a structural position, “brokerage,” that may simultaneously explain how individuals develop trust and derive benefits from their relationships. An individual who occupies a network position in which he or she connects two otherwise unconnected others is said to occupy a position of “brokerage,” in that

the individual can transfer or withhold resources such as information and assistance between the two others (Burt et al., 2013; Simmel, 1950; Stovel & Shaw, 2012). Some researchers have referred to the broker as a “bridge” between two unconnected people (Granovetter, 1973), or as an individual who spans a “structural hole” in the network (Burt, 1992, 2004, 2005; Burt & Merluzzi, 2014). It is important to note that it is not the case that some individuals are brokers and others are not. Due to their structural positions, some people have more brokerage opportunities than others, and such opportunities afford people more opportunities to act as a broker. Despite being one of the most frequently studied constructs in the network literature, brokerage has been ignored in the trust literature, perhaps because many researchers have assumed that brokers are strategic or calculative operators, and thus brokerage appears antithetical to trust. However, our analysis suggests that brokerage may in fact be positively associated with trust as well as with performance. Applying a social exchange perspective, we propose that individuals who have relatively more structural holes are in a comparatively better position not only to broker information and control between dependent parties but also to identify the needs of those parties (i.e., how those parties may benefit from being connected) and provide assistance to address those needs. To the extent brokers help others, they will be perceived as trustworthy in that they care about and tend to others’ needs and interests. And by being trusted, brokers are more likely to receive valuable resources such as information and assistance, which may facilitate their own performance.

Our study makes two contributions to the literature. First, it provides insight into how trust is shaped by social structure, focusing on one of the most frequently studied networks concepts, brokerage. Specifically, we consider how being a broker provides opportunities for helping other individuals, which in turn determines the degree to which one is trusted. Second, our study provides insight into how trust acts as a mechanism through which brokerage impacts individual performance. Thus, the paper integrates insights from the literature on trust and network brokerage: two prominent research areas that until now have developed in relative isolation from each other. Two empirical studies are reported

that examine the ideas. In Study 1, we tested whether brokerage is positively related to the degree to which an individual is trusted, including the mechanism by which this occurs, specifically the mediating role of interpersonal helping. In Study 2, we tested whether the effect of brokerage on work performance is mediated by the degree to which an individual is trusted. Although individual parts of our model have been considered elsewhere, the present paper brings these disparate ideas together into a full, coherent process which has not yet been explored in existing research.

## Theoretical Foundations

The concept of interpersonal trust reflects a family of distinct but related constructs manifested in two commonly used trust frameworks, Mayer et al.'s (1995) model of organizational trust, and McAllister's (1995) model of affect- and cognition-based trust (Ferrin et al., 2008). In this paper, we focus on a form of trust that is recognized in both frameworks: an individual's belief that another has his or her best interests at heart ("perceived benevolence" in the Mayer et al. (1995) framework) and will act in ways that advance those interests ("affect-based trust" in the McAllister (1995) framework). Consistent with Ferrin et al.'s (2008) recommendations for how discrepant trust definitions and operationalizations should be addressed, throughout this paper we will use the terms, "trust," "perceived benevolence," and "affect-based trust" to refer to this concept.

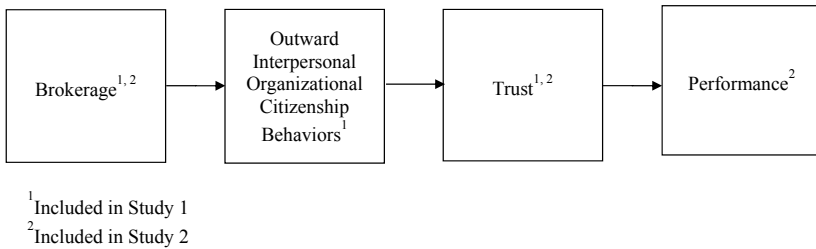
Over the last two decades, researchers have made great strides in understanding the causes and consequences of interpersonal trust. In general, determinants of trust can be understood as comprising trustee factors (e.g., leadership behaviors, communication, and other behaviors performed by the target of trust), trustor factors (e.g., propensity to trust, emotions), relationship factors (e.g., relationship history, demographic similarity), and organizational factors (e.g., hierarchical or work status differences, monitoring and control, communication medium, goals and rewards) (Fulmer & Gelfand, 2012; Lyu & Ferrin, 2018). In turn, interpersonal trust has been associated with numerous positive outcomes

including cooperative behaviors, positive work attitudes and intentions, and individual performance (see Costa et al., 2015; Lyu & Ferrin, 2018, for reviews).

In organizational settings, interpersonal dyads seldom if ever exist in isolation. Instead, they are embedded in a complex network of other actors who interact with each other in a range of dyadic, triadic, and group relationships. Thus, interpersonal dyads are embedded in a social context that is likely to influence the development and outcomes of dyadic trust. Given this reality of trust within organizations, it is surprising that while research on contextual factors surrounding interpersonal trust is accumulating, relatively little research has focused on how the social context influences interpersonal trust and its outcomes.

Social exchange is one of the key theories used to describe the processes by which trust develops and operates (Blau, 1964; Konovsky & Pugh, 1994). Social exchange describes the pattern of informal exchanges that individuals engage in with others to pursue their individual interests. In social exchange, parties help and share resources with each other, which fosters implicit agreements based on trust and personal obligations that govern the relationship. Individuals benefit from social exchange by having access to resources that others hold, as well as enjoying the social emotional bonds that develop.

Social exchange theory overlaps with but is distinct from social network research. Commenting on the connection between the two perspectives, Cook and Whitmeyer (1992) observed that the two perspectives hold similar views of actors (individuals pursue self-interest, and are motivated by rewards and punishment). Sparrowe and Liden (1997) extended this insight by noting that “Exchange processes constitute the relationships whose structure is the focus of social network analysis precisely because the ties joining individuals in social networks are exchange relationships” (1997, p. 532). In contrast, Cook and Whitmeyer (1992) pointed out that a key difference is that whereas social exchange research is interested in the content of ties and exchanges (e.g., trust), social network research is more interested in the existence or strength of those relationships, as opposed to their specific basis. As such, the two perspectives present different, but potentially complementary insights.



**Fig. 1** Conceptual model

We consider how social exchange can provide insight into how and why trust develops from brokerage relationships and ultimately facilitates performance. In short, the idea is as follows. Brokers are in positions that make them attractive exchange partners. They hold resources—unique relationships, information, perspectives—from which others can benefit. To the extent that brokers share these resources by helping others, they earn others’ trust. Because they share their unique resources and are trusted, partners reciprocate by giving brokers access to needed resources. This in turn helps them to perform at a higher level. And beyond dyadic reciprocation, to the extent that brokers develop a reputation for having valuable resources and for being trustworthy, they may gain even more resources from others who seek to develop a relationship with them. This chain of logic is summarized in Fig. 1. In the sections below, social exchange acts as a broader concept, and we draw on relevant research on trust, helping, and brokerage to describe the details.

## Social Networks, Brokerage, and Trust

The dyad is the building block of an intraorganizational network, and organizations typically include clusters of dyads that are linked by occasional bridging ties between clusters (Burt, 2005). These clusters can represent formal groups such as the members of departments, or informal groups such as friends or like-minded experts. The ties between individuals represent flows of resources such as advice and information, or

relational states such as friendship and demographic similarity (Borgatti et al., 2009).

Although trust is often mentioned as relevant in the context of social networks, the discussion of trust in the network literature has tended to be theoretical, perhaps best exemplified by Coleman's (1988, 1990) and Granovetter's (1985) extensive theoretical discussions of how closed network structures should create trust. Unfortunately, as Kilduff and Brass (2010, p. 331) state in reflecting on the empirical literature on networks, "Closed networks are assumed to engender shared norms and trust, but seldom are these flows of communal feeling measured or tested."

In recent years some trust researchers have responded to Kilduff and Brass's observation by exploring the influence of social network constructs, and/or operationalizing interpersonal trust as a social network construct, using trust concepts and measures operationalized from well-validated trust frameworks such as those described above. These studies have found that individuals earn the affect- and cognition-based trust of their coworkers via friendship, task advice, economic resource, and career guidance ties (Chua et al., 2008), interpersonal integrity perceptions are predicted by trust transitivity, structural equivalence, and interpersonal helping (Ferrin et al., 2006), individuals tend to place higher trust in a fellow team member to the extent the team member is also trusted by the formal team leader (Lau & Liden, 2008), individuals' reputations for integrity are predicted by the network qualities of their advocates within the organization (Wong & Boh, 2010), trust is amplified by the existence of third parties (Burt & Knez, 1996), and individuals' "dormant" ties (ties that have been inactive for several years), when reactivated, can display moderate levels of trust and generate useful knowledge and novel insights (Levin et al., 2011).

Researchers have also utilized a network approach to examine how trust network variables influence outcomes such as information receipt and performance. Levin and Cross (2004) found that individuals' network tie strength within organizations predicted the receipt of useful information, with the effect mediated by affect- and cognition-based trust. Chou et al. (2006) found that the positive effect of individuals' guanxi networks on individual performance was mediated by their



cognition-based trust network centrality. And Chung and Jackson (2011) found that scientists' level of knowledge creation was positively related to their in-degree trust centrality within research scientist teams.

In sum, by incorporating strong conceptualizations and measures of trust into network research and methodology, researchers have uncovered how the presence of ties surrounding an actor, for example, the number of inward trust ties, can produce positive benefits such as increased performance, and also how different tie types and strengths, as well as how closed a network is, can impact trust or its consequences. Researchers have not, however, yet considered how the absence of ties in the surrounding network might create opportunities for trust to develop. Stated more starkly, researchers have yet to consider how brokerage may influence interpersonal trust and related variables. This is a critical omission given that brokerage is one of the most-studied constructs in social network research to date. For instance, Burt (2004) traces the idea back to Simmel ([1922] 1955), Merton ([1948] 1968), Adam Smith ([1766] 1982), and John Stuart Mill ([1848] 1987). Furthermore, review articles on social networks consistently highlight brokerage as one of the most important theoretical constructs within the network literature (Borgatti & Foster, 2003; Borgatti et al., 2009; Brass et al., 2004; Burt et al., 2013; Kilduff & Brass, 2010). The recent research on brokerage has become particularly influential because of its association with the advantages it provides individuals in organizations, e.g., performance, promotion, recognition and pay (Burt & Soda, 2017; Burt et al., 2013).

The recognized importance of brokerage in organizational settings leads us to consider the specific implications of brokerage for interpersonal trust. However, those implications are enigmatic. One key proposition within brokerage research is that a network position in which an individual connects two individuals or groups becomes increasingly advantageous, and imbues more power onto its occupant, to the extent there is an absence of other ties connecting the two individuals or groups (Burt, 1992; Stovel & Shaw, 2012). The absence of other ties, termed a "structural hole" between the other two individuals or groups, provides the broker the opportunity to transmit, modify, or withhold information or other resources between the two individuals or groups, and to exert or withhold influence (Fernandez & Gould, 1994). While some

researchers have suggested that brokers are likely to exploit their position for personal advantage (Burt, 1992; Simmel, 1950), others have suggested that brokers might use their position to connect others for mutual advantage (Obstfeld, 2005; Obstfeld et al., 2014). Therefore, the literature is unclear on what brokers may do given their position, and what the ramifications are for earning others' trust. For instance, structural holes theory implicitly assumes that individuals who are connected to the broker will collaborate with the broker. Such collaboration is presumably motivated by individuals' opportunities for gain or by their dependency on the broker. While these motivations should indeed influence individuals to engage with brokers, if individuals believe that the broker will use the position to pursue his or her self-interest or exploit others, in the short run they may be wary of engaging with him or her, and over the long run, they may develop and pursue alternate routes for gaining needed resources. Thus, these considerations could suppress or even negate the potential performance and other professional benefits of being a broker. Consequently, it makes sense to question whether a strategic and self-interested portrayal of the broker perhaps misses some factors that may enable these relationships to function effectively and be viable over time.

## **Effects of Brokerage on Helping, Trust, and Performance**

We propose that the brokerage construct provides a useful and important way to understand how an individual's position within a social structure provides opportunities for social exchange activities that enable people to gain performance and other benefits. Our core argument is that individuals high in brokerage, i.e., those whose structural position affords them relatively more opportunities to act as a broker between otherwise unconnected pairs of fellow actors within an organization, may obtain performance advantages in organizations because they cultivate trusted relationships that enable them to increase their performance over time. And, they earn this trust, at least in part, by helping others within the organization.

We begin by considering why individuals high in brokerage might earn greater trust. Being in a position of brokerage facilitates the social exchange process for three reasons: (1) their network position affords them increased opportunities to identify coworkers' needs, (2) they are likely to behave in ways that meet those needs, and (3) by doing so they may demonstrate trustworthiness to others. We elaborate below.

The very ideas of brokerage and structural holes highlight that when individuals and groups are disconnected from others in an organization, they are likely to lack necessary information and assistance that might otherwise be available if they were not disconnected (Burt, 1992). An individual who bridges that structural hole should, via his or her interactions with the otherwise disconnected individuals or groups, be better able to identify which individuals may benefit from information or assistance, and he or she should also be better able to identify whether such information, assistance, opportunities, or ideas are available elsewhere in the organization. In addition, such individuals are likely to be seen as attractive exchange partners by others because they have access to unique relationships and information, and thus others may approach them for help. Thus, a high brokerage position enables the individual to better identify the unmet needs of others. And, by extension, as an individual's level of brokerage increases (i.e., the individual bridges more structural holes relative to others), he or she is likely to identify more needs of more individuals in the organization.

Social exchange helps explain how and why brokers provide such information and assistance. In this paper, we represent assistance to others using the concept of interpersonal organizational citizenship behaviors (OCBIs). Organizational citizenship behaviors are discretionary behaviors that are not explicitly incorporated into the formal reward system but nevertheless promote the effective functioning of the organization (Organ, 1988). OCBIs are voluntary and cooperative behaviors that are specifically directed at helping another individual with an organizationally relevant task or problem (Williams & Anderson, 1991). Examples include helping a colleague who has a heavy workload, giving innovative suggestions or advice, and helping to connect others to resources they need. Researchers have recognized that voluntary, cooperative interpersonal behaviors can be both a cause and consequence of

interpersonal trust (Ferrin et al., 2007, 2008), including a predictor of integrity perceptions in organizational networks (Ferrin et al., 2006). OCBI are also predicted by strength of friendship, and relationship quality (Bowler & Brass, 2006; Settoon & Mossholder, 2002).

Individuals may engage in these exchanges by helping others for multiple reasons. Specifically, individuals may help others due to prosocial motivations (the “good soldier”) to help those in need, and/or they may do so for impression management (the “good actor”) motivations to gain reputational or other benefits (Bolino, 1999). Recent evidence suggests that people are motivated by both prosocial and impression management motivations, and in fact these motivations interact to predict OCBI (Grant & Mayer, 2009). Thus, individuals who spot coworkers in need may be motivated to assist them via OCBI in order to provide genuine assistance, to gain reputational benefits, or both.

OCBI performed by individuals toward others should influence those others to trust the individual, specifically to influence the extent to which others perceive the individual to be benevolent. According to existing research, individuals diagnose another's trustworthiness by referring to his/her behavior in their dyadic relationship. Consistent with attribution theory (e.g., Heider, 1958), behaviors that are performed voluntarily, as opposed to being formally required or rewarded, are considered to be particularly diagnostic of trustworthiness because they provide valuable insight into the internal character and motives of a coworker (Ferrin & Dirks, 2003). More specifically, when an individual high in brokerage voluntarily helps another with a heavy workload, covers the other's absences, and provides innovative suggestions, such behaviors are likely to signal that the individual cares for the other's interests, thus engendering perceived benevolence.

Furthermore, OCBI performed toward a specific other are often visible to or become known to more distant actors in the network. For instance, if an individual were to provide needed resources to a specific member of a work group that was otherwise disconnected from the source of those resources, and those resources were useful not only to the specific member but to the group as a whole, members of the group would be justified in concluding that the individual also cares about their interests. This effect could occur even if those group members were not

in direct communication with the individual. Thus, helping behaviors can attract the trust of first-order others (direct recipients of the helping behavior) and also attract the trust of second-order others (who are not direct recipients).

In combination, the above arguments suggest that (1) individuals high in brokerage occupy positions in the network that enable them to identify coworkers who can benefit from information and assistance such that as the level of brokerage increases, the number of opportunities to provide information and assistance also increases, (2) individuals address these needs by providing increased information and assistance for prosocial and/or instrumental motivations, and (3) the provision of such information and assistance is likely to earn coworkers' trust. Thus,

**Hypothesis 1** Brokerage is positively related to the degree to which an individual is trusted; the effect is mediated by OCBI's performed by the individual toward others.

## How Might Individuals High in Brokerage Obtain Performance Benefits via Trust?

Organizations are, at their essence, cooperative systems (Barnard, 1938); they function, survive, and thrive in large part via cooperation. Cooperation entails individuals working together to advance their joint interests rather than individuals' own, competitive interests (Deutsch, 1949). People who are trusted are, by definition, considered to have others' interests at heart and are likely to act toward those interests. Thus, people who are trusted are likely to be viewed as more cooperative, i.e., more likely to be perceived as behaving in the interests of their fellow coworkers in pursuing organizational objectives, which should be reflected in higher performance.

At a more specific level, interpersonal trust is associated with numerous outcomes that should increase an individual's performance via social exchange processes. Performance-related resources may come from others whom the individual has directly helped and who can trust them to continue to reciprocate when needed. And/or, resources may come

from others who may want the individuals' help in the future (because of their reputation) and therefore provide resources to the individual proactively. Trust is key to both effects. Extensive research has shown that in organizational settings, trusting another individual (whether a leader or a coworker) increases the likelihood that one will share information with that individual, follow instructions and advice from the individual even if doing so is risky, believe information from the individual, and assist that person voluntarily (see Fulmer & Gelfand, 2012; Searle et al., 2011 for reviews). Accordingly, individuals who are surrounded by others who share information, believe the individual's information, follow the individual's advice and instructions, and provide voluntary assistance to the individual, have a powerful social resource that is likely to substantially boost their individual performance. In contrast, individuals who are surrounded by others who withhold information, disbelieve information from the individual, are unwilling to follow the individual's advice and instructions, and are unwilling to voluntarily assist the individual, lack important resources for delivering performance. Thus, to the extent an individual is trusted by others, he or she is likely to perform at a higher level due to the resources made available through social exchange relationships.

Based on the above, we predict that the effect of an individual's level of brokerage (defined as the extent to which the individual bridges structural holes in a network) on an individual's performance is mediated, at least in part, by the extent to which the individual is trusted by others within the organization.

**Hypothesis 2** Brokerage is positively related to work performance; the effect is mediated by the degree to which an individual is trusted.

## Methods and Results

### Study 1: Nutek (a Pseudonym)

In Study 1 we examine whether brokerage is positively related to the degree to which an individual is trusted. We also examine the mechanism by which this occurs, specifically the mediating role of interpersonal helping.

**Sample, method, and measures.** The data for Study 1, which were part of a broader study on determinants and consequences of multiple dimensions of trustworthiness in network settings, were collected via a network survey sent to all 74 white-collar employees of the U.S. headquarters of a European-owned high-tech manufacturing company. Of these, 68 (92%) responded (average age = 40, 8.6 years tenure with the company, 62% were male). The sample included department/division heads (11), professional staff (53), and administrative staff (4). Ten employees were European and the rest were from the USA.

The survey utilized the roster method (Marsden, 1990), in which each employee is asked to provide information about every other employee, to gather social network data for interpersonal communication ties (the measure used to create our brokerage variable), outward OCIBs, and inward trust ties. Interpersonal communication was measured with a question adapted from Labianca et al. (1998): “In a typical workweek, how many times do you personally communicate with each of your fellow employees? For example, how many times do you have a work-related discussion, a social conversation, a telephone discussion, an e-mail conversation, or some kind of meeting with each person? Next to each person’s name, indicate the number of times you interact with that person during a typical workweek” (responses could range from 0 to 25+). The responses were formed into a matrix in which the value of each cell reflected the level of communication that each employee reported toward each other employee. Using the communication network dichotomized at  $\geq 1$ , we operationalized brokerage by calculating a structural holes value for each respondent using Burt’s (1992) constraint measure in UCINET (Borgatti et al., 2002). Of the several structural hole measures provided by Burt (1992), we selected the

constraint measure because it not only takes into account the extent to which there are connections between an individual's network ties (which increases redundancy), but also the extent to which their network ties are themselves all connected to one person. We calculated structural hole constraint only by considering ties in the ego's immediate network (Burt, 2007, 2010).

OCBIs were measured using the wording from the OCB-altruism scale (Smith et al., 1983): "How frequently does each of your fellow employees give you assistance beyond what their job role requires? For example, how frequently does he or she (1) help you when you have a heavy work load or are absent; (2) help you with your work even though it's not required; or (3) give you innovative suggestions? Please use the following scale to rate how often each person gives you voluntary assistance during a typical work week: never, rarely, occasionally, often, very often" (scale of 1–5). This formed an OCBI matrix in which the value of each cell reflected the level of OCBIs that each employee performed toward each other employee, as reported by the recipient of OCBIs (thus minimizing self-report bias). We then created a Freeman (1979) degree centrality measure that quantified the gross (non-dichotomized) level of outward OCBIs for each individual (OCBIs performed by each individual toward others as reported by others).

Consistent with the conceptual definition of trust provided above, we used wording from the perceived benevolence dimension of the Mayer and Davis (1999) trustworthiness scale: "To what extent do you perceive that each person is concerned about your own personal welfare? For example, do you perceive that your individual needs and desires are important to the person, the person looks out for what is important to you? Use the following scale to indicate the extent to which you agree that the person is concerned about your personal welfare:" disagree strongly, disagree, neither agree nor disagree, agree, agree strongly (scale of 1–5)." We also included a response option of "X—This person does not know me at all." Since *X* scores reflect an absence of trust, not low trust, we scored *X* responses as a 3. We formed the responses into a matrix in which the value of each cell was the trust that each employee reported to each other employee, then we dichotomized the matrix so that values  $\geq 4$  were coded as 1, values  $< 4$  were coded as 0. This provided



a matrix of the ties in which each trustor agreed or strongly agreed that the trustee was trustworthy. We then created a Freeman in-degree centrality measure capturing the number of individuals who trusted each employee (Freeman, 1979).

Finally, we formed control variables for hierarchical status (0 = administrative; 1 = professional; 2 = managerial) and cultural background (1 = European; 0 = local).

**Analyses and results.** As noted in Table 1, structural holes (constraint) were significantly correlated with outward OCBI ( $r = -0.62, p < 0.01$ ) and inward trust ties ( $r = -0.53, p < 0.01$ ). The negative coefficients indicate that people with less constraint in their network are more likely to give OCBI and be trusted by others.

We used the Baron and Kenny (1986) criteria to test for mediation (Table 2). Hypothesis 1 predicted that the effect of brokerage on inward trust ties would be mediated by outward OCBI. First, as observed above, the independent variable, structural holes, had a significant effect on the hypothesized mediator, outward OCBI. Second, after controlling for cultural background and hierarchical level, the independent variable, structural holes, had a negative effect on the dependent variable, inward trust ties ( $B = -33.88, p < 0.001$ ). Third, when testing the effect of the mediator on the dependent variable, outward OCBI had a significant positive effect ( $B = 0.45, p < 0.001$ ). Finally, when the mediators and independent variable were included in the same equation, outward OCBI remained significant ( $B = 0.40, p < 0.001$ ), while the independent variable structural holes declined to  $B = -8.17$  (ns),

**Table 1** Study 1: means, standard deviations, and intercorrelations

Variables	Mean	SD	1	2	3	4
1 Cultural background	0.15	0.36				
2 Hierarchical level	1.10	0.46	0.36**			
3 Structural holes (constraint)	0.19	0.14	0.06	-0.05		
4 Outward OCBI	102.44	15.24	-0.07	0.05	-0.62**	
5 Inward trust	16.88	9.44	-0.02	0.12	-0.53**	0.72**

$N = 68$ . \*\* $p < 0.01$

**Table 2** Study 1: mediation analysis

Dependent variable	Inward trust centrality			
	Model 1	Model 2	Model 3	Model 4
<i>Predictors</i>				
Cultural background	-1.92	-0.70	-0.05	0.04
Hierarchical level	2.90	2.02	1.64	1.56
Structural holes (constraint)		-33.88***		-8.17
Outward OCBI			0.45***	0.40***
$R^2$	0.02	0.29	0.53	0.54
Preacher & Hayes indirect effect				
Lower bound				-49.56
Upper bound				-10.00

$N = 68$ . \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

suggesting full mediation. Preacher and Hayes (2008) bootstrapping tests (with 1000 bootstrap samples) supported this conclusion, with lower (-49.56) and upper (-10.00) bounds of the 95% bias-corrected confidence interval excluding zero. These findings thus provide support for Hypothesis 1's prediction that the effect of structural holes on inward trust ties is mediated by outward OCBI.

### Study 2: InfoTec (a Pseudonym)

In Study 2, we test the idea that the effect of brokerage on work performance is mediated by the number of individuals who trust the focal actor (inward trust ties).

**Sample, method, and measures.** The data for Study 2 were collected via a social network analysis survey sent to all 2039 employees of the engineering division of the information technology business unit of a large North America-based technology firm. We received 1701 responses (83.4%). Forty responses were removed from the final analysis because the individuals left the organization before the annual performance review was completed and a further 14 respondents were removed because annual review information was not available for them. Thus, the dataset used for our analyses consisted of 1647 employees; 80.6% were male.

The survey utilized a bounded egonet design with an information name generator question worded as follows: "Please identify up to ten people within the engineering division that are effective in providing you with information that helps you to learn, solve problems and do your work." Consistent with past research on brokerage, this question identifies the important resources, such as information, within an organization that brokers can harness (Burt, 1992, 1997). The survey tool then employed a type-ahead functionality that allowed people to indicate names and then select from a name list of all employees in the engineering division. In this fashion, we had unique identifiers for each individual listed and were able to construct a full network data matrix ( $2039 \times 2039$ ). We used this matrix to construct our brokerage measure which we detail below.

The trust data were collected through a name interpreter question which asked the respondents to indicate their agreement with the following question derived from the McAllister (1995) affect-based trust scale: "In my interactions with this person I assume that he or she will always look out for my interests." Responses were measured on a 7-point Likert scale with endpoints of strongly agree and strongly disagree. A network matrix ( $2039 \times 2039$ ) was then constructed for the trust data. Respondents also provided demographic data, including hierarchical level, location, and department within the engineering division.

Employees' performance ratings, obtained directly from the Human Resources department, were generated through an annual employee performance evaluation process that utilized supervisor ratings and hard measures relevant to each position in order to arrive at each individual's rating. These ratings were conducted approximately three months after the survey so as to be consistent with the causality implied by the hypotheses. The ratings differentiated high performers (top 10%) from those who were not high performers. Being a high performer was seen as being a notable achievement within the organization. Thus, we note that this type of performance rating created incentives for competition among employees, which should be conducive to the competitive view of how brokers operate and therefore allow for a strong test of the hypotheses. We coded high performers as one and non-high performers as zero. We also ran a set of analyses that included previous performance as a control

variable in the regression models. In these analyses, the direction and level of significance of the regression coefficients remained unchanged. Including prior performance reduced the number of cases by 17.7% due to new hires in the engineering division, hence we chose to omit prior performance from our models.

We calculated the independent variable, brokerage, for each respondent using Burt's (1992) structural hole constraint measure, considering ties in ego's immediate network (Burt, 2007, 2010). The measure was based upon the name generator question "Please identify up to ten people within your department that are effective in providing you with information that helps you to learn, solve problems and do your work." To construct the structural holes variable, and also the inward trust ties measure to be described below, we used data for all surveyed employees ( $N = 2039$ ) as removing non-respondents and those for whom we had no performance data would have biased the number of inward trust ties as well as the structural holes measure. However, the final regression analyses included only respondents for whom we had performance data.

We calculated the mediating variable, inward trust ties, via a Freeman in-degree centrality measure (Freeman, 1979) using UCINET (Borgatti et al., 2002). The measure of inward trust ties captures the extent to which each person was considered trustworthy by the other respondents within the engineering division of the organization. While we collected valued data using a 7-point Likert scale, we dichotomized the data so that an individual was only considered trustworthy when there was positive agreement with the question, i.e., somewhat agree and above. This ensured that people who were not considered positively trustworthy were not given a higher value than those who few individuals nominated in the name generator question.

Considering that employees were geographically distributed in five departments across three continents, we controlled for department and location. We used the largest department and the largest location, North America, as the reference categories. Thirty-eight percent of employees were in the largest department and 53% of employees were in North America where the company was based. In addition, we controlled for hierarchical level as those in a managerial role are likely to have different networks than non-managers.

**Analyses and results.** To test for mediation, we followed the procedures outlined by Baron and Kenny (1986). Since the dependent variable was binary, we used a logistic model to predict the association between structural hole constraint and performance as well as between our mediating variable, inward trust ties, and performance. In addition, we applied the Preacher and Hayes (2008) bootstrapping test for mediation to minimize the potential for bias in the results.

In Table 3, we present descriptive statistics and correlations. The Pearson correlation coefficients for structural hole constraint and inward trust ties is as expected negative and significant ( $r = -0.48$ ,  $p < 0.01$ ). Structural hole constraint is also negatively correlated with performance ( $r = -0.14$ ,  $p < 0.01$ ).

The results of the mediation analysis are presented in Table 4. In Model 1 we entered the control variables and found that only the manager variable was significant ( $B = 1.06$ ,  $p < 0.05$ ). In Model 2 we added the independent variable, structural hole constraint, and found that it was significantly associated with the dependent variable

**Table 3** Study 2: means, standard deviations, and intercorrelations

Variables	Mean	SD	1	2
1. Structural holes (constraint)	0.29	0.15		
2. Inward trust ties	5.32	5.88	-0.48**	
3. Performance	0.11	0.31	-0.14**	0.24**
Location				
North America	0.53	0.50		
India	0.42	0.49		
China	0.03	0.19		
Europe	0.02	0.13		
Department				
Dept. 1	0.07	0.25		
Dept. 2	0.19	0.39		
Dept. 3	0.34	0.47		
Dept. 4	0.03	0.16		
Dept. 5	0.38	0.49		
Hierarchy				
Manager	0.02	0.14		
Individual contributor	0.98	0.14		

$N = 1647$ . \*\* $p < 0.01$

performance ( $B = -5.29, p < 0.001$ ). The negative coefficient indicates that people with less constrained networks are likely to be higher performers, thus supporting Hypothesis 2's prediction that brokerage affects subsequent employee work performance.

Using an OLS regression (not shown) we found that the structural hole constraint variable also had a significant association with the mediator variable, inward trust ties ( $B = -15.79, p < 0.001$ ). In Model 3 we found that the mediator variable, inward trust ties, was positively associated with the dependent variable ( $B = 0.11, p < 0.001$ ). Finally, as shown in Model 4, when both structural hole constraint and inward trust ties were included as predictors, inward trust ties remained a strong predictor ( $B = 0.09, p < 0.001$ ), while structural hole constraint declined in magnitude and became insignificant ( $B = -1.76, ns$ ). Thus, the effect of structural holes constraint on performance was fully mediated by inward trust ties.

**Table 4** Study 2: logistic regression and mediation analyses

Dependent variable	Performance			
	Model 1	Model 2	Model 3	Model 4
<i>Predictors</i>				
Constant	-2.17***	-0.87***	-2.93***	-2.38***
Location <sup>a</sup>				
India	0.14	0.15	0.30	0.28
China	-0.19	0.35	0.20	0.35
Europe	-0.44	-0.25	-0.21	-0.17
Department <sup>a</sup>				
Dept. 1	0.57	0.67*	0.90**	0.89**
Dept. 2	0.05	0.02	-0.06	-0.06
Dept. 3	-0.30	-0.23	-0.26	-0.24
Dept. 4	-0.92	-0.95	-1.12	-1.09
Manager <sup>a</sup>	1.06*	0.34	-1.17*	-1.06*
Structural holes (constraint)		-5.29***		-1.76
Inward trust ties			0.11***	0.09***
Log-likelihood	1091.66	1051.09	1019.49	1015.52
Preacher & Hayes indirect effect				
Lower bound				-1.95
Upper bound				-0.95

$N = 1647$

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

<sup>a</sup>Reference categories are North America; Department 5; Individual Contributor

We also applied the Preacher and Hayes (2008) test of mediation. We found that when we calculated the bootstrap confidence intervals (with 1000 bootstrap samples), the lower bound of the 95% bias-corrected confidence interval was  $-1.95$ , and the upper bound was  $-0.95$ . As this confidence interval excludes zero, we conclude that the analysis indicates a significant mediation of inward trust ties on performance.

In combination, utilizing a design in which the criterion variable, performance, was obtained three months after, and from sources independent from, the predictor and mediator variables, our analyses support the prediction of Hypothesis 2 that work performance is positively related to brokerage, and the effect is fully mediated by inward trust ties. These findings can be considered conservative given the dichotomous nature of the criterion measure.

## Discussion

Over the past two decades, scholars have made substantial advances in understanding how individuals develop trust within their organizations, and as a result, accrue benefits from trust. Over the same period, a largely separate group of other scholars has examined how network brokerage provides a basis for success within organizations. These two prominent streams of research have developed mostly independently from each other, and in some ways even include perspectives that appear to be at odds with each other. In the present paper, we consider how these two areas inform and may complement each other. The subsequent paragraphs discuss the contributions of the present paper, including insights into how interpersonal helping by brokerage can provide the basis for an individual to earn trust, and how trust represents a mechanism via which brokerage can impact individual performance.

## Research Contributions and Implications

The trust literature to date has seen extensive progress in understanding the trustor, trustee, and relationship factors that influence interpersonal trust within organizations has also seen progress in understanding contextual factors that influence interpersonal trust but has seen much less progress in understanding the effects of social context on interpersonal trust and downstream variables. This is somewhat ironic, and a critical omission in the literature, considering that organizations are made up not of isolated interpersonal dyads, but interconnected interpersonal dyads. The interconnections surrounding interpersonal dyads provide a complex social context that, without doubt, influences the trust perceptions and behaviors of trustors and trustees within organizations, and therefore warrants extensive study if we are to truly understand interpersonal trust within organizations.

A relatively small number of studies have considered how different aspects of social networks impact trust between individuals (e.g., Burt & Knez, 1996; Chua et al., 2008; Ferrin et al., 2006; Lau & Liden, 2008; Wong & Boh, 2010). The present study provides an important advance beyond those existing studies because it is the first to specifically examine the role of brokerage—the extent to which individuals connect otherwise disconnected others—in influencing interpersonal trust and ultimately individual performance. Specifically, our conceptual model and empirical findings indicate that individuals who are in a position of brokerage are more likely to earn the trust of others because they are in a comparatively better position not only to broker information and control between dependent parties, but also to identify needs of those parties (e.g., how those parties may benefit from being connected, or resources those parties may lack) and provide assistance to address those needs. To the extent brokers help others, they are likely to be perceived as trustworthy in that they care about and are tending to others' needs and interests. And to the extent they are perceived as trustworthy, they are likely to demonstrate higher levels of performance. Brokerage is one of the most theoretically powerful and frequently studied constructs in organizational network research, and yet the implications of brokerage for trust



within organizations are debatable theoretically and understudied empirically. The present paper is, to our knowledge, the first to present and empirically validate a conceptual model of the trust- and helping-based mechanisms through which brokerage can influence performance.

The paper also advances understanding on an important question involving networks and trust. In their review of the brokerage literature, Stovel and Shaw (2012, p. 154) observed "...an inevitable dilemma that is rarely addressed in theoretical models oriented toward understanding brokers' gains...: Given that a broker—due to her greater access to information, control over resources, or structural power—has a clear opportunity to gain at the expense of either or both of the groups for whom she is brokering, how does she maintain the trust necessary to continue brokering between them?" Our paper answers that question by taking a different view on an assumption inherent in this issue that brokers gain at the expense of others. Our theorizing and data suggest that while brokers inhabit a position that provides the opportunity to gain at others' expense, that same position also affords them the opportunity to identify and address the needs of others, and by doing so earn their trust. In combination, the findings from our two studies suggest that, consistent with past research, brokers are indeed superior performers. However, one important mechanism through which they outperform their peers is by earning the trust of others, and more specifically being perceived as concerned about others and looking after their interests. Our analyses suggest that they earn that trust, at least in part, by providing interpersonal citizenship behaviors to others.

Research on brokers has made substantial progress in identifying the potential opportunities presented by structural holes and the benefits enjoyed by brokers, however, the literature provides considerably less insight into the mechanisms through which the benefits occur, and the motivations that may drive brokers' behavior. Thus our paper adds to recent research to expand understanding of activities that brokers may undertake such as theorizing separately the opportunity to broker from the motivation to do so (Obstfeld et al., 2014). A key contribution of the present study is identifying the mechanisms by which individuals in brokerage positions attain higher performance. Specifically, brokers are in a structural position to identify individuals who are in need of

information and other resources, when they act to satisfy those needs by performing OCBs toward those individuals, they earn others' trust. And it is this trust that enables brokers to gain performance advantages by maximizing the resource benefits of their structural position.

In addition, the present paper contributes to the literature on prosocial behavior in organizations. That literature suggests that individuals engaging in prosocial behavior (e.g., helping others) experience positive outcomes for themselves and create positive outcomes for others (e.g., Grant, 2013; Grant & Mayer, 2009; Penner et al., 2005). Prior network research on trust and helping (Ferrin et al., 2006) has focused on the interpersonal relationship as the unit of analysis, reporting that interpersonal helping predicts interpersonal integrity perceptions. The present study extends knowledge by focusing on a different unit of analysis—the individual—and a different criterion variable—perceived benevolence centrality—finding that individuals' level of brokerage predicts their centrality in the perceived benevolence network via their centrality in interpersonal helping. In short, the present study extends prior knowledge by suggesting that individuals may use their network position—which puts them in a situation to focus on personal gain—in a way that can help others and earn their trust.

Finally, this paper advances the application of social exchange theory to the understanding of interpersonal trust within organizations. Social exchange theory is one of the most frequently used theoretical foundations for studying and understanding the development and operation of interpersonal trust within organizations. However, such research has nearly always assumed that social exchange is manifested dyadically, between two members of an organization. The present paper extends the application of social exchange theory by presenting and testing predictions about the development of interpersonal trust via relationships involving three or more actors who have differentiated structural positions that may differentially influence their patterns of exchange with each other, and the trust that develops from such exchanges.

## Study Limitations and Directions for Future Research

Of course, as with all studies, ours also leaves a number of questions unresolved, some of which are due to study limitations. The two studies in combination provide support for our conceptual model, and in particular both studies supported our prediction that structural holes would be related to inward trust. However, while one of the studies was longitudinal in nature, both studies incorporated non-experimental designs and therefore provide limited evidence of causality. Additionally, some tests of our hypotheses (though not all) necessarily included data provided by the same respondents and are therefore susceptible to common method variance. Thus, additional research will be worthwhile to provide further evidence and insights on processes, causality, and validity.

A second unresolved question is the internal motivation of brokers. As noted earlier, individuals might engage in helping behaviors for altruistic, prosocial motivations, they may do so for impression management purposes, or perhaps even other reasons or multiple reasons. The present study cannot directly reveal participants' motivations, as we measured the patterns of their behavior, not their motives. While opportunities and behaviors may be used to infer motives, it is important to recognize that they are distinct. Importantly, however, individuals clearly reported perceiving the brokers as having concern for them and their interests. While this could derive from the brokers being good actors or good citizens, it seems unlikely that the brokers would be able to achieve this outcome if they were seen to be exploiting their network ties. In addition, although it may be possible for brokers to mask intent in particular instances, it would be difficult for them to do so on a continuing basis that would likely be required for developing trust based on perceived caring. In any case, in future research it may be useful to specifically examine the motives of brokers and then consider the linkages between motives, behavior, and performance.

## Implications for Practice

Our research has implications both for individuals attempting to succeed within organizations, and for the leaders of organizations who adopt a network view toward organizational effectiveness. For individuals, there is increasing recognition that one's network position provides many potential opportunities. But it is reasonable to ask, "opportunities to do what?" The bulk of existing research on brokerage has suggested that low constraint provides information and control advantages to gain at others' expense. Our paper provides additional evidence of the performance advantages, including insights into how individuals can personally benefit and perform at a higher level due to their structural positions. In doing so, our paper explores an alternate path whereby brokers use their position to increase performance by helping others, which in turn creates higher trust. In sum, individuals can benefit by benefiting others first. We suspect that many individuals find the approach of using their network position for gain at the expense of others to be distasteful and thus opt not to optimize or leverage their network position. The present paper highlights an alternate strategy that may make network optimizing and leveraging more attractive to many individuals. While many actors may not be aware of their level of brokerage and/or they may haphazardly find their way into brokerage roles, savvy actors can assess their level of brokerage and strategically make their way into positions of more brokerage. While such activities may be seen as strategic, our analysis suggests that they should also be seen as prosocial and pro-organizational, as they contribute to the transmission of needed resources, greater collaboration, and higher trust within the organization.

For organizations, Burt (1992) noted that networks high in structural holes are also more efficient in that they can transmit more non-redundant information than organizations with fewer structural holes. While this efficiency is certainly an attraction for managers focused on organizational design and effectiveness, the view that structural holes also expand the opportunities for political behavior (advancing one's interests at others' expense) is likely to cause many managers to be skeptical about the value of a structurally more efficient organization. Our view provides managers confidence that a structurally efficient organization

is also one where individuals can behave very prosocially in uniting others, helping others in need, and earning their trust. And this confidence should encourage managers to guide their employees to shape their networks in a way that increases the number of brokering ties between unconnected clusters in the organization (Cross & Thomas, 2011).

## Conclusion

There has been considerable recent research on interpersonal trust within organizations. Yet, relatively little has examined how the social context within which trust is embedded influences its development. This paper examines how interpersonal trust is developed across one type of structural context—brokerage ties. Prior research has associated brokerage ties with positive performance outcomes as a result of maximizing resource gains. We develop an alternative explanation that suggests that individuals with high numbers of brokerage ties can obtain performance advantages by cultivating interpersonal trust. Being a broker allows them to see opportunities to help other individuals, and by helping these individuals they earn trust and ultimately gain performance benefits. These perspectives present a network perspective for understanding how individuals' pro-social behaviors in organizations can earn trust and gain organizational rewards.

## References

- Barnard, C. I. (1938). *The functions of the executive*. Harvard University Press.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. <https://doi.org/10.1037/0022-3514.51.6.1173>
- Blau, P. M. (1964). *Exchange and power in social life*. John Wiley.
- Bolino, M. C. (1999). Citizenship and impression management: Good soldiers or good actors? *Academy of Management Review*, 24(1), 82–98. <https://doi.org/10.5465/amr.1999.1580442>

- Borgatti, S. P., Everett, M. G., & Freeman, L. C. (2002). *UCINET for Windows: Software for social network analysis*. Analytic Technologies.
- Borgatti, S. P., & Foster, P. C. (2003). The network paradigm in organizational research: A review and typology. *Journal of Management*, 29(6), 991–1013. [https://doi.org/10.1016/S0149-2063\(03\)00087-4](https://doi.org/10.1016/S0149-2063(03)00087-4)
- Borgatti, S. P., Mehra, A., Brass, D. J., & Labianca, G. (2009). Network analysis in the social sciences. *Science*, 323(5916), 892–895. <https://doi.org/10.1126/science.1165821>
- Bowler, W. M., & Brass, D. J. (2006). Relational correlates of interpersonal citizenship behavior: A social network perspective. *Journal of Applied Psychology*, 91(1), 70–82. <https://doi.org/10.1037/0021-9010.91.1.70>
- Brass, D. J., Galaskiewicz, J., Greve, H. R., & Tsai, W. (2004). Taking stock of networks and organizations: A multilevel perspective. *Academy of Management Journal*, 47(6), 795–817. <https://doi.org/10.2307/20159624>
- Burt, R. S. (1992). *Structural holes: The social structure of competition*. Harvard University Press.
- Burt, R. S. (1997). The contingent value of social capital. *Administrative Science Quarterly*, 42(2), 339–365. <https://doi.org/10.2307/2393923>
- Burt, R. S. (2004). Structural holes and good ideas. *American Journal of Sociology*, 110(2), 349–399. <https://doi.org/10.1086/421787>
- Burt, R. S. (2005). *Brokerage & closure: An introduction to social capital*. Oxford University Press.
- Burt, R. S. (2007). Secondhand brokerage: Evidence on the importance of local structure for managers, bankers, and analysts. *Academy of Management Journal*, 50(1), 119–148. <https://doi.org/10.5465/amj.2007.24162082>
- Burt, R. S. (2010). *Neighbor networks: Competitive advantage local and personal*. Oxford University Press.
- Burt, R. S., Kilduff, M., & Tasselli, S. (2013). Social network analysis: Foundations and frontiers on advantage. *Annual Review of Psychology*, 64, 527–547. <https://doi.org/10.1146/annurev-psych-113011-143828>
- Burt, R. S., & Knez, M. (1996). Trust and third-party gossip. In R. M. Kramer & T. R. Tyler (Eds.), *Trust in organizations: Frontiers of theory and research* (pp. 68–89). Sage.
- Burt, R. S., & Merluzzi, J. (2014). Embedded brokerage: Hubs versus locals. In S. P. Borgatti, D. J. Brass, D. S. Halgin, G. Labianca, & A. Mehra (Eds.), *Contemporary perspectives on organizational social networks* (pp. 161–177). Emerald Group Publishing Limited.
- Burt, R. S., & Soda, G. (2017). Social origins of great strategies. *Strategy Science*, 2(4), 226–233. <https://doi.org/10.1287/stsc.2017.0043>

- Chou, L.-F., Cheng, B.-S., Huang, M.-P., & Cheng, H.-Y. (2006). Guanxi networks and members' effectiveness in Chinese work teams: Mediating effects of trust networks. *Asian Journal of Social Psychology*, 9(2), 79–95. <https://doi.org/10.1111/j.1467-839X.2006.00185.x>
- Chua, R. Y. J., Ingram, P., & Morris, M. W. (2008). From the head and the heart: Locating cognition- and affect-based trust in managers' professional networks. *Academy of Management Journal*, 51(3), 436–452.
- Chung, Y., & Jackson, S. E. (2011). Co-worker trust and knowledge creation: A multilevel analysis. *Journal of Trust Research*, 1(1), 65–83. <https://doi.org/10.1080/21515581.2011.552425>
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94(Supplement), 95–120. <https://doi.org/10.1086/228943>
- Coleman, J. S. (1990). *Foundations of social theory*. Harvard University Press.
- Cook, K. S., & Whitmeyer, J. M. (1992). Two approaches to social structure: Exchange theory and network analysis. *Annual Review of Sociology*, 18(1), 109–127. <https://doi.org/10.1146/annurev.so.18.080192.000545>
- Costa, A. C., Ferrin, D. L., & Fulmer, A. (2015). Trust at work. In N. Anderson, C. Viswesvaran, H. Sinangil, & D. Ones (Eds.), *Handbook of industrial, work and organizational psychology*. Sage.
- Cross, R., & Thomas, R. (2011). A smarter way to network. *Harvard Business Review*, 89(7/8), 149–155.
- Deutsch, M. (1949). A theory of co-operation and competition. *Human Relations*, 2, 129–152. <https://doi.org/10.1177/001872674900200204>
- Dirks, K. T., & de Jong, B. (2022). Trust within the workplace: A review of two waves of research and a glimpse of the third. *Annual Review of Organizational Psychology and Organizational Behavior*, 9, 247–276. <https://doi.org/10.1146/annurev-orgpsych-012420-083025>
- Fernandez, R., & Gould, J. (1994). A dilemma of state power: Brokerage and influence in the national health policy domain. *American Journal of Sociology*, 99(6), 1455–1491. <https://doi.org/10.1086/230451>
- Ferrin, D. L. (2013). On the institutionalisation of trust research and practice: Heaven awaits! *Journal of Trust Research*, 3(2), 146–154. <https://doi.org/10.1080/21515581.2013.822669>
- Ferrin, D. L., Bligh, M. C., & Kohles, J. C. (2007). Can I trust you to trust me? A theory of trust, monitoring, and cooperation in interpersonal and intergroup relationships. *Group & Organization Management*, 32(4), 465–499. <https://doi.org/10.1177/1059601106293960>

- Ferrin, D. L., Bligh, M. C., & Kohles, J. C. (2008). It takes two to tango: An interdependence analysis of the spiraling of perceived trustworthiness and cooperation in interpersonal and intergroup relationships. *Organizational Behavior and Human Decision Processes*, *107*(2), 161–178. <https://doi.org/10.1016/j.obhdp.2008.02.012>
- Ferrin, D. L., & Dirks, K. T. (2003). The use of rewards to increase and decrease trust: Mediating processes and differential effects. *Organization Science*, *14*(1), 18–31. <https://doi.org/10.1287/orsc.14.1.18.12809>
- Ferrin, D. L., Dirks, K. T., & Shah, P. P. (2006). Direct and indirect effects of third-party relationships on interpersonal trust. *Journal of Applied Psychology*, *91*(4), 870–883. <https://doi.org/10.1037/0021-9010.91.4.870>
- Freeman, L. C. (1979). Centrality in social networks: Conceptual clarification. *Social Networks*, *1*(3), 215–239. [https://doi.org/10.1016/0378-8733\(78\)90021-7](https://doi.org/10.1016/0378-8733(78)90021-7)
- Fulmer, C. A., & Gelfand, M. J. (2012). At what level (and in whom) we trust: Trust across multiple organizational levels. *Journal of Management*, *38*(4), 1167–1230. <https://doi.org/10.1177/0149206312439327>
- Gillespie, N., Fulmer, A., & Lewicki, R. J. (2020). *Understanding trust in organizations: A multilevel perspective*. Routledge
- Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, *78*(6), 1360–1380. <https://doi.org/10.1016/B978-0-12-442450-0.50025-0>
- Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, *91*(3), 481–510. <https://doi.org/10.1086/228311>
- Grant, A. M. (2013). *Give and take: A revolutionary approach to success*. Penguin Group.
- Grant, A. M., & Mayer, D. M. (2009). Good soldiers and good actors: Prosocial and impression management motives as interactive predictors of affiliative citizenship behaviors. *Journal of Applied Psychology*, *94*(4), 900–912. <https://doi.org/10.1037/a0013770>
- Heider, F. (1958). *The psychology of interpersonal relations*. Wiley.
- Kilduff, M., & Brass, D. J. (2010). Organizational social network research: Core ideas and key debates. *Academy of Management Annals*, *4*, 317–357. <https://doi.org/10.5465/19416520.2010.494827>
- Konovsky, M. A., & Pugh, S. D. (1994). Citizenship behavior and social exchange. *Academy of Management Journal*, *37*(3), 656–669. <https://doi.org/10.2307/256704>



- Labianca, G., Brass, D. J., & Gray, B. (1998). Social networks and perceptions of intergroup conflict: The role of negative relationships and third parties. *Academy of Management Journal*, 41(1), 55–67. <https://doi.org/10.2307/256897>
- Lau, D. C., & Liden, R. C. (2008). Antecedents of coworker trust: Leaders' blessings. *Journal of Applied Psychology*, 93(5), 1130–1138. <https://doi.org/10.1037/0021-9010.93.5.1130>
- Levin, D. Z., & Cross, R. (2004). The strength of weak ties you can trust: The mediating role of trust in effective knowledge transfer. *Management Science*, 50(11), 1477–1490. <https://doi.org/10.1287/mnsc.1030.0136>
- Levin, D. Z., Walter, J., & Murnighan, J. K. (2011). Dormant ties: The value of reconnecting. *Organization Science*, 22(4), 923–939. <https://doi.org/10.1287/orsc.1100.0576>
- Lyu, S. C., & Ferrin, D. L. (2018). Determinants, consequences, and functions of interpersonal trust: What is the empirical evidence? In R. Searle, A. Nienaber, & S. Sitkin (Eds.), *Routledge companion to trust*. Taylor & Francis.
- Marsden, P. V. (1990). Network data and measurement. *Annual Review of Sociology*, 16, 435–463. <https://doi.org/10.1146/annurev.so.16.080190.002251>
- Mayer, R. C., & Davis, J. H. (1999). The effect of the performance appraisal system on trust for management: A field quasi-experiment. *Journal of Applied Psychology*, 84(1), 123–136. <https://doi.org/10.1037/0021-9010.84.1.123>
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20(3), 709–734. <https://doi.org/10.5465/AMR.1995.9508080335>
- McAllister, D. J. (1995). Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations. *Academy of Management Journal*, 38(1), 24–59. <https://doi.org/10.2307/256727>
- McEvily, B., Zaheer, A., & Soda, G. (2020). Network trust. In N. Gillespie, A. Fulmer, & R. J. Lewicki (Eds.), *Understanding trust in organizations: A multilevel perspective* (pp. 179–204). Routledge.
- Merton, R. K. ([1948] 1968). The bearing of empirical research on sociological theory. In R. K. Merton, *Social theory and social structure* (pp. 156–171). Free Press.
- Mill, J. S. ([1848] 1987). *Principles of political economy*. Augustus M. Kelley.
- Obstfeld, D. (2005). Social networks, the Tertius Iungens orientation, and involvement in innovation. *Administrative Science Quarterly*, 50(1), 100–130. <https://doi.org/10.2189/asqu.2005.50.1.100>

- Obstfeld, D., Borgatti, S. P., & Davis, J. (2014). Brokerage as a process: Decoupling third party action from social network structure. In S. P. Borgatti, D. J. Brass, D. S. Halgin, G. Labianca, & A. Mehra (Eds.), *Contemporary perspectives on organizational social networks* (pp. 135–159). Emerald Group Publishing.
- Organ, D. W. (1988). *Organizational citizenship behavior: The good soldier syndrome*. Lexington Books.
- Penner, L. A., Dovidio, J. F., Piliavin, J. A., & Schroeder, D. A. (2005). Prosocial behavior: Multilevel perspectives. *Annual Review of Psychology*, *56*, 365–392. <https://doi.org/10.1146/annurev.psych.56.091103.070141>
- Preacher, K., & Hayes, A. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879–891. <https://doi.org/10.3758/BRM.40.3.879>
- Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, *23*(3), 393–404. <https://doi.org/10.5465/AMR.1998.926617>
- Searle, R. H., Weibel, A., & Den Hartog, D. N. (2011). Employee trust in organizational contexts. *International Review of Industrial and Organizational Psychology*, *26*, 143–191. <https://doi.org/10.1002/9781119992592.CH5>
- Settoon, R. P., & Mossholder, K. W. (2002). Relationship quality and relationship context as antecedents of person-and task-focused interpersonal citizenship behavior. *Journal of Applied Psychology*, *87*(2), 255–267. <https://doi.org/10.1037/0021-9010.87.2.255>
- Simmel, G. ([1922] 1955). *Conflict and the web of group affiliations*. Free Press.
- Simmel, G. (1950). *The sociology of Georg Simmel* (K. H. Wolf, Trans.). Free Press.
- Smith, A. ([1766] 1982). *Lectures on jurisprudence*. Liberty Fund.
- Smith, C. A., Organ, D. W., & Near, J. P. (1983). Organizational citizenship behavior: Its nature and antecedents. *Journal of Applied Psychology*, *68*(4), 653–663. <https://doi.org/10.1037/0021-9010.68.4.653>
- Sparrowe, R. T., & Liden, R. C. (1997). Process and structure in leader-member exchange. *Academy of Management Review*, *22*(2), 522–552. <https://doi.org/10.5465/amr.1997.9707154068>
- Stovel, K., & Shaw, L. (2012). Brokerage. *Annual Review of Sociology*, *38*, 139–158. <https://doi.org/10.1146/annurev-soc-081309-150054>

- Williams, L. J., & Anderson, S. E. (1991). Job satisfaction and organizational commitment as predictors of organizational citizenship and in-role behaviors. *Journal of Management*, 17(3), 601–617. <https://doi.org/10.1177/014920639101700305>
- Wong, S.-S., & Boh, W. F. (2010). Leveraging the ties of others to build a reputation for trustworthiness among peers. *Academy of Management Journal*, 53(1), 129–148. <https://doi.org/10.5465/AMJ.2010.48037265>

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# Women Alone in the Middle: Gender Differences in the Occupation and Leverage of Social Network Brokerage Roles

Inga Carboni

## Introduction

For decades, researchers have known that professional networks that are characterized by *brokerage*—connections to otherwise unconnected subnetworks within the organization—provide important advantages. Brokerage refers to the situation in which an individual serves as an intermediary or, *broker*, between individuals who have no direct relationship with each other but who do each have a direct relationship with the broker (Gould & Fernandez, 1989; Simmel, 1950). People who occupy the powerful brokerage role reap significant career rewards, including faster rates of promotion, larger bonuses, more involvement in innovation, and greater likelihood of being identified as top talent (Halevy et al., 2019). In one study of brokers in a financial institution, brokers—with

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the same level of education and experience—were 40% more likely than non-brokers to be promoted (Burt & Ronchi, 2007). In fact, more than half of the predicted differences in career success were explained by the extent to which a person was a broker, far exceeding the impact of any other predictor. However, mounting evidence suggests that women are less likely than men to occupy the brokerage position and, even when they do occupy it, are less likely to leverage it for career success (Fang et al., 2020; Woehler et al., 2021).

The brokerage principle, as it has been called (Burt, 2000), is derived from structural hole theory which states that individuals in organizations naturally tend to form relationships with similar others, especially around functional areas, and that this natural tendency eventually causes the whole network to become marked with disconnected others whose (non) relationship constitutes a structural hole. By providing access to otherwise disconnected individuals, brokerage confers information, control, and referral advantages (Burt, 1992).

Information advantages arise as a result of access to more and more diverse information. Compared to everyone else in the network, brokers get the latest organizational “news” faster. They are among the first to hear about recent opportunities, organizational events, and political actions. At the same time, they are exposed to more diverse information because the brokerage position usually lies between clusters of interwoven relationships among similar others, within which people hold a similar worldview based on shared personal, professional, and educational experiences. By virtue of being exposed to more worldviews, brokers gain a “vision advantage” which contributes to their tendency to be more likely to come up with new ideas, less likely to have their ideas rejected by others, and more likely to have their ideas evaluated as valuable (Burt, 2004). Brokers, for example, are better-positioned to understand the potential impact of an organizational initiative on different areas within the organization which may be why managers responsible for initiating and attempting to implement change initiatives were significantly more likely to successfully implement major change initiatives when they were brokers (Battilana & Casciaro, 2012).

Control benefits arise from the broker's ability to control the flow of information between clusters by hoarding or selectively distributing it to their own advantage. For example, a broker might share valuable information held by one party with another party, thereby increasing their social capital. Conversely, they could withhold valuable information to increase the "payment" others must pay for their brokering services. They could even use their position to play parties off one another in a bidding war, although this form of brokering risks negative reputational outcomes.

Lastly, referral advantages arise from the fact that brokers can benefit when they connect formerly unconnected individuals, as long as it adds value to both parties when they do so. Forming or strengthening relationships in this way increases the broker's social capital, resulting in greater trust and status (Halevy et al., 2020). Making these connections does not necessarily diminish the broker's structural position. Instead, because brokers tend to continually refresh their networks by occupying new structural holes (Sasovova et al., 2010), they can retain their brokerage position while still brokering connections between otherwise unconnected individuals.

While brokerage offers potential advantage, the full benefit of the position only emerges when that brokerage is leveraged to realize that advantage. *Brokering* behaviors capture the actions individuals take to influence, manage, or facilitate others' interactions and relationships (Obstfeld et al., 2014). Brokering involves a wide range of activities, including introducing two people to each other, sharing gossip gleaned from one person with another, and mediating a conflict between two people. Yet, individuals differ in their willingness and ability to engage in brokering behavior. For example, an individual may occupy a brokerage role but be unwilling to activate diverse connections or refer previously unconnected people to each other (cf. Greguletz et al., 2019). Similarly, brokers may lack the ability to broker. Likely interpersonal skills needed to broker include forming and managing positive relationships, building trust, translating information, cultivating competition, facilitating coordination, and managing conflict (Halevy et al., 2019). A broker who can

interpret information and translate to others, for example, can leverage this ability to bridge the worldviews of different clusters and connect ideas across clusters in such a way that even complex knowledge becomes meaningful and acceptable to others (Boari & Riboldazzi, 2014). Differences in individual willingness and ability to broker may explain why “there is wide variance in the extent to which individuals benefit from bridging structural holes” (Burt, 2012, p. 587).

## Women and Brokerage

While the benefits of brokerage clearly accrue to men, they may not accrue equally to women (Burt, 1998; Fang et al., 2020; Woehler et al., 2021). In some sense, this is a puzzling situation. Women are often assumed to be “relational experts” (Gottman & Carrere, 1994), to prioritize relationships, have greater emotional intelligence (Joseph & Newman, 2010), and, more generally, to display highly developed interpersonal skills such as listening, empathizing, building intimacy, and fostering collaboration. Brokerage requires the willingness and ability to form relationships with members of multiple groups, an ability that has been associated with higher levels of social skills (Wölfer et al., 2012). So why are there gender differences in occupying and leveraging the brokerage and why do those differences favor men?

There have been several mechanisms proposed to account for gender differences in brokerage, most of which broadly fall into one of two categories: *structural constraints* and *gender role expectations*. A third category, *socio-emotional experience*, may also explain gender differences. These categories are conceptually distinct but, in practice, mutually constitutive. Socio-cultural forces shape and constrain the structures in which women are located, often reinforcing gender role expectations. Conforming (or not) to gender role expectations influences women’s socio-emotional experiences which, in turn, reinforces gender role expectations and the structuring of organizational spaces and networks.

## Structural Constraints

Structural constraints arise from socio-cultural norms that result in (a) a disproportionately low percentage of women occupying senior-level positions in organizational hierarchies, (b) the clustering of women in so-called “pink-collar” jobs and industries, and (c) greater non-work demands on women’s time and focus.

The disproportionately higher number of men at higher levels in organizations means that men are more likely than women to be appealing as relationship partners because they have higher status and greater access to valued resources, such as insider information. In other words, the relationship opportunity structure is different for women (Ibarra, 1993). This situation is exacerbated by the well-known tendency to prefer relationships with similar others (Ibarra, 1992). This tendency, also referred to as *homophily*, is one of the strongest and most enduring findings in the social sciences (McPherson et al., 2001). Homogenous relationships increase the ease of communication and ensure the predictability of behavior and can thereby encourage reciprocity. Both men and women are more likely to form same-gender relationships than they are to form relationships across gender lines, although men are even more likely than women to do so (Woehler et al., 2021).

When men form relationships, the opportunity structure favors the formation of relationships with relatively higher status individuals. In contrast, women are more likely to be low status themselves, to form relationships with other women who have similar low status, and to preferentially seek help and support from other women (Ibarra, 1992, 1993). As a result, when men occupy brokerage positions, their networks are more likely than women’s networks to include critical work-related resources, such as jobs, budget, references, and high-visibility projects whereas women who occupy the brokerage position are less likely to have access to these valued resources, reducing their information, control, and referral advantages (Ibarra, 1992, 1993). Thus, even if they try to leverage their brokerage position, women may not reap the same benefits as men.

When women are able to successfully leverage their networks, their networks tend to have contacts who are relatively higher in status than those in men’s successfully leveraged networks (Woehler et al., 2021),



suggesting women may need to have more influential contacts than men do in order to access the same brokerage-related outcomes. In short, simply eliminating gender differences in number or proportion of high-status contacts may not benefit women because gender parity seems to be a necessary yet insufficient condition for providing men and women with equal opportunities to develop and leverage brokerage positions.

Women are also more likely than men to be concentrated in so-called “pink-collar” jobs that are in gendered industries and occupations. Pink-collar jobs include teachers, nurses, administrative assistants, and social workers. Men, in contrast, are more likely to be concentrated in construction trades, transportation, and manufacturing professions (Das & Kotikula, 2019). Pink-collar jobs tend to be paid less than other fields that require similar levels of education and training (Blau & Kahn, 2017; Levanon et al., 2009). The gender segregation of occupations means that women are more likely than men to be in lower status positions or in functions that are not core to the business, such as legal services, human resources, public relations, and communications (Levanon et al., 2009). Women enter these support functions as a result of subtle career tracking, more women-friendly policies (e.g., flex time), lack of sponsorship, and negative recruitment experiences (Brands & Fernandez-Mateo, 2017). In contrast, men predominate in positions that have profit-and-loss responsibility or are focused on core operations such as finance and operations (Helfat et al., 2006). These jobs are closer to the core of the business, giving these individuals greater access to tangible resources such as staff and budget, and greater visibility to senior leadership. Not surprisingly, a higher percentage of C-suite executives come from core business functions (Helfat et al., 2006).

Lastly, fewer women than men have the time to participate in relationship-building activities that occur outside of work (e.g., networking events, client dinners) because women are more likely than men to have competing demands for their time to be spent on home and childcare duties, reducing the time they have available for work-related socializing (Thompson & Walker, 1991). A 2017 study (Women in the Workplace, 2017) found that 54% of women (as compared to 22% of men) report doing all or most of the household work, reducing the time they have available for outside-of-work socializing. The same study

found that women with a partner and child are 5.5 times more likely than their male counterparts to do all or most of the household work, a trend that has been exacerbated by the covid pandemic (Hamel & Salganicoff, 2020). Men do not shoulder the majority of these unpaid responsibilities, freeing them up mentally and physically to engage in social interactions. Extra-work *networking* activities are also less likely to appeal to women's interests (e.g., sports-focused) and *more likely to be organized around male schedules* that, typically, allow more flexibility for after-work and weekend socializing.

## Gender Role Expectations

Perhaps the most commonly referenced mechanism to explain gender differences in the occupation and ability to successfully leverage the brokerage position is derived from *gender role theory* (Eagly, 1987). Gender role theory posits that boys and girls are socialized in different ways and that these predispositions have enduring effects throughout the life course. These different socialization processes produce gendered role expectations in which men are expected to be agentic, assertive, achievement-oriented, and competitive whereas women are expected to be communal, relationship-oriented, other-centered, and collaborative. A recent meta-analysis found consistent empirical support for gender differences in agency and communion (Hsu et al., 2021). For example, compared to men, women are more likely to place a higher value on emotional connections (Ryan et al., 2005), experience themselves more relationally (Cyranowski et al., 2000), focus more on relationships than rules (Gilligan, 1982), be more attuned to the needs of others and feel responsible for meeting those needs (Miller, 1976), have higher expectations of communality in relationships (Hall, 2011) and, more generally, seek to form intimate, interdependent, and closely knit connections with others (Cross & Madson, 1997; Eagly, 1987; Hall, 2011).

Through socialization, gender roles become internalized and incorporated into gender identity, along with descriptive, prescriptive, and proscriptive cultural beliefs about men and women (e.g., that women are nurturing, that they should be even more nurturing, and that they

must not neglect opportunities to nurture). Gender roles then become a way to manage one's own behavior and to engage with the gendered expectations of others (Wood & Eagly, 2009). Note that gender roles do not necessarily align with individual personality traits or characteristics, or with assigned sex. But when they do, and when others perceive that they are acting in ways that are gender role-consistent, individuals tend to feel more positive affect, such as positive emotions and higher self-esteem (Bem, 1981). Gender normative behavior is further enforced by the approval or disapproval of others, as well as through cultural rituals, stories, and symbols, such as the media portrayal of men and women.

Within the workplace, the penalty for gender role inconsistency can be high, as violators may be perceived as threatening the existing social order (Rudman et al., 2012). Women, especially White women, who display dominant, aggressive, or agentic behavior are more likely to experience career penalties such as being judged as less competent, unworthy for promotion, and less desirable as job candidates (Livingston et al., 2012; Okimoto & Brescoll, 2010; Rudman et al., 2012; Williams & Tiedens, 2016). Social sanctions are equally costly. Women who do not adhere to gender role norms tend to be evaluated less favorably than men demonstrating the same behaviors by both men *and* women (Rudman et al., 2012; Williams & Tiedens, 2016). Likability is not merely a predictor of social status, it also has direct career consequences. A person must be seen as likable as well as skilled to be hired or promoted; competence alone is insufficient (Fuchs et al., 2004). For example, compared to other individuals, well-liked individuals receive higher performance evaluations (Ahuja et al., 2003; Brass, 1984).

In male-dominated industries and occupations, gender may be particularly salient, increasing the pressure on women to adhere to gender norms. Not surprisingly, women tend to be more distressed than men when confronted with ambiguous or conflicting role expectations and the possibility of experiencing social disapproval or even rejection by failing to meet these role expectations (Thoits, 2010). In short, women have a strong incentive to avoid violating social norms. They can achieve this through displays of warmth, communality, and non-dominance, and by avoiding explicit displays of social dominance, competitiveness, aggression, or agency (Williams & Tiedens, 2016).

As a result of gender role expectations, women may be less willing to occupy and leverage their brokerage role because doing so may be perceived as gender role-inconsistent. While focusing on and managing relationships is gender role-consistent for women, the perception that one is doing so for personal gains is not and could result in backlash. *Occupying* a brokerage role often requires proactively initiating professional relationships in order to combat relational tendencies toward homophily and subsequent clustering (Goodreau et al., 2009; McPherson et al., 2001). Women who purposefully build professional networks are more likely to be perceived as acting primarily out of gender role-inconsistent selfish interests and not out of a gender role-consistent interest in the welfare of the other person. Professional women who are perceived as having a deficit in socially sensitive communal attributes are rated as less likable and are more likely to be the target of interpersonal hostility (Heilman & Okimoto, 2007). In contrast, when men network, they are perceived to be sincere (Flynn et al., n.d.). Purposefully occupying a brokerage role, therefore, violates gender norms which dictate that men, but not women, can take self-interested (versus communally oriented) action. Not surprisingly, women who are perceived as occupying a brokerage role are rated as less warm than women who are perceived as occupying a more interconnected network (Brands & Kilduff, 2014). In this way, gender role expectations regarding agency may lead to men feeling social approval and acceptance in brokerage positions, whereas women who occupy brokerage positions may feel anxious, undermining their successful performance of brokering behaviors and their performance on work-related tasks (Brands & Mehra, 2019).

Of course, simply occupying the brokerage position is not enough. Successfully *leveraging* the brokerage role requires that the broker engage in purposeful *brokering* activities. Again, taking purposeful relational action may lead to being perceived as valuing agency over communality, potentially sparking backlash against women who seek to leverage their brokerage role.

Brokering activities are of two main types: separating and joining (Kwon et al., 2020; Obstfeld et al., 2014). A broker who separates keeps

unconnected people unconnected by either controlling the flow of information from one person to another (e.g., by offering a solution found by one person to a problem facing another person) or by mediating the flow of information and serving as a conduit (e.g., by facilitating the transfer of information for one source to another). The key aspect of separating brokering is that the unconnected people stay unconnected. In contrast, joining brokering activities involve introducing or otherwise facilitating a relationship between two previously unconnected parties. Joining brokering is an essentially collaborative strategy, a strategy that is gender role-consistent for women.

Recent work suggests that the impact of brokering on individual-level performance may only be realized through separating activity (Soda et al., 2018). Joining brokering may have only an indirect effect on performance. Collaboration can be time-consuming for the broker and invisible to people evaluating performance/contribution, potentially reducing the value of the brokerage position (Burt, 1992). For example, while joining brokering has the potential to facilitate the integration and implementation of new and diverse ideas in teams and organizations (Lingo & O'Mahony, 2010), which may translate to better overall team—or organizational-level outcomes (e.g., more innovative products), it does not necessarily accrue individual performance benefits to the broker. In short, it may be that women who enact a gender role-consistent tendency toward collaboration undercut the performance advantages of brokering activities that rely upon a more competitive or individualistic brokering strategy, such as exploiting gaps between connections and controlling the flow of resources across those gaps (Soda et al., 2018).

Gender role inconsistency may also affect the willingness of others to provide resources to women brokers, further reducing the returns to their brokering activities. This explains the finding that even in networks in which men and women are equally likely to occupy brokerage positions, men are more likely than women to reap the performance benefits of being a broker (Woehler et al., 2021). Women in male-dominated industries or in professional roles that are gender-inconsistent may even

rely upon others to “legitimize” them and choose instead to form strong connections with influential others rather than occupy a brokerage role (Burt, 1998). Over time, the need to signal legitimacy may become a self-reinforcing loop as the embedding strategies that helped women cope at lower levels of the organization (or when first entering an organization) may lead them to continue applying such strategies, despite having moved to positions with higher autonomy in the organization, where the negative consequences of network closure are apparent (Gargiulo et al., 2009).

Relatedly, women are less likely than men to provide help to so-called “weak” ties—acquaintances and work colleagues with whom they do not have a strong relationship—either by helping them form new relationships or through helping repair strained relationships (Halvey & Kalish, 2022). Research shows that both kinds of helpful brokering increase brokers’ social capital, resulting in greater trust and status (Halevy et al., 2020). This may be because gender role expectations call for women to invest highly in strong, intimate relationships (Hall, 2011) which could arguably be interpreted as requiring less investment in more distant or “weak” relationships. It may also be spurred by gender differences in self-construal as it relates to a relational versus a collective orientation toward interdependence (Halevy & Kalish, 2022; see also, below). Because ties to otherwise unconnected parties are more likely to be weak—or, put another way, less likely to be strong—men may more be more likely to realize value from their brokerage position.

To summarize, both occupying and leveraging the brokerage role require demonstrations of agency and rejection of communality, qualities that fit gender role expectations for men but violate them for women. Gender thus transforms the meaning and value of the brokerage position (Stewart & McDermott, 2004). To avoid backlash in the form of social disapproval or rejection, gender role theory suggests that women in the workplace have a strong incentive to avoid occupying or leveraging the brokerage role.

## Gendered Socio-Emotional Experience

While less explored, a gendered socio-emotional experience of the brokerage role may also contribute to systematic disadvantage for women. Individuals who occupy brokerage positions may pay psychological costs (Burt, 2005; Dekker et al., 2000, 2004; Friedman & Podolny, 1992). Situated as they are between different social groups, brokers may face conflicting sets of preferences (Podolny & Baron, 1997), different languages or perspectives (Carlile & Reberntsch, 2003), unclear expectations (Dekker et al., 2000), and multiple demands on their time and energy (Burt, 2005). People who feel relatively powerless—as women often do in workplace settings—may be even less willing to engage in brokering behaviors because they perceive brokerage “not as opportunities but as signs of discord to be avoided” (Landis et al., 2018, p. 935).

Managing the tensions associated with brokerage poses a number of challenges to brokers, placing them at risk for higher levels of stress and lower life quality (Dekker et al., 2004). For example, adolescents who occupied brokerage positions reported higher levels of social stress and lower self-esteem compared to adolescents embedded in clusters; this was true even when the brokers were generally well-liked (Borowski et al., 2016). In contrast, individuals who are embedded in a tightly connected group of friends tend to experience fewer stress reactions and lower anxiety levels, perhaps as a result of clear and consistent expectations for behavior (Haines et al., 2002; Kadushin, 1982; Totterdell et al., 2004). There is some evidence that, compared to men brokers, women brokers may have a more negative emotional experience. For example, compared to adolescent boys, adolescent girls in a brokerage position tend to report lower levels of life satisfaction and higher levels of social stress (Carboni & Gilman, 2012) as well as more suicidal ideation (Bearman & Moody, 2004). Women may experience the brokerage position as especially distressing for several reasons.

One, women who occupy the brokerage position may be more likely than men to experience it as a threat to their self-concept. This proposition builds upon evidence that men and women tend to define

themselves differently in relation to their social world (Cross et al., 2000; Gabriel & Gardner, 1999). Overall, and consistent with gender role expectations, men are more likely to favor an independent self-construal whereas women are more likely to favor an interdependent self-construal (Cross et al., 2000). However, the evidence suggests that men also incorporate some elements of interdependence into their self-concept; more specifically, men tend to define their interdependent self in relation to large-group memberships (e.g., organization) whereas women are more likely to define their interdependent self in terms of dyadic relationships (Baumeister & Sommer, 1997). Relatedly, women tend to value a group based mainly on their attachment to other group members whereas men value groups, partly because of their attachment to other members, but also because of their attachment to the larger group identity (Seeley et al., 2003). As a result, women's self-concept may be more likely than men's to be influenced by the presence or absence of specific dyadic relationships.

Within a personal network characterized by brokerage, the "absent" tie is the one between two parties who are connected to the focal person but are not connected to each other. Compared to men, women may feel pressure to convert the indirect dyadic relationship to a direct dyadic relationship or risk identity threat by not forming the relationship. In contrast, men who tend to identify more strongly with the collective, may be less distressed by the presence or absence of dyadic-level ties. This argument receives some support from studies that have found that adolescent girls in mixed gender settings have more of their friendship ties generated by triadic closure when compared to the friendship ties of adolescent boys (Goodreau et al., 2009; Kirke, 2009) and that their networks tend to be characterized by higher degrees of transitivity (Ko et al., 2015). At least one study has found similar tendencies toward closure among women (Carboni et al., 2022).

Two, women who occupy the broker position may be exposed to more distressing information than male brokers and be more distressed by the information they receive. Brokers, who have access to more information about diverse others as a function of their position in the network, may be more likely than non-brokers to be exposed to a fuller array of network events (cf. Burt, 2005). Given that people are much more likely to seek out women than men as confidants (Kessler & McLeod, 1984),



women brokers may be particularly likely to receive such information. As a result of their tendency to be more relationship-oriented, women may be predisposed to experience a “contagion of stress” when people in their affective networks encounter stressful events (Kawachi & Berkman, 2001). For example, women are more likely than men to be affected by the loneliness of their friends and neighbors (Cacioppo et al., 2009).

A third reason why women may experience more distress than men in the brokerage position arises as a function of the fact that brokers are more likely to bridge otherwise unconnected clusters (Granovetter, 1973). Clusters may be disconnected for many reasons, including different foci of activity (Feld, 1983), but, in at least some proportion of cases, clusters will be disconnected because they are in intergroup conflict. In this situation, a broker may be called upon to be a mediator or serve as a messenger between hostile groups. Without careful management of this position and advanced mediation skills, the broker could easily become a target of hostility and be rejected as biased in favor of one side or another. Even when they possess well-developed brokering skills, women may suffer a performance penalty as a result of engaging in collaborative brokering behaviors (Soda et al., 2018). This may contribute to the performance anxiety that some women experience when they believe themselves to occupy a brokerage position (Brands & Mehra, 2019).

Lastly, women may be more likely than men to experience networking as relationally immoral (Greguletz et al., 2019). Both men and women may experience networking as distasteful or “dirty” (Casciaro et al., 2014). Most people share a deep-seated belief, as expressed by the philosopher Kant (1785/2012), that people should not be a means to an end but, instead, should always be an end in themselves. In the purely social realm, it is clear that relationships are pursued for their own ends. However, unlike personal relationships, professional relationships do not carry an expectation of mutuality or symmetry. For example, an individual may turn to another for career advice but not be sought out for advice by the same person. Proactively seeking a relationship may therefore appear self-serving (i.e., a means to a selfish end), even to the individual seeking the relationship. For women, who are socialized

to value communality and the interests of others, proactively seeking—and certainly leveraging—a relationship may feel even more relationally immoral than it does to men (Greguletz et al., 2019).

In summary, as a result of structural constraints, gender role expectations, and socio-emotional experience, women are less likely than men to occupy the powerful brokerage role and, even when they do occupy it, are less likely than men to leverage it to advantage.

## Practical Applications

There are several reasons why organizations should care about fostering brokerage and women's brokerage in particular. For one thing, brokerage not only benefits individuals, it benefits the organization as a whole. Like many relational systems, organizational networks tend to be pocked with clusters of like-minded individuals (Burt, 1992). Being embedded within one of these clusters supports feelings of engagement, connection, support, and positive mental health among the individuals within them (Holt-Lunstad et al., 2010; Totterdell et al., 2004). However, embeddedness can also contribute to the formation of echo chambers, the rise of intergroup conflict, challenges in cross-cluster knowledge transfer, and inequities in access to opportunities. Brokers create boundary-spanning bridges between clusters that can reduce these potential negative outcomes. Brokers can use their position to distribute the benefits of diverse perspectives, promote collaboration, transfer knowledge, and provide equitable access to opportunities throughout the organization by leveraging their positive relationships with each cluster, their understanding of how each cluster perceives events, and their own relative neutrality.

Teams also benefit from brokerage. Project teams in which individuals are tightly connected to each other maximize the relationships that facilitate coordination, information-sharing, and successful implementation of team endeavors but may find themselves isolated from stakeholder input and external resources/expertise resulting in flawed decisions, innovation failures, and misalignment with the organization (Cross & Carboni, 2021). Brokerage helps closely knit teams thrive, because in

addition to the benefits of internal connection, brokers connect them to disparate others, including those that bring in new and diverse information (Reagans et al., 2004). In short, brokerage not only benefits individuals, it benefits the teams and organizations in which they reside. Yet, without intervention, the value that brokers accrue as a result of their brokering “services,” may contribute to gender inequities by falling mainly to men rather than women for all of the reasons mentioned previously.

Organizations invested in the success of women, as well as in the success of their overall enterprise, will benefit when they nurture women’s ability to effectively occupy and leverage the brokerage role. They can do this by taking a three-pronged approach: (1) *raise awareness* about the opportunities and challenges associated with occupying and leveraging the brokerage position, (2) offer individuals specific *action steps* for successfully occupying and leveraging the brokerage role, and (3) provide *structured opportunities* for developing brokerage relationships. While women are the primary target of intervention attempts, both women and the people who work with them could fruitfully participate in all of these organizational activities.

## Raise Awareness

Individuals are likely to benefit from increased awareness of (a) the value and power of the brokerage position, (b) the extent to which their personal networks include brokerage, and (c) specific challenges that women face regarding the occupation of the brokerage position. To communicate the value and power of the brokerage position, educators could simply share empirical findings. Many people experience this knowledge as eye-opening. Awareness of the value of occupying and leveraging the brokerage position should be a necessary first step in any education and training program. In general, evidence suggests that professionals who learn the properties of an effective network, achieve greater performance and career advancement (Burt & Ronchi, 2007).

Raising awareness of one’s own network structure offers the opportunity to increase its effectiveness. Women may have a perceptual

advantage in this regard. Theorizing on power relations suggests that those low in power may be more motivated than those high in power to perceive their social world more accurately (Russell & Fiske, 2010). Relatedly, individuals who have lower levels of formal power tend to perceive their organizational network more accurately (Simpson et al., 2011). Given that women are more likely to be in low power positions within their organizations, they may already have a relatively accurate perception of their network structure. In any case, one strategy that organizations can take to raise awareness of existing network structure is to actually present individuals with their network structure, obtained either by extracting personal networks from an organizational network analysis (Schweer et al., 2012) or by asking them to generate their networks via a mapping exercise (e.g., Ibarra, 2002) or online survey. Unfortunately, while people who feel powerless are more likely to perceive opportunities to broker, they may also be less willing to engage in brokering behaviors (Landis et al., 2018). Thus, awareness of one's brokerage position (or lack thereof) is a necessary but not sufficient first step to spurring actual brokering activity.

Individuals should also be made aware of the specific challenges that women face in occupying and leveraging the brokerage position, such as the available opportunity structure, backlash from exhibiting gender role-inconsistent behavior, and socio-emotional discomfort. These challenges are intertwined. For example, the natural tendency to form homophilous relationships means that, without intention, both men and women will naturally drift into relationships with similar others. With increased awareness of structural constraints, women might select their relationship-building opportunities more strategically. Despite a rise in the acceptability of women in agentic roles (Hsu et al., 2021), backlash in the form of being liked less is still more likely to occur when women do not assume nurturing or communally oriented roles (Rudman et al., 2012). Understanding the nature of gender role expectations and backlash can help women anticipate and prepare for responses to their more intentional networking behavior and can also help others examine and shift their own biases to be more supportive of women who behave in role-inconsistent ways. Lastly, understanding that the brokerage role

may be associated with emotional discomfort for women may help them develop targeted coping strategies and provide managers with additional insight into the stress associated with the brokerage role.

## Action Steps

Building on awareness-raising efforts, organizations could also provide individuals with action steps designed to support *intentional network development* and *strategies for coping with backlash and distress*.

## Intentional Network Development

There are at least three general strategies for occupying a brokerage role: engaging in activities with brokerage potential, proactively forming boundary-spanning relationships, and activating dormant relationships. Activities with brokerage potential are activities in which the following facilitating conditions are met (cf. Allport, 1954): participating individuals represent different professional groups (e.g., different industries, different organizations, different functions), individuals share common goals, individuals must work together to achieve those goals, and the surrounding context (e.g., organization) supports building boundary-spanning relationships. Examples of activities that meet these criteria include industry work committees, board memberships, cross-functional teams, event-planning, and even sports teams. In each case, the activities bring different people together to work toward shared goals, facilitating relationship formation (cf. Feld, 1983). Note that typical networking events usually do not include the need to work together to achieve shared goals which reduces their brokerage potential. Individuals who seek to occupy a brokerage position can do so by strategically choosing to engage in activities with high brokerage potential. Likewise, their managers can support their efforts by offering opportunities to participate in high brokerage potential activities.

Individuals who seek to form boundary-spanning professional relationships may need to actively reach out to others from different professional groups (e.g., different industries, different organizations,

different functions). The key is for individuals to pursue these relationships strategically. Boundary-spanning relationships have the potential to add value to the teams in which the individuals belong (Carboni et al., 2021). Team leaders can therefore support both team performance and the development of the professional networks of individuals within the team by identifying individuals with whom they or other team members should connect. For example, a team lead may seek to build a boundary-spanning relationship by reaching out to another team lead who faces a similar environment or problem but who resides in a different unit or geography. The similarity in role offers obvious points of connection. Discussing successful and unsuccessful attempts to solve common problems enhances the learning of both individuals, making a mutually rewarding relationship more likely which, in turn, increases the brokerage potential for both parties. Relatedly, individuals seeking to occupy a brokerage position can reach out to individuals who hold complementary or adjacent expertise. For example, a person who specializes in content marketing may want to reach out to someone who specializes in social media marketing.

Activating dormant relationships is another strategy for occupying brokerage roles. Dormant relationships are those between two individuals who have not communicated with each other for a long time (Levin et al., 2011). Especially when relationships had once been strong, dormant ties can be valuable sources of knowledge and other resources (Levin et al., 2011). There are at least two types of dormant ties that might be particularly valuable when seeking to occupy a brokerage position. The first type are individuals who already occupy a brokerage position. These individuals can connect the focal individual to people in different professional groups and often greatly enjoy doing so (cf. Gladwell, 2000). The second type are individuals who belong to different professional groups. For example, they may have been former co-workers and now work in a different organization or industry. Women have an advantage over men in this regard because they are more likely than men to maintain strong external networks of relationships, often staying in contact with former co-workers for years after they stop working together (Carboni et al., 2020; Groysberg, 2008).

Women have a particularly difficult time leveraging the brokerage role to their advantage, even when they occupy the role (Fang et al., 2020; cf. Woehler et al., 2021). As suggested earlier, this may be because they tend to enact collaborative brokering strategies which are not associated with higher levels of individual performance, anticipate backlash when taking purposeful brokering activities, be less likely than men to be connected to people with resources and power, and receive less help than men from their network contacts. In addition to raising general awareness about these issues, organizations can help women address some of these challenges by helping them reframe the meaning of brokerage both for themselves and for others.

Women could be encouraged to align their networking motivations with communal values by reframing personal networking as networking for the common good. The “common good” could mean all women, their team, or the organization as a whole. Taking action in support of communal values is gender role-consistent. In conflict negotiations, for example, women are more likely to negotiate their salary if they believe that they are doing so on behalf of all women and are more likely to be perceived positively by others if they evoke that communal value (Kolb & Kickul, 2006). Relatedly, women could be encouraged to perceive themselves as primarily organizational members (versus relational partners), thereby potentially leading them to offer more help and support to work colleagues with whom they do not have a strong relationship. The effect of this self-construal shift could lead to women receiving more benefits from their brokered relationships. At the same time, managers could be instructed to consider if bias might be influencing their perceptions when assessing the activities and performance of brokers. Organizations could also seek to find more ways to recognize and celebrate collaborative brokering activities through, for example, stories, awards, and visible pictures.

Women could also be encouraged to transform apparent broker-related disadvantages into advantages. For example, being more likely to hear about distressing organizational events through network connections can be advantageous when it provides insights into communication

breakdowns, unethical behavior, intraorganizational conflict, and disengagement. These insights can help women access resources more strategically, avoid social liabilities, and become more adept at navigating social interactions (Marineau, 2017). A more wholistic understanding of organizational climate could also benefit women who are involved in change initiatives, turnover reduction, or performance assessment.

### **Strategies for Coping with Backlash and Distress**

Processes to help women who are brokers manage their position successfully, or at the very least to develop personal coping strategies when tensions arise, should be the first step in larger efforts to help women occupy and leverage that powerful position. For example, instead of perceiving the brokerage role as one of disconnection and rejection, women could be urged to view the position as an indicator of the ability to form positive relationships with diverse individuals. Because women are more likely than men to experience networking as relationally immoral (Greguletz et al., 2019), it may also help to reposition brokering as a positive and morally unambiguous opportunity to promote collaboration, integration, the reduction of conflict, and the ability to distribute useful and valuable resources to others. To help them reframe, women might find it useful to identify an actual or historical networking role model who expresses positive networking motivations such as, for example, Lois Weisberg (Gladwell, 2000) or Heidi Roizen (Flynn et al., n.d.).

Women may also benefit from an awareness of gender role-consistent strategies. For example, women could be encouraged to engage in activities that demonstrate the gender role-consistent skills of building relationships and nurturing intimacy. Conveying warmth in their communications might also reduce backlash because it countermands the tendency to perceive women as *either* competent or warm/likable, a dichotomy that is not a gender role expectation for men (Carboni et al., 2020; Cuddy et al., 2011). The development of self-monitoring skills may be particularly useful for women facing potential backlash (O'Neill & O'Reilly, 2011). Monitoring the socio-emotional context



in order to project situationally appropriate responses is called *self-monitoring* (Snyder & Gangestad, 1986). Self-monitoring skills may be easier for women to acquire and use than men because being attuned to socio-emotional context is congruent with women's gender role expectations. Women—in contrast to men—are often socialized to be adept at decoding and responding to the emotional expression of others. Self-monitoring may be particularly helpful for women who demonstrate role-incongruent tendencies, such as aggressiveness, assertiveness, or confidence (O'Neill & O'Reilly, 2011). It may also be especially valuable when occupying and leveraging the brokerage position because high self-monitors—men and women—are more likely to build bridges in their networks than are low self-monitors (Sasovova et al., 2010). Not all women are high self-monitors but those that are may benefit more from it than men who are high self-monitors (O'Neill & O'Reilly, 2011). Mentors and executive coaches can help women develop all of these gender role-consistent skills.

## Structured Opportunities

Organizations invested in the success of women can also provide them with structured opportunities for developing brokerage relationships in several ways. One, organizations can implement mentoring and sponsorship programs that include training on brokerage for mentors, sponsors, and protégées (Creary et al., 2021). While women may be “over-mentored and under-sponsored” (Ibarra et al., 2010, p. 82), mentors can play an important role in helping women at all levels (a) understand the significance of occupying and leveraging the brokerage role, and (b) develop specific and tailored plans for action. Mentors who work with managers can also help them understand the important role they have to play in facilitating network development among the women they lead. Too, organizations could consider a “smart mentoring” approach (Carboni et al., 2022). “Smart” mentors are selected through an organizational network analysis as people in the center of organizational networks; they can be thoughtfully paired with women at the edges of

the network, pulling them into the hub of organizational discourse and connecting them to new and different professional groups.

Mentors can also help women develop networking strategies that are appropriate for their career stage. Individuals may become proficient at a networking style that no longer aligns with their career objectives. Women, for example, may be more likely than men to gain “legitimacy” by forming strong connections with a few others (Burt, 1998). Their early successful experience with embedding strategies in coping with their dependence may result in a networking style that leads to a professional network that can’t support their subsequent senior roles in the organization. The persistence of prior successful strategies beyond the situation that allowed for their success is akin to the “competence trap” (Ahuja, 2016). The early success of these strategies may lead individuals to continue applying such strategies, despite having moved to positions with higher autonomy in the organization, where the negative consequences of network closure are apparent. As a result, managers embedded in a closely knit social network are less willing or able to develop new relationships required by the changing nature of their tasks.

In contrast to mentors, who may be external to organizations and functions, or are relatively low level, sponsors—by definition—occupy positions of power. Sponsors can open doors for the people that they sponsor and they can encourage them to walk through them. The data suggest that women are less likely to benefit from formal sponsorship programs than are men (Ibarra et al., 2010). Organizations can change this by providing targeted training for both sponsors and those sponsored to understand expectations and possible challenges (Ibarra et al., 2010). Sponsors could be explicitly advised on how to use their position to create brokering opportunities for women. Similarly, women could lobby for and expect that sponsors would connect them to people with resources, influence, and access to different professional groups. Internal diversity champions, such as Employee Resource Groups (ERGs) could fruitfully both drive and amplify these efforts (Creary et al., 2021). Publicly identifying and celebrating the efforts of internal diversity champions—e.g., through stories, pictures, and visibility in organizational communications—could further support organizational efforts to

promote active and effective sponsorship of women and reduce the backlash that some women brokers experience (cf. Creary et al., 2021).

Two, organizations can provide women with opportunities to build brokerage relationships through interdependent activities with different professional groups. Organizational structures often serve as barriers to connection, due to the clustering of women in non-core and pink-collar jobs, and the likelihood that relatively few women are in senior leadership positions. To break down these barriers, organizations can institute a number of activities. For example, they can match small groups of women with senior executives to work on projects, such as how to facilitate gender equity. Working together on a project toward shared goals not only fosters relationship-building but also offers senior executives an opportunity to see demonstrations of women's talents. Research has shown that when women occupy positions that give them opportunity to interact with high-status employees, they are just as likely as men to include high-status people in their network (McGuire, 2000). Similarly, organizations can more thoughtfully offer opportunities to women to speak at industry events or serve as panel moderators. These events place women in highly visible roles and make it more likely that they will form brokering relationships with others in their industry.

Gig rotations may also help break down structural barriers (Carboni et al., 2022). Internal gig rotations are short-term—sometimes part-time—positions that allow opportunities for individuals to work in other areas of the organization. Gig rotations allow women to build relationships in areas of the organization in which they are particularly sparse (e.g., production). When coupled with support from immediate supervisors and a concurrent relief of some primary role work responsibilities, gig rotations allow women (and men) to build brokerage relationships and showcase their talents.

## Conclusion

Professional networks that are characterized by *brokerage*—connections to otherwise unconnected subnetworks within the organization—provide important advantages. However, women are less likely than men

to occupy the brokerage position and, even when they do occupy it, are less likely to leverage it for career success (Fang et al., 2020; Woehler et al., 2021). Several mechanisms have been advanced to explain these findings, including structural constraints caused by systemic discrimination, gender role expectations, and a gendered socio-emotional experience of the brokerage role. Organizations can further the career success of women through training and restructuring activities that raise awareness of the value and challenges associated with the brokerage role, provide concrete tools for strategic network development, and offer structural opportunities for developing brokerage relationships.

## References

- Ahuja G. (2016). Competency trap. In M. Augier & D. Teece (Eds.), *The Palgrave encyclopedia of strategic management*. Palgrave Macmillan. [https://doi.org/10.1057/978-1-349-94848-2\\_385-1](https://doi.org/10.1057/978-1-349-94848-2_385-1)
- Ahuja, M. K., Galletta, D. F., & Carley, K. M. (2003). Individual centrality and performance in virtual R&D groups: An empirical study. *Management Science*, 49(1), 21–38. <https://doi.org/10.1287/mnsc.49.1.21.12756>
- Allport, G. (1954). *The nature of prejudice*. Addison-Wesley.
- Battilana, J., & Casciaro, T. (2012). Change agents, networks, and institutions: A contingency theory of organizational change. *Academy of Management Journal*, 55(2), 381–398. <https://doi.org/10.5465/amj.2009.0891>
- Baumeister, R. F., & Sommer, K. L. (1997). What do men want? Gender differences and two spheres of belongingness: Comment on Cross and Madson. *Psychological Bulletin*, 122, 38–44. <https://doi.org/10.1037/0033-2909.122.1.38>
- Bearman, P. S., & Moody, J. (2004). Suicide and friendships among American adolescents. *American Journal of Public Health*, 94(1), 89–95. <https://doi.org/10.2105/AJPH.94.1.89>
- Bem, S. L. (1981). Gender schema theory: A cognitive account of sex typing. *Psychological Review*, 88(4), 354–364. <https://doi.org/10.1037/0033-295X.88.4.354>
- Blau, F. D., & Kahn, L. M. (2017). The gender wage gap: Extent, trends, and explanations. *Journal of Economic Literature*, 55(3), 789–865. <https://doi.org/10.1257/jel.20160995>

- Boari, C., & Riboldazzi, F. (2014). How knowledge brokers emerge and evolve: The role of actors' behaviour. *Research Policy*, *43*, 683–695. <https://doi.org/10.1016/j.respol.2014.01.007>
- Borowski, S., Zeman, J., Carboni, I., Gilman, R., & Thrash, T. (2016). Adolescent controversial status brokers: A double-edged sword. *School Psychology Quarterly*, *32*(1), 50–61. <https://doi.org/10.1037/spq0000167>
- Brands, R. A., & Fernandez-Mateo, I. (2017). Leaning out: How negative recruitment experiences shape women's decisions to compete for executive roles. *Administrative Science Quarterly*, *62*(3), 405–442. <https://doi.org/10.1177/0001839216682728>
- Brands, R. A., & Kilduff, M. (2014). Just like a woman? Effects of gender-biased perceptions of friendship network brokerage on attributions and performance. *Organization Science*, *25*(5), 1530–1548. <https://doi.org/10.1287/orsc.2013.0880>
- Brands, R. A., & Mehra, A. (2019). Gender, brokerage, and performance: A construal approach. *Academy of Management Journal*, *62*(1), 196–219. <https://doi.org/10.5465/amj.2016.0860>
- Brass, D. J. (1984). Being in the right place: A structural analysis of individual influence in an organization. *Administrative Science Quarterly*, *29*, 518–539. <https://doi.org/10.2307/2392937>
- Burt, R. S. (1992). *Structural holes: The social structure of competition*. Harvard University Press.
- Burt, R. S. (1998). The gender of social capital. *Rationality and Society*, *10*(1), 5–46. <https://doi.org/10.1177/104346398010001001>
- Burt, R. S. (2000). The network structure of social capital. *Research in Organizational Behavior*, *22*, 345–423. [https://doi.org/10.1016/S0191-3085\(00\)22009-1](https://doi.org/10.1016/S0191-3085(00)22009-1)
- Burt, R. S. (2004). Structural holes and good ideas. *American Journal of Sociology*, *110*(2), 349–399. <https://doi.org/10.1086/421787>
- Burt, R. S. (2005). *Brokerage and closure: An introduction to social capital*. Oxford University Press.
- Burt, R. S. (2012). Network-related personality and the agency question: Multirole evidence from a virtual world. *American Journal of Sociology*, *118*(3), 543–591. <https://doi.org/10.1086/667856>
- Burt, R. S., & Ronchi, D. (2007). Teaching executives to see social capital: Results from a field experiment. *Social Science Research*, *36*, 1156–1183. <https://doi.org/10.1016/j.ssresearch.2006.09.005>
- Cacioppo, J. T., Fowler, J. H., & Christakis, N. A. (2009). Alone in the crowd: The structure and spread of loneliness in a large social network. *Journal of*

- Personality & Social Psychology*, 97(6), 977–991. <https://doi.org/10.1037/a0016076>
- Carboni, I., & Gilman, R. (2012). Brokers at risk: Gender differences in the effects of structural position on social stress and life satisfaction. *Group Dynamics*, 16(3), 218–230. <https://doi.org/10.1037/a0028753>
- Carboni, I., Cross, R., & Edmondson, A. (2021). Outside in: How leaders shape networked ecosystems for team success. *California Management Review*, 64(1), 5–28. <https://doi.org/10.1177/00081256211041784>
- Carboni, I., Cross, R., Page, A., & Parker, A. (2020). Invisible network drivers of women's success. *Organizational Dynamics*, 49(4), 1–8. <https://doi.org/10.1016/j.orgdyn.2019.100735>
- Carboni, I., Parker, A., & Langowitz, N. (2022). Mapping exclusion. *MIT Sloan Management Review*, 63(2), 59–63.
- Carboni, I., Parker, A., & Lomi, A. (2022) Three's company: How men and women construct and sustain gender differences in workplace networks. Working paper.
- Carlile, P. R., & Rebentisch, E. S. (2003). Into the black box: The knowledge transformation cycle. *Management Science*, 49, 1180–1195. <https://doi.org/10.1287/mnsc.49.9.1180.16564>
- Casciaro, T., Gino, F., & Kouchaki, M. (2014). The contaminating effects of building instrumental ties: How networking can make us feel dirty. *Administrative Science Quarterly*, 59(4), 705–735. <https://doi.org/10.1177/0001839214554990>
- Creary, S. J., Rothbard, N., & Scruggs, J. (2021). Improving workplace culture through evidence-based diversity, equity and inclusion practices. [White paper]. <https://doi.org/10.31234/osf.io/8zgt9>
- Cross, R., & Carboni, I. (2021). The six dysfunctions of collaborative work: How leaders can diagnose and remedy collaborative failures. *MIT Sloan Management Review*, 62(2), 2–12.
- Cross, S. E., Bacon, P. L., & Morris, M. L. (2000). The relational-interdependent self-construal and relationships. *Journal of Personality & Social Psychology*, 78, 791–808. <https://doi.org/10.1037/0022-3514.78.4.791>
- Cross, S. E., & Madson, L. (1997). Models of the self: Self-construals and gender. *Psychological Bulletin*, 122(1), 5–37. <https://doi.org/10.1037/0033-2909.122.1.5>
- Cuddy, A. J. C., Glick, P., & Beninger, A. (2011). The dynamics of warmth and competence judgments, and their outcomes in organizations. *Research*

- in *Organizational Behavior*, 31, 73–98. <https://doi.org/10.1016/j.riob.2011.10.004>
- Cyranowski, J. M., Frank, E., Young, E., & Shear, M. K. (2000). Adolescent onset of the gender difference in lifetime rates of major depression: A theoretical model. *Archives of General Psychiatry*, 57, 21–27. <https://doi.org/10.1001/archpsyc.57.1.21>
- Das, S., & Kotikula, A. (2019). *Gender-based employment segregation: Understanding causes and policy interventions*. World Bank. <https://documents1.worldbank.org/curated/en/483621554129720460/pdf/Gender-Based-Employment-Segregation-Understanding-Causes-and-Policy-Interventions.pdf>
- Dekker, D., Stokman, F., & Franses, P. H. (2000). *Broker positions in task-specific knowledge networks: Effects on perceived performance and role stressors in an account management system (ERIM Report Series No. ERS-2000-37-MKT)*. Erasmus Research Institute of Management, Erasmus Universiteit.
- Dekker, D. J., Stokman, F. N., & Franses, P. H. (2004). *Effectiveness of brokering within account management organizations (Reference No. RRM-2004-04-MKT)*. of Nijmegen, Nijmegen School of Management.
- Eagly, A. H. (1987). *Sex differences in social behavior: A social-role interpretation*. Erlbaum.
- Fang, R., Zhang, Z., & Shaw, J. D. (2020). Gender and social network brokerage: A meta-analysis and field investigation. *Journal of Applied Psychology*, 106(11), 1630–1654. <https://doi.org/10.1037/apl0000841.supp>
- Feld, S. L. (1983). Social structural determinants of similarity among associates. *American Sociological Review*, 47(6), 797–801. <https://doi.org/10.2307/2095216>
- Flynn, F., Anderson, C., & Brion, S. (n.d.). Too tough, too soon: Familiarity and the backlash effect. Unpublished manuscript.
- Friedman, R. A., & Podolny, J. (1992). Differentiation of boundary spanning roles: Labor negotiations and implications for role conflict. *Administrative Science Quarterly*, 37(1), 28–47. <https://doi.org/10.2307/2393532>
- Fuchs, D., Tamkins, M. M., Heilman, M. E., & Wallen, A. S. (2004). Penalties for success: Reactions to women who succeed at male gender-typed tasks. *Journal of Applied Psychology*, 89(3), 416–427. <https://doi.org/10.1037/0021-9010.89.3.416>
- Gabriel, S., & Gardner, W. L. (1999). Are there “his” and “hers” types of interdependence? The implications of gender differences in collective versus relational interdependence for affect, behavior, and cognition. *Journal of Personality & Social Psychology*, 77, 642–655. <https://doi.org/10.1037/0022-3514.77.3.642>

- Gargiulo, M., Ertug, G., & Galunic, C. (2009). The two faces of control: Network closure and individual performance among knowledge workers. *Administrative Science Quarterly*, 54(2), 299–333. <https://doi.org/10.2189/asqu.2009.54.2.299>
- Gargiulo, M., & Benassi, M. (2000). Trapped in your own net? Network cohesion, structural holes, and the adaptations of social capital. *Organization Science*, 11(2), 183–196. <https://doi.org/10.1287/orsc.11.2.183.12514>
- Gilligan, C. (1982). *In a different voice: Psychological theory and women's development*. Harvard University Press.
- Gladwell, M. (2000). *The tipping point: How little things can make a big difference*. Little, Brown.
- Goodreau, S. M., Kitts, J. A., & Morris, M. (2009). Birds of a feather, or friend of a friend? Using exponential random graph models to investigate adolescent social networks. *Demography*, 46(1), 103–125. <https://doi.org/10.1353/dem.0.0045>
- Gottman, J. M., & Carrere, S. (1994). Why can't men and women get along? The developmental roots of marital inequities. In D. J. Canary & L. Stafford (Eds.), *Communication and relational maintenance* (pp. 203–229). Academic Press.
- Gould, R. V., & Fernandez, R. M. (1989). Structures of mediation: A formal approach to brokerage in transaction networks. *Sociological Methodology*, 19(1), 89–126. <https://doi.org/10.2307/270949>
- Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, 78(6), 1360–1380. <https://doi.org/10.1086/225469>
- Greguletz, E., Diehl, M.-R., & Kreutzer, K. (2019). Why women build less effective networks than men: The role of structural exclusion and personal hesitation. *Human Relations*, 72(7), 1234–1261. <https://doi.org/10.1177/0018726718804303>
- Groysberg, B. (2008). How star women build portable skills. *Harvard Business Review*, 86(2), 74–81.
- Haines, V. A., Beggs, J. J., & Hurlbert, J. S. (2002). Exploring the structural contexts of the support process: Social networks, social statuses, social support, and psychological distress. In J. A. Levy & B. A. Pescosolido (Eds.), *Advances in medical sociology* (pp. 269–292). Emerald Group. [https://doi.org/10.1016/S1057-6290\(02\)80030-4](https://doi.org/10.1016/S1057-6290(02)80030-4)
- Halvey, N., & Kalish, Y. (2022). Broadening versus deepening: Gender and brokering in social networks. *Social Psychological and Personality Science*, 13(2), 618–625. <https://doi.org/10.1177/19485506211024485>



- Halevy, N., Halali, E., & Cohen, T. R. (2020). Brokering orientations and social capital: Influencing others' relationships shapes status and trust. *Journal of Personality & Social Psychology, 119*(2), 293–316. <https://doi.org/10.1037/pspi0000213>
- Halevy, N., Halali, E., & Zlatev, J. J. (2019). Brokerage and brokering: An integrative review and organizing framework for third party influence. *Academy of Management Annals, 13*(1), 215–239. <https://doi.org/10.5465/annals.2017.0024>
- Hall, J. A. (2011). Sex differences in friendship expectations: A meta-analysis. *Journal of Social and Personal Relationships, 28*(6), 723–747. <https://doi.org/10.1177/0265407510386192>
- Hamel, L., & Salganicoff, A. (2020). *Is there a widening gender gap in coronavirus stress?* Kaiser Family Foundation. <https://www.kff.org/global-health-policy/poll-finding/kff-coronavirus-poll-march-2020>
- Heilman, M. E., & Okimoto, T. G. (2007). Why are women penalized for success at male tasks? The implied communality deficit. *Journal of Applied Psychology, 92*(1), 81–92. <https://doi.org/10.1037/0021-9010.92.1.81>
- Helfat, C. E., Harris, D., & Wolfson, P. J. (2006). The pipeline to the top: women and men in the top executive ranks of U.S. corporations. *Academy of Management Perspectives, 20*(4), 42–64. <https://doi.org/10.5465/AMP.2006.23270306>
- Holt-Lunstad J., Smith T. B., & Layton J. B. (2010). Social relationships and mortality risk: A meta-analytic review. *PLoS Medicine 7*(7), 1–20. <https://doi.org/10.1371/journal.pmed.1000316>
- Hsu, N., Badura, K. L., Newman, D. A., & Speech, M. E. P. (2021). Gender, “masculinity”, and “femininity”: A meta-analytic review of gender differences in agency and communion. *Psychological Bulletin, 147*(10), 987–1011. <https://doi.org/10.1037/bul0000343>
- Ibarra, H. (1992). Homophily and differential returns: Sex differences in network structure and access in an advertising firm. *Administrative Science Quarterly, 37*(3), 422–447. <https://doi.org/10.2307/2393451>
- Ibarra, H. (1993). Personal networks of women and minorities in management: A conceptual framework. *Academy of Management Review, 18*(1), 56–87. <https://doi.org/10.5465/AMR.1993.3997507>
- Ibarra, H. (2002). *Networking assessment exercise*. HBS No. 497002. Harvard Business School Publishing.
- Ibarra, H., Carter, N. M., & Silva, C. (2010). Why men still get more promotions than women. *Harvard Business Review, 88*(9), 80–85. PMID: 20821967.

- Joseph, D. L., & Newman, D. A. (2010). Emotional intelligence: An integrative meta-analysis and cascading model. *Journal of Applied Psychology, 95*(1), 54–78. <https://doi.org/10.1037/a0017286>
- Kadushin, C. (1982). Social density and mental health. In P. V. Marsden & N. Lin (Eds.), *Social structure and network analysis* (pp. 147–158). Sage.
- Kant, I., Gregor, M., & Timmermann, J. (1785/2012). *Groundwork of the metaphysics of morals*. Revised edition/translation revised by Jens Timmermann. Cambridge University Press.
- Kawachi, I., & Berkman, L. F. (2001). Social ties and mental health. *Journal of Urban Health, 78*, 458–467. <https://doi.org/10.1093/jurban/78.3.458>
- Kessler, R. C., & McLeod, J. D. (1984). Sex differences in vulnerability to undesirable life events. *American Sociological Review, 49*(5), 620–631. <https://doi.org/10.2307/2095420>
- Kirke, D. M. (2009). Gender clustering in friendship networks: Some sociological implications. *Methodological Innovations Online, 4*(1), 23–36. <https://doi.org/10.1177/205979910900400103>
- Ko, P., Buskens, V., & Wu, C. (2015). The interplay between gender and structure: Dynamics of adolescent friendships in single-gender classes and mixed-gender classes. *Journal of Research on Adolescence, 25*(2), 387–401. <https://doi.org/10.1111/jora.12136>
- Kolb, D. M., & Kickul, J. (2006). It pays to ask: Negotiating conditions for leadership success. *CGO Insights, 23*, 1–8. <http://www.simmons.edu/som/centers/cgo/resources/insights.shtml>
- Kwon, S.-W., Rondi, E., Levin, D. Z., De Massis, A., & Brass, D. J. (2020). Network brokerage: An integrative review and future research agenda. *Journal of Management, 46*(6), 1092–1120. <https://doi.org/10.1177/0149206320914694>
- Landis, B., Kilduff, M., Menges, J. I., & Kilduff, G. J. (2018). The paradox of agency: Feeling powerful reduces brokerage opportunity recognition yet increases willingness to broker. *Journal of Applied Psychology, 103*(8), 929–938. <https://doi.org/10.1037/apl0000299>
- Levanon, A., England, P., & Allison, P. (2009). Occupational feminization and pay; assessing causal dynamics using 1950–2000 U.S. Census Data. *Social Forces, 88*(2), 865–891. <https://doi.org/10.1353/sof.0.0264>
- Levin, D. Z., Walter, J., & Murnighan, J. K. (2011). Dormant ties: The value of reconnecting. *Organization Science, 22*(4), 923–939. <https://doi.org/10.1287/orsc.1100.0576>

- Lingo, E. L., & O'Mahony, S. (2010). Nexus work: Brokerage on creative projects. *Administrative Science Quarterly*, 55(1), 47–81. <https://doi.org/10.2189/asqu.2010.55.1.47>
- Livingston, R. W., Rosette, A. S., & Washington, E. F. (2012). Can an agentic Black woman get ahead? The impact of race and interpersonal dominance on perceptions of female leaders. *Psychological Science*, 23, 354–358. <https://doi.org/10.1177/0956797611428079>
- Marineau, J. E. (2017). Trust and distrust network accuracy and career advancement in an organization. *Group & Organization Management*, 42(4), 487–520. <https://doi.org/10.1177/1059601115627529>
- McGuire, G. M. (2000). Gender, race, ethnicity, and networks: The factors affecting the status of employees' network members. *Work and Occupations*, 27(4), 501–524. <https://doi.org/10.1177/0730888400027004004>
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27(1), 415–444. <https://doi.org/10.1146/annurev.soc.27.1.415>
- Miller, J. B. (1976). *Toward a new psychology of women*. Beacon Press.
- Obstfeld, D., Borgatti, S. P., & Davis, J. (2014). Brokerage as a process: Decoupling third party action from social network structure. In S. P. Borgatti, D. J. Brass, D. S. Halgin, G. Labianca, & A. Mehra (Eds.), *Research in the sociology of organizations* (Vol. 40, pp. 135–159). Emerald Group Publishing. [https://doi.org/10.1108/SU733-558X\(2014\)0000040007](https://doi.org/10.1108/SU733-558X(2014)0000040007)
- Okimoto, T. G., & Brescoll, V. L. (2010). The price of power: Power seeking and backlash against female politicians. *Personality and Social Psychology Bulletin*, 36(7), 923–936. <https://doi.org/10.1177/0146167210371949>
- O'Neill, O. A., & O'Reilly, C. A., III. (2011). Reducing the backlash effect: Self-monitoring and women's promotions. *Journal of Occupational & Organizational Psychology*, 84(4), 825–832. <https://doi.org/10.1111/j.2044-8325.2010.02008.x>
- Podolny, J. M., & Baron, J. N. (1997). Resources and relationships: Social networks and mobility in the workplace. *American Sociological Review*, 62, 673–693. <https://doi.org/10.2307/2657354>
- Reagans, R., Zuckerman, E., & McEvily, B. (2004). How to make the team: Social networks vs. demography as criteria for designing effective teams. *Administrative Science Quarterly*, 49, 101–133. <https://doi.org/10.2307/4131457>
- Rudman, L. A., Moss-Racusin, C. A., Phelan, J. E., & Nauts, S. (2012). Status incongruity and backlash effects: Defending the gender hierarchy motivates

- prejudice against female leaders. *Journal of Experimental Psychology*, 48, 165–179. <https://doi.org/10.1016/j.jesp.2011.10.008>
- Russell, A. M., & Fiske, S. T. (2010). Power and social perception. In A. Guinote & T. K. Vescio (Eds.), *The social psychology of power* (pp. 231–250). Guilford Press.
- Ryan, R. M., La Guardia, J. G., Solky-Butzel, J., Chirkov, V., & Kim, Y. (2005). On the interpersonal regulation of emotions: Emotional reliance across gender, relationships, and cultures. *Personal Relationships*, 12, 145–163. <https://doi.org/10.1111/j.1350-4126.2005.00106.x>
- Sasovova, Z., Mehra, A., Borgatti, S. P., & Schippers, M. C. (2010). Network churn: The effects of self-monitoring personality on brokerage dynamics. *Administrative Science Quarterly*, 55(4), 639–670. <https://doi.org/10.2189/asqu.2010.55.4.639>
- Schweer, M., Assimakopoulos, D., Cross, R., & Thomas, R. J. (2012). Building a well-networked organization. *MIT Sloan Management Review*, 53(2), 35–42.
- Seeley, E. A., Gardner, W. L., Pennington, G., & Gabriel, S. (2003). Circle of friends or members of a group? Sex differences in relational and collective attachment to groups. *Group Processes & Intergroup Relations*, 6(3), 251–263. <https://doi.org/10.1177/13684302030063003>
- Simmel, G. (1950). *The sociology of George Simmel*. Free Press.
- Simpson, B., Markovsky, B., & Steketee, M. (2011). Power and the perception of social networks. *Social Networks*, 33, 166–171. <https://doi.org/10.1016/j.socnet.2010.10.007>
- Snyder, M., & Gangestad, S. (1986). On the nature of self-monitoring: Matters of assessment, matters of validity. *Journal of Personality & Social Psychology*, 51(1), 125–139. <https://doi.org/10.1037/0022-3514.51.1.125>
- Soda, G., Tortoriello, M., & Iorio, A. (2018). Harvesting value from brokerage: Individual strategic orientation, structural holes, and performance. *Academy of Management Journal*, 61(3), 896–918. <https://doi.org/10.5465/amj.2016.0123>
- Stewart, A. J., & McDermott, C. (2004). Gender in psychology. *Annual Review of Psychology*, 55(1), 519–544. <https://doi.org/10.1146/annurev.psych.55.090902.141537>
- Thoits, P. A. (2010). Stress and health: Major findings and policy implications. *Journal of Health and Social Behavior*, 51(1, Suppl), S41–S53. <https://doi.org/10.1177/0022146510383499>
- Thompson, L., & Walker, A. J. (1991). Gender in families: Women and men in marriage, work, and parenthood. In A. Booth (Ed.), *Contemporary families*:

- Looking forward, looking back* (pp. 76–102). National Council of Family Relations.
- Totterdell, P., Wall, T., Holman, D., Diamond, H., & Epitropaki, O. (2004). Affect networks: A structural analysis of the relationship between work ties and job-related affect. *Journal of Applied Psychology*, 89(5), 854–867. <https://doi.org/10.1037/0021-9010.89.5.854>
- Williams, M. J., & Tiedens, L. Z. (2016). The subtle suspension of backlash: A meta-analysis of penalties for women's implicit and explicit dominance behavior. *Psychological Bulletin*, 142(2), 165–197. <https://doi.org/10.1037/bul0000039>
- Woehler, M., Cullen-Lester, K., Porter, C., & Frear, K. (2021). Whether, how, and why networks influence men's and women's career success: Review and research agenda. *Journal of Management*, 47(1), 207–236. <https://doi.org/10.1177/0149206320960529>
- Wölfer, R., Bull, H. D., & Scheithauer, H. (2012). Social integration in youth: Insights from a social network perspective. *Group Dynamics: Theory, Research, and Practice*, 16(2), 138–147. <https://doi.org/10.1037/a0024765>
- Women in the Workplace 2017. (2017). LeanIn.Org and McKinsey. <https://womenintheworkplace.com/2017>
- Wood, W., & Eagly, A. H. (2009). Gender identity. In M. R. Leary & R. H. Hoyle (Eds.), *Handbook of individual differences in social behavior* (pp. 109–125). The Guilford Press.

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# **The Effect of Network Relationships on Individual Attitudes and Behaviors**



# Satisfied in the Outgroup: How Co-Worker Relational Energy Compensates for Low-Quality Relationships with Managers

Alexandra Gerbasi, Cécile Emery, Kristin Cullen-Lester,  
and Michelle Mahdon

## Introduction

Relationship-based approaches to leadership research engendered a shift from an analytical focus on the traits and behaviors characteristic of leaders to the social processes of leadership (Uhl-Bien, 2006). The most prominent relationship-based approach is the Leader-Member Exchange theory (hereafter LMX) which examines the *quality of the relationship* between leaders and followers (Graen & Uhl-Bien, 1995). LMX theory prescribes that effective leadership occurs when supervisors and

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subordinates develop high-quality relationships that can be characterized by higher levels of mutual trust, respect, liking, and loyalty. High-LMX relationships are envisioned as resource passageways through which supervisors and subordinates exchange and accumulate tangible and intangible resources (Halbesleben, 2006; Kalish et al., 2015), which are then related to employee effectiveness and positive work attitudes (for reviews of the outcomes of LMX see Anand et al., 2001; Dulebohn et al., 2012; Liden & Graen, 1980; Martin et al., 2016).

A critical resource likely to be exchanged in high-LMX relationships is relational energy. Relational energy is defined as “the heightened level of psychological resourcefulness generated from interpersonal interactions that enhances one’s capacity to do work” (Owens et al., 2016, p. 37). In other words, energizing social interactions at work stimulate a sense of vitality, vigor, and enthusiasm (e.g., psychological resourcefulness) which, in turn, allow employees to accomplish their work tasks and achieve their goals (Quinn et al., 2012). Relational energy is a unique form of energy that created in social interactions with other people rather individual factors such as sleep, nutrition, and exercise. As high-LMX relationships are defined as positive and effective relationships between supervisors and subordinates, it has been argued that LMX enhances subordinates’ levels of relational energy which, in turn, affects employee creativity (Atwater & Carmeli, 2009) and performance (Yang et al., 2017).

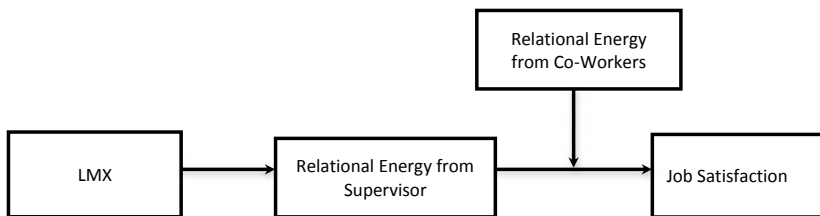
Yet, not all subordinates maintain a high-LMX relationship with their supervisor. Constrained by limited time and resources, supervisors tend to establish different quality relationships with different subordinates (Henderson et al., 2009; Liden et al., 1997). In contrast to high-LMX employees, low-LMX employees establish a contractual, task-related rapport with their supervisor (Graen & Uhl-Bien, 1995). As low-LMX relationships are characterized by lower levels of support and trust provided by leaders (Graen & Uhl-Bien, 1995), low-LMX employees are likely to possess limited, even insufficient, resources. Restricted from resources such as relational energy, low-LMX employees might lack the necessary psychological resources to achieve their work objectives and hence are less likely to perform well and be satisfied at work. We argue that, although placed at a resource disadvantage, low-LMX employees



can still achieve positive workplace outcomes as supervisors are not the only source of relational energy at work. Relational energy can flow through positive social interactions with co-workers as well. Indeed, accumulating evidence from social network studies has found that being embedded in a network of energizing ties at work helps employees to stay engaged and perform better (Baker et al., 2003; Cross & Parker, 2004; Cullen-Lester et al., 2016). Hence, being embedded in a network of energizing relationships with co-workers should therefore counterbalance the lack of relational energy low-LMX employees obtain from their supervisor.

In this chapter, we develop and empirically test a second-stage moderated-mediation model refining our understanding of the relational energy—job satisfaction relationship (Fig. 1). We argue that relational energy from the employee's supervisor partially mediates the relationship between LMX and employee job satisfaction (i.e., in part explaining the positive effect of high-quality supervisor relationships on employee job satisfaction). Furthermore, we argue that relational energy from co-workers will moderate the relationship between the quality of the supervisor relationship and job satisfaction, such that the strength of the relationship will be weaker when focal employees have more energizing relationships with their co-workers. We demonstrate that, while low-LMX employees receive less energy from their relationship with their supervisor, they can still be satisfied at work thanks to energy accumulated, replenished, and protected through their informal relationships with other co-workers.

The present study makes several contributions to the literature. First, it refines our understanding concerning the relationship between LMX and



**Fig. 1** Moderated-mediation model

relational energy. Owens and colleagues (2016) were the first to theoretically distinguish LMX from relational energy. LMX evokes the reciprocal exchange of resources between a leader and a follower and refers to the cognitive evaluation of relational quality between leaders and followers; on the other hand, relational energy is not necessarily a reciprocal construct (e.g., my leader can energize me but not vice-versa) and yet denotes the outcome of a dyadic interaction (i.e., enhanced motivation to do one's work). Owens et al. went on to suggest that relational energy is an outcome of the LMX relationship and provided initial evidence that they are distinct but related constructs. Yet, their investigation did not examine whether the relational energy experienced in high-quality LMX relationships (in part) explains the positive effects of LMX on job satisfaction. This paper hence extends previous understanding of the relationship between LMX, relational energy, and workplace attitudes by demonstrating that relational energy acts as a mediating mechanism explaining the LMX—job satisfaction relationship.

Our investigation further contributes to the literature on energy in the workplace. While the concept of energy benefits from strong theoretical foundations (e.g., Cross & Parker, 2004; Quinn & Dutton, 2005; Quinn et al., 2012), surprisingly few empirical studies have been conducted to support its theoretical claims. To date, most of this research has related levels of energy (*not* relational energy) to a variety of outcomes such as creativity (Atwater & Carmeli, 2009), performance (Fritz et al., 2011), and thriving (Carmeli & Spreitzer, 2009). Thus, despite the growing evidence regarding the positive work outcomes of energy, the role of different sources of energy in the workplace remains unclear. This is particularly problematic because if the aim is to better understand how to improve employee work attitudes and performance through relational energy, then the drivers of relational energy must be better articulated and empirically examined. In this paper, we examine two sources of relational energy—one's leader and co-workers at work—and discuss how the interaction between these potential relational energy sources affects employee job satisfaction.

While previous studies have investigated the effect of relational energy on employees' job performance (e.g., Owens et al., 2016; Parker & Gerbasi, 2016; Yang et al., 2017), considerably less is known regarding

attitudinal outcomes of relational energy. We focus our interest on employee job satisfaction, which is the overall evaluation of the favorability of one's job. By demonstrating that relational energy impacts outcomes other than performance, our work sheds light on the importance of relational energy in benefiting employees and, therefore, the workplace in general.

## Theory

### Leader-Member Exchange & Job Satisfaction

LMX is a theory of leadership based on dyadic exchanges between supervisors and subordinates. Its central tenet states that supervisors establish different quality relationships—ranging from high to low—between themselves and each subordinate. High-LMX relationships are characterized by high levels of trust, frequent interactions, and mutual support, which result in supervisors and subordinates establishing reciprocal trust, liking, respect, and loyalty (Liden & Maslyn, 1998). Low-LMX relationships, on the other hand, are limited exchanges prescribed by the employment contract and are mainly task-related in nature (Graen & Uhl-Bien, 1995; Liden & Graen, 1980).

From a resources theory perspective, employees' relationships with their supervisors are a primary means by which they accumulate, replenish, and protect resources (Halbesleben, 2006; Harris et al., 2011). Early research identified several types of resources—money, goods, service, status, information, and affiliation (Foa & Foa, 1980)—that can be exchanged within the context of the LMX relationship (Wilson et al., 2010). While high-LMX relationships facilitate such exchange of resources, low-LMX relationships constrain them (Epitropaki & Martin, 2013). In turn, these resources are likely to lead to job satisfaction, which is defined as a positive affective state that is linked to employees' appraisals of their job experiences as enjoyable and pleasant (Locke, 1976). Extensive evidence supports a positive association between LMX and job satisfaction (Gerstner & Day, 1997; Golden & Veiga, 2008; Rockstuhl et al., 2012).

## The Mediating Role of Relational Energy

Human energy consists not only of physical energy (e.g., “the capacity to do work”) but also of energetic activation, that is, the degree to which people *feel* energized (Quinn et al., 2012). Energy is defined as a “type of positive affective arousal, which people can experience as emotion— short responses to specific events – or moods – long-lasting affective states that need not be a response to a specific event” (Quinn & Dutton, 2005, p. 36) and is considered an important resource because it helps people regulate their behaviors and emotions to meet performance expectations and organizational norms. Yet, like a battery, human energy can be depleted over time if not regularly recharged (Hobfoll, 1989; Hobfoll & Shirom, 2001). To recharge batteries, people can engage in a variety of initiatives. At the individual level, people can obtain, build, and protect their energy level by adjusting their personal routines such as eating better, exercising, sleeping longer, taking micro-breaks at work (Fritz et al., 2011), or practicing mindfulness exercises (Bush, 2015). At the organizational level, a series of well-being initiatives (e.g., wellness programs, daycare, flexible work schedules, or ergonomic workspaces; Owens et al., 2016) have been implemented in order to respond to the “human energy crisis” (Loehr & Schwartz, 2003) and allow employees to maintain and boost their energy levels during the workday. Finally, day-to-day human interactions are a potential source of energy, that is, we can feel energized thanks to our relationships with others.

According to Quinn and Dutton’s (2005) Theory of Coordination, positive social interactions between two individuals are likely to increase levels of energy. Relational energy, defined as “the heightened level of psychological resourcefulness generated from interpersonal interactions which enhances one’s capacity to do work” (Owens et al., 2016, p. 36), has been established as a unique resource that flows through social relationships. When energized, employees experience feelings of vitality (Ryan & Frederick, 1997), vigor, and enthusiasm (Miller & Stiver, 1997). They feel more capable and eager to undertake a task (Dutton, 2003; Quinn & Dutton, 2005). Benefiting from a higher level of psychological resourcefulness, employees’ capacity for action and motivation is increased which, in turn, enables them to do their work and attain

their goals (Quinn et al., 2012). In other words, energy helps provide employees the required motivation to direct their efforts toward work tasks and hence improve their performance and job satisfaction.

Accumulating evidence suggests that relational energy, that is, energy experienced following social interactions with others, is associated with a range of positive attitudinal and performance outcomes (Baker et al., 2003; Cross & Parker, 2004; Owens et al., 2016; Parker & Gerbasi, 2016; Parker et al., 2013). For example, employees who are energized by their supervisors perform at higher levels (Baker et al., 2003; Cross & Parker, 2004). Parker and Gerbasi (2016) found that perceived social interactions that were energizing resulted in higher performance, which reduced involuntary turnover but increased voluntary turnover. Owens and colleagues (2016) showed that relational energy leads to greater job engagement which in turn increases job performance. On the other hand, experiencing de-energizing ties is associated with higher turnover (Parker & Gerbasi, 2016; Parker et al., 2013) and decreased performance (Gerbasi et al., 2015).

As relational energy emanates from positive dyadic exchanges and as LMX reflects the quality of the social exchange between supervisors and subordinates, we argue that high-LMX employees obtain greater energizing psychological resources from their supervisors, that is, they are more likely to report higher levels of relational energy (Dutton, 2003) than low-LMX employees. Our argument is in line with previous research suggesting that employees experience higher levels of energy when they have positive interactions with their supervisors (Atwater & Carmeli, 2009). The energy high-LMX employees experience is a psychological resource that, in turn, increases their satisfaction with their job. In sum, we argue that relational energy from an employee's supervisor will mediate the relationship between his or her LMX and job satisfaction.

**Hypothesis 1** Relational Energy from Supervisor Will Mediate the Relationship Between LMX and Job Satisfaction.

## The Moderating Role of Co-Worker Relational Energy

Although we have argued that the relationship between LMX and job satisfaction is mediated by relational energy from the employee's supervisor, we expect the strength of this relationship to differ depending on the relational energy employees receive from other organizational members. Indeed, relational energy is not limited to leader–follower dyads only. Since energy is transmitted through engaging in conversations with others that lead to a sense of progress and a feeling of momentum in one's work (Dutton, 2003; Quinn & Dutton, 2005), conversations between any two organizational members have the potential to boost employees' energy levels (Cole et al., 2012). Hence, we argue that relational energy from co-workers will moderate the strength of the relationship between LMX and job satisfaction via relational energy from a supervisor, such that the mediated relationship will be weaker for employees who are embedded in a larger relational energy network.

Decades of intra-organizational network research have discussed how informal relationships form the underlying structure of most organizations (e.g., “the organization behind the chart”; Krackhardt & Hanson, 1993) and how these informal networks facilitate access to valuable information, resources, and opportunities outside of formal work structures (Brass et al., 2004; Labianca & Brass, 2006; Sparrowe & Liden, 2005; Venkataramani & Dalal, 2007). Informal networks give access to a variety of resources (e.g., information, support, advice, emotions, etc.) that, in turn, translate into facilitated actions and rewards within that social structure (Oh et al., 2004, 2006; Zhang & Peterson, 2011). For example, research by McCarthy et al. (2016) suggests that the greater the quality of the social exchange between two organizational members, the greater aid employees receive in their daily work activities.

Relational energy, by definition, occurs within personal interactions. It has been suggested that relational energy can be transmitted as soon as people start interacting with each other. Whether interacting with other co-workers leaves employees feeling energized or drained depends on the quality of that particular social exchange (Cole et al., 2012). Exchanges that are challenging, irritating, frustrating, or even rude (Demerouti et al., 2001) are more likely to drain the energy out of people (Fritz et al.,

2011). On the other hand, members of a dyad whose exchanges are characterized by positive interactions, mutual dependency, momentum, and progress toward achieving one's goals and objectives (Quinn & Dutton, 2005) are more likely to generate higher levels of relational energy. Evidence suggests that the larger the number of energizing relationships one experiences at work, the greater one's participation, involvement, and performance in the workplace (Dutton, 2003; Gerbasi et al., 2015). In other words, employees embedded in a larger network of energizing relationships are more likely to report heightened level of psychological resourcefulness which enhances their capacity to do work and ultimately feel satisfied with their work.

We, therefore, argue that energizing relationships with co-workers can help employees accumulate, boost, and protect energy resources necessary to enhance their job satisfaction. Employees who have other sources of relational energy in their workplace, beyond their supervisor, will be less dependent on the energy derived from a high-quality LMX relationship to be satisfied with their job. Further, although low-LMX employees may receive limited relational energy from their supervisor, energizing relationships with co-workers have the potential to help low-LMX employees make up this energy deficit. In sum, we postulate that the relational energy employees experience in their co-worker relationships will moderate the strength of the relationship between LMX and job satisfaction via relational energy from their supervisor, such that the mediated relationship will be weaker when employees have a more energizing network of relationships with their co-workers.

**Hypothesis 2** Relational energy from co-workers will moderate the strength of the relationship between LMX and job satisfaction via relational energy from supervisor, such that the mediated relationship will be weaker when employees' have energizing relationships with their coworkers.

## Method

### Participants and Procedure

A social network analysis survey was conducted with the engineering department (211 participants) of a large multinational Fortune 500 manufacturing corporation in early 2017. The work of this department requires information sharing and decision-making by interacting with a variety of individuals both within and across 17 work groups (ranging from five to twenty members each). Participants were presented with the entire roster of employees in the engineering division and asked to “Identify those people you personally know (i.e., you have actually interacted with or met).” This roster method of data collection was used because it has been shown to result in more accurate and reliable data (Marsden, 1990). The response rate of 87.7% is comparable to other network studies (e.g., Sasovova et al., 2010; Sparrowe et al., 2001). Non-respondents were dropped from the study (including outgoing ties from participants to non-respondents) resulting in a final sample of 185 employees. In this sample, the majority of employees were male (92%), individual contributors (52%, i.e., did not have supervisory responsibilities), and had an average tenure of 15.51 years of service ( $SD = 8.29$ ). Non-respondents did not significantly differ from respondents with respect to gender, managerial responsibility, or tenure.

### Measures

#### Lmx

Each participant completed the LMX-7 scale (Graen & Uhl-Bien, 1995). This scale is the most widely used measure of the relationship quality between the participant (subordinate) and his or her supervisor (manager). The scale consists of seven items that are answered on a 5-point scale. An example item is: “To what extent does your manager understand your work problems and needs” ( $\alpha = 0.86$ ).



## Relational Energy

To assess the extent to which the employees' network connections provided them with relational energy, participants were asked, "People can affect the energy and enthusiasm we have at work in various ways. Interactions with some people leave you feeling drained while others leave you feeling enthused about possibilities and/or can help to re-energize you in your work when you have had a bad day. When you interact with each person below, how does it typically affect your energy level?" The response scale was (1) Strongly De-energizing, (2) De-energizing, (3) Neutral, (4) Energizing, (5) Strongly Energizing (Cross & Parker, 2004; Gerbasi et al., 2015).

### *Relational Energy from Co-Workers*

To measure how energizing participants found each of their network contacts, we computed their total outgoing energy score, that is, how energizing their network connections are aside from their supervisor. This is the sum of the individual evaluations participants made of their co-workers, thus it combines both the valance of each tie and the total number of ties.

### *Relational Energy from Supervisors*

To assess the energizing nature of employees' relationships with their supervisors, we took a subset of the energy network described above. We extracted each employee's rating of their supervisor from their network data and included that as the rating of relational energy with their supervisor.

## Job Satisfaction

We measured job satisfaction using the three-item measure from Zablah et al. (2016). Participants responded on a 5-point Likert-type scale

ranging from Strongly Disagree (1) to Strongly Agree (5). An example item is “All in all, I am satisfied with my job.” We computed the average of the three items. Cronbach’s alpha was 0.82.

## Control Variables

We included three demographic variables (tenure, gender, and managerial responsibility) to control for individual characteristics of employees in this study. We also included each employee’s performance rating from the prior year. Prior research has shown the relationship between relational energy and performance (e.g., Cross & Parker, 2004; Gerbasi et al., 2015; Owens et al., 2016) thus it is important to control for the fact that an individual’s level of performance can influence that individual’s relationships with their supervisor, colleagues, and their job satisfaction. Individual performance ratings were collected from the HR department. Each employee who participated in this study was rated annually by their supervisor. The performance scale ranges from 1 (low level of performance) to 4 (exceptional performance).

## Results

Descriptive statistics and correlations for all variables used in the analysis are presented in Table 1.

To test our hypotheses, we estimated a series of multivariate linear regressions (presented in Tables 2 and 3), with robust standard errors (Huber, 1996; White, 1980) to account for our observations not being fully independent. In Model 1, we included the control variables. In Model 2, we added the effect of the LMX relationship. In Model 3, we added the main effect of relational energy from the supervisor relationship. In Model 4, we added the effect of relational energy from co-workers. Finally, in Model 5 we include the mean-centered interaction between relational energy from the supervisor and relational energy from co-workers. To test Hypothesis 1, we also included a set of models

**Table 1** Descriptive statistics and correlations

	Mean	SD	1	2	3	4	5	6	7
1 Tenure	15.51	8.29							
2 Gender (1 = female)	0.08	0.27	-0.15						
3 Hierarchy (1 = supervisor)	0.54	0.50	0.20	-0.06					
4 Current year performance	2.69	0.55	0.14	-0.07	0.30				
5 LMX	0.03	0.76	0.03	-0.09	0.19	0.25			
6 Relational energy from supervisor	3.97	0.95	0.05	-0.02	0.11	0.05	0.69		
7 Relational energy from co-workers	111.12	75.46	0.25	-0.11	0.16	0.05	0.11	0.18	
8 Job satisfaction	3.98	0.63	0.05	0.03	0.18	0.03	0.46	0.49	0.21

$N = 185$ , all values  $\pm 0.15$  are significant at  $p < 0.05$ , all values  $\pm 0.20$  are significant at  $p < 0.01$ .

that predicted the effect of LMX on the relational energy of the supervisor. As recommended by Preacher et al. (2007), we derived the direct and indirect effects of the independent variable on the dependent variable through the mediators at various levels of the moderator based on a family of equations that comprise the moderated mediation model. To estimate these effects, we used the PROCESS macro for SPSS (Hayes, 2013) and tested the effects for statistical significance using 95% bootstrapped confidence intervals based on 1000 samples to avoid concerns regarding inflated Type 1 error rate (cf. Shrout & Bolger, 2002).

In Model 1 of Table 2, only hierarchy had a significant effect on job satisfaction ( $b = 0.28$ ,  $p < 0.05$ ), such that those with managerial responsibilities reported higher job satisfaction. In Model 2, we find that LMX has a positive and significant effect on job satisfaction ( $b = 0.375$ ,  $p < 0.01$ ), reaffirming previous findings that individuals with higher LMX relationships experience higher levels of job satisfaction (Gerstner & Day, 1997; Rockstuhl et al., 2012). To test Hypothesis 1, we estimated Model 3 in Table 2 (adding the main effect of the energy level of the supervisor to our model of job satisfaction) and find that the relational energy from the supervisor has a positive and significant effect on their own job satisfaction ( $b = 0.301$ ,  $p < 0.05$ ). After including the mediator, we find that LMX still has a positive and significant effect on job satisfaction, although the magnitude of this effect is weakened ( $b = 0.186$ ,  $p <$

**Table 2** Estimates of LMX, relational energy from supervisor and co-workers on job satisfaction

	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	SD	B	SD	B	SD	B	SD	B	SD
Tenure	0.004	0.007	0.003	0.006	-0.001	0.006	-0.001	0.006	0.001	0.007
Gender (1 = female)	0.184	0.226	0.270	0.216	0.232	0.212	0.246	0.206	0.226	0.141
Hierarchy (1 = supervisor)	0.280*	0.121	0.209	0.111	0.201	0.115	0.220	0.111	0.219	0.119
Performance	-0.040	0.115	-0.161	0.106	-0.097	0.112	-0.095	0.109	-0.118	0.123
LMX			0.375**	0.070	0.186**	0.088	0.173*	0.085	0.199*	0.092
Relational energy from supervisor					0.302*	0.081	0.243**	0.081	0.201*	0.084
Relational energy from co-workers							0.023*	0.011	0.018*	0.004
Relational energy from supervisor X relational energy from co-workers									-0.010*	0.005
Intercept	3.673	0.329	2.623	0.356	1.957	0.395	0.983	0.538	3.574	0.537
R <sup>2</sup>	0.080		0.230		0.370		0.410		0.480	
ΔR <sup>2</sup>			0.150		0.130		0.040		0.070	

N = 185, \*p < 0.05, \*\*p < 0.01.

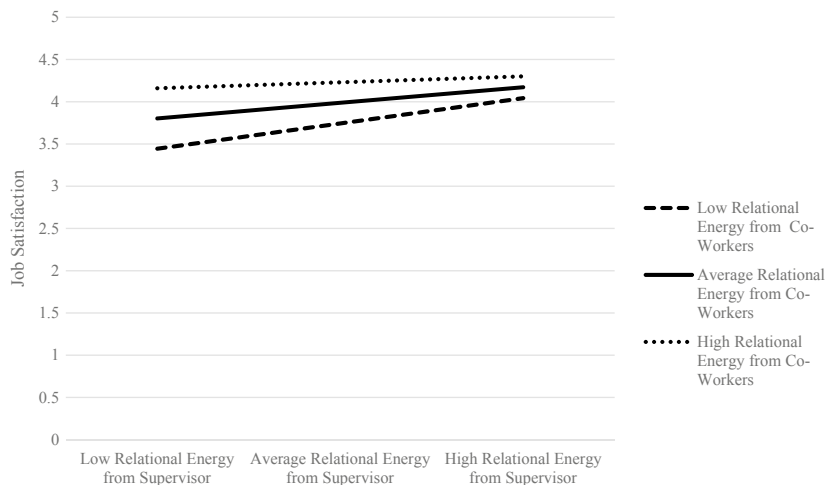
**Table 3** Estimates of LMX on relational energy from supervisor

	Model 1		Model 2	
	<i>B</i>	SD	<i>B</i>	SD
Tenure	0.007	0.010	0.007	0.008
Gender (1 = female)	0.012	0.353	0.202	0.276
Hierarchy (1 = supervisor)	0.044	0.189	-0.114	0.149
Performance	0.089	0.184	-0.102	0.146
LMX			0.687**	0.089
Intercept	3.580	0.530	1.580	0.488
$R^2$	0.010		0.400	
$\Delta R^2$			0.390	

$N = 185$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ .

0.01). Additionally, we tested Model 2 in Table 3 (testing the effect of LMX on the relational energy from the supervisor) and found that LMX is positively associated with the relational energy from the supervisor ( $b = 0.687$ ,  $p < 0.01$ ). Finally, we tested the indirect effect of LMX on job satisfaction through the relational energy from the supervisor. The significance of the indirect effect is indicated by the exclusion of zero from the 95% unstandardized confidence interval. We found that the indirect effect of LMX on job satisfaction via the energy level of the supervisor was significant [unstandardized indirect effect = 0.158; 95% CI (0.0220, 0.2996)], thus supporting Hypothesis 1.

In order to test Hypothesis 2, that the mediation of the effect of LMX on job satisfaction via relational energy from the supervisor will be moderated by relational energy from network connections, we estimated a mediated moderation, with the moderation at the second stage. The results are presented in Model 5 of Table 2. There is a significant direct effect of LMX on job satisfaction ( $b = 0.199$ ,  $p < 0.05$ ). There are positive direct effects of relational energy both from the supervisor ( $b = 0.2061$ ,  $p < 0.05$ ) and from co-workers ( $b = 0.018$ ,  $p < 0.05$ ). The mean-centered interaction between relational energy from the supervisor and the relational energy from network connections is negative and significant ( $b = -0.010$ ,  $p < 0.05$ ). We present a graph of the interaction effect in Fig. 2. We also estimated the conditional indirect effect at three different levels of the moderator (one standard deviation below the mean, at the mean, and one standard deviation above the mean). Again,



**Fig. 2** Interaction effects of relational energy from supervisor and relational energy from co-workers on job satisfaction

the significance of the indirect effect is indicated by the exclusion of zero from the 95% unstandardized confidence interval. We find evidence to support our Hypothesis 2 at one standard deviation below the mean [unstandardized indirect effect = 0.2407; 95% CI (0.1150, 0.4155)], and at the mean [unstandardized indirect effect = 0.1487; 95% CI (0.0486, 0.2906)], but not at one standard deviation above the mean [unstandardized indirect effect = 0.0567; 95% CI (-0.0847, 0.2285)]. These findings provide support for our hypothesis that energizing relationships with co-workers can help attenuate the effect of LMX-quality on employees' job satisfaction through the relational energy of the supervisory relationship. An implication of this is that even employees with low-quality relationships with their supervisor can be satisfied if they experience energy in the relationships they have with other colleagues.

## Discussion

In this study, we set out to better understand the relationship between LMX, relational energy, and employee job satisfaction. We tested our

second-stage moderated-mediation model using organizational network data. Our results suggest that relational energy mediates the relationship between LMX and employee job satisfaction. Furthermore, we found empirical support for relational energy from co-workers moderating the strength of the relationship between LMX and job satisfaction via relational energy from supervisor, such that the mediated relationship was weaker (and not significant) under high relational energy from co-workers than low or average levels of relational energy from co-workers. A closer examination of the interaction effect reveals that although low-LMX employees receive less relational energy from their supervisor, they can still be satisfied at work when they acquire relational energy through their informal relationships with other co-workers.

Our findings offer important theoretical and practical implications. First, these findings further demonstrate the importance of relational energy within the workplace. Second, they offer hope for employees who are not receiving energy as a resource from their supervisory relationship: these employees can find the energy they need to be satisfied with their job through their relationships with other colleagues in the workplace. Given the importance of relational energy to employee job satisfaction, supervisors and employees should pay attention to the energy they are experiencing in their interactions and seek ways to maximize it. Such interactions are characterized by a sense of progress and momentum and thus, provide the motivational resources employees draw on to experience job satisfaction.

This study refines our understanding of the LMX–relational energy relationship. We provide new evidence that relational energy emanates from the LMX relationship hence confirming Owens and colleagues' (2016) original findings. Our investigation goes a step further and demonstrates that the relational energy experienced in high-quality LMX relationships (in part) explains the positive effects of high LMX on job satisfaction. We offer, to our knowledge, the first empirical evidence that relational energy is a mediating mechanism explaining the LMX—job satisfaction relationship. Furthermore, while the effect of relational energy on employees' job performance has been documented in the literature (e.g., Owens et al., 2016; Parker & Gerbasi, 2016; Yang et al.,

2017), considerably less is known regarding attitudinal outcomes of relational energy. We focus our interest on employee job satisfaction, which is the overall evaluation of the favorability of one's job. By demonstrating that relational energy impacts outcomes other than performance, our work sheds light on the importance of relational energy in benefiting employees and, therefore, the workplace in general.

Our investigation further contributes to the literature on relational energy in the workplace. Prior research has tended to focus on relational energy within leader–follower dyads (Atwater & Carmeli, 2009; Owens et al., 2016) or more broadly on the positive benefits of energizing relationships. Hence, whether different actors (e.g., supervisors and co-workers) had a different role to play in energizing employees was left unaddressed. In this paper, we examine two sources of relational energy—leader and co-workers—and discuss how their interaction affects employee job satisfaction. We report the first study to attempt to disentangle the sources of relational energy within the workplace to better understand how co-worker energizing relationships may serve as a supplement to bolster job satisfaction for employees in low-LMX relationships who do not receive energy from their supervisor relationship. We extend previous research by demonstrating how the different sources of relational energy (from supervisor, from co-workers) interact together.

## Limitations

As is the case for any empirical investigation, there are several limitations that should be taken into consideration when interpreting the results of this study. First, we acknowledge that our field data were self-reported and cross-sectional. Even though we took several initiatives to minimize its effects (Podsakoff et al., 2003), the common method variance is a potential concern here as systematic bias could occur. Second, we must consider the generalizability of the study, as surveys were only distributed to a single organization. The ability to make a more generalized statement can only come from replications of our findings in other organizational and cultural contexts. Third, consistent with previous research (Cross & Parker, 2004; Gerbasi et al., 2015), we took a network



approach to measure relational energy. That is, we used a roster method asking each respondent to report how energizing (or not) their relationship is with each of their colleagues (i.e., the 211 other employees who worked for the engineering department we surveyed). This approach allowed us to get a fine-grained network representation of all energizing ties within the department, revealing information that a general measure of relational energy could not. To minimize time constraints for our participants and preserve the quality of our data, we had to rely on a single-item measure of relational energy (see item description). Future research may use a multi-item measure of relational energy, perhaps when working within smaller work units (e.g., teams) where the response burden would not be so high for participants.

## Future Directions

Only a handful of antecedents of relational energy have been empirically investigated in the literature: employee-extraversion (Cullen-Lester et al., 2016), spiritual leadership (Yang et al., 2017), leader humor (Yang et al., 2021). We echo Yang and colleagues (2017) who call for more research examining the antecedents of relational energy both at the individual and dyadic levels. At the dyadic level, future research might explore the effects of power, status, or perceived relationship value/importance on relational energy. Indeed, one might question whether the level of relational energy experienced is contingent on how much a person values a particular relationship. Take the example of an employee who gives great importance to the relationship that he/she maintains with his/her supervisor. It is plausible that this employee will be more “receptive” to relational energy from their leader and less receptive to relational energy emanating from interactions with other organizational members such as peers. For those employees who give greater value, importance to formal relationships in the workplace, it is possible that our results would not hold, that is, that relational energy from co-workers would not be sufficient to compensate for the lack of relational energy from a low-LMX relationship.

Although supervisors have been identified as an important source of relational energy, we demonstrate that other social contacts, namely co-workers, can be a relational substitute providing that relational energy. In other words, leaders are not the only source of relational energy available to employees. Yet, we do not know whether relational energy can be replaced with other relational resources such as friendship or emotional support. The Conservation of Resources theory suggests that resources can be substituted; meaning that an individual might be able to compensate for lacking resources by leveraging his or her access to another resource (Hobfoll & Leiberma, 1987). We call for future research to examine the interchangeability of resources accessed through social relationships.

Social network research has informed us that not only direct, but also indirect, relationships matter. For example, Rosenquist et al. (2011) recently demonstrated that depressive symptoms are partially explained by person-to-person and by network-level spread: results showed both symptoms of depression in a given period were strongly correlated with such scores in one's friends and neighbors and this association extended up to three degrees of separation (to one's friends' friends' friends). Similar findings hold for loneliness (Cacioppo et al., 2009) and happiness (Fowler & Christakis, 2008). This line of enquiry raises the following question: does the relational energy that our connections experience matter? In other words, is it possible that our own relational energy is dependent on the relational energy that our contacts obtain from their respective social connections?

## **Individual and Organizational Strategies to Promote Relational Energy**

### **Check-In: Conduct Relational Energy Audits**

Our research highlights that managers are not the only source of relational energy in organizations: people should never forget that alternative sources of relational energy exist in their co-workers both within and outside their work team. We recommend that individuals regularly

perform a relational energy audit: take stock of who energizes them and think of ways to maximize their interactions with that person and minimize time spent with people who fail to energize or worse drain them of their energy.

### **Search for Relational Energy: Expand Your Network**

Having a low-quality relationship with one's manager can affect within-group relationships. For example, research has shown that low-LMX employees can experience feelings of distrust, dislike, and envy toward high-LMX co-workers (Duffy & Shaw, 2000; Sias & Jablin, 1995), and report lower levels of dyad cohesion (Sherony & Green, 2002). Low-LMX employees are hence more likely to withdraw from team dynamics. Low-LMX employees who socially distance themselves from their team members face a double energy penalty: their team members might not provide them with the relational energy sufficient to keep them motivated and satisfied. When restoring relationships with team members has become complicated or impossible, low-LMX employees should seek relational energy outside of the workgroup, for example, by joining employee networks or informal groups within their organizations.

### **Construct a Relational Energy Battery: Create a Positive High-Energy Climate**

Relational energy comes from positive interactions with people. Theoretically, every team member represents a source of relational energy to somebody else. It is hence important to establish a high-energy climate so that people not only feel energized but also share some of that energy with others. Leaders can put simple initiatives in place to create a positive and high-energy team. For example, they should build a sense of community: people who feel part of something special are more likely to bond with each other and experience a feeling of camaraderie.

Relational energy can also be acquired through positive social interactions with co-workers, thus, human resource practitioners might consider promoting a positive organizational climate beneficial that

provides for positive, energetic relationships to occur, recognizing the boost to relational energy and thus job satisfaction that can come from informal relationships across the organization.

### **Recharge Leader's Energy Batteries**

The LMX relationship is instrumental in developing employee relational energy, which increases employee job satisfaction. This implies that managers need to have their own energy levels replenished in order to be energetic, positive, friendly, and approachable to their followers. Yet, the COVID-19 pandemic has had a dramatic detrimental effect on managers' energy levels and overall well-being: reports suggest that about 80% of managers experienced mental health issues in 2020 and 38 percent turned to drugs or alcohol to cope with their stress (Jackson, 2020). Leaders cannot be a source of relational energy to others if their own energy levels are depleted: they must put their own oxygen mask first if they want to be able to energize others. It is therefore essential for organizations to support their managers by offering wellness initiatives and greater support.

### **Conclusion**

Research on relational energy has gained momentum in the literature. As it stands, this literature has theoretically refined the concept of relational energy (Owens et al., 2016) and empirically demonstrated that relational energy is positively associated with greater employee performance (Cross & Parker, 2004; Gerbasi et al., 2015; Owens et al., 2016; Parker & Gerbasi, 2016; Yang et al., 2017). Yet, as emphasized by Yang and colleagues (2017), more work is necessary to refine our understanding of how energy transfers between individuals. As the literature remains obscure regarding the different sources of relational energy, we shed light on this process and investigate how relational energy derived from different types of social partners (supervisors, co-workers) interacts to influence an employees' job satisfaction. This study extends knowledge

about the relationship between LMX and job satisfaction by probing the mediating role of relational energy from one's supervisor and the moderating effect of relational energy from one's co-workers. We demonstrate that, while low-LMX employees receive less relational energy from their supervisor, they can still be satisfied at work thanks to energy accumulated, replenished, and protected through their informal relationships with other co-workers.

## References

- Anand, S., Hu, J., Liden, R. C., & Vidayarthi, P. R. (2001). Leader-member exchange: Recent research findings and prospects for the future. In A. Bryman, D. Collinson, K. Grint, B. Jackson, & M. Uhl-Bien (Eds.), *The Sage handbook of leadership* (pp. 311–325). Sage.
- Atwater, L., & Carmeli, A. (2009). Leader–member exchange, feelings of energy, and involvement in creative work. *The Leadership Quarterly*, 20(3), 264–275. <https://doi.org/10.1016/j.leaqua.2007.07.009>
- Baker, W., Cross, R., & Wooten, M. (2003). Positive organizational network analysis and energizing relationships. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 328–342). Berrett-Koehler.
- Brass, D. J., Galaskiewicz, J., Greve, H. R., & Tsai, W. (2004). Taking stock of networks and organizations: A multilevel perspective. *Academy of Management Journal*, 47(6), 795–817. <https://doi.org/10.2307/20159624>
- Bush, M. (2015). Awakening at work: Introducing mindfulness into organizations. In J. Reb & P. W. B. Atkins (Eds.), *Mindfulness in Organizations: Foundations, Research, and Applications* (pp. 333–354). Cambridge University Press.
- Cacioppo, J. T., Fowler, J. H., & Christakis, N. A. (2009). Alone in the crowd: The structure and spread of loneliness in a large social network. *Journal of Personality and Social Psychology*, 97(6), 977–991. <https://doi.org/10.1037/a0016076>
- Carmeli, A., & Spreitzer, G. M. (2009). Trust, connectivity, and thriving: Implications for innovative behaviors at work. *Journal of Creative Behavior*, 43(3), 169–191. <https://doi.org/10.1002/j.2162-6057.2009.tb01313.x>

- Cole, M. S., Bruch, H., & Vogel, B. (2012). Energy at work: A measurement validation and linkage to unit effectiveness. *Journal of Organizational Behavior*, 33, 445–467. <https://doi.org/10.1002/job.759>
- Cross, R., & Parker, A. (2004). *The hidden power of social networks: Understanding how work really gets done in organizations*. Harvard Business School Press.
- Cullen-Lester, K. L., Leroy, H., Gerbasi, A., & Nishii, L. (2016). Energy's role in the extraversion (dis) advantage: How energy ties and task conflict help clarify the relationship between extraversion and proactive performance. *Journal of Organizational Behavior*, 37(7), 1003–1022. <https://doi.org/10.1002/job.2087>
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86(3), 499–512. <https://doi.org/10.1037/0021-9010.86.3.499>
- Dulebohn, J. H., Bommer, W. H., Liden, R. C., Brouer, R. L., & Ferris, G. R. (2012). A meta-analysis of antecedents and consequences of leader-member exchange integrating the past with an eye toward the future. *Journal of Management*, 38(6), 1715–1759. <https://doi.org/10.1177/0149206311415280>
- Duffy, M. K., & Shaw, J. D. (2000). The salieri syndrome: Consequences of envy in small groups. *Small Group Research*, 31(1), 3–23. <https://doi.org/10.1177/104649640003100101>
- Dutton, J. E. (2003). *Energize your workplace: How to build and sustain high-quality relationships at work*. Jossey-Bass.
- Epitropaki, O., & Martin, R. (2013). Transformational–transactional leadership and upward influence: The role of relative leader–member exchanges (RLMX) and perceived organizational support (POS). *The Leadership Quarterly*, 24(2), 299–315. <https://doi.org/10.1016/j.leaqua.2012.11.007>
- Foa, E. B., & Foa, U. G. (1980). Resource theory: Interpersonal behavior as exchange. In K. J. Gergen, M. S. Greenberg, & H. R. Willis (Eds.), *Social exchange: Advances in theory and research* (pp. 74–90). Plenum Press.
- Fowler, J. H., & Christakis, N. A. (2008). Dynamic spread of happiness in a large social network: Longitudinal analysis over 20 years in the Framingham Heart Study. *BMJ*, 337, a2338. <https://doi.org/10.1136/bmj.a2338>
- Fritz, C., Lam, C. F., & Spreitzer, G. M. (2011). It's the little things that matter: An examination of knowledge workers' energy management. *Academy of Management Perspective*, 25, 28–39. <https://doi.org/10.1108/dlo.2012.08126aaa.010>

- Gerbası, A., Porath, C. L., Parker, A., Spreitzer, G., & Cross, R. (2015). Destructive de-energizing relationships: How thriving buffers their effect on performance. *Journal of Applied Psychology, 100*(5), 1423–1433. <https://doi.org/10.1037/apl0000015>
- Gerstner, C. R., & Day, D. V. (1997). Meta-Analytic review of leader-member exchange theory: Correlates and construct issues. *Journal of Applied Psychology, 82*(6), 827–844. <https://doi.org/10.1037/0021-9010.82.6.827>
- Golden, T. D., & Veiga, J. F. (2008). The impact of superior-subordinate relationships on the commitment, job satisfaction, and performance of virtual workers. *The Leadership Quarterly, 19*, 77–88. <https://doi.org/10.1016/j.leaqua.2007.12.009>
- Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly, 6*, 219–247. [https://doi.org/10.1016/1048-9843\(95\)90036-5](https://doi.org/10.1016/1048-9843(95)90036-5)
- Halbesleben, J. R. (2006). Sources of social support and burnout: A meta-analytic test of the conservation of resources model. *Journal of Applied Psychology, 91*(5), 1134–1145. <https://doi.org/10.1037/0021-9010.91.5.1134>
- Harris, K. J., Wheeler, A. R., & Kacmar, K. M. (2011). The mediating role of organizational job embeddedness in the LMX-outcomes relationships. *The Leadership Quarterly, 22*(2), 271–281. <https://doi.org/10.1016/j.leaqua.2011.02.003>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis. A regression-based approach*. Guilford.
- Henderson, D. J., Liden, R. C., Glibkowski, B. C., & Chaudhry, A. (2009). LMX differentiation: A multilevel review and examination of its antecedents and outcomes. *Leadership Quarterly, 20*(4), 517–534. <https://doi.org/10.1016/j.leaqua.2009.04.003>
- Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*(3), 513–524. <https://doi.org/10.1037/0003-066X.44.3.513>
- Hobfoll, S. E., & Leiberman, J. R. (1987). Personality and social resources in immediate and continued stress resistance among women. *Journal of Personality and Social Psychology, 52*, 18–26. <https://doi.org/10.1037/0022-3514.52.1.18>

- Hobfoll, S. E., & Shirom, A. (2001). Conservation of resources theory: Applications to stress and management in the workplace. In R. T. Golembiewski (Ed.), *Handbook of organizational behavior* (pp. 57–80). Marcel Dekker.
- Huber, P. J. (1996). *Robust statistical procedures*. Society for Industrial and Applied Mathematics.
- Jackson, B. (2020). Business leaders self-medicating with drugs and alcohol to cope with mental health problems. <https://www.hrmagazine.co.uk/content/news/business-leaders-self-medicating-with-drugs-and-alcohol-to-cope-with-mental-health-problems>
- Kalish, Y., Luria, G., Toker, S., & Westman, M. (2015). Till stress do us part: On the interplay between perceived stress and communication network dynamics. *Journal of Applied Psychology*, *100*(6), 1737–1751. <https://doi.org/10.1037/apl0000023>
- Krackhardt, D., & Hanson, J. R. (1993). Informal networks. *Harvard Business Review*, *71*(4), 104–111.
- Labianca, G., & Brass, D. J. (2006). Exploring the social ledger: Negative relationships and negative asymmetry in social networks in organizations. *Academy of Management Review*, *31*(3), 596–614. <https://doi.org/10.5465/AMR.2006.21318920>
- Liden, R. C., & Graen, G. (1980). Generalizability of the vertical dyad linkage model of leadership. *Academy of Management Journal*, *23*(3), 451–465. <https://doi.org/10.2307/255511>
- Liden, R. C., & Maslyn, J. M. (1998). Multidimensionality of leader-member exchange: An empirical assessment through scale development. *Journal of Management*, *24*(1), 43–72. <https://doi.org/10.1177/014920639802400105>
- Liden, R. C., Sparrowe, R. T., & Wayne, S. J. (1997). Leader-member exchange theory: The past and potential for the future. *Research in Personnel and Human Resources Management*, *15*, 47–120.
- Locke, E. A. (1976). The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1297–1349). Rand McNally.
- Loehr, J., & Schwartz, T. (2003). *The power of full engagement: Managing energy. Not time, is the key to high performance and personal renewal*. Simon. Free Press.
- Marsden, P. V. (1990). Network data and measurement. In W. R. Scott & J. Blake (Eds.), *Annual review of sociology* (pp. 435–463). Annual Reviews.



- Martin, R., Guillaume, Y., Thomas, G., Lee, A., & Epitropaki, O. (2016). Leader–member exchange (LMX) and performance: A meta-analytic review. *Personnel Psychology, 69*(1), 67–121. <https://doi.org/10.1111/peps.12100>
- McCarthy, J. M., Trougakos, J. P., & Cheng, B. H. (2016). Are anxious workers less productive workers? It depends on the quality of social exchange. *Journal of Applied Psychology, 101*, 279–291. <https://doi.org/10.1037/apl0000044>
- Miller, J. B., & Stiver, I. P. (1997). *The healing connection*. Beacon Press.
- Oh, H., Chung, M. H., & Labianca, G. (2004). Group social capital and group effectiveness: The role of informal socializing ties. *Academy of Management Journal, 47*(6), 860–875. <https://doi.org/10.2307/20159627>
- Oh, H., Labianca, G., & Chung, M. H. (2006). A multilevel model of group social capital. *Academy of Management Review, 31*(3), 569–582. <https://doi.org/10.5465/AMR.2006.21318918>
- Owens, B. P., Baker, W. E., Sumpter, D. M., & Cameron, K. S. (2016). Relational energy at work: Implications for job engagement and job performance. *Journal of Applied Psychology, 101*(1), 35–49. <https://doi.org/10.1037/apl0000032>
- Parker, A., & Gerbasi, A. (2016). The impact of energizing interactions on voluntary and involuntary turnover. *M@n@gement, 19*(3), 177–202. <https://doi.org/10.3917/mana.193.0177>
- Parker, A., Gerbasi, A., & Porath, C. L. (2013). The effects of de-energizing ties in organizations and how to manage them. *Organizational Dynamics, 42*, 110–118. <https://doi.org/10.1016/j.orgdyn.2013.03.004>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research, 42*(1), 185–227. <https://doi.org/10.1080/00273170701341316>
- Quinn, R. W., & Dutton, J. E. (2005). Coordination as energy-in-conversation. *Academy of Management Review, 30*(1), 36–57. <https://doi.org/10.5465/AMR.2005.15281422>
- Quinn, R. W., Spreitzer, G. M., & Lam, C. F. (2012). Building a sustainable model of human energy in organizations: Exploring the critical role of resources. *Academy of Management Annals, 6*(1), 337–396. <https://doi.org/10.1080/19416520.2012.676762>

- Rockstuhl, T., Dulebohn, J. H., Ang, S., & Shore, L. M. (2012). Leader-member exchange (LMX) and culture: A meta-analysis of correlates of LMX across 23 countries. *Journal of Applied Psychology, 97*(6), 1097–1130. <https://doi.org/10.1037/a0029978>
- Rosenquist, J. N., Fowler, J. H., & Christakis, N. A. (2011). Social network determinants of depression. *Molecular Psychiatry, 16*(3), 273–281. <https://doi.org/10.1038/mp.2010.13>
- Ryan, R. M., & Frederick, C. (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality, 65*(3), 529–565. <https://doi.org/10.1111/j.1467-6494.1997.tb00326.x>
- Sasovova, Z., Mehra, A., Borgatti, S. P., & Schippers, M. C. (2010). Network churn: The effects of self-monitoring personality on brokerage dynamics. *Administrative Science Quarterly, 55*, 639–670. <https://doi.org/10.2189/asqu.2010.55.4.639>
- Sias, P. M., & Jablin, F. M. (1995). Differential superior-subordinate relations, perceptions of fairness, and coworker communication. *Human Communication Research, 22*(1), 5–38. <https://doi.org/10.1111/j.1468-2958.1995.tb00360.x>
- Sherony, K. M., & Green, S. G. (2002). Coworker exchange: Relationships between coworkers, leader-member exchange, and work attitudes. *Journal of Applied Psychology, 87*(3), 542–548. <https://doi.org/10.1037/0021-9010.87.3.542>
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods, 7*(4), 422–445. <https://doi.org/10.1037/1082-989X.7.4.422>
- Sparrowe, R. T., & Liden, R. C. (2005). Two routes to influence: Integrating leader-member exchange and social network perspectives. *Administrative Science Quarterly, 50*(4), 505–535. <https://doi.org/10.2189/asqu.50.4.505>
- Sparrowe, R. T., Liden, R. C., Wayne, S. J., & Kraimer, M. L. (2001). Social networks and the performance of individuals and groups. *Academy of Management Journal, 44*(2), 316–325. <https://doi.org/10.2307/3069458>
- Uhl-Bien, M. (2006). Relational leadership theory: Exploring the social processes of leadership and organizing. *The Leadership Quarterly, 17*(6), 654–676. <https://doi.org/10.1016/j.leaqua.2006.10.007>
- Venkataramani, V., & Dalal, R. S. (2007). Who helps and harms whom? Relational antecedents of interpersonal helping and harming in organizations. *Journal of Applied Psychology, 92*(4), 952–966. <https://doi.org/10.1037/0021-9010.92.4.952>

- White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a test for heteroskedasticity. *Econometrica: Journal of the Econometric Society*, 817–838. <https://doi.org/10.2307/1912934>
- Wilson, K. S., Sin, H. P., & Conlon, D. E. (2010). What about the leader in leader-member exchange? The impact of resource exchanges and substitutability on the leader. *Academy of Management Review*, 35(3), 358–372. <https://doi.org/10.5465/AMR.2010.51141654>
- Yang, F., Liu, J., Wang, Z., & Zhang, Y. (2017). Feeling energized: A multi-level model of spiritual leadership, leader integrity, relational energy, and job performance. *Journal of Business Ethics*, 1-15. <https://doi.org/10.1007/s10551-017-3713-1>
- Yang, C., Yang, F., & Ding, C. (2021). Linking leader humor to employee creativity: The roles of relational energy and traditionality. *Journal of Managerial Psychology*, 36(7), 548–561. <https://doi.org/10.1108/JMP-06-2020-0300>
- Zablah, A. R., Carlson, B. D., Donavan, D. T., Maxham, J. G., III., & Brown, T. J. (2016). A cross-lagged test of the association between customer satisfaction and employee job satisfaction in a relational context. *Journal of Applied Psychology*, 101(5), 743–755. <https://doi.org/10.1037/apl0000079>
- Zhang, Z., & Peterson, S. J. (2011). Advice networks in teams: The role of transformational leadership and members' core self-evaluations. *Journal of Applied Psychology*, 96(5), 1004. <https://doi.org/10.1037/a0023254>

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# Structural Embeddedness and Organizational Change: The Role of Workplace Relations and the Uptake of New Practices

Emily Rowe  and Leroy White

## Introduction

A large body of work has investigated organizational change processes, and scholars have come to agree that new work practices become established in organizations through either macro- or micro- level processes (Reay et al., 2006). Macro-level mechanisms contend that the uptake of new practices is due to external forces and leads to organizational development over a long period. Here, scholarship has been criticized for ascribing a disproportionate emphasis at this level of analysis and

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ignores the purposive actors who are responsible for changes in the organizations in which they are embedded (Harmon et al., 2019). Further, a macro-level emphasis prevents developing theories that would support deeper insights into the role that individuals and collective action play in the uptake of novel practices. As such, the dominance of this perspective has sparked interest in gaining a deeper understanding of the micro-level influences responsible for the acceptance and spread of new ideas (Reay et al., 2006). At this level, the uptake of new practices involves workplace relationships such as the interactions and negotiations of various actors (Bridwell-Mitchell, 2016). In practical terms, actors use workplace relations to make modifications to their practice (Gray et al., 2015) or search for and implement “new ways of carrying out specific activities” (Smets et al., 2012, p. 894) in their efforts to complete jobs or accomplish a common goal.

Specifically, in the initial stages, when a new practice is shared and enacted, actors acknowledge that they are “doing things in new ways” (Reay et al., 2006) and evaluate the suitability of a new practice in addressing a problem with which they are faced (Bridwell-Mitchell, 2016; Dorado, 2005). New ways of working may require actors to move away from the influence of the macro-level by persuading others to adopt and engage in new practices that may diverge from the established norms in their organizational environment (Battilana & Casciaro, 2012). However, due to the interplay of macro-level influences and the micro-level interactions, a puzzle emerges that raises a cause for concern for the acceptance and spread of new practices. If actors are embedded in workplace relations and are subject to “*processes that structure their cognitions, define their interests and produce their identities, how are they able to envision new practices and then subsequently get others to adopt them?*” (Garud et al., 2007, p. 961). We know that embedded actors develop dense networks of relations and affiliate with organizational norms (Granovetter, 1985) and that the adoption of new practices acquires a sense of inevitability (Garud et al., 2007). However, we know very little about how embeddedness in workplace relations supports the adoption and spread of new practices.

In particular, one specific avenue for research to grapple with this puzzle is to understand the nature of workplace relations, particularly

the interactions and behavior that are likely to influence the acceptance or rejection of existing practices, and effects on the spread of new practices within an organizational setting (Tolbert & Zucker, 2019). While organizational research has been enriched with insights from studies on workplace relations and organizational change, there is much to learn about the potential mechanisms of workplace relations that could explain how they influence the uptake of new practices. This is a concern for the process of structural embeddedness of individuals (Granovetter, 1985) in workplace social networks, and how this embeddedness may support or constrain the opportunities for actors and organizations to bring about organizational change (McGrath & Krackhardt, 2003). However, we have little understanding of how actors use their embeddedness in workplace relations in their attempts to influence changes within their organizational environment when new practices are introduced. In particular, the key concept of structural embeddedness is greatly overlooked for its potential to explain such an influence (McGrath & Krackhardt, 2003). Therefore, we explore how structural embeddedness serves as a foundation to support micro-level change. Our research attempts to shed light on the features of structural embeddedness among actors who seek to introduce and integrate new practices within their organization that sits between the macro-level and micro-level influences (Kilduff & Tsai, 2003), i.e., the way in which actors affect organizational outcomes and how macro features affect actors. In this study, we pose the following research question: *how do actors' embeddedness influence the acceptance and spread of new practices in organizations?*

In the next section, we introduce our notion of structural embeddedness and a social network perspective as our starting point to elaborate on the role of workplace relations and organizational change, and then develop hypotheses on the relationship between actors' relations and the uptake of new practices. To conduct our inquiry, our empirical sites selected are NHS hospital trusts (in the UK) that are partnered with the Virginia Mason Institute (VMI) to introduce and integrate novel Lean methods within these organizations, where new practices are expected to enhance the quality and provision of patient care, generate operational efficiencies and to create a culture of continuous improvement. We then describe our social network approach. As such, for the study, we

collected social network data from a range of health professionals with different statuses and operating at different levels within the organization. We test our hypotheses on structural embeddedness generated from this data. The data is analyzed with Exponential Random Graph Models (ERGMs), an emerging social network analysis method, to examine joint effects between actor roles and relationships to understand embeddedness and interactions among organizational actors. In the final section, we discuss our contributions to the literature and practice.

## Perspectives on Embeddedness

To explore the adoption of new practices in organizations, this study draws upon two streams of scholarship: embeddedness and a social network perspective. Embeddedness provides a key link between actors' relationships and micro-level change (Tolbert & Zucker, 2019). If we assume that actor embeddedness and interactions are related to the likelihood of micro-level change (Garud et al., 2007), a counter-argument can be presented which explains that *due* to the interplay of actor embeddedness and organizational structure, actors can change the organizations in which they are a part of (Bridwell-Mitchell, 2016). Dacin et al. (1999) explain that embeddedness can allow individuals to shape their context in ways that allow actions to occur by serving as "means of stratification by opening windows of opportunity for some while erecting barriers" for others (p. 335). This perspective widens the scope and contrasts the long-standing argument that individuals' actions are constrained by their embeddedness and existing organizational arrangements (Battilana, 2006).

Social network perspectives have a long tradition in examining embeddedness and how social structures, groupings, and positions among actors influence both opportunities and constraints for action (Burt, 2001). A core assumption for this perspective is that patterns of relationships matter because actors take on identities and give meaning to social action through their relatedness to others (Kilduff & Brass, 2010). A social network notion does not give prominence to actors' inherent characteristics or attributes, but rather the emphasis is placed on the relationships

among a group of actors. Based on this understanding, social relationships and interactions have been comprehensively examined in the past, and it is widely accepted that the informal networks of actors are built from the day-to-day interactions and communication within an organizational setting (Tasselli, 2015). These social structures both shape and explain organizational outcomes and processes. Thus, extant research emphasizes that social structures emerge from patterns of social interactions and relationships, where different structures and ties have distinct functions that play a significant role in the achievement of organizational outcomes (Ibarra et al., 2005).

Regarding embeddedness, at one extreme, there are over-socialized accounts of actors who lack agency, are constrained by their environments, and do not envision and enact change (Felin et al., 2012). At the other extreme, there are heroic accounts of actors who single-handedly envision and enact change, despite their embeddedness and the surplus of forces responsible for an organization's persistence and stability (Powell, 2019). These contrasting perspectives suggest that traditional views regarding the embeddedness of actors are exaggerated and conflated and that by distinguishing a form of embeddedness, we can argue that it does not just constrain agency or action, but it also serves as a fabric to support change (Reay et al., 2006). Likewise, our understanding of the micro-level forces of change is incomplete since "heroic actors and cultural dopes are a poor representation of the gamut of human behaviour" (Powell & Colyvas, 2008, p. 277). These over-socialized and heroic narratives ignore the complex social processes at play and the diverse interests and perspectives within organizations. Therefore, new work is needed that strikes a balance between these two extremes and accounts for a more inclusive dialogue regarding actors, embeddedness, and practices within organizations. When we focus on embeddedness and draw on social network concepts, we see that *structural embeddedness* gives attention to the types of relationships and structures that influence social action and organizational outcomes (Dacin et al., 1999). As such, structural embeddedness focuses on examining the social patterns and structures that emerge within the network to understand the specific social processes present in a network (Moran, 2005).



It, therefore, becomes a fundamental source and necessary precondition for the adoption of new practices.

Structural embeddedness is a conceptualization of social structure based on actor ties and direct relationships (Dacin et al., 1999). It refers to the extent of connectivity, the likelihood of interactions among actors within a social space, and the extent to which individuals are anchored in closely knit social communities (Goldberg et al., 2016). Nahapiet and Ghoshal (1998) extend this definition to incorporate the configuration of interpersonal linkages between people or groups, including the presence or absence of network ties between actors and other structural features such as cohesion. Social networks and structures are considered to be built from local patterns and configurations of relationships that arise from social processes among actors (Lusher et al., 2013b). As such, structural embeddedness from a micro-perspective has centered on two broad structural forms, *closure* and *bridging*, and these have varying consequences for adopting practices among actors (Reagans & McEvily, 2008). Closure is associated with cohesive groups of closely connected actors, and bridging is associated with spanning the gap between disconnected actors; however, it is unclear what role these structures play in the adoption of new practices. We also know that closure mediates concerns among actors when they are faced with conditions of ambiguity and uncertainty (Möllering, 2014). Research points to the importance of closure as it builds interpersonal trust, which garners support for undertakings that are new to the organization (Zhelyazkov, 2018). When closure is high, actors are less likely to question behaviors, increasing the likelihood of sharing and engaging in new practices (Bridwell-Mitchell, 2015). Cohesive workplace relations also influence collective interpretations more deeply than individual actors (Beckert, 2010).

However, findings on the extent of influence of closure on the uptake and spread of new practices are equivocal. For instance, Battilana & Casciaro (2012) examined the link between structural embeddedness and varying degrees of organizational change. They found that low levels of closure in a healthcare professional's network facilitated the initiation of changes that diverged from their organizational status quo but hindered their adoption. In another study, Birdwell-Mitchell (2016)

found that patterns of interactions in large, cohesive, homogeneous groups supported the process of micro-level change compared to several small groups as professionals could converge on widely shared understandings of appropriate practice (Birdwell-Mitchell, 2016, p. 183). It was observed that the large cohesive groups fostered strong social pressures that encouraged conformity regarding new practices and reinforced feedback about how to address practice dilemmas. The smaller fragmented groups, which were considerably diverse, produced weak social pressures that did not support the spread of new practices within the various groups. These differences highlight that the uptake of new practices depended on the extent of socialization and patterns of interaction, either cohesive or diverse that allowed actors to develop more consistent and shared understandings of new practices' technical requirements (Birdwell-Mitchell, 2016, p. 174). This work revealed that, in some contexts, professional networks are organized to allow the uptake of new ideas and practices, whereas, in others, the patterns of interactions result in "social disorganization". Therefore, new ideas and practices "do not take root or spread" (Birdwell-Mitchell, 2016, p. 162) in low cohesive groups. We, therefore, suggest the following hypothesis.

**H1** Professionals in high cohesive networks will take up new ideas or practices more so than those in low cohesive networks.

Bridging has been a major theme within social network research in recent years (Parkhe et al., 2006) building on Burt's "structural holes" theory (1992), which focuses on benefits outside the group structure rather than within (Burt, 1992, 2004). Burt describes a structural hole as the "separation ... or a relationship of non-redundancy" between two actors that enable them to "provide network benefits that are ... additive rather than overlapping" (Burt, 1992, p. 18). While disconnection between actors and groups provides an essential requirement for the existence of a structural hole, some explanations are underpinned by the opportunity, ability, or motivation to bridge information or advice between disconnected actors and groups (Kleinbaum et al., 2015). This bridging behavior is represented by an open triad, where two disconnected actors are connected through their relationship with a third actor.

When bridging a hole between disconnected actors, the focal actor is bestowed with distinct positional advantages between groups, as they bridge between actors or groups (Quintane & Carnabuci, 2016). Unlike closure, much more emphasis is placed on the individual, and value comes from the position and ability to efficiently span the structural hole and exploit the opportunities it creates. From this perspective, benefits, such as the uptake of new practices, accrue for both the actor and the network, as structures rich in holes capture diversity and novelty by accessing the proficiencies of actors who are disconnected from each other and who have different perspectives, skills, and expertise (Zaheer & Soda, 2009). To the extent of professional networks, we hypothesize that:

**H2** In professional networks, actors will link to bridging actors and will take up new ideas or practices more so than those who do not link to bridging actors.

The outcomes are understood to be determined by the focal actor's ability to identify opportunities, bridge the gap, and create value for themselves and disconnected groups. However, these opportunities to control the access to resources and control benefits between disconnected groups are risky, as this position is associated with the ambiguity surrounding coordination and tensions due to conflicting norms, practices, and perspectives between the groups (Obstfeld, 2005). In considering bridging in networks as a mechanism to support the uptake of practices among actors, we see another level of interaction and engagement among actors to share and adopt new practices within an organizational context.

Professional groups tend to display varying patterns of interactions that support and inhibit change initiatives. For example, West et al. (1999) found that nursing networks are centralized, allowing them to gather and disseminate information more effectively. In contrast, clinical directors and doctors have more hierarchical networks that are more densely connected than nursing networks, which allows them to be "more potent instruments for changing, or resisting changes, in clinical behaviour" (p. 633). Therefore, professional roles have a significant relationship with social structure and influence varying organizational outcomes and healthcare change initiatives (West et al., 1999, p. 633).

Thus, we need to account for the role attributes of the actors. The dominant hypothesis in social network research is that actors with similar roles will be more likely to form network ties than actors with different roles. Referred to as homophily, it is consistently identified as a vital determinant of network structure (McPherson et al., 2001). The theory predicts that similarities in the attributes of actors lead to similar organizational preferences and predispose actors to cooperate (Cole & Teboul, 2004). Professional roles are important in shaping patterns of interactions within a network (Evans & Scarbrough, 2014; Fitzgerald & Harvey, 2015). However, it is unclear how the presence of both actors with similar role attributes and dissimilar characteristics will influence the context that shapes the uptake of new practices. We might predict that the uptake of new practices will be enhanced by homophilic ties. Therefore,

**H3** Actors who share similar roles (homophily) are more likely to create links across structural holes, and this will lead to the uptake of new practices.

## Study Context

This study is aligned with a broader research initiative that seeks to evaluate the impact of the Virginia Mason Production System (VMPS) in five NHS hospital trusts. In 2015, a five-year partnership between the NHS Improvement (NHSi), the Virginia Mason Institute (VMI), and the five hospital trusts was established to develop a culture of continuous improvement, to enhance the organizational culture and quality and efficiency of healthcare services within each trust (Health Foundation, 2018). The Virginia Mason Institute (VMI) specializes in a healthcare management system that promotes lean principles, developed from Toyota's Production System (VMI, 2019). The VMPS is a lean management method that aims to change practices through small, incremental changes within the work environment that are consistently applied and sustained over long periods. This initiative intended to provide healthcare

professionals with new knowledge, tools and approaches to healthcare provision, which essentially challenged the existing norms, practices, and approaches to daily work within their respective organizations.

This study focuses on two NHS Trusts (NHS-A and NHS-E) and the Trust Guiding Team (TGT), Kaizen Promotion Office (KPO), Lean for Leaders (L4L), and rapid process improvement workshops (RPIW) levels of the partnership within each organization to narrow this context's scope due to this partnership's complex nature. In sum, the Transformation Guiding Board (TGB) is an inter-organizational group comprised of five chief executives and senior members from the Virginia Mason Institute (VMI) and NHS Improvement (NHSI). The Trust Guiding Team (TGT) is an organizational group comprised of the chief executives of each trust, the Kaizen Promotion Office Lead (KPO Lead), and other senior trust members and directors. The TGT strategically align improvement plans and formal training that are translated to the Kaizen Promotion Office (KPO), which are the implementation teams that oversee the improvement work's execution. The KPO has many duties, one of which involves training organizational leaders in the Lean methodology. These Lean for Leaders (L4Ls) are expected to apply and share the new methods, knowledge, and practices, with the expectation of creating a culture of learning and change that leads to efficiencies and savings within their work environments. The rapid process improvement workshops (RPIWs) refer to the specific improvement initiatives identified from the value stream mapping process, where specific interventions are suggested and initiated within a five-day period and then tracked over time, for example, ninety (90) days. The L4Ls and RPIWs collectively mobilize teams to eliminate delays, redundancies, errors and waste within the healthcare delivery process by applying the Virginia Mason Production System (VMPS).

Prior to this investigation, varying contextual influences are observed. First, there are differences in organizational performance, based on Care Quality Commission (CQC) ratings, and differences in improvement progress, based on the number of the value stream and RPIWs conducted between 2015 and 2018. NHS-A, is an "Outstanding" rated organization, therefore delivering a high level of patient care. NHS-A has average improvement progress, as they conducted a similar number of

values streams (6, 5), RPIWs (23, 21), and training a similar number of L4Ls (218, 205). NHS-E, however, has a lower organizational performance rating, “Inadequate” but above-average progress, as it conducted the highest number of value streams (8) and RPIWs (38) among the networks. One explanation for this dynamic is that since NHS-E was the lowest-performing organization among the networks, it conducted more improvement initiatives to achieve an acceptable performance level. Therefore, this setting is a suitable empirical context to examine professionals’ structural embeddedness to introduce and encourage the uptake of new practices in organizations.

## Method and Data

This research employs a standardized cross-sectional network analytic methodology to systematically examine the nature and structure of social relationships from local and global perspectives (Wasserman & Faust, 1994). This design is standard as it determines the prevalence of an issue, attitude, or behavior, provides a snapshot of a subject at a specific point in time (Kumar, 2011), and allows multiple concepts to be simultaneously measured to examine the underlying relationships and relevant patterns of association between them (Easterby-Smith et al., 2018). The network boundary was specified to include members from the four organizational levels of the partnership TGT, KPO, L4Ls, and RPIWs. The research adopted an ego-network approach to data collection, which identifies actors within the network boundary and directly asked by an interview or survey with whom they interact regarding advice around practice (Ibarra, 1992). For example, the respondent was asked, “Who do you go to for advice about work matters relating to new VMPS?” The sample includes clinical and non-clinical healthcare professionals at all levels of the partnership in each organization, including senior executives, clinical managers, consultants, matrons, nurses, pharmacists, radiologists, dieticians, physiotherapists, and non-clinical management professionals.

## Data Collection

The study used two self-reporting instruments to collect ego-network social network data. The first approach was to gather social network data from the KPO & TGT via a paper-based socio-metric survey, and the second approach was administered via a web-based survey that captured L4L ego-networks and attributes data. Both survey instruments were designed using the method discussed by White et al. (2014, 2016), where a 5-point Likert scale is used to measure the subjective evaluations of relationships among actors. This instrument's use in previous studies contributes to the items' validity and robustness and has been used as the standard approach for socio-metric survey data collection (Ibarra & Andrews, 1993; Morrison, 2002). The surveys asked persons to list the name, role, and organization of at least five persons who are in some way involved in their improvement work regularly. Next, a network of relationships is constructed based on their responses. The survey instruments allowed respondents to list and rate the relationships with whom they share knowledge about improvement work.

The web-based survey was administered via Qualtrics to the Lean for Leaders (L4Ls) level of the network with the dual purpose of capturing their attitudes and perceptions regarding the Lean Methodology and their knowledge-sharing networks, as they were the actors trained to use the Lean Methodology in their daily work. In this data collection mode, the L4L respondents were actively engaged in applying the Lean Methodology in their daily work and environment, whereas persons at the TGT and KPO levels have a more strategic and administrative role in guiding improvement work. In terms of the population, the L4L represents healthcare professionals from various levels and backgrounds within each organization, including non-clinical and non-managerial roles. Finally, the web-based socio-metric survey gathered 54 responses from NHS-E and 80 from NHS-A. In the paper-based survey, a total of 16 were collected from NHS-E, and 14 were collected from NHS-A. Together, this uncovered 387 ties in NHS-A, and 279 ties in NHS-E.

## Exponential Random Graph Models (ERGM)

ERGMs are used to analyze interdependencies of relationships within social networks and test the hypotheses (Lusher et al., 2013a). The use of ERGMs allows researchers to explicitly model the observed organization's networks against theoretically informed and supported network configurations to estimate their effects. ERGMs are tie-based models that can examine multiple hypotheses regarding network-generating processes while simultaneously making no assumptions about independence among the dyads (Lusher et al., 2013a). Estimations and simulations of the observed networks are conducted using well-established statistical approaches such as Maximum-likelihood estimation, undertaken through Markov chain simulation-based approaches (MCMCMLE). In this approach, parameter estimates are determined based on differences between observed data and simulated distributions until parameter estimates achieve convergence (Robins, 2011). A more in-depth discussion of ERGMs, the model specification, the selection of structural parameters, and the model estimation is provided elsewhere (Robins et al., 2007).

### Estimation Procedure

After the models are specified and the configurations are determined, the model is estimated in the PNet software package, simulating and conducting the stochastic analysis of social networks (Wang et al., 2009). It is an iterative process where configurations are included and excluded from the model until model convergence is achieved. A large positive parameter indicates that a hypothesized configuration appears with greater frequency in the observed network than expected by a random graph, given the presence of configurations related to other effects in the data and a negative parameter indicates that the configuration occurs less frequently than it would by chance (Robins et al., 2009). Since this estimation technique produces approximated estimates, model assessment and fit are based on predetermined criteria and heuristics, such



as the parameter estimates, standard errors, convergence statistics, and goodness-of-fit ratios that compare the observed values with the fitted values (Hunter & Handcock, 2006).

## Dependent Variable

Our dependent variable is the extent of advice exchange between participants. For each dyad in the network relations were derived by asking in the survey whether actor  $j$  advised actor  $i$  with regards VMPS. For each dyad, we asked each respondent to rate the strength of the relationship for each dyad (according to a 1–5 scale). Since our analysis need binary data, the scale scores were dichotomised as follows: if  $i$  reported a response about  $j$  which was greater than or equal to 4, this was coded as 1; otherwise, it was coded as 0. As a strategy, we tested several dichotomisation criteria (Conaldi & Lomi, 2013) and did not find any difference from the corresponding degree distributions of the original valued network.

## Network Effects Variables

In terms of our hypotheses on *closure*, traditionally, scholars of SNA have employed aggregate level parameters to examine the level of interaction between individuals. Thus, we include *density*, *spread*, and *reciprocity* in our model (Hansen, 1999; Reagans & McEvily, 2003). First, the basic connectivity tendencies in a network (see Fig. 1) were captured by the *density or arc* parameter. We also specified *Reciprocity (Reciprocity)* parameter which estimates the actors' tendency to engage in reciprocated relations with their connected actors. Next, four star-based parameters are selected to model cohesion via centralization and degree distribution effects within the network. The *Two Out Star (2-out-star)* and *Three Out Star (3-out-star)* model outgoing ties to two and three actors respectively and captures the tendency of an actor to collaborate with and seek advice or information regarding improvement from two or three

persons (Fig. 1). The *popularity Spread (AinS)* parameter estimates prestige and influence within the network, and a negative or small estimate indicates that most actors have similar popularity levels. *Activity Spread (AoutS)* parameter estimates outgoing contact and interaction with other actors and indicates the extent to which an actor may seek out information or advice from connected actors. In this case, a negative activity spread parameter indicates that most actors have similar levels of activity, and the network is not centralized around a few key actors.

We also specified four parameters selected to examine the bridging hypotheses representing the possibility of structural holes co-existing in the network (Fig. 1). The *Simple Connectivity (Path2)* measures the extent to which actors who send ties also receive them and equates to an actor's likelihood to broker information or advice with another actor. The *One-In-Alternating Out Star (1inAout-star)* measures the extent to which a connected actor sends ties to multiple other actors, which equates to the likelihood of an actor disseminating information or advice across a range of contacts and indicates the sharing of information and advice within the network. The *Alternating-in-One-Out Star (Ain1out-star)* measures the extent to which an actor who receives ties from multiple actors to be connected to at least one other actor, whereas the *Alternating-in-Alternating Out Star (AinAout-star)* measures the extent to which an actor who receives ties from multiple actors to be connected to multiple other actors. These parameters also have hierarchical connotations and influences. For example, the One-In-Alternating Out Star (1inAout-star) configuration can indicate a traditional bridging relationship and formal and informal superior and subordinate relationships, where one connected actor can efficiently communicate and distribute information across their network of contacts. This social process is expected in a healthcare setting to evidence communication and interaction between organizational leaders and their collaborative contacts.

Parameter (PNet Name)	Structural Configuration	Description of Social Process
<b>Purely Structural Effects</b>		
Arc (arc)		This is a baseline propensity for tie formation.
Reciprocity (Reciprocity)		Models the tendency for ties to be reciprocated in the network.
<b>Centrality Effects</b>		
Two Out Star (2-out-star)		Models the tendency for actors to collaborate with and seek advice or information from two other actors regarding improvement work.
Three Out Star (3-out-star)		Models the tendency for actors to collaborate with and seek advice or information from three other actors regarding improvement work.
Popularity Spread (AinS)		Models popularity and the tendency for an actor to be a key collaborator or source of information and advice.
Activity Spread (AoutS)		Models activity and the tendency for an actor to seek collaborators or share information and advice regarding improvement work.
<b>Brokering Effects</b>		
Simple Connectivity (Path2)		Models simple brokering and measures the extent to which actors who receive information and advice regarding improvement work to share this information.
One-In-Alternating Out Star (1inAout-star)		Models complex and top-down brokering and measures the extent to which an actor who receives information and advice regarding improvement work to share this information with multiple connected actors.
Alternating-in-One-Out Star (Ain1out-star)		Models hierarchical brokering and measures the extent to which an actor receives information and advice regarding improvement work from multiple connected actors to share this information with one connected actor.
Alternating-in-Alternating -Out Star (AinAout-star)		Models the extent to which an actor receives information and advice regarding improvement work from multiple actors to share information with multiple actors.
<b>Closure Effects</b>		
Transitive Path Closure (AT-T)		Models the actor's tendency to choose an improvement work collaborator who also collaborates with their existing network. It is also interpreted as a tendency for structural holes to close when there are multiple independent paths between two collaborators.
Popularity Closure (AT-TD)		Models the tendency for a high degree of closure to be present around an actor similar in terms of their popularity. It indicates hierarchical connectivity or the extent to which status-based homophily is present in the network.
General Transitivity (AT-TDU)		Simultaneously models three transitive triadic effects: path, activity, and popularity closure and a tendency for hierarchical-based network closure without distinguishing the three effects.
<b>Actor-Relation Effects</b>		
Homophily ([Attr]-Interaction)		Models the tendency of actors to interact with colleagues with the same attribute (E.g. Professional Group, Leader etc.)
Sender Effects ([Attr]-Sender)		Models the tendency of an actor having more outgoing connections because of the actor attribute.
Receiver Effects ([Attr]-Receiver)		Models the likelihood of an actor having more incoming connections because of a specific actor attribute.

*Circles denote actors, and an arrowed line denotes the presence of a directed tie between pairs of actors.*

Fig. 1 Configurations & parameters for ERGMs

## Actor Effects Variables

Next, organizational roles were identified as relevant to the empirical context, focusing on the clinical and non-clinical nature of these roles, and the scope of these roles. Respondents were categorized based on their clinical role, where all respondents involved in direct patient care were in clinical roles, including traditional roles such as nurses, doctors, and allied healthcare professionals. In contrast, the non-clinical staff was defined as administrative and supportive roles that do not involve patients' direct treatment or care (Seto et al., 2011). These are non-clinical management roles such as finance and human resource professionals who work in a healthcare setting. The respondents' roles were captured from the survey, documents, and records. Using these roles, we considered actor-relation effects, i.e., the tendency for actor attributes to affect tie formation is modeled. As such, three actor-relation parameters are included in the model: Homophily ([Attr]-Interaction), Sender Effects ([Attr]-Sender), and Receiver Effects ([Attr]-Receiver). The ***Homophily ([Attr]-Interaction)*** configuration models the tendency for ties to be more or less likely between actors similar in both professional and managerial hierarchy. In this case, homophily is indicated by a positive parameter value for these effects. Next, the ***Sender Effects ([Attr]-Sender)*** and ***Receiver Effects ([Attr]-Receiver)*** configurations are included to model the likelihood of an actor attribute promoting an actor to be more active, therefore having more outgoing or incoming connections because of a specific actor attribute. By considering these effects, both network dependencies and actor attributes are examined rather than overestimating the role of either effect in the network (Lusher et al., 2013b, pp. 26–28).

## Results

### Descriptive Results

From Table 1, NHS-A has the largest network size with 247 actors, 389 ties, and a density of 0.006 ( $SD = 0.08$ ). NHS-E has 279 ties, and a density of 0.008. From Table 2, NHS-E has an outdegree centralization statistics higher than NHS-A, indicating higher activity and information-seeking behaviors. However, the indegree centralization statistics for NHS-A is larger than for NHS-E. First, this result suggests higher levels of incoming ties in these networks than outgoing ties, which suggests that actors in this network tend to be receivers of information and advice. The non-clinical healthcare professionals have higher group outdegree and indegree centralization, suggesting higher popularity and information-seeking behaviors in this group. However, this finding is unsurprising as most TGT and KPO actors who have strategic roles regarding improvement work are included in the non-clinical healthcare professionals' category. Additionally, there are more actors in the non-clinical healthcare professionals' group than in the other categories due to the composition of those professional roles. Therefore, this finding may be aligned with the categories' size and composition rather than other underlying relational dynamics.

### Exponential Random Graph Models (ERGMs) Results

The ERGM results are presented in Table 3. The table contains the estimate of the parameters and the associated  $p$ -value. For each organizational network, there are strong negative *arc* parameters for the density effect (NHS-A [ $estimate = -7.210$ ,  $SE = 0.584$ ,  $p \leq 0.05$ ] and NHS-E [ $estimate = -7.826$ ,  $SE = 0.316$ ,  $p \leq 0.05$ ]). This parameter measures the baseline propensity for a tie to be formed, and the significant negative parameters indicate that ties are rare and occur at random.

**Table 1** Descriptive statistics

	NHS-A	NHS-E	
Network size (Actors)	247	187	
Number of ties	389	279	
Network density	0.006	0.008	
SD density	0.08	0.089	
Arc reciprocity	0.149	0.093	
No. of Actors Professional Group	Nurses	81	36
	Drs & Consultants	31	19
	Allied Healthcare Pro	37	34
	Clinical Professionals	149	89
	Non-Clinical & MGMT	98	98
No. of Actors	TGT	5	6
Partnership Roles	KPO	8	7
	L4L	89	55
	RPIW	79	90
Professional Group Density	Nurses	0.010	0.017
	Drs & Consultants	0.018	0.026
	Allied Healthcare Pro	0.018	0.021
	Non-Clinical & MGMT	0.011	0.013
Professional Group Arc Reciprocity	Nurses	0.158	0.045
	Drs & Consultants	0.167	0.138
	Allied Healthcare Pro	0.122	0.189
	Non-Clinical & MGMT	0.145	0.077

**Table 2** Centralization measure

	NHS-A (%)	NHS-E (%)
Outdegree Centralisation	2.6	6.2
Indegree Centralisation	10.4	6.8
Nurses	23.5	16.1
Drs & Consultants	18.5	13.2
Allied Healthcare Professionals	14.3	12.4
Non-Clinical & Management	22.1	28.1
Nurses	16.3	9.5
Drs & Consultants	13.4	13.2
Allied Healthcare Professionals	6.2	5.2
Non-Clinical & Management	26.2	24.7

Table 3 ERGM results

	NHS-A	NHS-E
<b>Structural &amp; Actor-Relation Effects</b>		
Arc	-7.210 (0.584)*	-7.826 (0.316)*
Reciprocity	-	-
<b>Centrality Effects</b>		
2-out-star	-	-
3-out-star	-0.316 (0.043)*	-0.086 (0.020)*
Activity Spread [AoutS(2.00)]	2.831 (0.398)*	1.614 (0.267)*
Popularity Spread [Ains(2.00)]	-1.493 (0.236)*	-
<b>Brokering Effects</b>		
Simple Connectivity [path2]	-0.176 (0.104)	-0.012 (0.040)
One-In-Alternating Out Star [1inAout-star(2.00)]	0.782 (0.315)*	-
Alternating-In-One-Out Star [Ain1out-star(2.00)]	-0.152 (0.279)	-0.014 (0.158)
Alternating-in-Alternating Out Star [AinAout-star(2.00)]	-0.930 (0.759)	-0.214 (0.352)
<b>Closure Effects</b>		
Transitive Path Closure [AT-T(2.00)]	1.981 (0.093)*	-
Popularity Transitivity [AT-TD(2.00)]	-	1.121 (0.141)*
Generalized Transitivity [AT-TDU(2.00)]	-	-
<b>Actor-Relation Effects</b>		
Homophily (Professional-Nurse)	0.726 (0.138)	1.384 (0.207)
Homophily (Professional-Drns)	0.814 (0.144)	1.721 (0.282)*
Homophily (Pro. Allied healthcare Professionals Role)	0.916 (0.155)*	1.335 (0.180)*
Homophily (Pro.-Non-Clinical Management Role)	0.760 (0.134)*	0.647 (0.129)*
Homophily (Professional-Leadership Role)	0.284 (0.114)*	-
Homophily (Partnership-TGT Role)	-	2.184 (0.369)*
Homophily (Partnership-KPO Role)	-	1.384 (0.348)*

	NHS-A	NHS-E
Homophily (Partnership-L4L Role)	-0.208 (0.138)	-
Homophily (Partnership-RPIW Role)	0.622 (0.136)*	0.280 (0.124)*
Sender (Clinical Role)	-	-
Sender (TGT Role)	-	0.831 (0.300)
Sender (KPO Role)	-	-
Sender (L4L Role)	-	1.367 (0.207)*
Receiver (Nurse)	-	-
Receiver (TGT Role)	-	-
Receiver (KPO Role)	-	0.671 (0.237)*
Receiver (L4L Role)	-	-

\* $p \leq 0.05$



## Closure Effects

The two-out-star (**2-out-star**) parameter effect is not observed in either NHS-A or NHS-E networks, indicating that actors in these networks do not commonly interact with only two actors. However, the three-out-star (**3-out-star**) parameter is small, negative, and significant for both networks. NHS-A ( $estimate = -0.316, SE = 0.043, p \leq 0.05$ ) and NHS-E ( $estimate = -0.089, SE = 0.02, p \leq 0.05$ ) are large but less than 1. This result indicates a tendency for actors to interact with three collaborators. **Popularity Spread (AinS) estimate** is significant and negative in NHS-A ( $estimate = -1.493, SE = 0.236, p \leq 0.05$ ). The results indicate a decentralized approach to improvement-related collaboration and that most actors have similar popularity levels. This parameter is not present in NHS-E, suggesting that unusual levels of in-degree centrality do not characterize this network. The **activity spread (AoutS)** estimate is positive and significant in both NHS-A ( $estimate = 2.831, SE = 0.398, p \leq 0.05$ ) and NHS-E ( $estimate = 1.614, SE = 0.267, p \leq 0.05$ ). The large, positive estimates suggest cohesion, where few actors are particularly active regarding outgoing contact and interaction with many collaborators. Practically, these actors either seek or provide improvement work information from many healthcare professionals. Compared to popularity spread, this result's magnitude is much larger and more dominant within the networks. This result also indicates that activity is centralized around a few key actors in NHS-A and NHS-E. Therefore, we find support for hypothesis [H1](#) in NHS-A and to some extent in NHS-E. In NHS-A, many actors seek advice regarding new practices and improvements from many of their colleagues and these relationships are not concentrated around a few key actors at the network level. NHS-A is a high cohesive network, and we expect the uptake of new ideas or practices more so than in NHS-E, which is relatively lower in cohesion.

## Bridging Effects

Four parameters were selected to examine bridging effects within the network, as these configurations have two levels of connectivity and an intermediary or brokering actor. **Simple Connectivity (path2)** has one incoming and one outgoing tie from an actor and is present in the networks with varying results. For both networks, this parameter is negative and non-significant (NHS-E [*estimate* =  $-0.012$ , *SE* = 0.040], and NHS-A [*estimate* =  $-0.176$ , *SE* = 0.104]), indicating that there is little evidence that people who send more ties also receive them.

The **One-In-Alternating Out Star (InAout-star)** measures the extent to which a connected actor sends ties to multiple other actors. Practically, this equates to an actor receiving information or advice about new practices from one actor disseminating information or advice across a broad range of contacts within the network. In NHS-A (*estimate* = 0.782, *SE* = 0.315,  $p \leq 0.05$ ), the effect is positive, suggesting that actors have a higher tendency to share and disseminate information about new practices among multiple connected actors.

The **Alternating-in-One-Out Star (Ain1out-star)** examines the extent to which a broker receives information from multiple actors and shares information with at least one other actor. In NHS-A (*estimate* =  $-0.152$ , *SE* = 0.279) and NHS-E (*estimate* =  $-0.014$ , *SE* = 0.158), but was not significant. Similarly, the **Alternating-in-Alternating Out Star (AinAout-star)** this effect is observed in both networks NHS-A (*estimate* =  $-0.930$ , *SE* = 0.759) and NHS-E (*estimate* =  $-0.214$ , *SE* = 0.352), but was not significant. Overall, we found no evidence of hierarchical effects such as bottom-up interactions where improvement work information is communicated from the lower levels of the organization to actors at higher levels of the organization.

Overall, three of the four bridging parameters are present in NHS-E; however, none of these estimates is large or significant. This result suggests that although varying forms of brokering activities are present in this network, they do not occur more than expected, and the magnitude of these effects is weak compared to other parameters within the model. All the bridging parameters tested are present in NHS-A's network; however, three are negative and not significant, which indicates that

they do not occur more than expected. Thus, we find some support for hypothesis H2 for NHS-A (*1inAout-star*) and not for NHS-E.

## Actor-Relation Effects

In our study, actor-relation effects are used to provide insights into the presence and dominance of macro effects by dissecting relationships among actors based on their professional and partnership roles. In this case, homophily models the tendency for ties to be more or less likely between actors similar in the professional and partnership hierarchy, and this was detected in our networks. In NHS-A, the parameter was not significant among nurses ( $estimate = 0.726, SE = 0.138$ ) and doctors and consultants ( $estimate = 0.814, SE = 0.144$ ). However, it was positive and significant among the allied healthcare professionals ( $estimate = 0.916, SE = 0.155, p \leq 0.05$ ), non-clinical management professionals ( $estimate = 0.760, SE = 0.155, p \leq 0.05$ ), and actors in leadership roles ( $estimate = 0.284, SE = 0.114, p \leq 0.05$ ). This result indicates that actors in the same professional group or organizational status tend to communicate; however, it occurred more than expected among allied healthcare, non-clinical management professionals, and those in a leadership role.

In NHS-E, homophily is observed (positive and significant) in all the professional roles except nurses ( $estimate = 1.384, SE = 0.207$ ). These effects are significant among doctors and consultants ( $estimate = 1.721, SE = 0.4282, p \leq 0.05$ ), the allied healthcare professionals ( $estimate = 1.335, SE = 0.180, p \leq 0.05$ ), non-clinical management professionals ( $estimate = 0.647, SE = 0.129, p \leq 0.05$ ), but not among those in leadership roles. The findings indicate that these professionals communicate more than expected within the network. The magnitude of the nurses, doctors, and allied healthcare professionals' groups is large indicating that interaction regarding improvement work among these professional groups is more dominant than most of the structural effects observed. TGT, KPO, and RPIW actors' tendency to communicate with each other is also detected, as these effects are all positive and significant in NHS-E.

The TGT (*estimate* = 2.184, *SE* = 0.369,  $p \leq 0.05$ ) and KPO (*estimate* = 1.384, *SE* = 0.348,  $p \leq 0.05$ ) estimates are significantly larger than most of the structural effects and are larger than most of the professional role effects, indicating that the network is dominated by TGT and KPO interactions. A surprising finding is that there are no homophily effects among the L4L participants, and this group was the main category surveyed to conduct this research. This finding suggests that L4L actors in NHS-E are unlikely to interact with each other regarding improvement work and may have more diversity in their networks. Overall, we find support for hypothesis H3 in NHS-E, but somewhat less so in NHS-A.

## Discussion

This research sought to employ an embeddedness lens to investigate workplace relations among the networks of professionals involved in improvement work. The analysis and results revealed synergies among the networks and broad themes that are important in understanding the uptake of new practices among professionals. Overall, our research confirms that embeddedness exemplified by two structural forms, closure and bridging, has varying consequences for the uptake of new practices among professional actors (Burt, 2001; Reagans & McEvily, 2008). We find that closure emerging from actors who are directly connected to members of a subgroup, and with closely knit ties are more likely to endorse behaviors or actions regarding new practices, if they share joint partners (Simmel, 1955). Closure among professional actors also promotes normative justification and influences the professionalization of practice, which further encourages practitioners and organizations to adopt and implement new practices (Smets et al., 2012). Accordingly, our findings confirm the link between closure and the uptake of new practices is that closure engenders strong social pressures that foster familiarity and shared values that determine the way actors create, use and share new practices (Brown & Duguid, 2001; Tortoriello et al., 2012).

In terms of bridging, the NHS-A network is exemplary. Multiple forms of bridging are present within the network, where professionals broker information and advice to and from several sources and collaborators. Our findings suggest that multifaceted bridging relationships are a distinctive feature of this network, where professionals are engaged in various interactions to receive and share information and advice with multiple collaborators. As previously mentioned, bridging is associated with network spread, the diffusion of innovations (Ingold et al., 2021) and having multiple forms of bridging activities that are beneficial when attempting to disseminate information about new practices in the wider network. Bridging is thus facilitated as actors broker information or advice between disconnected actors and groups that emerge from closure among actors (Mehra et al., 2001). Our findings show positive homophily effects are found in the networks, suggesting actors from similar professional groups tend to form relationships. In NHS-A, relationships among allied healthcare professionals and non-clinical and management professionals have a more pronounced effect on the network. In contrast, relationships among doctors, allied healthcare professionals and non-clinical and management professionals have a more pronounced effect in NHS-E. This finding is important as it signals that NHS-E is more susceptible to macro-level (institutional) influences for the uptake of new practices. This confirms the findings by West et al. (1999) that clinicians in these settings have more influence on changing or resisting the adoption of new practices.

Our findings make further contributions to the literature. First, we observed a form of structural embeddedness combining both closure and bridging activities simultaneously, we call here *collective embeddedness*, in NHS-A and NHS-E. The name is derived from the high degree of structural embeddedness among the strategic change agents, which fosters collective action that supports the uptake of new practices. This collective embeddedness, combining closure and bridging activities, provides a foundation to support the adoption and spread of new practices since actors' relationships support interactions. Closure promotes normative justification and influences the professionalization of practice and encourages practitioners to adopt and implement new practices. Similarly, a high degree of bridging facilitates sharing information and

advice about new practices within and across professional groups. Our observation shows that collective embeddedness, as a high degree of structural embeddedness, is a key mechanism underpinning the uptake of new practices. In order to suggest what organizations should do, we describe two exemplars of this form of embeddedness.

The first exemplar is *broker-driven*; as its name suggests, brokers have more prominent relationships in the network. This was observed in NHS-A, where most brokering roles and cohesive relationships are held by clinical professionals who are actively engaging with new practices in their everyday work. In contrast, this behavior, however, was not observed in NHS-E. The practical implication is that clinicians as brokers are vital for promoting the uptake of new practices. The second exemplar of collective embeddedness is **conjointly-driven**, where no change-oriented group supersedes another. This behavior is again observed in NHS-A, where there is a high degree of interaction among both brokers and other change agents. In this case, homophily effects were observed non-clinical professions. The practical implication is that conjointly-driven activities among non-clinicians is vital for promoting the uptake of new practices. However, when homophily effects are high for clinical professionals, this hinders conjointly-driven activities (as seen in NHS-E). Finally, our study confirms that whether networks are characterized by broker-driven or conjointly led, the critical point is that structural embeddedness highlights the extent of workplace relations among actors, which establishes the context of and likelihood of peer learning among and socialization among professionals. Ideally, organizations and practitioners should cultivate collective embeddedness among all groups, however, their focus should be to first introduce and encourage peer learning and socialization among brokers, then within departments and environments when seeking to enhance the uptake of new practices, as a high degree of cohesive and brokering relationships must be present to increase the likelihood of practice change.

## Conclusion

Overall, our study shows that the combination of macro and micro processes results in a shift, where change amplifies from the micro to macro levels through the process of enacting, sharing, supporting, and participating in the practice itself (Smets et al., 2012). When actors encounter new practices, they tend to provide information and seek advice from colleagues to understand the purpose, relevance, and suitability of new practices within their immediate work environment. This research confirms that social interactions influence the uptake of new practices through professional norms and relationships, thereby providing an alternative explanation of organizational change processes based on social phenomena and collective actors.

## References

- Battilana, J. (2006). Agency and institutions: The enabling role of individuals' social position. *Organization*, 13(5), 653–676. <https://doi.org/10.1177/1350508406067008>
- Battilana, J., & Casciaro, T. (2012). Change agents, networks, and institutions : A contingency theory of organizational change. *Academy of Management*, 55(2), 381–398. <https://doi.org/10.5465/amj.2009.0891>
- Beckert, J. (2010). How do fields change? The interrelations of institutions, networks, and cognition in the dynamics of markets. *Organization Studies*, 31(5), 605–627. <https://doi.org/10.1177/0170840610372184>
- Bridwell-Mitchell, E. N. (2015). Theorizing teacher agency and reform: How institutionalized instructional practices change and persist. *Sociology of Education*, 88(2), 140–159. <https://doi.org/10.1177/0038040715575559>
- Bridwell-Mitchell, E. N. (2016). Collaborative institutional agency: How peer learning in communities of practice enables and inhibits micro-institutional change. *Organization Studies*, 37(2), 161–192. <https://doi.org/10.1177/0170840615593589>
- Brown, J. S., & Duguid, P. (2001). Knowledge and organization: A social-practice perspective. *Organization Science*, 12(2), 198–213. <https://doi.org/10.1287/orsc.12.2.198.10116>

- Burt, R. S. (1992). Social structure of competition. *Structural holes the social structure of competition* (pp. 1–49). Harvard University Press.
- Burt, R. S. (2001). Structural holes versus network structure as social capital. In N. Lin, K. Cook, & R. S. Burt (Eds.), *Social capital: Theory and research* (pp. 31–56).
- Burt, R. S. (2004). Structural holes and good ideas. *American Journal of Sociology*, 110(2), 349–399. <https://doi.org/10.1086/421787>
- Cole, T., & Teboul, J. B. (2004). Non-zero-sum collaboration, reciprocity, and the preference for similarity: Developing an adaptive model of close relational functioning. *Personal Relationships*, 11(2), 135–160. <https://doi.org/10.1111/j.1475-6811.2004.00075.x>
- Conaldi, G., & Lomi, A. (2013). The dual network structure of organizational problem solving: A case study on open source software development. *Social Networks*, 35(2), 237–250. <https://doi.org/10.1016/j.socnet.2012.12.003>
- Dacin, M. T., Ventresca, M. J., & Beal, B. D. (1999). The embeddedness of organizations: Dialogue & directions. *Journal of Management*, 25(3), 317–356. <https://doi.org/10.1177/014920639902500304>
- Dorado, S. (2005). Institutional entrepreneurship, partaking, and convening. *Organization Studies*, 26(3), 385–414. <https://doi.org/10.1177/0170840605050873>
- Easterby-Smith, M., Thorpe, R., Jackson, P. R., & Jaspersen, L. J. (2018). *Management and business research* (6th ed.). Sage Publications.
- Evans, S., & Scarbrough, H. (2014). Supporting knowledge translation through collaborative translational research initiatives: “Bridging” versus “blurring” boundary-spanning approaches in the UK CLAHRC initiative. *Social Science and Medicine*, 106, 119–127. <https://doi.org/10.1016/j.socsci.med.2014.01.025>
- Felin, T., Foss, N. J., Heimeriks, K. H., & Madsen, T. L. (2012). Microfoundations of routines and capabilities: Individuals, processes, and structure. *Journal of Management Studies*, 49(8), 1351–1374. <https://doi.org/10.1111/j.1467-6486.2012.01052.x>
- Fitzgerald, L., & Harvey, G. (2015). Translational networks in healthcare? Evidence on the design and initiation of organizational networks for knowledge mobilization. *Social Science and Medicine*, 138, 192–200. <https://doi.org/10.1016/j.socscimed.2015.06.015>
- Garud, R., Hardy, C., & Maguire, S. (2007). Institutional entrepreneurship as embedded agency: An introduction to the special issue. *Organization Studies*, 28(7), 957–969. <https://doi.org/10.1177/0170840607078958>



- Goldberg, A., Srivastava, S. B. S., Manian, V. G., Monroe, W., & Potts, C. (2016). Fitting in or standing out? The tradeoffs of structural and cultural embeddedness. *American Sociological Review*, *81*(6), 1190–1222. <https://doi.org/10.1177/0003122416671873>
- Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *The American Journal of Sociology*, *91*(3), 481–510. <https://doi.org/10.1086/228311>
- Gray, B., Purdy, J. M., & Ansari, S. (2015). From interactions to institutions: Microprocesses of framing and mechanisms for the structuring of institutional fields. *Academy of Management Review*, *40*(1), 115–143. <https://doi.org/10.5465/amr.2013.0299>
- Hansen, M. T. (1999). The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits. *Administrative Science Quarterly*, *44*(1), 82. <https://doi.org/10.2307/2667032>
- Harmon, D. J., Haack, P., & Roulet, T. J. (2019). Microfoundations of institutions: A matter of structure versus agency or level of analysis? *Academy of Management Review*, *44*(2), 464–467. <https://doi.org/10.5465/amr.2018.0080>
- Health Foundation. (2018). Evaluation of NHS partnership with Virginia Mason Institute. Retrieved from <https://www.health.org.uk/research-projects/evaluation-of-nhs-partnership-with-virginia-mason-institute>
- Hunter, D. R., & Handcock, M. S. (2006). Inference in curved exponential family models for networks. *Journal of Computational and Graphical Statistics*, *15*(3), 565–583. <https://doi.org/10.1198/106186006X133069>
- Ibarra, H. (1992). Homophily and differential returns: Sex differences in network structure and access in an advertising firm. *Administrative Science Quarterly*, *37*(3), 422. <https://doi.org/10.2307/2393451>
- Ibarra, H., & Andrews, S. B. (1993). Power, social influence, and sense making: Effects of network centrality and proximity on employee perceptions. *Administrative Science Quarterly*, *38*(2), 277. <https://doi.org/10.2307/2393414>
- Ibarra, H., Kilduff, M., & Tsai, W. (2005). Zooming in and out: Connecting individuals and collectivities at the frontiers of organizational network research. *Organization Science*, *16*(4), 359–371. <https://doi.org/10.1287/orsc.1050.0129>
- Ingold, K., Fischer, M., & Christopoulos, D. (2021). The roles actors play in policy networks: Central positions in strongly institutionalized fields. *Network Science*, *9*(2), 1–23. <https://doi.org/10.1017/nws.2021.1>

- Kilduff, M., & Brass, D. J. (2010). Organizational social network research: Core ideas and key debates. *The Academy of Management Annals*, 4(1), 317–357. <https://doi.org/10.1080/19416520.2010.494827>
- Kilduff, M., & Tsai, W. (2003). *Social networks and organizations* (1st ed.). Sage Publications.
- Kleinbaum, A. M., Jordan, A. H., & Audia, P. G. (2015). An altercentric perspective on the origins of brokerage in social networks: How perceived empathy moderates the self-monitoring effect. *Organization Science*, 26(4), 1226–1242. <https://doi.org/10.1287/orsc.2014.0961>
- Kumar, R. (2011). *Research methodology: A step-by-step guide for beginners* (3rd ed.). Sage Publications.
- Lusher, D., Johan, K., & Robins, G. (2013a). *Exponential random graph models for social networks: Theory, methods, and applications* (1st ed.). Cambridge University Press.
- Lusher, D., Koskinen, J., & Robins, G. (2013b). Exponential random graph models for social networks. In M. Granovetter (Ed.), *Structural*. Cambridge University Press.
- McGrath, C., & Krackhardt, D. (2003). Network conditions for organizational change. *The Journal of Applied Behavioral Science*, 39(3), 324–336. <https://doi.org/10.1177/0021886303258267>
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27, 415–444. <https://doi.org/10.1146/annurev.soc.27.1.415>
- Mehra, A., Kilduff, M., & Brass, D. J. (2001). The social networks of high and low self-monitors: Implications for workplace performance. *Administrative Science Quarterly*, 46(1), 121. <https://doi.org/10.2307/2667127>
- Möllering, G. (2014). Trust, calculativeness, and relationships: A special issue 20 years after Williamson's warning. *Journal of Trust Research*, 4(1), 1–21. <https://doi.org/10.1080/21515581.2014.891316>
- Moran, P. (2005). Structural vs. relational embeddedness: Social capital and managerial performance. *Strategic Management Journal*, 26(12), 1129–1151. <https://doi.org/10.1002/smj.486>
- Morrison, E. W. (2002). Newcomers' relationships: The role of social network ties during socialization. *Academy of Management Journal*, 45(6), 1149–1160. <https://doi.org/10.2307/3069430>
- Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23(2), 242–266. <https://doi.org/10.2307/259373>

- Obstfeld, D. (2005). Social networks, the tertius iungens orientation and involvement in innovation. *Administrative Science Quarterly*, 50(1), 100–130. <https://doi.org/10.2189/asqu.2005.50.1.100>
- Parkhe, A., Wasserman, S., & Ralston, D. (2006). New frontiers in network theory development. *Academy of Management Review*, 31(3), 560–568. <https://doi.org/10.5465/amr.2006.21318917>
- Powell, W. W. (2019). Institutions on the ground. *Research in the Sociology of Organizations*, 65B, 419–428. <https://doi.org/10.1108/S0733-558X201900065B034>
- Powell, W. W., & Colyvas, J. A. (2008). Microfoundations of institutional theory. In *The SAGE handbook of organizational discourse* (pp. 276–298).
- Quintane, E., & Carnabuci, G. (2016). How do brokers broker? Tertius gaudens, tertius iungens, and the temporality of structural holes. *Organization Science*, 27(6), 1343–1360. <https://doi.org/10.1287/orsc.2016.1091>
- Reagans, R. E., & McEvily, B. (2003). Network structure and knowledge transfer: The effects of cohesion and range. *Administrative Science Quarterly*, 48(2), 240–267. <https://doi.org/10.2307/3556658>
- Reagans, R., & McEvily, B. (2008). Contradictory or compatible? Reconsidering the “trade-off” between brokerage and closure on knowledge sharing. *Advances in Strategic Management*, 25, 275–313. [https://doi.org/10.1016/S0742-3322\(08\)25008-4](https://doi.org/10.1016/S0742-3322(08)25008-4)
- Reay, T., Golden-Biddle, K., & Germann, K. (2006). Legitimizing a new role: Small wins and microprocesses of change. *Academy of Management Journal*, 49(5), 977–998. <https://doi.org/10.5465/AMJ.2006.22798178>
- Robins, G. (2011). exponential random graph models (ERGM/p\*). In G. A. Barnett (Ed.), *Encyclopedia of social networks* (pp. 281–282). Sage Publications. Retrieved from <https://doi.org/10.4135/9781412994170.n113>. Print.
- Robins, G., Snijders, T., Wang, P., Handcock, M., & Pattison, P. (2007). Recent developments in exponential random graph (p\*) models for social networks. *Social Networks*, 29(2), 192–215. <https://doi.org/10.1016/j.socnet.2006.08.003>
- Robins, G., Pattison, P., & Wang, P. (2009). Closure, connectivity and degree distributions: Exponential random graph (p\*) models for directed social networks. *Social Networks*, 31(2), 105–117. <https://doi.org/10.1016/j.socnet.2008.10.006>
- Seto, W. H., Cowling, B. J., Lam, H. S., Ching, P. T. Y., To, M. L., & Pittet, D. (2011). Clinical and nonclinical health care workers faced a similar risk of acquiring 2009 pandemic H1N1 infection. *Clinical Infectious Diseases*, 53(3), 280–283. <https://doi.org/10.1093/cid/cir375>

- Simmel, G. (1955). *Conflict and the web of group affiliations* (Reprint). Free Press.
- Smets, M., Morris, T., & Greenwood, R. (2012). From practice to field: A multi-level model of practice driven institutional change. *Academy of Management Journal*, 55(4), 877–904. <https://doi.org/10.5465/amj.2010.0013>
- Tasselli, S. (2015). Social networks and inter-professional knowledge transfer: The case of healthcare professionals. *Organization Studies*, 36(7), 841–872. <https://doi.org/10.1177/0170840614556917>
- Tolbert, P. S., & Zucker, L. G. (2019). What are microfoundations? Why and how to study them? *Research in the Sociology of Organizations*, 65, 3–8. <https://doi.org/10.1108/S0733-558X2019000065A004>
- Tortoriello, M., Reagans, R., & McEvily, B. (2012). Bridging the knowledge gap: The influence of strong ties, network cohesion, and network range on the transfer of knowledge between organizational units. *Organization Science*, 23(4), 1024–1039. <https://doi.org/10.1287/orsc.1110.0688>
- VMI, V. M. I. (2019). Virginia Mason Production System. Retrieved June 10, 2019, from <https://www.virginiamason.org/vmps>
- Wang, P., Robins, G., Pattison, P. E., & Koskinen, J. H. (2009). *PNet: Program for the simulation and estimation of exponential random graph models*. Melbourne School of Psychological Sciences: The University of Melbourne. Retrieved from <http://www.melnet.org.au/pnet/>
- Wasserman, S., & Faust, K. (1994). *Social network analysis: Methods and applications*. Cambridge University Press.
- West, E., Barron, D. N., Dowsett, J., & Newton, J. N. (1999). Hierarchies and cliques in the social networks of health care professionals: Implications for the design of dissemination strategies. *Social Science and Medicine*, 48(5), 633–646. [https://doi.org/10.1016/S0277-9536\(98\)00361-X](https://doi.org/10.1016/S0277-9536(98)00361-X)
- White, L., Currie, G., & Lockett, A. (2014). The enactment of plural leadership in a health and social care network: The influence of institutional context. *Leadership Quarterly*, 25(4), 730–745. <https://doi.org/10.1016/j.leaqua.2014.04.003>
- White, L., Currie, G., & Lockett, A. (2016). Pluralized leadership in complex organizations: Exploring the cross network effects between formal and informal leadership relations. *Leadership Quarterly*, 27(2), 280–297. <https://doi.org/10.1016/j.leaqua.2016.01.004>
- Zaheer, A., & Soda, G. (2009). Network evolution: The origin of structural holes. *Administrative Science Quarterly*, 54, 1–31. <https://doi.org/10.2189/asqu.2009.54.1.1>

Zhelyazkov, P. I. (2018). Interactions and interests: Collaboration outcomes, competitive concerns, and the limits to triadic closure. *Administrative Science Quarterly*, 63(1), 210–247. <https://doi.org/10.1177/0001839217703935>

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# Business Before Pleasure? Bringing Pleasure Back into Workplace Relationships

Christine Moser , Dirk Deichmann , and Mariel Jurriens

## Introduction

Research on workplace relationships typically focused on how organizational outcomes can be enhanced. For example, scholars have studied how relationships between people can boost individual (Granovetter, 1983) and organizational performance (Uzzi, 1997). Others have shown that workplace relationships can foster creativity (Perry-Smith, 2006), organizational attachment (Venkataramani et al., 2013), and intraorganizational mobility (Podolny & Baron, 1997). However, many of these studies have privileged the instrumental value of these relationships;

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that is, workplace relationships have oftentimes been conceptualized as a means to other ends. Yet, workplace relationships are more than just a vehicle to achieve organizational goals. In this chapter, we aim to shine a light on the pleasure that can be associated with workplace relationships. With pleasure, we refer to the activities and associated emotions and impressions that people can experience in the workplace, whenever they engage in workplace relationships. Pleasure at work, in short, is the pure experience of enjoyment without the direct or indirect gain of money, material, status, or prestige.

While the management literature tends to focus on rational and concrete organizational goals and how to achieve those, there are some streams of research that address the opposite: seemingly useless and unplanned activities that serve no particular purpose. Examples include scholarly work about accidents (Austin et al., 2012), play (Hjorth et al., 2018; Vesa et al., 2019), improvisation (Vesa et al., 2017; Zack, 2000), surprises (Cunha et al., 2006), serendipity (Andriani et al., 2017; Dew, 2009), and bricolage (Duymedjian & Rülting, 2010; Perkmann & Spicer, 2014). These studies indicate what *also* constitutes organizing and organizations—despite the seemingly purposelessness and inefficiency of the topics addressed.

This attention to the more intangible side of organizing and organizations, although not dominant in management studies, should come as no surprise. Building on the work of sociologists and philosophers including Weber, Dewey, and Parsons, management scholars have over decades emphasized the importance of the intangible and social values that enable us to organize. For example, early institutionalists have conceptualized the co-constitution of organizations as technical and institutional entities (Selznick, 1957). The institutional dimension of organizations is embodied by values, morality, and informal relationships (Kraatz et al., 2020) which are at the core of how people organize. Likewise, pragmatist scholars have long recognized the importance of “sensitivity to ethics and democracy” (Simpson & den Hond, 2022, p. 127) which enables scholars to understand “the everyday practicalities of living in an uncertain and ever-changing world.” And while these insights have long lain dormant, we recently witness a renewed interest in the role of values (Kraatz & Flores, 2015), informal relationships (Weller, 2017),

emotions, and passion (Zietsma et al., 2019), and morality (Moser et al., 2021)—in short, the very human side of organizing. This human side of organizing has been identified as particularly relevant in light of the grand challenges of our time, including climate change, global security, the ethics of artificial intelligence, and growing inequality.

Leveraging the insights from the mentioned streams of literature, we will in the following investigate the different forms of pleasure that have been associated with workplace relationships. Unpacking the concept of pleasure, and theorizing about how pleasure can materialize in workplace relationships, we will then propose ways to facilitate pleasure in workplace relationships. In doing so, we make a plea for paying attention to pleasure as an end in itself, instead of a vehicle to meet other ends. We believe that organizations should commit to pleasure in the workplace and in workplace relationships, and, most importantly, decouple pleasure from outcomes thereof.

## **A Brief Review of the Pleasures of Work and Workplace Relationships**

### **Philosophical Roots in Hedonism**

Pleasure and work seem to have become somewhat estranged from each other. Scholars have previously presented conceptualizations where the experience of pleasure is completely detached from work (e.g., Dandridge, 1986), and leisure activities ought to be enjoyed in one's private times; or pleasure was treated as a critical source to control and optimize work performance (Starkey & Hatchuel, 2002). However, pleasure at work—that is, the pure experience of enjoyment without the direct or indirect gain of money, material, status, or prestige—equips a much more essential dimension of work than either of these two views to account for. Not only does the enjoyment of pleasure at work counteract the ever-progressive rationalization, control, and pressure often associated with work (e.g., Suddaby et al., 2017), it also increases job satisfaction (Abramis, 1990), triggers “flow” as an antidote to boredom and anxiety (Csikszentmihalyi, 1975), sparks creativity and enhances



more complex task performance (De Dreu et al., 2008; Hunter et al., 2010). More fundamentally, pleasure for the sake of pure enjoyment represents a basic tenet of what it means to be human—a prime mover of life activity and a detailing and organizing principle of social and working life.

In fact, the existential need for pleasure has been a serious subject of examination starting with ancient thinkers such as Aristippus of Cyrene and Epicurus. Most baseline, these thinkers sew the first seeds for a view that takes happiness as the ultimate goal of human life in which the perception of pleasure and pain are infallible criteria. This line of thinking has been further developed by more contemporary writers such as Jeremy Bentham and Henry Sidgwick. Philosophical traditions such as epicureanism and utilitarianism, commonly grouped together under the header of hedonism, view the seek for pleasure as a basic human need running through the entire trajectory of human life. Here, philosophers usually distinguish between psychological hedonism and ethical hedonism. Psychological hedonism views the desire for pleasure as purely psychologically wired through the arousal of the hedonic tone (see, for example, reversal theory: Apter, 2001). Ethical hedonism goes beyond the confines of psychological activity and views the seek for pleasure as the fundamental and moral obligation of humans to maximize happiness. The pursuit for pleasure is viewed as an essentially ethical and normative value and utility of living a virtuous life. Sidgwick (1907), building on John Stuart Mill, marks the contrast between the latter two views—i.e., individual happiness versus happiness for the “greater good” or collective happiness.

## Pleasure and Pain

An apprehension to pleasure is intensified by its strong association with pain. It was Jeremy Bentham who once made life appear simple and dichotomous when he asserted that “nature has placed mankind under the governance of two sovereign masters, pain and pleasure” (Bentham, 1879, p. 1). According to Bentham, the only thing good in and of itself is pleasure and the only bad thing that exists is pain. However, pain and

pleasure have a less forked and unbranched coexistence than Bentham's idiom, at first glance, asserts. The relationship between pain and pleasure can be conflicting and tensioned. This is because both embody more than mere oppositions, but also live in apparent harmony as each other's most faithful confidants. Pleasure and pain in this sense are both sides of one coin and moreover, part of a constant continuum.

A well-known example to illustrate this coexistence is found in professional games or in sports in general. Sports and games are essentially social activities of play, organized into disciplinary systems with their own sets of norms and rules which are in turn also historically associated with pleasure, freedom, and fun (Pringle et al., 2015). Accordingly, the disciplinary system of a game ultimately exists by the virtue of pleasure-seeking, whether that is for the audience, the players, or both. However, within the rules of the game, pain and pleasure can be triggered simultaneously for both body and mind (one can win or lose: conflict and rivalry). This twin imperatives of pleasure and pain can occur first, in the moment in and of itself (the embodied and situated experience of pleasure/pain); and second, in the vision of its acquired outcome (the mindful pursuit for pleasure through instant pain). This is also referred to as "the pleasure paradox:" the procrastination of immediate pleasure—creating a momentary state of pain—for acquiring pleasure in the long haul. As such, the organization of games and plays are forms of (pain and self-) discipline exercised in the pursuit of pleasure.

## **Pleasure at Work**

Pleasure at work for the sake of pleasure alone, remains a bit of an untouched taboo in organization studies. Arguably, there is research that addresses topics or concepts that are related to pleasure. For instance, there is increasing scholarly interest in better understanding work passion, which broadly speaking is concerned with peoples' positive feelings toward work. In a recent review, Pollack and colleagues (2020) differentiate between research on passion more generally; research building on the so-called dualistic model which distinguishes harmonious and obsessive passion; and research looking at role-based passion.

Other exemplary research focused on the relationship between work passion and organizational and family citizenship behavior (Wan et al., 2021), the antecedents of work passion (Ho et al., 2021), and work passion in entrepreneurial teams (Uy et al., 2020).

While related, these studies rarely mention the actual word “pleasure.” Currently, spontaneous and uncontrolled pleasure at the workplace—especially in many Western cultures—is often seen as shameful and perverse, a distraction from work, or as merely frivolous, and therefore irrelevant and folly. Pleasure means the absence of shame, and shame cuts deeply through contemporary Western society’s work and workplace relationship culture. The traditional viewpoint is, as the mantra “to never mix business with pleasure” conveys, that work stands for discipline and control. Therefore, work should be dense, purely rational, difficult and to at least some extent, a pain to endure. Playfulness, fun, jokes, and other frivolities do not belong on the work floor. If they are allowed at all, they should at least not be seen as an integral part of the accountable logic of work but rather as distracting and cheating from rationality and order: pleasure is guilty. Consequently, pleasure and work are often seen as anti-thetical to each other, either as a workplace deviant, distorting sense into nonsense, that ought to be restricted and sanctioned, or as activity that should be exploited (Starkey & Hatchuel, 2002).

This love/hate relationship with pleasure, especially in the work context, is not very surprising. Besides the take on pleasure as “guilty,” a threat against surveillance, civility, and control, it is often primarily associated with sensory experiences. This is what Feldman (2004) refers to as “sensory hedonism:” the seek for pleasurable sensation such as the indulgence of food and drinks, listening to music, or the joy of having sex (aphrodisia). In a more general sense, pleasure, or what is referred to as “attitudinal hedonism,” can include various types of enjoyment, in which “a person takes intrinsic attitudinal pleasure in some state of affairs” (Feldman, 2007, p. 405). This can include the enjoyment of sports, flirting and dancing, and appreciating the beauty of nature or arts. It can also include intellectually satisfying and shared activities such as brainstorming, a heated debate, or writing together.

In this vein, work pleasures have often been studied in the light of play (Hjorth et al., 2018; Vesa et al., 2017). Play takes on many forms, but at the heart of play lies pleasure. Put simply, pleasure concerns the experience (or the virtue and goal), and play concerns the act (its organizing form). Being serious about play roots back to theorist such as Huizinga (1955) and Bateson (2000), who understand play as a primal element of organizing culture and society as a whole. Although play, or free activity, delimits itself from a world (cage) of purposeful labor and control, it does not occur haphazardly or without any form of organization. Contrariwise, as Huizinga explains, “it is an activity connected with no material interest, and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner” (Huizinga, 1955, p. 13).

Playful activities that induce the experience of pleasure contain an inherent sense of lightness and agility. Playfulness lifts the heavy weights of control, pressure, and performance of work. These activities have the profound quality of enabling a feeling that Csikszentmihalyi (1975) calls “flow:” activities that merge concrete and tangible experiences to the lifting of awareness of oneself; people gain control over the task while reducing ego and self-consciousness. The lightness of pleasure in this sense is not mere jolly, but can only manifest because of, and through, the weight of its substance. This substance has at least three distinguished qualities: (1) the activities are light and playful; therefore, (2) they are able to generate motion and work; as (3) vectors of information enabling exchange between actors/players. In turn, the main function of play and pleasure is to give meaning to activities, making them light and enjoyable to provide common experience, facilitate informal knowledge sharing, strengthening professional bonds, and building camaraderie.

It is precisely this duality of play (play as an organizing principle versus the socially significance of playfulness at work), that makes the dichotomy between work and play a messy one: the difference between “work as play” or “framed play within work.”

## The Important Role of Workplace Relationships

While the above testifies to the basic human need for pleasure, and its interconnectedness with work, scholars have been largely silent about the role that workplace relationships play in this regard. Yet, work and workplace relationships cannot be viewed separately, as one constitutes the other and vice versa. In opposition to the means to an end take on pleasure, when understanding pleasure as a basic human need and as a default setting for living a happy life, pleasure-seeking comes with a frank naturalness to it. Here, pleasure is a means in and of itself, which henceforth decouples itself from forms of mere instrumentality. Therefore, by taking pleasure seriously, we begin to take notice of the significance of looking at the intersection of pleasure and workplace relationships. What is more, studying pleasure as a mere tool to enhance work relationships, and ultimately business performance, means that such studies draw on an incomplete conceptualization of the concept. Consequently, conclusions drawn from these studies should be met with caution. The particular focus of studying workplace relationships against the backdrop of pleasure offers a more comprehensive view on the experience and implications of enjoyment, the commitment, and the passion for one's work and the importance of workplace relationships. Workplace relationships are crucial, because they encompass the excitement of collaborative "camaraderie" communities and the importance of understanding pleasure as a co-constructed communicative phenomenon.

And indeed, some strands of the management literature have clearly pointed toward the importance of enjoyment in workplace relationships. For example, scholars of online communities have frequently shown that joy and enjoyment as part of a community is a crucial driver of work participation (e.g., Fuller et al., 2007; Moser et al., 2013; von Krogh et al., 2012). Others have pointed toward the importance of relationships in enjoying the meaningfulness of work (Lysova & Khapova, 2019) or, conversely, to the de-energizing effects that relationships can have (Gerbası et al., 2015)—the antidote to pleasure. Here, we want

to make a start on synthesizing these different fragments in the literature. Departing from the observation that pleasure operates through people, rather than it being a disembodied practice, identifies pleasure as a relational phenomenon.

## **Practical Implications: How to Facilitate Different Forms of Pleasure at Work**

Pleasure in the work context can be facilitated in many different ways. In the following, we discuss a select number of examples and interventions which we hope will encourage discussions among individuals, teams, and managers about how they could (re-) ignite workplace pleasure—for themselves or for others.

### **Creating an Aesthetic Environment**

Obviously, managers have a significant impact on the workplace pleasure of their employees and teams through their leadership and the policies and initiatives that they launch and implement. For instance, prior research found leadership generally impacts employee well-being (Inceoglu et al., 2018) and that specifically transformational leaders have a positive effect on employee optimism (McColl-Kennedy & Anderson, 2002). Similarly, by acting as a coach and by offering a supportive work context, transformational leaders support the individual development needs of their employees (Deichmann & Stam, 2015) and hence also the pleasure that employees experience at—and with—their work. Undoubtedly, the type of leadership style that a manager practices can therefore make a big difference for workplace pleasure. Yet, it remains difficult for managers to adapt their leadership style as this is determined to a large extent by relatively stable personality characteristics (Rubin et al., 2005).

Hence, we focus here on interventions in the work environment with which managers can facilitate workplace pleasure for themselves and others—in the short- and long-run. We suggest that the creation of an aesthetic working environment may be such an intervention that can

critically shape the extent to which employees and teams experience workplace pleasure. Prior research shows that aesthetic environments can have a positive effect on different outcomes such as collaboration and creativity (for a review see Elsbach & Pratt, 2007). But more generally, aesthetic environments can also trigger sensory experiences of pleasantness (Elsbach & Bechky, 2007). In their review, Elsbach and Pratt (2007) warn though that people have different ideas about what is aesthetically pleasing. For instance, while some might find a naturally lit office to be pleasing and relaxing, others could experience it as less pleasing and even stressful (Boubekri et al., 1991).

Concretely, this means that managers should take a highly individualized approach to maximize the effect of an aesthetic environment and office design for workplace pleasure. They can do so by allowing employees to flexibly adjust their environment such that it creates a positive and pleasant sensory experience for themselves. Sensorial experiences may emerge as a result of (a combination of) stimuli, such as visuals, sounds, textures, and scents (Baldessarelli et al., 2022). Rather than seeing an office as a place of productivity, our recommendation for managers is that they should support employees in (co-) designing a personalized environment which they find inspirational and pleasing. For instance, staff and faculty at Erasmus University can select a piece of art from the university's art collection and rent it free of charge for display in their office. Many other organizations also give their employees the option to buy plants and green up their office. We believe that giving employees and teams the flexibility and resources to design their offices in a way that creates aesthetically pleasing environments can translate directly to an increased level of workplace pleasure and improved workplace relationships.

## Getting Back to Water Cooler Talks

Informal networks provide a powerful way for individuals to find and experience pleasure at their work. On the one hand, spending time with friends is, at least in the short-term, associated with favorable experiences and offers individuals a way to escape from mundane daily realities

(Larson et al., 1986). Indeed, already some 2300 years ago, Aristotle emphasized the importance of virtue friendships “because the individuals in these relationships are beneficial and pleasurable” (Anderson & Fowers, 2020, p. 262). On the other hand, there is a strong tendency for individuals to form friendship relationships with others like themselves. This so-called homophily principle may constrain people not only in terms of the information they receive, but also in terms of the interactions they have with others and, therefore, the workplace pleasure they can experience (McPherson et al., 2001).

The informal networks that people build up as a result of, for instance, randomly meeting colleagues at the water cooler or coffee machine, have long been found to be essential in bringing different people together (Oh et al., 2004). While many encounters with distant and new people might be of short-lived nature, their long-term consequences for experiencing pleasure at work should not be underestimated. Indeed, during the Covid-19 pandemic it has become clear that these types of relationships are critical not only to get work done but also to experience pleasure at work. How else could one learn about fun projects of colleagues or get tips about the next TV series that you definitely should watch? That said, the pandemic has also shown that it is difficult for people to get to know or connect with new colleagues or arm’s length relationships. When people started to work remotely from home, informal encounters with colleagues at the water cooler or coffee machine were no longer possible, and were indeed greatly missed.

There are some examples of companies who experimented with setups to enable random encounters between employees. For instance, employees at Teamwork have set up dedicated social chat channels to share, for instance, recipes and weekend tips (Voza, 2020). Another way how employees can facilitate random encounters with other colleagues they do not know yet is by scheduling informal coffee breaks or by using a web-based platform such as Mystery Coffee which randomly matches different colleagues for a short coffee break. While it remains difficult to facilitate truly random encounters between colleagues in a virtual environment, the overall message here is that it nevertheless is worth a try. Informal networks, chance encounters, and socializing with new colleagues are critical drivers of workplace pleasure.



## Engaging in Passion Projects

When we think of facilitating pleasure in teams, what frequently comes to mind are team outings or other types of social events. They are usually fun, offsite activities but their effects on workplace pleasure are arguably often short-lived. One reason for this is that these social events only take place occasionally and that it is difficult to keep the mojo running when back at work. Another reason is that people likely have different ideas about how pleasurable it is for them to participate in, for example, a mindfulness workshop or a laser game with colleagues. The social—and “fun”—activities are often superimposed on employees and there is little leeway to choose what type of activities one would like to do, when, and with whom.

A more durable way to increase workplace pleasure could be to allow team members to choose the kind of activities and tasks they deeply care about. For instance, they could get the option to create—or sign up to others’—innovation projects (Deichmann & Jensen, 2018; Deichmann et al., 2021a). While the goal of these initiatives is often to facilitate innovation (Deichmann et al., 2021b; Fuchs et al., 2019; Piezunka & Dahlander, 2015), allowing employees to self-initiate projects has benefits for workplace pleasure itself. This is because team members can sign up for projects that they really care about. Research shows that employees are particularly motivated to sign up for long-shot projects (Deichmann et al., 2021a). These projects are often more uncertain and risky but, at the same time, more rewarding for those who work on them (Deichmann & Jensen, 2018).

One way how firms can enable that employees self-initiate projects, experiment, and learn new skills is by providing them with a certain amount of time that they can dedicate to projects and ideas that they care about. For instance, Gore experimented with the idea of giving employees about 10% of their time to initiate and work on “passion projects” (Deutschman, 2004). Google allowed employees to spend 20% of their time on side projects with the condition that these projects and skills should be of benefit for the company (Clark, 2021). The reason why many of these initiatives have been discarded is because they have not led to a significant increase in measurable innovation

output (Schrage, 2013; Trimble, 2010). Another problem is that companies often have not adapted their performance expectations regarding an employee's normal tasks and duties which effectively resulted in a situation where employees had to do passion projects in their free time in order to still get their usual job done (Nisen, 2013).

Rather than seeing side projects as a means to achieve innovation, however, our argument is that working on these passion projects can facilitate workplace pleasure in and of itself. It can result in innovation, learning, and the like but it does not have to. By allowing employees to follow their curiosity and passion, managers can facilitate that these employees will experience more moments of pleasure at their work. For this to pan out, managers should avoid linking the work on passion and side projects to some form of expected or quantified output. At the same time, when allowing employees to spend, for instance, 20% of their time on passion projects, new performance agreements about an employee's regular tasks and activities should be made, too. With these considerations in mind, we call for managers and organizational decision-makers to (re-)consider the introduction of policies that provide employees with more flexibility regarding the projects that they want to dedicate their time and energy to. The pleasure that they will draw from these passion projects will hardly be measurable but will provide employees, we believe, with invaluable experiences and joy that they carry with them for a long period of time—and not least, greatly enhance their dedication and commitment to the company.

## Discussion and Conclusion

In this chapter, we have made a plea for bringing back pleasure into work and workplace relationships for the sake of pleasure. Going back to early and more recent philosophers and sociologists, we claim that pleasure is part and parcel of our human nature—which, therefore, we should fully understand, not only in our private lives but also in the workplace. And given that pleasure operates through people, rather than it being a disembodied practice, we identify pleasure as a relational

phenomenon. Reviewing different strands of the management literature allows us to formulate an actionable intervention plan designed to enhance the pleasure at work, and in workplace relationships.

This chapter adds to work on the more intangible and indeed human side of organizing and organizations. While others have focused on values, emotions, and morality, to name but a few examples of recent scholarship, we propose that the notion of pleasure should receive more attention, for at least two reasons. First, pleasure in workplace relationships, as we have argued above, should be taken seriously on its own regard. This is because pleasure is indeed part of the same continuum as pain—which, arguably, has been intensely studied by management in many different instantiations. Second, pleasure has usually been studied as a functional tool to enhance work relationships, and ultimately business performance. However, unpacking the pleasure concept has shown that such limited conceptualizations are incomplete because they reduce pleasure to its instrumental role, rather than acknowledging the role and importance of attitudinal pleasure in its own right, as well.

Future research could address the insights that we present in this chapter. To start with, we have argued that creating an aesthetic environment can greatly enhance workplace pleasure, and that leaders can facilitate this process. However, it may well be that different ways of experiencing aesthetics (Boubekri et al., 1991) may negatively influence workplace relationships. And since pleasure is inherently relational, thus preceding workplace pleasure, all leadership efforts to improve workplace pleasure might be in vain. Researchers might address this challenge and identify the antecedents and boundary conditions of facilitating an aesthetic environment, particularly in large flex space offices.

Second, we have argued that facilitating informal interactions between colleagues in the workplace can help to improve the pleasure that people in these relationships can experience. This can happen on a dyadic level, for example during meetings at the water cooler or coffee machine; or on a team level, for example during department outings or while working on team passion projects. While there is some (anecdotal) evidence that people indeed derive pleasure from dyadic and team level “fun” encounters, the business community is skeptical because “hard” outcomes are lacking. However, there is strong evidence for the important role of other

forms of informal aspects of work and workplace relationships, including for example gossip (e.g., Beersma & Van Kleef, 2011) and friendship (e.g., Dokko & Kane, 2014).

Third, in this chapter we have focused solely on pleasure. However, as argued by Bentham (1879), pleasure can only exist on the other end of a continuum with pain, or displeasure. And while pain and displeasure have oftentimes been studied in management scholarship, in different instantiations (e.g., dark leadership, abusive behaviour, intimidation, misconduct, unethical management, corruption, to name but a few topics), it is unclear if these frequently studied topics should indeed be seen as part of the pleasure-pain continuum. For example, if we were to adopt the continuum perspective, dark leadership might be an expression of pain or displeasure. However, if there is indeed a pleasure-pain continuum, leaders could be able to move toward the pleasure end of the continuum, instead of accepting their fate as dark leaders at the pain end of it. In other words, taking serious the relationality of pleasure as well as its co-constitution with pain and displeasure might shed a different light on concepts and phenomena that we have previously perceived as stable and more or less given. Researching these phenomena from a different angle might help us explore previously hidden mechanisms and processes and deepen our understanding of workplace relationships.

## Epilog

True to the aim of this chapter, we would like to end with a plea for pleasure. Quoting Rabelais (from “The life of Garguantua and of Pantagruel”), pleasure is really at the heart of what it means to be human:

## To the Readers

My friends who are about to read this book,  
Rid yourselves of all prejudice as you read,  
And do not here for harm or scandal look;  
You'll find nothing to shock you. For indeed,

There's nothing here to which you need pay heed,  
 Except this lesson: laughter's good for you.  
 And that's the best of arguments, since few  
 Advantages come from the sorrow and grief  
 That harass you. Writing should laugh, not weep:  
 The essence of humans is to laugh.

## References

- Abramis, D. J. (1990). Play in work: Childish hedonism or adult enthusiasm? *American Behavioral Scientist*, *33*(3), 353–373. <https://doi.org/10.1177/0002764290033003010>
- Anderson, A. R., & Fowers, B. J. (2020). An exploratory study of friendship characteristics and their relations with hedonic and eudaimonic well-being. *Journal of Social and Personal Relationships*, *37*(1), 260–280. <https://doi.org/10.1177/0265407519861152>
- Andriani, P., Ali, A., & Mastrogiorgio, M. (2017). Measuring exaptation and its impact on innovation, search, and problem solving. *Organization Science*, *28*(2), 320–338. <https://doi.org/10.1287/orsc.2017.1116>
- Apter, M. J. (2001). *Motivational styles in everyday life: A guide to reversal theory*. American Psychological Association.
- Austin, R. D., Devin, L., & Sullivan, E. E. (2012). Accidental innovation: Supporting valuable unpredictability in the creative process. *Organization Science*, *23*(5), 1505–1522. <https://doi.org/10.1287/orsc.1110.0681>
- Baldessarelli, G., Stigliani, I., & Elsbach, K. D. (2022). The aesthetic dimension of organizing: A review and research agenda. *Academy of Management Annals*, *16*(1), 217–257. <https://doi.org/10.5465/annals.2020.0198>
- Bateson, G. (2000). *Steps to an ecology of mind: Collected essays in anthropology, psychiatry, evolution, and epistemology*. University of Chicago Press.
- Beersma, B., & Van Kleef, G. A. (2011). How the grapevine keeps you in line: Gossip increases contributions to the group. *Social Psychological and Personality Science*, *2*(6), 642–649. <https://doi.org/10.1177/1948550611405073>
- Bentham, J. (1879). *The principles of morals and legislation*. Clarendon Press.

- Boubekri, M., Hull, R. B., & Boyer, L. L. (1991). Impact of window size and sunlight penetration on office workers' mood and satisfaction. *Environment and Behavior*, 23(4), 474–493. <https://doi.org/10.1177/0013916591234004>
- Clark, D. (2021). Google's '20% rule' shows exactly how much time you should spend learning new skills—and why it works. CNBC Make It. <https://www.cnbc.com/2021/12/16/google-20-percent-rule-shows-exactly-how-much-time-you-should-spend-learning-new-skills.html>
- Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety*. Jossey-Bass.
- Dandridge, T. C. (1986). Ceremony as an integration of work and play. *Organization Studies*, 7(2), 159–170. <https://doi.org/10.1177/017084068600700205>
- De Dreu, C. K. W., Baas, M., & Nijstad, B. A. (2008). Hedonic tone and activation level in the mood-creativity link: Toward a dual pathway to creativity model. *Journal of Personality and Social Psychology*, 94(5), 739–756. <https://doi.org/10.1037/0022-3514.94.5.739>
- Deichmann, D., Gillier, T., & Tonellato, M. (2021a). Getting on board with new ideas: An analysis of idea commitments on a crowdsourcing platform. *Research Policy*, 50(9), 104320. <https://doi.org/10.1016/j.respol.2021.104320>
- Deichmann, D., & Jensen, M. (2018). I can do that alone...or not? How idea generators juggle between the pros and cons of teamwork. *Strategic Management Journal*, 39(2), 458–475. <https://doi.org/10.1002/smj.2696>
- Deichmann, D., Moser, C., & van den Ende, J. (2021b). Talk, talk, talk: exploring idea conversations and the micro-level foundations of knowledge sharing for innovation. *Innovation: Organization & Management*, 23(3), 287–313. <https://doi.org/10.1080/14479338.2020.1763177>
- Deichmann, D., & Stam, D. (2015). Leveraging transformational and transactional leadership to cultivate the generation of organization-focused ideas. *The Leadership Quarterly*, 26(2), 204–219. <https://doi.org/10.1016/j.leaqua.2014.10.004>
- Deutschman, A. (2004). *Gore's text for innovation*. Fast Company. <https://www.fastcompany.com/51510/gores-text-innovation>
- Dew, N. (2009). Serendipity in entrepreneurship. *Organization Studies*, 30(7), 735–753. <https://doi.org/10.1177/0170840609104815>
- Dokko, G., & Kane, A. A. (2014). One of us or one of my friends: How social identity and tie strength shape the creative generativity of boundary-spanning ties. *Organization Studies*, 35(5), 703–726. <https://doi.org/10.1177/0170840613508397>

- Duymedjian, R., & Rüling, C. C. (2010). Towards a foundation of bricolage in organization and management theory. *Organization Studies*, *31*(2), 133–151. <https://doi.org/10.1177/0170840609347051>
- Cunha, M. P., Clegg, S. R., & Kamoche, K. (2006). Surprises in management and organization: Concept, sources and a typology. *British Journal of Management*, *17*(4), 317–329. <https://doi.org/10.1111/j.1467-8551.2005.00470.x>
- Elsbach, K. D., & Bechky, B. A. (2007). It's more than a desk: Working smarter through leveraged office design. *California Management Review*, *49*(2), 80–101. <https://doi.org/10.2307/41166384>
- Elsbach, K. D., & Pratt, M. G. (2007). The physical environment in organizations. *Academy of Management Annals*, *1*(1), 181–224. <https://doi.org/10.5465/078559809>
- Feldman, F. (2004). *Pleasure and the good life: Concerning the nature, varieties, and plausibility of hedonism*. Oxford University Press.
- Feldman, F. (2007). Precis of pleasure and the good life: Concerning the nature, varieties, and plausibility of hedonism. *Philosophical Studies*, *136*(3), 405–408. <https://doi.org/10.1007/s11098-006-9039-y>
- Fuchs, C., Sting, F. J., Schlickel, M., & Alexy, O. (2019). The ideator's bias: How identity-induced self-efficacy drives overestimation in employee-driven process innovation. *Academy of Management Journal*, *62*(5), 1498–1522. <https://doi.org/10.5465/amj.2017.0438>
- Füller, J., Jaweck, G., & Muhlbacher, H. (2007). Innovation creation by online basketball communities. *Journal of Business Research*, *60*(1), 60–71. <https://doi.org/10.1016/j.jbusres.2006.09.019>
- Gerbas, A., Prath, C., Parker, A., Spreitzer, G., & Cross, R. (2015). Destructive de-energizing relationships: How thriving buffers their effect on performance. *Journal of Applied Psychology*, *100*(5), 1423. <https://doi.org/10.1037/apl0000015>
- Granovetter, M. S. (1983). The strength of weak ties: A network theory revisited. *Sociological Theory*, *1*, 201–233. <https://doi.org/10.2307/202051>
- Hjorth, D., Strati, A., Drakopoulou Dodd, S., & Weik, E. (2018). Organizational creativity, play and entrepreneurship: Introduction and framing. *Organization Studies*, *39*(2–3), 155–168. <https://doi.org/10.1177/0170840617752748>
- Ho, V. T., Garg, S., & Rogelberg, S. G. (2021). Passion contagion at work: Investigating formal and informal social influences on work passion. *Journal of Vocational Behavior*, *131*, 103642. <https://doi.org/10.1016/j.jvb.2021.103642>

- Huizinga, J. (1955). *Homo ludens*. Beacon Press.
- Hunter, C., Jemielniak, D., & Postuła, A. (2010). Temporal and spatial shifts within playful work. *Journal of Organizational Change Management*, 23(1), 87–102. <https://doi.org/10.1108/09534811011017225>
- Inceoglu, I., Thomas, G., Chu, C., Plans, D., & Gerbasi, A. (2018). Leadership behavior and employee well-being: An integrated review and a future research agenda. *The Leadership Quarterly*, 29(1), 179–202. <https://doi.org/10.1016/j.leaqua.2017.12.006>
- Kraatz, M. S., & Flores, R. (2015). Introduction. *Research in the Sociology of Organizations*, 44, 1–7. <https://doi.org/10.1108/S0733-558X2015000044001>
- Kraatz, M. S., Flores, R., & Chandler, D. (2020). The value of values for institutional analysis. *Academy of Management Annals*, 14(2), 474–512. <https://doi.org/10.5465/annals.2018.0074>
- Larson, R., Mannell, R., & Zuzanek, J. (1986). Daily well-being of older adults with friends and family. *Psychology and Aging*, 1(2), 117–126. <https://doi.org/10.1037/0882-7974.1.2.117>
- Lysova, E. I., & Khapova, S. N. (2019). Enacting creative calling when established career structures are not in place: The case of the Dutch video game industry. *Journal of Vocational Behavior*, 114, 31–43. <https://doi.org/10.1016/j.jvb.2018.06.004>
- McColl-Kennedy, J. R., & Anderson, R. D. (2002). Impact of leadership style and emotions on subordinate performance. *The Leadership Quarterly*, 13(5), 545–559. [https://doi.org/10.1016/S1048-9843\(02\)00143-1](https://doi.org/10.1016/S1048-9843(02)00143-1)
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Bird of a feather: Homophily in social networks. *Annual Review of Sociology*, 27(1), 415–444. <https://doi.org/10.1146/annurev.soc.27.1.415>
- Moser, C., den Hond, F., & Lindebaum, D. (2021). Morality in the age of artificially intelligent algorithms. *Academy of Management Learning & Education*. <https://doi.org/10.5465/amle.2020.0287>
- Moser, C., Ganley, D., & Groenewegen, P. (2013). Communicative genres as organising structures in online communities - of team players and storytellers. *Information Systems Journal*, 23(6), 551–567. <https://doi.org/10.1111/isj.12022>
- Nisen, M. (2013). *Google's obsession with efficiency has killed its most famous perk*. Business Insider. <https://www.businessinsider.in/Googles-Obsession-With-Efficiency-Has-Killed-Its-Most-Famous-Perk/articleshow/21871847.cms>



- Oh, H., Chung, M. H. O., & Labianca, G. (2004). Group social capital and group effectiveness: The role of informal socializing ties. *Academy of Management Journal*, 47(6), 860–875. <https://doi.org/10.2307/20159627>
- Perkmann, M., & Spicer, A. (2014). How emerging organizations take form: The role of imprinting and values in organizational bricolage. *Organization Science*, 25(6), 1785–1806. <https://doi.org/10.1287/orsc.2014.0916>
- Perry-Smith, J. E. (2006). Social yet creative: The role of social relationships in facilitating individual creativity. *Academy of Management Journal*, 49(1), 85–101. <https://doi.org/10.5465/amj.2006.20785503>
- Piezunka, H., & Dahlander, L. (2015). Distant search, narrow attention: How competition for attention alters organizations' filtering of suggestions in crowdsourcing. *Academy of Management Journal*, 58(3), 856–880. <https://doi.org/10.5465/amj.2012.0458>
- Podolny, J. M., & Baron, J. N. (1997). Resources and relationships: Social networks and mobility in the workplace. *American Sociological Review*, 62(5), 673–693. <https://doi.org/10.2307/2657354>
- Pollack, J. M., Ho, V. T., O'Boyle, E. H., & Kirkman, B. L. (2020). Passion at work: A meta-analysis of individual work outcomes. *Journal of Organizational Behavior*, 41(4), 311–331. <https://doi.org/10.1002/job.2434>
- Pringle, R., Rinehart, R. E., & Caudwell, J. (2015). *Sport and the social significance of pleasure*. Routledge.
- Rubin, R. S., Munz, D. C., & Bommer, W. H. (2005). Leading from within: The effects of emotion recognition and personality on transformational leadership behavior. *Academy of Management Journal*, 48(5), 845–858. <https://doi.org/10.5465/amj.2005.18803926>
- Schrage, M. (2013). *Just how valuable is Google's "20% time"?* Harvard Business Review. <https://hbr.org/2013/08/just-how-valuable-is-googles-2-1#:~:text=Reports%20of%20the%20death%20or,Yahoo's%20targeted%20euthanizing%20of%20telecommuting>
- Selznick, P. (1957). *Leadership in administration. A sociological interpretation*. University of California Press.
- Sidgwick, H. (1907). *The methods of ethics*. Hackett Publishing.
- Simpson, B., & den Hond, F. (2022). The contemporary resonances of classical pragmatism for studying organization and organizing. *Organization Studies*, 43(1), 127–146. <https://doi.org/10.1177/0170840621991689>
- Starkey, K., & Hatchuel, A. (2002). The long detour: Foucault's history of desire and pleasure. *Organization*, 9(4), 641–656. <https://doi.org/10.1177/135050840294007>

- Suddaby, R., Ganzin, M., & Minkus, A. (2017). Craft, magic and the re-enchantment of the world. *European Management Journal*, 35(3), 285–296. <https://doi.org/10.1016/j.emj.2017.03.009>
- Trimble, C. (2010). *Google and the myth of free time*. Harvard Business Review. <https://hbr.org/2010/08/free-time-innovation>
- Uy, M. A., Jacob, G. H., Gielnik, M. M., Frese, M., Antonio, T., & Wonohadidjojo, M. (2020). When passions collide: Passion convergence in entrepreneurial teams. *Journal of Applied Psychology*, 106(6), 902–920. <https://doi.org/10.1037/apl0000812>
- Uzzi, B. (1997). Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42(1), 35–67. <https://doi.org/10.2307/2393808>
- Venkataramani, V., Labianca, G.(Joe), & Grosser, T. (2013). Positive and negative workplace relationships, social satisfaction, and organizational attachment. *Journal of Applied Psychology*, 98(6), 1028–1039. <https://doi.org/10.1037/a0034090>
- Vesa, M., Hamari, J., Harviainen, J. T., & Warmelink, H. (2017). Computer games and organization studies. *Organization Studies*, 38(2), 273–284. <https://doi.org/10.1177/0170840616663242>
- Vesa, M., den Hond, F., & Harviainen, J. T. (2019). On the possibility of a paratelic initiation of organizational wrongdoing. *Journal of Business Ethics*, 160(1), 1–15. <https://doi.org/10.1007/s10551-018-3852-z>
- von Krogh, G., Haefliger, S., Spaeth, S., & Wallin, M. W. (2012). Carrots and rainbows: Motivation and social practice in open source software development. *Mis Quarterly*, 36(2), 649–676. <https://doi.org/10.2307/41703471>
- Vozza, S. (2020). *How to replace small talk when working remotely*. Fast Company. <https://www.fastcompany.com/90491792/how-to-replace-small-talk-when-working-remotely>
- Wan, M., Carlson, D. S., Quade, M. J., & Kacmar, K. M. (2021). Does work passion influence prosocial behaviors at work and home? Examining the underlying work–family mechanisms. *Journal of Organizational Behavior*, 1–19. <https://doi.org/10.1002/job.2566>
- Weller, A. (2017). Exploring practitioners’ meaning of “ethics”, “compliance”, and “corporate social responsibility” practices: A communities of practice perspective. *Business & Society*, 59(3), 518–544. <https://doi.org/10.1177/0007650317719263>

Zack, M. H. (2000). Jazz improvisation and organizing: Once more from the top. *Organization Science*, 11(2), 227–234. <https://doi.org/10.1287/orsc.11.2.227.12507>

Zietsma, C., Toubiana, M., Voronov, M., & Roberts, A. (2019). *Emotions in organization theory*. Cambridge University Press.

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# **Knowledge Relationships in Organizations**



# Multiple Identities and Multiple Relationships: An Exploratory Study of Freelancers' Knowledge-Seeking Behavior

Paola Zappa, Marco Tonellato, and Stefano Tasselli

## Introduction

Labor markets are increasingly diversifying in terms of working time patterns and nature of employment relationships. These changes are driven both by socioeconomic trends, as labor markets are responding to workers' demands for flexible work arrangements that fit with their career aspirations and non-work activities (Ashford et al., 2007), and by the

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increasing need to coordinate work activities across different continents and time zones in multi-national firms (e.g., Mell et al., 2021). One of the main implications of these changes is that companies are outsourcing key functions and tasks by recurring to freelancers (Boland et al., 2020). Alternatively described as independent workers or contractors (Barley & Kunda, 2006), freelancers represent a classic example of boundaryless careers (Arthur & Rousseau, 1996; Leung, 2014) that makeup today's labor markets in great capacity (Smit et al., 2020). In addition, freelancers have also been recently conceptualized as multiple jobholders, who typically “hold a combination of full- and part-time jobs” (Campion et al., 2020, p. 166).

Almost two decades of scholarly interest have shown that freelance work meets the expectations of a particular segment of workforce that is driven by specific attitudes and values—for instance, women who want to emancipate themselves from power imbalance (Burke & Ng, 2006). Freelancers are seen as interested in fluid work arrangements, better work-life balance, and higher levels of job satisfaction, rather than in security and stability (Bosch, 2004). Freelance work also serves organizations' need to react quickly to labor market changes, recruit talents with a more adaptable approach (Barley & Kunda, 2006), and reduce the risks and costs of managing internal workforce. Adding to existing theoretical conceptualizations and empirical evidence, the focus on freelance work has increased in the aftermath of the COVID-19 pandemic acute phase, as a consequence of a massive and distributed organizational effort to invest in digital transformation and implementation of long-term remote or hybrid working arrangements (Smit et al., 2020).

This upsurge in freelance work has called for a more critical understanding of its dynamics and implications. One issue that has surprisingly received little attention concerns the assimilation of freelancers into more traditional organizational work environments and, consequently, their access to different kinds of social capital (Kuhn, 2016). Networking behavior—i.e., “the network-related behavior that is associated with building social capital” (Forret & Dougherty, 2004, p. 419), and knowledge seeking in particular have repeatedly proven crucial to the performance and career of most freelancers. Yet, little is known about how they tap into their social capital to build and maintain relationships that give

them access to relevant knowledge. In this exploratory study, we aim to take a first step at answering this question, by providing a preliminary empirical examination of how freelancers engage in knowledge-seeking behavior within the multiple social settings—and networks—to which they have access.

Specifically, we argue that a better understanding of freelancers' knowledge-seeking behavior starts from acknowledging that freelancers are embedded in a variety of interdependent social settings. They consist in (a) the organizations that employ freelancers on a temporary basis; (b) the coworking spaces where freelancers may choose to be based and work from; and (c) former workplaces, colleagues, and—more in general—fleeting and variegated work experiences that freelancers have still access to through their personal networks. We investigate how the propensity to tap into relevant social capital across these different social settings is related to how freelancers perceive themselves at the workplace—i.e., how they identify as entrepreneurs rather than organizational employees—in relation to both their own career goals and their relationships with others (Bouncken & Aslam, 2019; Zuckerman et al., 2003). Identity is a cognitive characteristic of individuals that is known to affect the structure of their informal networks (Dokko et al., 2014; Menon & Smith, 2014). Furthermore, scholars have long recognized that individuals have multiple, coexisting identities which may simultaneously affect their behavior within organizations (Ramarajan, 2014). Despite being even more salient for freelancers who experience frequent transitions across social settings (Leung, 2014), the relationship between multiple identities and individual knowledge-seeking behavior in pursuit of accessing relevant social capital has been—to the best of our knowledge—so far neglected by the existing literature.

We find empirical evidence for these arguments in a cross-sectional study based on a sample of 38 freelancers employed in the media industry. Our analysis of the relationship between freelancers' multiple identities and knowledge-seeking behavior across multiple settings reveals that the more freelancers identify themselves as organizational employees, the more likely they are to seek knowledge within their organizations or the coworking spaces where they are based. In contrast, the

more freelancers identify themselves as entrepreneurs, the more likely they are to seek knowledge by means of their own personal networks.

The contributions of this study are twofold. First, we advance the debate on multiple jobholding (Campion et al., 2020) and boundaryless careers in the modern business environment (Kost et al., 2020; LoPresti et al., 2018) by investigating the degree to which freelancers exploit the breadth of the social settings to which they have access to engage in knowledge seeking. We do so by focusing on the variety of work settings (i.e., organizations, coworking spaces, and personal networks) in which freelancers operate and build their professional relationships. Within these contexts, we examine knowledge-seeking relationships that are directly linked to the accomplishment of daily tasks, thus capturing the extent to which freelancers actually tap into their social capital for professional purposes. Because these relationships have been frequently overlooked in favor of career-related relationships (Swab & Johnson, 2019) or collaboration on shared projects (Lee & Gargiulo, 2021), our study clarifies the distinct behaviors that freelancers adopt to access relevant information and counteract the risk of social isolation.

Second, we shed light on the role that multiple identities (Ramarajan, 2014) play in explaining freelancers' knowledge-seeking behavior, adding to the existing literature on the interplay between organizational identification and knowledge network formation (Lomi et al., 2014). We show that the degree to which freelancers identify as embedded in organizational settings—thus conforming to the role of traditional organizational employees—and, on the other hand, in professional settings—thus conforming to the role of entrepreneurs—bear important implications for knowledge-seeking behavior. While a higher identification with an employee role helps freelancers accessing organizational social capital without harming the effectiveness of seeking knowledge in professional networks, a higher identification with an entrepreneurial role leads to the opposite result. This result has theoretical and practical implications, as organizations face the constant struggle of effectively assimilating knowledge workers with boundaryless careers (Kuhn, 2016) by providing them full access to organizational social capital (Lin, 1999, 2002).



## Theoretical Background

### Freelancers and Multiple Jobholding

Freelance work refers to the idea of working multiple jobs for multiple organizations, rather than working permanently for a single one (Allen, 1998; Campion et al., 2020). Despite outlining that the precise definition of the term freelance work is still subject to some debate (Fox, 2014; Kuhn, 2016), most organizational scholars agree that the main trait of freelancers is being independent workers—frequently skilled professionals—who are contracted by organizations on a fixed-term project basis, and are considered self-employed as they work for themselves going from project to project (Wood et al., 2019). These arrangements result in a combination of full-time and part-time jobs, which differ in contract length, roles, companies, and supervisors, and distinguish freelancers from the conventional workforce (Allen, 1998).

By holding multiple jobs—frequently at the same time—freelancers experience a lower level of work stability than more conventional workers. Yet, this drawback is counterbalanced by the higher level of autonomy and control over their career that most freelancers typically enjoy (Lee & Gargiulo, 2021; Leung, 2014). Holding multiple jobs also presents freelancers with a variety of work environments (Inness et al., 2005) and opportunities for serendipitous encounters, which promote the forging of social relationships with colleagues. Through social relationships, freelancers have access to the knowledge resources they need to accomplish their work—i.e., the social capital (Lin, 1999, 2002). Knowledge helps freelancers not only to enhance creativity and performance but also to adjust to the company's specific tasks and complete them effectively (e.g., Botsman & Rogers, 2011; Daskalaki, 2010). Because freelancers spend limited time at a company and are just partially involved in the organizational processes, social relationships—and knowledge seeking in particular—are essential tools for coordinating their work with colleagues.

An organization provides legitimacy to the competence and trustworthiness of their members, thus encouraging freelancers contracted

by the same organization to build relationships with them (Baer et al., 2018; Lee & Gargiulo, 2021). However, the potential of these relationships is reduced by the temporary and not exclusive nature of the jobs. This results in a limited attachment to each employer (Campion et al., 2020) and, most importantly, in the tendency to build relationships with different content, from collaboration on projects to information seeking on career opportunities—outside the organizational boundaries, in different social settings. Two types of social settings appear particularly salient.

The first consists of coworking spaces, which have been identified by a wide body of literature in the latest decade as the pinnacle of collaborative models of work for freelancers (e.g., Grugulis & Stoyanova, 2011). Numerous studies have found that freelancers tend to use coworking spaces as an alternative or additional setting to the conventional workplace (Gandini, 2015). This is particularly the case of freelancers who—differently from conventional employees—enjoy the freedom to decide their working arrangements, and are allowed to work in remote or hybrid mode (Jakonen et al., 2017). Coworking spaces are shared workplaces, where a variety of professionals—from start-ups to employees of small and large companies that can rent fixed and temporary desks (Gandini & Cossu, 2021)—work side by side. Unlike organizations, coworking spaces do not entail any collective economic interests, hierarchical structures, or superimposed directives (Bianchi et al., 2018). Yet, coworking spaces provide freelancers with a resemblance to workplace dynamics in terms of norms, routines (Bouncken & Aslam, 2019), and a holding environment of normalcy that help reducing the uncertainty inherent in freelancers' career paths (Petriglieri et al., 2018) and the risk of social isolation (Gerdenitsch et al., 2016; Weijs-Perrée et al., 2019). Indeed, in coworking spaces, freelancers can find peers employed in a variety of companies and even industries—who are not their direct competitors—, with whom they can build business-based trust relationships (Bianchi et al., 2018) that are instrumental to collaboration on joint projects (Jakonen et al., 2017) and knowledge exchange (Butcher, 2018).

The second setting consists of a variety of former workplaces and work experiences that freelancers have still access to through their personal

networks of peers. Extant literature has shown that freelancers actively try to entertain informal relationships and collaborations with their peers in the industry (Lee & Gargiulo, 2021). Freelancers typically meet through a common third party, or when they collaborate on a project for a client company, share the same workplace or coworking space for a period, or attend the same networking events (e.g., Wood & Lehdonvirta, 2021).

From professional photography (Giuffre, 1999), to performing arts (Uzzi & Spiro, 2005), and television shows (Clement et al., 2018; Soda et al., 2021), the literature is replete with examples of freelancers who exploit social relationships with peers to improve performance and secure career success (Van den Born & Van Witteloostuijn, 2013). Evidence exists that these relationships are used to divide labor and work on projects that a freelancer would have not been able to complete on their own. Also, freelancers rely on relationships with peers for sharing information—for instance, on job opportunities. This is the case of contexts such as the media industry, where deregulation has led to increased competition and the extensive use of a referral system to secure jobs (Storey et al., 2005).

These personal relationships are accumulated over time through a trial-and-error process, whereby freelancers form and assess these contacts, retaining only the most useful ones, with whom they collaborate repeatedly. For instance, various scholars have observed that songwriters forge and maintain a small and closely knit network with a trusted group of collaborators to secure their support, and occasionally expand their network by reaching out to distant peers for exploring alternatives and being exposed to new ideas (Daskalaki, 2010; Lee & Gargiulo, 2021). Unlike interaction happening at the workplace or in coworking spaces, relationships with peers in the industry are based on more personal grounds and require the joint efforts of the involved parties to be maintained and nurtured, since they are not embedded in a community with routines and opportunities for interaction.

Because of the heterogeneity in freelancers' characteristics as well as in the content of the relationships examined by extant studies, there is scant evidence on the reasons why freelancers may favor seeking knowledge in one social setting over another. Ashford and coauthors (2007), among the others, claim the freelancer's work arrangements at the workplace

contribute to explain the knowledge-seeking behavior. Being assigned a highly autonomous role is likely to make it difficult for freelancers to seek knowledge from colleagues at their temporary workplace and from peers in general. Likewise, working remotely can reduce the levels of trust and decrease collaboration (Arthur & Rousseau, 1996; Janowicz-Panjaitan & Noorderhaven, 2009). This is the case because freelancers that are not based at the company's headquarters are frequently seen by their employer and behave as independent teams of one (Mesmer-Magnus & DeChurch, 2009) or as small, independent businesses who operate outside employment norms (Celia & Stanworth, 1997).

Though relevant, all these studies are partial and unsatisfactory. They provide some evidence on the freelancers' tendency to engage in social relationships of different contents but do not clearly investigate knowledge-seeking behavior. Nor do they distinguish among the different social settings where freelancers are embedded. In the next section, we address this gap in the literature by bringing to bear the concept of identity and investigating the role of multiple identities in shaping knowledge-seeking behavior.

## Freelancers' Identity

Professional identity is defined as "the relatively stable and enduring constellation of attributes, beliefs, values, motives, and experiences in terms of which people define themselves in a professional role" (Ibarra, 1999, p. 764). In other words, professional identity represents people's schematic knowledge about who they are at the workplace (Alvesson & Willmott, 2002; Markus, 1977), making "people's inner and social worlds intelligible and manageable" (Petriglieri et al., 2018, p. 126). Professional identity constitutes a key psychological attribute which is known to impact several behaviors of employees in organizations, such as career choices (Leung, 2014), socialization (Becker & Carper, 1956), and resistance to technological change (Tripsas, 2009) to name just a few.

People can define themselves in various ways. For most employees, their individual sense of identity is intertwined with the identity of their organization (Tajfel, 1978), so they tend to echo their values,

work towards a shared goal (Connelly & Zweig, 2015), and embrace their strategy (Dokko et al., 2014). This is not the case of freelancers, who often struggle to find their own identities. As freelancers move from one organization to the next, they do not have an a priori strong organizational identity to conform to (Dobusch & Schoeneborn, 2015). Instability in contracts and roles can also cause freelancers stark emotional tensions and a lack of confidence in their ability and contribution to projects, both of which exacerbate the uncertainty they experience around identity (Caza et al., 2018). More importantly, the engagement in multiple roles, workgroups, professions, and jobs across several organizations (e.g., Ashforth & Johnson, 2001; Leavitt et al., 2012; Ramarajan et al., 2017) gives freelancers freedom in crafting their identity (Alvesson, 2001), and typically leads them to develop multiple and coexisting identities (Caza et al., 2018; Zhang et al., 2006) that are attached to the multiple roles that freelancers typically play (Stryker & Burke, 2000).

Freelance work contains elements of both employment and entrepreneurship roles (Petriglieri et al., 2018)—i.e., freelance work consists in performing an autonomous activity like entrepreneurship, yet under the control and directions of an organization like conventional employment (Lo Presti et al., 2018). Henceforth, freelancers' identity is reasonably expected to consist of both dimensions: entrepreneur and employee identity. The entrepreneur identity implies that freelancers see themselves as similar to entrepreneurs (Van den Born & Witteloostuijn, 2013) and aspire to core qualities of enterprise (Storey et al., 2005), prioritize their goals (Celia & Stanworth, 1997; Kitching & Smallbone, 2012) and see autonomy, personal initiative, and constant instability as unavoidable attributes of their role (Brachert et al., 2019). The employee identity implies that freelancers see themselves as workers who are assigned a specific role, are expected to comply with organizational routines, norms, and shared values (Wood & Lehdonvirta, 2021), are interested to fit in with the organizational culture, and become part of a community (Bouncken & Aslam, 2019).

The various theoretical perspectives on identity have taken a specific stance on the relationship between multiple identities (Ramarajan, 2014). A wealth of studies—mostly rooted in social identity theory—argue that the multiple identities which an individual possesses are

distinct and separate from one another. Hence, they operate independently (e.g., Cooper & Thatcher, 2010; Johnson et al., 2006). Other studies claim that multiple identities may be combined, interact with, and modify one another (Bartel et al., 2007). Studies comparable to ours seem to prefer the first assumption. For instance, Chattopadhyay and George (2005) illustrate how contract workers—of which freelancers are an example—independently identify with their home and host organizations. Likewise, Stets and Harrod (2004) outline that the verification of academic and worker identities independently influences self-esteem.

To the best of our knowledge, the association between freelancers' identities and knowledge-seeking behavior has never been examined. However, previous studies in similar fields have hinted at the existence of a possible relationship between the two. For instance, freelancers who exhibit a high employee identity display interest to become part of a community of colleagues and tend to place trust in them (Liu et al., 2020). Entertaining relationships with colleagues offer exactly these opportunities. Therefore, we would expect that a high employee identity is associated with a high likelihood to entertain relationships with colleagues at a temporary employer.

The causal relationship between identity and networking behavior may be conceived as bidirectional. While traditional studies have claimed that identities are socially constructed, and therefore are the by-product of networking behavior (Fleming et al., 2007; White, 2008), a wealth of more recent studies have shown that the opposite happens as well (Dokko et al., 2014; Lomi et al., 2014; Menon & Smith, 2014). These studies are based on the assumption that identity is characterized by inertia, and changes more slowly than the social relationships that it fosters. Therefore, social identities are likely to explain how individuals shape their social networks (Menon & Smith, 2014). This consideration extends to a variety of relationships, such as knowledge seeking and collaboration more broadly defined (Gagné et al., 2019; Milton & Westphal, 2005; Srivastava & Banaji, 2011). In this chapter, we remain agnostic about the direction of the causal effects underlying these two constructs, both for data-related limitations and in light of the aforementioned theoretical arguments. Instead, we take an exploratory approach

which simply aims to investigate, in a more correlational fashion, the association between multiple identities and knowledge-seeking behavior in multiple professional settings. Therefore, we ask:

*What role do the multiple identities of freelancers play in their propensity to seek knowledge from peers in different social settings?*

## Empirical Setting

We collected our data among a sample of freelancers employed in the media industry in the Republic of Ireland. The availability of technological infrastructures, broadband capabilities, and diversity of industries have made the Dublin area in particular well suited for independent workers and rich in coworking hubs (Crowley & Doran, 2020). The sample includes writers and content creators who were active freelancers at the time of data collection. The media industry, and creative fields more broadly, represent a suitable setting for studying freelancers as they rely significantly on contract work (Faulkner, 1983). The creative fields are also knowledge intensive and competitive, therefore, making freelancers reliant on informal networks to perform their tasks and advance their careers (Lee & Gargiulo, 2021). The original sample consisted of 87 writers and content creators registered in two coworking spaces in the Dublin area. The list of respondents was compiled with the help of the coworking space managers. To observe comparable behaviors, we did not include freelancers who rented desks in coworking space for their own company. We also excluded those whose career has been entirely online as they typically display different characteristics in terms of number of simultaneous jobs (e.g., Leung, 2014). The 87 freelancers were contacted through the coworking space managers and administered an online survey in June–July 2021.

This sampling design was suitable for two reasons. First, it allowed surveying freelancers who were—at least potentially—exposed to the opportunity of accessing social capital in all three contexts of interest. Also, because the data collection happened at a time when the COVID-19 restrictions limited the operating capacity of office spaces, we could

circumvent the constraint of recruiting participants directly within organizations.

The questionnaire was developed jointly with a small team of freelancers (not included in the study as respondents) and included questions on informal knowledge relationships, identity, work arrangements, and a variety of professional and personal characteristics. Questions on the current employment status were used to filter out ineligible respondents—i.e., those who did not have at least one full-time contract at the time of the data collection. Forty-nine freelancers (response rate: 56.3%) took the survey. After additional checks, we excluded from the analysis eleven of them (12.6%) as they decided not to provide any answers to the relational part of the survey. We verified that these eleven freelancers do not differ from other respondents with respect to any relevant demographic attributes. The final sample of respondents consists of 38 freelancers (response rate was 43.7%). This response rate—although fairly moderate—is in line with previous sampled network studies based on survey data collections (e.g., Tindall, 2004).

## Variables and Measures

**Dependent variable.** To collect the names of contacts across social settings, the network data were collected using a name generator approach. Respondents were asked to list the name of contacts they seek advice from to address work-related matters. Advice-seeking relations are particularly suitable to capture knowledge seeking because they are generally considered as the main social infrastructure through which knowledge flows among people within and across organizations (Cross et al., 2001). For this reason, advice-seeking relations have been repeatedly used to capture informal ties that entail knowledge creation, transfer, and adoption (Phelps et al., 2012). In detail, we asked: “It is common to share knowledge with others on work-related matters at the workplace. Think of the people whom you go to for advice, and list their names”. To avoid biases in responses we did not set a maximum number of contacts to name. We followed the name generator question with more detailed questions on the contacts named, asking respondents to



distinguish between “People at your current company/ies”, “People at the virtual/physical coworking space(s) where you work from”, and “Personal work-related contacts—e.g., former colleagues, friends in the industry, people you met at courses, events, etc”.

The average number of contacts reported by respondents was 4.18 (st.dev. = 3.42), with a range between 0 and 12. In details, the number of contacts was on average 1.66 (st.dev. = 1.36, min = 0, max = 4) for colleagues at the company, 1.05 (st.dev. = 1.21, min = 0, max = 4) for peers at coworking space, and 1.47 (st.dev. = 1.62, min = 0, max = 5) for remaining work-related contacts. Interestingly enough, these figures confirm our assumption that freelancers seek knowledge from peers outside coworking spaces. For each respondent, we computed the ego-network size in each social setting. These represent our dependent variables (e.g., Menon & Smith, 2014).

**Independent variable.** We captured professional identity using an open-ended question. Participants in our study were asked to write a short piece of text in response to the question: “How do you identify yourself at work? Write a short text (max 2500 characters) where you describe your own self-definition or identity at the workplace”.

In using an open-ended question, we differentiated our study from previous ones (e.g., Feng et al., 2022), where respondents were asked about the extent of identification with “an entrepreneur” and “an employee” at the workplace. Primary data collection of texts written by respondents facilitates the analysis and the emergence of relevant themes that capture professional identity and, consequently, inform contextual processes of interpersonal collaboration (Vaara et al., 2016). Overall, we gathered a corpus of 38 texts, whose length is on average of 38.32 (st.dev. = 29.72) words per person, and highly heterogeneous. The values range from a minimum number of 4 words for a respondent who wrote only keywords to a maximum of 115 words. Though moderate, this length is not unusual for texts collected through open-ended questions with the purpose of extracting keywords (e.g., Carley, 1997). Examples of sentences written by respondents include:

*I aim to be self-sufficient in my work, and to be independent when working on new goals for my department. I also look at how my department can help the business as a whole.*

And.

*Self-Motivated, happy to work alone or in a team, self-started and independent thinker.*

Texts were analyzed with a quantitative approach to extract recurring concepts in the definition of entrepreneur and employee professional identities. This analysis consisted of three steps, following Dunn and Jones (2010) on the analysis of multiple logics. In the first step, we collected the definitions of entrepreneur and employee identity used in the five top *ABS 4* and *4\** articles published between 2002 and 2022, where both entrepreneur and employee identity are referred to explicitly (e.g., Feng et al., 2022; Hoang & Gimeno, 2010; Shepherd & Haynie, 2009a, b). From these definitions, we extracted the key dimensions that informed our text analysis. We ensured the same level of detail for both entrepreneur and employee identity by selecting the same number of most recurrent dimensions—i.e., four dimensions—for either type of identity. They were, respectively, “*achievement (motivation)*”, “*autonomy*”, “*personal initiative*”, and “*leading*” for entrepreneur identity, and “*colleague/community*”, “*workplace*”, “*paid job*”, and “*role*” for employee identity. In order to identify and include synonyms, we cycled iteratively between the definitions and our lists of dimensions. For instance, “*drive*” was equated to “*achievement motivation*”, and “*ownership*” was equated to “*leadership*”. Table 1 displays selected articles and concepts on identity.

The second step consisted of linking these theoretical dimensions to the concepts used in the freelancers’ own texts. To this purpose, we investigated *common semantic patterns* for the words used by respondents, by bringing back semantically similar words to their common semantic root and reducing concepts to their common stem (e.g., Jones & Livne-Tarandash, 2008). We then *generalized concepts that have a similar meaning* in our context. We used a semantic dictionary—i.e., the Oxford

**Table 1** Academic articles and keywords on employee and entrepreneur identity

Academic articles	Keywords of employee identity	Keywords of entrepreneur identity
Feng, J., Allen, D. G., & Seibert, S. E. (2022). Once an entrepreneur, always an entrepreneur? Entrepreneurial identity, job characteristics, and voluntary turnover of former entrepreneurs in paid employment. <i>Personnel Psychology, 75</i> (1), 179–213	Following instruction, non-owner, paid job, workplace	Achievement motivation, autonomy, personal initiative, risk-taking
Hoang, H., & Gimeno, J. (2010). Becoming a founder: How founder role identity affects entrepreneurial transitions and persistence in founding. <i>Journal of Business Venturing, 25</i> (1), 41–53	–	Autonomy, ownership, taking initiative, leading
Shepherd, D., & Haynie, J. M. (2009a). Birds of a feather don't always flock together: Identity management in entrepreneurship. <i>Journal of Business Venturing, 24</i> (4), 316–337	Belongingness to a community, role, workplace	Autonomy, control over development of new ventures, drive, leadership
Johnson, R. E., Chang, C. H., & Yang, L. Q. (2010). Commitment and motivation at work: The relevance of employee identity and regulatory focus. <i>Academy of Management Review, 35</i> (2), 226–245	Role, interpersonal interaction, group procedures, commitment toward supervisors	–

(continued)

Table 1 (continued)

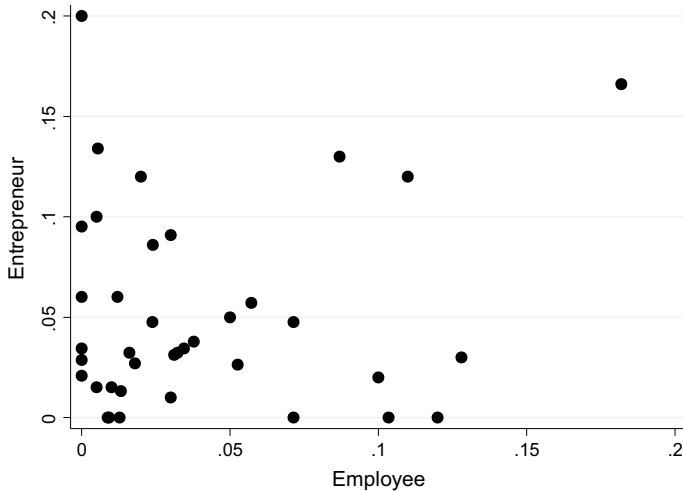
Academic articles	Keywords of employee identity	Keywords of entrepreneur identity
Johnson, R. E., & Jackson, E. M. (2009). Appeal of organizational values is in the eye of the beholder: The moderating role of employee identity. <i>Journal of Occupational and            Organizational Psychology</i> , 82(4), 915–933	Community, complying with the organizational rule, paid job	–

English dictionary—to identify synonyms, which we combined into common concepts (e.g., Krippendorff, 2004). We manually checked the texts for all possibly ambiguous cases to verify that words which can have multiple meanings were not assigned to the wrong concept. At the end of this text preparation phase, the list of concepts was reduced from the initial 322 words contained in the original texts to a list of 61 concepts—in line with previous studies. From this list, we selected the concepts in each text that can be linked directly to the dimensions of entrepreneur and employee identity. Again, we cycled iteratively between the theoretical dimensions and the empirical lists emerged from the text analysis to ensure that synonyms are identified. For instance, “(being) *self-sufficient*” was equated to “*autonomy*”, and “*peer*” was equated to “*community*”.

Finally, for each of the eight words, we summed up the frequencies in each of the 38 texts. To ensure comparability among texts—and respondents—we normalized the frequencies, dividing them by the number of words in each text (e.g., Dunn & Jones, 2010). We calculated Cronbach’s alpha of the four dimensions selected for entrepreneur identity to determine the reliability—or internal consistency—of a single scale. The alpha coefficient is 0.71, slightly higher than the accepted threshold of 0.70 which indicates a sufficient level of scale reliability (DeVellis, 2003). This indicates that the selected words consistently capture entrepreneur identity. The analysis was repeated for the four words on employee identity and yielded similar results (Cronbach’s alpha = 0.66). The values of the identity measures range between 0 and 1. Figure 1 displays the 38 freelancers in the two dimensional space of “*Employee identity*” and “*Entrepreneur identity*”. The scatterplot suggests that the freelancers included in our sample exhibit a fairly heterogenous combination of the two dimensions of identity: while some freelancers display high/low values of both dimensions, the majority appears to score higher in one dimension and lower in the other.

Drawing on this evidence and on Stets and Harrod (2004), we enter the two types of identity as independent variables—i.e., they are included in the same model, but as separate effects. As a robustness check, in the additional analysis, we also specify an interaction effect.

**Control variables.** We included professional, individual, and network controls.



**Fig. 1** Employee and entrepreneur identity

As professional characteristics, we specified variables capturing the characteristics of the freelancer’s contract with the client companies. This is because freelance work includes a variety of work arrangements, which differ in terms of the number of simultaneous clients and projects a freelancer commits to (Gold & Mustafa, 2013). *Contract length* was specified as a set of dummy variables, i.e., “one week to one month” ( $M = 0.29$ ,  $SD = 0.46$ ), “one month to six months” ( $M = 0.26$ ,  $SD = 0.45$ ), “six months to one year” ( $M = 0.11$ ,  $SD = 0.31$ ), and “one year or longer” ( $M = 0.24$ ,  $SD = 0.43$ )—“less than one week” was set as the reference category. With *Contract length*, we controlled for the potential embeddedness of the freelancer in their current client organization (Gold & Mustafa, 2013). *Contract type*, i.e., the number of client companies with whom the freelancer works simultaneously (one client organization = 0; more than one = 1;  $M = 0.68$ ,  $SD = 0.47$ ), captures the attention that the freelancer devotes to each organization and, potentially, to building relationships with colleagues.

As individual characteristics we included *Education* (undergraduate degree,  $M = 0.46$ ,  $SD = 0.51$ ; master degree or higher,  $M = 0.46$ ,  $SD = 0.51$ ; high school diploma or lower was set as the reference category),

*Gender* (male = 0; female = 1;  $M = 0.31$ ,  $SD = 0.47$ ), and *Tenure in the industry* (continuous variable specified as number of years;  $M = 5$  and  $SD = 4.58$ ). We did not check for nationality, considering that all respondents had the same European Union citizenship rights. Finally, we included in the models each freelancer's *Network size* ( $M = 4.18$ ;  $SD = 3.42$ ), as it is a possible indicator of the ability to communicate with others at work (e.g., Mehra et al., 2001).

**Analysis.** We used negative binomial regression models to test the association between identity and knowledge-seeking behavior, as our dependent variable is a count variable (i.e., number of advice-seeking ties). Analysis repeated with Poisson regression yielded consistent results. Because we were interested in comparing knowledge-seeking behavior across the three different contexts, we specified the same model for each of them. We included control and independent variables using a stepwise procedure. We checked for multicollinearity by computing the variance inflation factor (VIF) for each model. The VIF displayed a value lower than 2.22, well below the threshold of 10 which can indicate serious concerns of multicollinearity.

In additional analyses, we specified the dependent variables in an alternative way to make data directly comparable across settings—i.e., we divided the values of ego-network size in each setting by the overall ego-network size. We obtained three measures of normalized ego-network size whose values range between 0 and 1, extreme values included. We conducted the analysis using fractional regression—and the related procedure specified in STATA 16.0. Fractional regression is recommended when the outcome variable is a proportion and includes the extreme values 0 and 1 (e.g., Papke & Wooldridge, 1996), like in our case. This alternative specification yielded similar results to those reported below.

## Results

Table 2 displays descriptive statistics and correlations for the variables. Table 3 presents the results of the negative binomial regression, with all independent and control variables in place. Model 1 shows

knowledge-seeking behavior from colleagues at the client organization. The coefficient for *Employee identity* is positive and significant ( $B = 1.29$ ;  $p < 0.001$ ) to suggest that the more freelancers see themselves as employees, the more likely they are to seek knowledge from colleagues at their temporary employer. By contrast, the coefficient for *Entrepreneur identity* is positive and non-significant, indicating that identifying themselves with an entrepreneur's condition and values does not foster—nor harm—the propensity to seek knowledge at the workplace. It is also worth noticing that knowledge-seeking behavior is not affected by the contract length and, therefore, the time potentially available for building ties with colleagues.

Model 2 led to similar results for knowledge-seeking in coworking spaces. The coefficient for *Employee identity* is positive and significant, thus outlining the tendency to seek knowledge from peers at the coworking space ( $B = 1.36$ ;  $p < 0.001$ ). The coefficient for *Entrepreneur identity* is positive and non-significant. Finally, Model 3 displays knowledge-seeking behavior from personal contacts. According to our definition, these are work-related contacts that a freelancer accumulates over time but are not related to any current workplace. Model 3 yields the opposite results to the previous models: while the coefficient for *Employee identity* is positive but non-significant, the coefficient for *Entrepreneur identity* is positive and significant ( $B = 3.06$ ;  $p < 0.001$ ). Again, the coefficients of work-related control variables—i.e., the average length of the contract with the client organizations and the commitment to a number of work contracts—are non-significant. A freelancer's identity appears to affect knowledge-seeking behavior above and beyond the specific work arrangements.

The correlation between *Employee identity* and *Entrepreneur identity*—as displayed in Table 2—is positive and marginally significant ( $r = 0.11$ ,  $p < 0.10$ ), indicating that freelancers exhibit elements of co-existing identities that pertain to the professional sphere. To test whether this translates into a joint effect of *Employee* and *Entrepreneur identity* on knowledge-seeking behavior, in additional models we included an interaction term between the two. The coefficient was non-significant



in all models, thus providing support to the assumption of independence between the multiple identities. Nevertheless, it is worth outlining that the small sample size might limit our capability to test interactions effectively.

## Discussion and Practical Implications

*[The career a young man should choose should be] one that is most consonant with our dignity, one that is based on ideas of whose truth we are wholly convinced, one that offers us largest scope in working for humanity and approaching that general goal towards which each profession offers. (Karl Marx, Reflections of a Young Man on the Choice of a Profession, 1835)*

In this exploratory study, we approached a very diffused yet understudied organizational topic, i.e., the way by which freelancers “do their work,” in terms of (i) identity approach to their organization and to themselves (as free professionals and/or entrepreneurs) and of (ii) their knowledge-seeking behavior. Interestingly, yet not surprisingly, we found the presence of an association between these two dimensions, such that the degree of overlap that people have with the “social fabric” for which they work is also reflected in the extent and modality by which they interact with others. Yet, given the many limitations in the data (single study, cross-sectional) we cannot infer causality directions between these constructs, which should be eventually addressed in future work.

This research entails two kinds of implications, of both conceptual and practical nature. Conceptually, the idea itself of freelancers as a nuanced combination of “employment” and “entrepreneurship” identities has attracted a great deal of attention of organizational design scholars in the last two decades (LoPresti et al., 2018). However, despite clear evidence that firms are evolving towards flatter, agile structures that empower employees’ creative freedom in developing their own projects while working in full-time employment contracts (i.e., the Google 20% rule, according to which Google employees had 20% of their working

**Table 2** Descriptive statistics and correlations

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Knowledge seeking: organization	1.66	1.36														
2 Knowledge seeking: coworking	1.05	1.21	0.77													
3 Knowledge seeking: personal	1.47	1.62	0.32	0.50												
4 Identity: employee	0.02	0.03	0.32	0.30	-0.15											
5 Identity: entrepreneur	0.02	0.04	-0.31	-0.32	0.19	0.11										
6 Contract length: 1 week to 1 month	0.29	0.46	0.11	0.07	0.18	-0.13	0.11									
7 Contract length: 1 month to 6 months	0.26	0.45	-0.06	0.08	-0.08	0.01	-0.04	-0.39								
8 Contract length: 6 months to 1 year	0.11	0.31	-0.19	0.02	-0.09	-0.18	0.26	-0.24	-0.22							
9 Contract length: 1 year or longer	0.24	0.43	0.07	-0.20	-0.16	0.23	-0.30	-0.33	-0.31	-0.19						
10 Contract type	0.68	0.47	0.07	-0.11	-0.07	0.11	0.05	-0.11	-0.16	0.06	0.20					
11 Education: undergraduate degree	0.46	0.51	-0.01	0.07	0.27	-0.02	0.06	0.08	0.14	-0.32	-0.01	0.24				
12 Education: master's degree or higher	0.46	0.51	0.10	0.01	-0.20	0.06	0.001	0.04	-0.03	0.39	-0.04	-0.23	-0.84			
13 Gender	0.32	0.47	-0.03	-0.16	-0.04	0.03	0.13	0.31	-0.58	0.06	0.20	0.19	0.24	-0.10		
14 Tenure in the industry	5.00	4.58	0.08	-0.06	-0.05	0.14	0.02	-0.14	-0.23	0.19	0.16	0.13	-0.23	0.25	0.20	
15 Network size	4.18	3.42	0.82	0.89	0.78	0.16	-0.15	0.15	-0.03	-0.11	-0.12	-0.05	0.15	-0.05	-0.08	-0.02

Correlations > = [0.15] are significant at p < 0.05.

time allocated to personalized and creative projects), it is undoubtedly true that the topic of freelancing is still at a nascent phase of exploration in organizational scholarship. One reason for this aporia is empirical—the diffusion of this form of employment has only recently met the necessary threshold of diffusion that is needed to gain empirical scholarly attention and popularity. A second reason is theoretical: from a principal-agent perspective, which has implicitly dominated the scholarly divide between “organizational” and “entrepreneurial” scholarship (e.g., Braun & Guston, 2003), freelancers lie in a middle-ground that risks being perceived as a metaphorical no-men’s land between the two disciplines. By nature, freelancers are indeed not fully employees—they lack indeed the requisite of direct hierarchy and task coordination that separate organizations from other social settings (March & Simon, 1958). However, because they are hired to accomplish superordinate and organizationally-relevant goals, freelancers are not even entrepreneurs, nor independent professionals who navigate through autonomously led projects.

Hybridization of professions is a common trend in many labor markets, including healthcare and high-tech, where firms increasingly look for figures who can combine technical and managerial skills (e.g., Shimoni & Bergmann, 2006). To what extent do freelancers contribute to the hybridization of “employment” and “entrepreneurialism”? In this study, we sketch two issues that are at the core of this question. One concerns identity. As identity defines important features of one’s work, including role adaptation (Ibarra, 1999) and career paths (Leung, 2014), the extent to which freelancers identify themselves more with their autonomous activity or with the organization for which they accomplish work can move the pendulum of hybridization either towards a freer form of employment (i.e., the freelancer can be seen as a detached, project-led member of the extended organization) or towards free professionalism (i.e., the freelancer is an entrepreneur who maintains freedom in choosing and mastering projects at their choice). The binary correlations shown in this study (including the non-significant association between contract type and employee-typed identity, reported in Table 2) fall short in providing convincing, organizational-based explanations

for this pendulum. We cannot rule out that the links between identification and knowledge-seeking behavior can be explained by the personal characteristics of the freelancers, including motivation and personality. But this intuition must be matched by empirical work.

On the practical side, one question is paramount: What should companies and, more in general, societies do to empower freelancers and maximize both their personal satisfaction and their contribution? To answer this question, we first should dig deeper in the investigation of the antecedents of freelancing. The aftermath of the COVID-19 crisis has led mainly young professionals to the so-called great resignation, a phenomenon by which an increasing number of high-skilled individuals are leaving well-paid, company jobs to secure more independence and a different work-life balance. It is not absurd to hypothesize that a good percentage of these resigning professionals could decide to experience, at least for a while, freelancing. What kind of individual characteristics explain this choice? And how do individual propensities explain success in freelancing, i.e., is it a career choice for everyone, or just for a specific kind of people? On the process side of the question, we do not know yet precisely how freelancers do their work. Here, we showed that there are at least some connections between their identity propensities and the ways they approach others for communication, knowledge, and advice. Does this have a consequence for how they build their personal networks, and consequently, for the possible outcomes of their networking? In most studies of informal organizational networks, there are two relevant issues that shape our interpretation of how networks function. One of them is the formal organization. The way people interact (informally, for either instrumental or expressive purposes) is necessarily dictated, at least partially, by the structure of formal organizing, including the division of work between subunits and formal hierarchical patterns (e.g., Tasselli et al., 2020). A second element is the private vs. public nature of networking. In organizations, networking is above all a private game—in the race to know about opportunities, those who gain easier and quicker access to knowledge benefit from a structural advantage (Burt et al., 2013). These two elements are reverted in the context of freelancing, where the formal organization is absent (freelancers collaborate with the organization but are not members of the organization) and where the

Table 3 Negative binomial regression analysis

	Model 1 Coeff (S.E.) (Knowledge seeking: organization)		Model 2 Coeff (S.E.) (Knowledge seeking: coworking)		Model 3 Coeff (S.E.) (Knowledge seeking: personal)	
	(a)	(b)	(a)	(b)	(a)	(b)
Contract length:	-0.31 (0.32)	-0.29 (0.33)	-0.01 (0.33)	0.17 (0.39)	-0.06 (0.40)	0.01 (0.29)
1 week to	-0.22 (0.31)	-0.20 (0.35)	0.06 (0.39)	0.44 (0.52)	-0.66 (0.44)	0.32 (0.49)
1 month	-1.02 (0.43)*	-0.95 (0.49) †	0.14 (0.51)	0.77 (0.63)	-0.05 (0.61)	-0.52 (0.61)
1 month to	0.12 (0.33)	0.12 (0.33)	-0.19 (0.41)	0.07 (0.40)	-0.28 (0.45)	0.13 (0.26)
6 months						
6 months to						
1 year						
1 year or						
longer						
Contract type	0.37 (0.30)	0.35 (0.34)	0.17 (0.32)	-0.17 (0.34)	-0.13 (0.34)	-0.08 (0.35)
Education:	0.24 (0.49)	0.26 (0.49)	0.21 (0.45)	0.14 (0.46)	0.81 (0.50)†	0.16 (0.45)
Undergraduate	0.81 (0.51)	0.78 (0.24)**	0.31 (0.46)	-0.22 (0.55)	0.23 (0.63)	-0.28 (0.55)
degree						
Master						
degree or						
higher						

(continued)

Table 3 (continued)

	Model 1 Coeff (S.E.) (Knowledge seeking: organization)		Model 2 Coeff (S.E.) (Knowledge seeking: coworking)		Model 3 Coeff (S.E.) (Knowledge seeking: personal)	
	(a)	(b)	(a)	(b)	(a)	(b)
Gender (male)	0.17 (0.36)	0.15 (0.36)	-0.01 (0.43)	-0.06 (0.42)	-0.21 (0.43)	-0.11 (0.54)
Tenure in the industry	-0.04 (0.02)*	-0.04 (0.02)*	-0.10 (0.03)**	-0.01 (0.03)	0.01 (0.04)	-0.03 (0.03)
Network size	-1.31 (0.53)*	0.21 (0.03)***	0.27 (0.04)***	0.30 (0.04)***	0.21 (0.05)***	0.42 (0.05)***
Identity: employee		<b>1.29 (0.32)</b>	***	<b>1.36 (0.41)</b>	***	<b>0.26 (0.48)</b>
Identity: entrepreneur		<b>0.01 (0.39)</b>		<b>0.81 (0.52)</b>		<b>3.06 (0.56)</b>
N	38	38	38	38	38	38
Log likelihood	-42.71	-42.65	-33.79	-32.21	-45.11	-37.06
Wald	87.52	89.84	86.17	155.11	55.56	129.98
Chi-square						

Entries represent un-standardized parameter estimates. Robust standard errors are in parentheses

\*p < 0.10 \*\*p < 0.05, \*\*\*p < 0.01, \*\*\*\*p < 0.001.

information game is mostly public (freelancers access the knowledge they explicitly receive for completing their project, but tend to be outside the political games of organizing). It would be interesting to investigate whether these two characteristics that distinguish employees from freelancers make their networking more efficient, for example cutting off the degree of redundancy that hampers innovation; or whether the decontextualization of networking elements of embeddedness still preserve the overall functioning of the network. More broadly, this consideration leads to a general question on the network agency of freelancers (e.g., Tasselli & Kilduff, 2021). To what extent their freelancing status make them relatively more independent and agentic in defining and steering the compositions of their personal network? Or to what extent, on the opposite, their precarious and fleeting status hampers opportunities, especially in the long time, to consolidate potentially beneficial networks of coworkers? This outcome-oriented question is beyond the scope of this preliminary, exploratory study but should guide future research on this topic.

## References

- Allen, D. W. (1998). The moonlighting decision of unmarried men and women: Family and labor market influences. *Atlantic Economic Journal*, 26(2), 190–205. <https://doi.org/10.1007/BF02299361>
- Alvesson, M. (2001). Knowledge work: Ambiguity, image and identity. *Human Relations*, 54(7), 863–886. <https://doi.org/10.1177/0018726701547004>
- Alvesson, M., & Willmott, H. (2002). Identity regulation as organizational control: Producing the appropriate individual. *Journal of Management Studies*, 39(5), 619–644. <https://doi.org/10.1111/1467-6486.00305>
- Arthur, M. B., & Rousseau, D. M. (1996). A career lexicon for the 21st century. *Academy of Management Perspectives*, 10(4), 28–39. <https://doi.org/10.5465/ame.1996.3145317>
- Ashford, S. J., George, E., & Blatt, R. (2007). Old assumptions, new work: The opportunities and challenges of research on nonstandard employment. *Academy of Management Annals*, 1(1), 65–117. <https://doi.org/10.5465/078559807>

- Ashforth, B. E., & Johnson, S. A. (2001). Which hat to wear? The relative salience of multiple identities in organizational contexts. In M. A. Hogg & D. J. Terry (Eds.), *Social identity processes in organizational contexts* (pp. 31–48). Psychology Press. <https://doi.org/10.4324/9781315800530>
- Baer, M. D., Matta, F. K., Kim, J. K., Welsh, D. T., & Garud, N. (2018). It's not you, it's them: Social influences on trust propensity and trust dynamics. *Personnel Psychology*, 71(3), 423–455. <https://doi.org/10.1111/peps.12265>
- Barley, S. R., & Kunda, G. (2006). Contracting: A new form of professional practice. *Academy of Management Perspectives*, 20(1), 45–66. <https://doi.org/10.5465/amp.2006.19873409>
- Bartel, C. A., Blader, S., & Wrzesniewski, A. (2007). Let's not forget the “Me” in “Team”: Investigating the interface of individual and collective identity. In L. S. Blader (Ed.), *Identity and the modern organization* (pp. 68–91). Psychology Press. <https://doi.org/10.4324/9780203936481>
- Becker, H. S., & Carper, J. W. (1956). The development of identification with an occupation. *American Journal of Sociology*, 61(4), 289–298. <https://doi.org/10.1086/221759>
- Bianchi, F., Casnici, N., & Squazzoni, F. (2018). Solidarity as a byproduct of professional collaboration: Social support and trust in a coworking space. *Social Networks*, 54, 61–72. <https://doi.org/10.1016/j.socnet.2017.12.002>
- Boland, B., De Smet, A., Palter, R., Sanghvi, A., & Popu, O. J. (2020). *Reimagining the office and work life after COVID-19*, mckinsey.com. <https://www.mckinsey.com/business-functions/organization/our-insights/reimagining-the-office-and-work-life-after-covid-19>
- Bosch, G. (2004). Towards a new standard employment relationship in Western Europe. *British Journal of Industrial Relations*, 42(4), 617–636. <https://doi.org/10.1111/j.1467-8543.2004.00333.x>
- Bostman, R., & Rogers, R. (2011). *What's mine is yours: How collaborative consumption is changing the way we live*. Collins.
- Bouncken, R., & Aslam, M. M. (2019). Understanding knowledge exchange processes among diverse users of coworking-spaces. *Journal of Knowledge Management*, 23(10), 2067–2085. <https://doi.org/10.1108/JKM-05-2018-0316>
- Brachert, M., Hyll, W., & Sadrieh, A. (2019). Entry into self-employment and individuals' risk-taking propensities. *Small Business Economics*, 55(4), 1057–1074. <https://doi.org/10.1007/s11187-019-00173-6>
- Braun, D., & Guston, D. H. (2003). Principal-agent theory and research policy: An introduction. *Science and Public Policy*, 30(5), 302–308. <https://doi.org/10.3152/147154303781780290>



- Burke, R. J., & Ng, E. (2006). The changing nature of work and organizations: Implications for human resource management. *Human Resource Management Review*, 16(2), 86–94. <https://doi.org/10.1016/j.hrmr.2006.03.006>
- Burt, R. S., Kilduff, M., & Tasselli, S. (2013). Social network analysis: Foundations and frontiers on advantage. *Annual Review of Psychology*, 64, 527–547. <https://doi.org/10.1146/annurev-psych-113011-143828>
- Butcher, T. (2018). Learning everyday entrepreneurial practices through coworking. *Management Learning*, 49(3), 327–345. <https://doi.org/10.1177/1350507618757088>
- Campion, E. D., Caza, B. B., & Moss, S. E. (2020). Multiple jobholding: An integrative systematic review and future research agenda. *Journal of Management*, 46(1), 165–191. <https://doi.org/10.1177/0149206319882756>
- Carley, K. M. (1997). Extracting team mental models through textual analysis. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 18(S1), 533–558. [https://doi.org/10.1002/\(SICI\)1099-1379\(199711\)18:1+<533::AID-JOB906>3.0.CO;2-3](https://doi.org/10.1002/(SICI)1099-1379(199711)18:1+<533::AID-JOB906>3.0.CO;2-3)
- Caza, B. B., Moss, S., & Vough, H. (2018). From synchronizing to harmonizing: The process of authenticating multiple work identities. *Administrative Science Quarterly*, 63(4), 703–745. <https://doi.org/10.1177/0001839217733972>
- Celia, C., & Stanworth, J. (1997). Reluctant entrepreneurs and their clients: The case of self-employed freelance workers in the British book publishing industry. *International Small Business Journal*, 16(1), 58–73. <https://doi.org/10.1177/0266242697161004>
- Chattopadhyay, P., & George, E. (2005). Examining the effects of work externalization through the lens of social identity theory. *Journal of Applied Psychology*, 86(4), 761–788. <https://doi.org/10.1037/0021-9010.86.4.781>
- Clement, J., Shipilov, A., & Galunic, C. (2018). Brokerage as a public good: The externalities of network hubs for different formal roles in creative organizations. *Administrative Science Quarterly*, 63(2), 251–286. <https://doi.org/10.1177/0001839217708984>
- Connelly, C. E., & Zweig, D. (2015). How perpetrators and targets construe knowledge hiding in organizations. *European Journal of Work and Organizational Psychology*, 24(3), 479–489. <https://doi.org/10.1080/1359432X.2014.931325>
- Cooper, D., & Thatcher, S. M. (2010). Identification in organizations: The role of self-concept orientations and identification motives. *Academy of*

- Management Review*, 35(4), 516–538. <https://doi.org/10.5465/amr.35.4.zok516>
- Cross, R., Borgatti, S. P., & Parker, A. (2001). Beyond answers: Dimensions of the advice network. *Social Networks*, 23(3), 215–235. [https://doi.org/10.1016/S0378-8733\(01\)00041-7](https://doi.org/10.1016/S0378-8733(01)00041-7)
- Crowley, F., & Doran, J. (2020). COVID-19, occupational social distancing and remote working potential: An occupation, sector and regional perspective. *Regional Science Policy & Practice*, 12(6), 1211–1234. <https://doi.org/10.1111/rsp3.12347>
- Daskalaki, M. (2010). Building ‘bonds’ and ‘bridges’: Linking tie evolution and network identity in the creative industries. *Organization Studies*, 31(12), 1649–1666. <https://doi.org/10.1177/0170840610380805>
- DeVellis, R. (2003). *Scale development: Theory and applications* (2nd ed.). Sage.
- Dobusch, L., & Schoeneborn, D. (2015). Fluidity, identity, and organizationality: The communicative constitution of anonymous. *Journal of Management Studies*, 52(8), 1005–1035. <https://doi.org/10.1111/joms.12139>
- Dokko, G., Kane, A. A., & Tortoriello, M. (2014). One of us or one of my friends: How social identity and tie strength shape the creative generativity of boundary-spanning ties. *Organization Studies*, 35(5), 703–726. <https://doi.org/10.1177/0170840613508397>
- Dunn, M. B., & Jones, C. (2010). Institutional logics and institutional pluralism: The contestation of care and science logics in medical education, 1967–2005. *Administrative Science Quarterly*, 55(1), 114–149. <https://doi.org/10.2189/asqu.2010.55.1.114>
- Faulkner, R. R. (1983). *Music on demand: Composers and careers in the hollywood film industry*. Transaction Publishers. <https://doi.org/10.4324/9781315124919>
- Feng, J., Allen, D. G., & Seibert, S. E. (2022). Once an entrepreneur, always an entrepreneur? Entrepreneurial identity, job characteristics, and voluntary turnover of former entrepreneurs in paid employment. *Personnel Psychology*, 75(1), 179–213. <https://doi.org/10.1111/peps.12455>
- Fleming, L., Mingo, S., & Chen, D. (2007). Collaborative brokerage, generative creativity, and creative success. *Administrative Science Quarterly*, 52(3), 443–475. <https://doi.org/10.2189/asqu.52.3.443>
- Forret, M. L., & Dougherty, T. W. (2004). Networking behaviors and career outcomes: Differences for men and women? *Journal of Organizational Behavior*, 25(3), 419–437. <https://doi.org/10.1002/job.253>
- Fox, J. (2014). Breaking down the freelance economy. *Harvard Business Review*, 4.

- Gagné, M., Tian, A. W., Soo, C., Zhang, B., Ho, K. S. B., & Hosszu, K. (2019). Different motivations for knowledge sharing and hiding: The role of motivating work design. *Journal of Organizational Behavior*, 40(7), 783–799. <https://doi.org/10.1002/job.2364>
- Gandini, A. (2015). The rise of coworking spaces: A literature review. *Ephemera*, 15(1), 193–205.
- Gandini, A., & Cossu, A. (2021). The third wave of coworking: ‘Neo-corporate’ model versus ‘resilient’ practice. *European Journal of Cultural Studies*, 24(2), 430–447. <https://doi.org/10.1177/1367549419886060>
- Gerdenitsch, C., Scheel, T. E., Andorfer, J., & Korunka, C. (2016). Coworking spaces: A source of social support for independent professionals. *Frontiers in Psychology*, 7, 581. <https://doi.org/10.3389/fpsyg.2016.00581>
- Giuffrè, K. (1999). Sandpiles of opportunity: Success in the art world. *Social Forces*, 77(3), 815–832. <https://doi.org/10.1093/sf/77.3.815>
- Gold, M., & Mustafa, M. (2013). ‘Work always wins’: Client colonisation, time management and the anxieties of connected freelancers. *New Technology, Work, and Employment*, 28(3), 197–211. <https://doi.org/10.1111/ntwe.12017>
- Grugulis, I., & Stoyanova, D. (2011). The missing middle: Communities of practice in a freelance labour market. *Work, Employment and Society*, 25(2), 342–351. <https://doi.org/10.1177/0950017011398891>
- Hoang, H., & Gimeno, J. (2010). Becoming a founder: How founder role identity affects entrepreneurial transitions and persistence in founding. *Journal of Business Venturing*, 25(1), 41–53. <https://doi.org/10.1111/j.1468-2958.2004.tb00738.x>
- Ibarra, H. (1999). Provisional selves: Experimenting with image and identity in professional adaptation. *Administrative Science Quarterly*, 44(4), 764–791. <https://doi.org/10.2307/2667055>
- Inness, M., Barling, J., & Turner, N. (2005). Understanding supervisor-targeted aggression: A within-person, between-jobs design. *Journal of Applied Psychology*, 90(4), 731. <https://doi.org/10.1037/0021-9010.90.4.731>
- Jakonen, M., Kivinen, N., Salovaara, P., et al. (2017). Towards an economy of encounters? A critical study of affectual assemblages in coworking. *Scandinavian Journal of Management*, 33(4), 235–42. <https://doi.org/10.1016/j.scaman.2017.10.003>
- Janowicz-Panjaitan, M. K., & Noorderhaven, N. G. (2009). Trust, calculation and interorganizational learning of tacit knowledge: An organizational roles perspective. *Organization Studies*, 30(10), 1021–1044. <https://doi.org/10.1177/0170840609337933>

- Johnson, M. D., Morgeson, F. P., Ilgen, D. R., Meyer, C. J., & Lloyd, J. W. (2006). Multiple professional identities: Examining differences in identification across work-related targets. *Journal of Applied Psychology, 91*(2), 498–506. <https://doi.org/10.1037/0021-9010.91.2.498>
- Johnson, R. E., & Jackson, E. M. (2009). Appeal of organizational values is in the eye of the beholder: The moderating role of employee identity. *Journal of Occupational and Organizational Psychology, 82*(4), 915–933. <https://doi.org/10.1348/096317908X373914>
- Johnson, R. E., Chang, C. H., & Yang, L. Q. (2010). Commitment and motivation at work: The relevance of employee identity and regulatory focus. *Academy of Management Review, 35*(2), 226–245. <https://doi.org/10.5465/amr.35.2.zok226>
- Jones, C., & Livne-Tarandach, R. (2008). Designing a frame: Rhetorical strategies of architects. *Journal of Organizational Behavior, 29*(8), 1075–1099. <https://doi.org/10.1002/job.556>
- Kitching, J., & Smallbone, D. (2012). Are freelancers a neglected form of small business? *Journal of Small Business and Enterprise Development, 19*(1), 74–91. <https://doi.org/10.1108/14626001211196415>
- Kost, D., Fieseler, C., & Wong, S. I. (2020). Boundaryless careers in the gig economy: An oxymoron? *Human Resource Management Journal, 30*(1), 100–113. <https://doi.org/10.1111/1748-8583.12265>
- Krippendorff, K. (2004). Reliability in content analysis: Some common misconceptions and recommendations. *Human Communication Research, 30*(3), 411–433.
- Kuhn, K. M. (2016). The rise of the “gig economy” and implications for understanding work and workers. *Industrial and Organizational Psychology, 9*(1), 157–162. <https://doi.org/10.1017/iop.2015.129>
- Leavitt, K., Reynolds, S. J., Barnes, C. M., Schilpzand, P., & Hannah, S. T. (2012). Different hats, different obligations: Plural occupational identities and situated moral judgments. *Academy of Management Journal, 55*(6), 1316–1333. <https://doi.org/10.5465/amj.2010.1023>
- Lee, Y. G., & Gargiulo, M. (2021). Escaping the survival trap: Network transition among early-career freelance songwriters. *Administrative Science Quarterly, 66*(4), 607–644. <https://doi.org/10.1177/00018392211055198>
- Leung, M. D. (2014). Dilettante or renaissance person? How the order of job experiences affects hiring in an external labor market. *American Sociological Review, 79*(1), 136–158. <https://doi.org/10.1177/0003122413518638>
- Lin, N. (1999). Building a network theory of social capital. *Connections, 22*(1), 28–51. <https://doi.org/10.4324/9781315129457-1>

- Lin, N. (2002). *Social capital: A theory of social structure and action*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511815447>
- Liu, Y., Zhu, J. N., & Lam, L. W. (2020). Obligations and feeling envied: A study of workplace status and knowledge hiding. *Journal of Managerial Psychology*. <https://doi.org/10.1108/JMP-05-2019-0276>
- Lo Presti, A., Pluviano, S., & Briscoe, J. P. (2018). Are freelancers a breed apart? The role of protean and boundaryless career attitudes in employability and career success. *Human Resource Management Journal*, 28(3), 427–442. <https://doi.org/10.1111/1748-8583.12188>
- Lomi, A., Lusher, D., Pattison, P. E., & Robins, G. (2014). The focused organization of advice relations: A study in boundary crossing. *Organization Science*, 25(2), 438–457. <https://doi.org/10.1287/orsc.2013.0850>
- March, J. C., & Simon, H. A. (1958). *Organizations*. Wiley.
- Markus, H. (1977). Self-schemata and processing information about the self. *Journal of Personality and Social Psychology*, 35(2), 63. <https://doi.org/10.1037/0022-3514.35.2.63>
- Mehra, A., Kilduff, M., & Brass, D. J. (2001). The social networks of high and low self-monitors: Implications for workplace performance. *Administrative Science Quarterly*, 46(1), 121–146. <https://doi.org/10.2307/2667127>
- Mell, J. N., Jang, S., & Chai, S. (2021). Bridging temporal divides: Temporal brokerage in global teams and its impact on individual performance. *Organization Science*, 32(3), 731–751.
- Menon, T., & Smith, E. B. (2014). Identities in flux: Cognitive network activation in times of change. *Social Science Research*, 45, 117–130. <https://doi.org/10.1016/j.ssresearch.2014.01.001>
- Mesmer-Magnus, J. R., & DeChurch, L. A. (2009). Information sharing and team performance: A meta-analysis. *Journal of Applied Psychology*, 94(2), 535–546. <https://doi.org/10.1037/a0013773>
- Milton, L. P., & Westphal, J. D. (2005). Identity confirmation networks and cooperation in work groups. *Academy of Management Journal*, 48(2), 191–212. <https://doi.org/10.5465/amj.2005.16928393>
- Papke, L. E., & Wooldridge, J. M. (1996). Econometric methods for fractional response variables with an application to 401 (k) plan participation rates. *Journal of Applied Econometrics*, 11(6), 619–632. [https://doi.org/10.1002/\(SICI\)1099-1255\(199611\)11:6%3c619::AID-JAE418%3e3.0.CO;2-1](https://doi.org/10.1002/(SICI)1099-1255(199611)11:6%3c619::AID-JAE418%3e3.0.CO;2-1)
- Petriglieri, G., Ashford, S. J., & Wrzesniewski, A. (2018). Agony and ecstasy in the gig economy: Cultivating holding environments for precarious and personalized work identities. *Administrative Science Quarterly*, 64(1), 124–170. <https://doi.org/10.1177/0001839218759646>

- Phelps, C., Heidl, R., & Wadhwa, A. (2012). Knowledge, networks, and knowledge networks: A review and research agenda. *Journal of Management*, 38(4), 1115–1166. <https://doi.org/10.1177/0149206311432640>
- Ramarajan, L. (2014). Past, present and future research on multiple identities: Toward an intrapersonal network approach. *Academy of Management Annals*, 8(1), 589–659. <https://doi.org/10.5465/19416520.2014.912379>
- Ramarajan, L., Rothbard, N. P., & Wilk, S. L. (2017). Discordant vs. harmonious selves: The effects of identity conflict and enhancement on sales performance in employee–customer interactions. *Academy of Management Journal*, 60(6), 2208–2238. <https://doi.org/10.5465/amj.2014.1142>
- Shepherd, D., & Haynie, J. M. (2009a). Birds of a feather don't always flock together: Identity management in entrepreneurship. *Journal of Business Venturing*, 24(4), 316–337. <https://doi.org/10.1016/j.jbusvent.2007.10.005>
- Shepherd, D., & Haynie, J. M. (2009b). Family business, identity conflict, and an expedited entrepreneurial process: A process of resolving identity conflict. *Entrepreneurship Theory and Practice*, 33(6), 1245–1264. <https://doi.org/10.1111/j.1540-6520.2009.00344.x>
- Shimoni, B., & Bergmann, H. (2006). Managing in a changing world: From multiculturalism to hybridization—The production of hybrid management cultures in Israel, Thailand, and Mexico. *Academy of Management Perspectives*, 20(3), 76–89. <https://doi.org/10.5465/amp.2006.21903482>
- Smit, S., Tacke, T., Lund, S., Manyika, J., & Thiel, L. (2020). *The future of work in Europe—Automation, workforce transitions, and the shifting geography of employment*. McKinsey Global Institute. <http://dln.jaipuria.ac.in:8080/jspui/bitstream/123456789/1341/1/MGI-The-future-of-work-in-Europe-discussion-paper.pdf>
- Soda, G., Mannucci, P. V., & Burt, R. S. (2021). Networks, creativity, and time: Staying creative through brokerage and network rejuvenation. *Academy of Management Journal*, 64(4), 1164–1190. <https://doi.org/10.5465/amj.2019.1209>
- Srivastava, S. B., & Banaji, M. R. (2011). Culture, cognition, and collaborative networks in organizations. *American Sociological Review*, 76(2), 207–233. <https://doi.org/10.1177/0003122411399390>
- Stets, J. E., & Harrod, M. M. (2004). Verification across multiple identities: The role of status. *Social Psychology Quarterly*, 67(2), 155–171. <https://doi.org/10.1177/019027250406700203>
- Storey, J., Salaman, G., & Platman, K. (2005). Living with enterprise in an enterprise economy: Freelance and contract workers in the media. *Human Relations*, 58(8), 1033–1054. <https://doi.org/10.1177/0018726705058502>

- Stryker, S., & Burke, P. J. (2000). The past, present, and future of an identity theory. *Social Psychology Quarterly*, 284–297. <https://doi.org/10.2307/2695840>
- Swab, R. G., & Johnson, P. D. (2019). Steel sharpens steel: A review of multilevel competition and competitiveness in organizations. *Journal of Organizational Behavior*, 40(2), 147–165. <https://doi.org/10.1002/job.2340>
- Tajfel, H. (1978). Social categorization, social identity, and social comparison. In H. Tajfel (Ed.), *Differentiation between social groups: Studies in the social psychology of intergroup relations* (pp. 61–76). Academic Press.
- Tasselli, S., & Kilduff, M. (2021). Network agency. *Academy of Management Annals*, 15(1), 68–110. <https://doi.org/10.5465/annals.2019.0037>
- Tasselli, S., Zappa, P., & Lomi, A. (2020). Bridging cultural holes in organizations: The dynamic structure of social networks and organizational vocabularies within and across subunits. *Organization Science*, 31(5), 1292–1312. <https://doi.org/10.1287/orsc.2019.1352>
- Tindall, D. B. (2004). Social movement participation over time: An ego-network approach to micro-mobilization. *Sociological Focus*, 37(2), 163–184. <https://doi.org/10.1080/00380237.2004.10571240>
- Tripsas, M. (2009). Technology, identity, and inertia through the lens of “The Digital Photography Company.” *Organization Science*, 20(2), 441–460. <https://doi.org/10.1287/orsc.1080.0419>
- Uzzi, B., & Spiro, J. (2005). Collaboration and creativity: The small world problem. *American Journal of Sociology*, 111(2), 447–504. <https://doi.org/10.1086/432782>
- Vaara, E., Sonenshein, S., & Boje, D. (2016). Narratives as sources of stability and change in organizations: Approaches and directions for future research. *Academy of Management Annals*, 10(1), 495–560. <https://doi.org/10.5465/19416520.2016.1120963>
- Van den Born, A., & Van Witteloostuijn, A. (2013). Drivers of freelance career success. *Journal of Organizational Behavior*, 34(1), 24–46. <https://doi.org/10.1002/job.1786>
- Weijts-Perrée, M., van de Koeving, J., Appel-Meulenbroek, R., & Arentze, T. (2019). Analysing user preferences for co-working space characteristics. *Building Research and Information*, 47(5), 534–548. <https://doi.org/10.1080/09613218.2018.1463750>
- White, H. C. (2008). *Identity and control: How social formations emerge*. Princeton University Press.
- Wood, A. J., & Lehdonvirta, V. (2021). Antagonism beyond employment: How the ‘subordinated agency’ of labour platforms generates conflict in the

- remote gig economy. *Socio-Economic Review*, 19(4), 1369–1396. <https://doi.org/10.1093/ser/mwab016>
- Wood, A. J., Graham, M., Lehdonvirta, V., & Hjorth, I. (2019). Good gig, bad gig: Autonomy and algorithmic control in the global gig economy. *Work, Employment and Society*, 33(1), 56–75. <https://doi.org/10.1177/0950017018785616>
- Zhang, Y., George, J. M., & Chan, T. S. (2006). The paradox of dueling identities: The case of local senior executives in MNC subsidiaries. *Journal of Management*, 32(3), 400–425. <https://doi.org/10.1177/0149206305280999>
- Zuckerman, E. W., Kim, T. Y., Ukanwa, K., & Von Rittmann, J. (2003). Robust identities or nonentities? Typecasting in the feature-film labor market. *American Journal of Sociology*, 108(5), 1018–1074. <https://doi.org/10.1086/377518>

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# In the Mind of the Beholder: Perceptual (Mis)alignment About Dyadic Knowledge Transfer in Organizations

Robert Kaše  and Eric Quintane 

## Introduction

Knowledge transfer is a critical element of organizational learning, and an important basis for competitive advantage, that still represents a major challenge for organizations (Argote & Ingram, 2000; Grant, 1996; Kogut & Zander, 1992; Van Wijk et al., 2008). The challenge lies in the fact that effective knowledge transfer in organizations is inherently difficult, especially when tacit or complex knowledge is concerned (Hansen, 2002; Szulanski, 1996). Although previous research has generated a better understanding of the knowledge transfer process by examining

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factors that impact its effectiveness—the level of knowledge tacitness (Nonaka, 1994; Haldin-Herrgard, 2000; Von Krogh et al., 2000), the characteristics of actors involved in the transfer (Osterloh & Frey, 2000; Tsai, 2001), the quality of the relationship between the parties (Chowdhury, 2005; Hansen, 1999; Levin & Cross, 2004), and the broader network in which the process is embedded (Reagans & McEvily, 2003)—some of the more fine-grained mechanisms remain underexplored (Van Wijk et al., 2008).

A notably absent lens for studying knowledge transfer in organizations has been the socio-cognitive approach (Ringberg & Reihlen, 2008). Indeed, despite a rich research tradition recognizing the importance of social cognition and sensemaking in organizational life (e.g., Fiske & Taylor, 1991, 2013; Weick, 2001), we know surprisingly little about perceptions of parties involved in intra-organizational knowledge transfer and the impact of these perceptions on knowledge transfer in organizations. Specifically, while previous research has examined perceptions of exchange partners about the *content* of what was being transferred (i.e., cognitive dimension of social capital needed for knowledge transfer; e.g., Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998), it has been silent about the perceptions of the occurrence of knowledge transfers *per se*. The predominant view of dyadic knowledge transfer in the literature has followed a realist ontology assuming that exchange partners are in agreement about the knowledge flow between them and thus looked at knowledge transfer as a consensual objective reality (cf. Levin & Cross, 2004; Reagans & McEvily, 2003).

In this chapter, we argue that perceptions of the existence of complex knowledge transfer between the sender and the recipient can be misaligned. We find support for this stance in the related literature on interpersonal communication (McCroskey & Richmond, 1995), where lack of consensus over whether and what was communicated has been a core phenomenon of interest, and in the literature on cognition of social networks, where the emphasis has been on exploring (in)consistencies in cognition of relational ties (Brands, 2013; Brands et al., 2015; Carley & Krackhardt, 1996; Casciaro, 1998; Kilduff & Krackhardt, 2008; Krackhardt, 1987). These literature contend that actors' perceptions of the relational ties that surround them are likely

to be biased in systematic ways.<sup>1</sup> Moreover, they show that individuals' cognition of the social world has important consequences (e.g., Brands & Kilduff, 2013; Smith et al., 2012). For instance, perceptions of knowledge transfer may impact the extent to which organizational members are able or willing to exchange knowledge. Identifying misalignments in perceptions of knowledge transfer experiences, and their determinants can help us to better understand and manage the effectiveness of knowledge transfer in organizations (Cannella & McFadyen, 2016; Carlile & Rebentisch, 2003).

## Perceptions of Dyadic Knowledge Transfer

Although existing literature implicitly recognized the importance of perceptions for understanding knowledge transfer relations, it has not explored them directly. For example, Tsai (2001) assumed that inter-unit knowledge transfer existed only when both parties involved in the process confirmed the transfer, that is, when both the sender and the recipient of knowledge agreed on the existence of a transfer. Situations where actors had misaligned (asymmetric) perceptions of knowledge transfer had been mainly considered as a measurement error. While measurement error could have been the cause for some of these misalignments (see voluminous literature on network accuracy such as Bernard et al., 1981; Bondonio, 1998; Freeman et al., 1987; Kashy & Kenny, 1990), we contend that in the case of complex knowledge these misalignments can be meaningfully associated to a perceptual process.

The literature on interpersonal perception (Jones, 1990; Kenny, 1994) provides a useful framework to conceptually explain how perceptions of the transfer of complex knowledge may differ between the sender and the recipient. It suggests that interactions between individuals should not be considered as perfectly objective (Bernieri, 2001) since individuals' perceptual processes and subjective interpretations affect their experiences of dyadic interactions. More specifically, individual perceptions

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<sup>1</sup> See also the rich literature on network recall and accuracy for the point that individuals' recall of their own interactions are also systematically biased (e.g., Bernard et al., 1979, 1981, 1982; Freeman et al., 1987).

of knowledge transfer should be viewed as a *composite* form of perception because they are primarily composed of perceptions about others with whom one interacts (other-perception) and self-perceptions (Hall & Bernieri, 2001). As such, perceptions of complex knowledge transfer between A and B feature A's and B's perceptions of their knowledge sharing and knowledge receiving behaviour (self-perceptions), as well as A's and B's perceptions of knowledge receiving and knowledge sharing of their partners (other-perceptions).

Perceptions of dyadic knowledge transfer are only aligned when there is *self-other agreement* about the knowledge transfer experience between the actors involved in the transfer (Kenny, 1994). This occurs when, for example, A claims that she shared knowledge with B *and* B confirms that A shared knowledge with her (or vice-versa). Alternatively, a misalignment in perceptions is a lack of *self-other agreement* between the actors hypothetically involved in knowledge transfer(s). Hence, misalignments in perceptions of knowledge transfer refer to situations, in which A does not see her knowledge transfer behaviours (or more generally the knowledge transfer relation between her and actor B) in the same way as B does (or vice-versa).

There are two possibilities for misalignment between the actors: (1) actor A perceives that she shared knowledge with B, yet B feels that no knowledge flow occurred (Type 1 misalignment) and (2) actor A does not perceive that she shared knowledge with B, yet B feels that knowledge flow occurred (Type 2 misalignment).

## The Perceptual Process of Knowledge Transfer Experiences

Perceptual process resulting in a mental representation of a dyadic knowledge transfer consists of selecting, organizing, and interpreting external stimuli related to the knowledge transfer experience with the focal partner (cf. Eysenck & Keane, 2005). In this process, not only external stimuli but also pre-existing internal cognitive structures (i.e., mental models) play an important role in making sense of knowledge transfer experiences (Johnson-Laird, 1983). These cognitive structures, which are

developed through interactions with the environment, provide the lens through which new information is filtered and represented in the mind.

The literature distinguishes between two main modes of cognitive processing (Chaiken & Trope, 1999; Evans, 2008; Ringberg & Reihlen, 2008): (1) a faster concept-driven top-down processing and (2) a slower stimulus-driven bottom-up processing. These two modes of cognitive processing differ based on the extent to which pre-existing cognitive structures influence the perceptual process. Top-down processing is dominated by one's prior organized knowledge and experience about dyadic knowledge transfer. In this mode, external stimuli about knowledge transfer experience immediately trigger activation of a relevant mental model, which then drives the perceptual process by guiding selective attention for further (mostly consistent) external cues as well as their organization and interpretation. This relatively automated mode is prevalent in familiar settings and for stimuli to which individuals are frequently exposed (Smith, 1984). The bottom-up processing mode, on the other hand, is dominated by salient external stimuli, which in turn lead to the sensemaking process. External cues in knowledge transfer experiences, which capture one's attention are organized and interpreted in a more controlled and effortful manner in order to make sense of the experience. This mode is prevalent in atypical, unexpected contexts and in situations, where individuals are in need of control (Fiske & Neuberg, 1990).

Literature on dual modes in social cognition argues that people have a preference for 'cognitive economy', meaning that the automated response is the default mode and the controlled, slower processing, mode is only possible when a person is motivated enough to exert mental effort and when her mental processing capacities are available (Payne, 2012). While both modes of processing can work in parallel, the automated intuitive mode allows for a faster and more efficient perceptual process, because the stimuli fall within and reinforce existing mental models. By contrast, the slower, effortful processing is engaged when the stimuli are salient and incongruent with existing mental models.

In the next section, we focus on the familiarity of exchange partners as a driver of their perceptual alignment. We argue that familiarity between partners triggers automated processing of knowledge exchanges,

which results in stronger cognitive alignment about these exchanges between the partners (cf. Alter & Oppenheimer, 2009). This is in line with the logic of shared mental models, which individuals likely develop with mutually familiar partners (cf. Cannon-Bowers et al., 1993; Espinosa et al., 2007). Mutually familiar partners perceive the existence of dyadic knowledge transfers through a shared mental model, which results in more aligned perceptions of their dyadic knowledge exchanges. We introduce and elaborate on three key elements of partners' mutual familiarity—reciprocal work interactions, mutual meta-knowledge, and mutual trust—to develop our argumentation for perceptual alignment.

### Partners' Mutual Familiarity and Dyadic Knowledge Transfer Perceptions

Familiarity refers to having awareness, knowledge, or experience of somebody—to know a person well (Zou & Ingram, 2013). It typically results from regular and repeated associations or interactions (Zheng & Yang, 2015), even though the development of familiarity may be implicit (Alter & Oppenheimer, 2009; Jacoby et al., 1989). Familiarity with other organizational members has been related to the development of shared mental models about dyadic knowledge transfer between them (cf. Cannon-Bowers et al., 1993; Espinosa et al., 2007). That is, both partners develop a common mental model of the knowledge transfer relation that exists between them. The development of a shared mental model requires partners to be *mutually* familiar with each other. Once a shared mental model has been established, it is difficult to change and serves as a lens for making sense of knowledge transfer experiences between the partners. Shared mental models imply the existence of shared knowledge structures (Klimoski & Mohammed, 1994) and more specifically a shared mental representation of a *typical knowledge transfer* between the two partners. Therefore, two familiar actors engaged in a knowledge transfer episode have a common mental representation of a typical knowledge transfer between them that has been developed over time.

Any specific episode of knowledge transfer between familiar partners activates the shared mental model that actors have about a typical knowledge transfer with this partner and triggers an automated processing of the knowledge exchange episode (Alter & Oppenheimer, 2009). This is because in a familiar situation, shared mental models are more easily accessible in the mind of an individual and thus specific knowledge transfer experiences will primarily be checked for consistency with the existing shared mental model (including selective attention to external stimuli that *confirm* the model). Because the experience of knowledge transfer of both partners is processed through the lens of a shared mental model and triggers an automated perceptual process, their perceptions will likely fit the shared mental model. Since the mental model is shared between the partners of the exchange, individual perceptions of the dyadic knowledge transfer should also be aligned.

Familiarity is a multidimensional concept, where stronger forms of familiarity with an exchange partner are typically related to (1) more frequent interactions, (2) better knowledge about the partner, and/or (3) the development of a trust relationship (cf. Krackhardt, 1992; Zheng & Yang, 2015). Familiar individuals may have a varying degree of familiarity with these three dimensions (cf. Espinosa et al., 2007). Based on the above, we propose that higher levels of mutual familiarity, as represented in an organizational context by intense reciprocal interactions, mutual knowledge about others' knowledge skills and abilities (KSAs) or mutual trust, all lead to more alignment (less misalignment) in knowledge transfer perceptions.

**Strong Reciprocal Work Interactions.** Repetitive, high-intensity work interactions provide numerous opportunities for complex knowledge transfer between partners (Hansen, 1999). Frequent interactions with a particular exchange partner also contribute to the development of a stable personal mental model of exchanges with this specific partner (Rinberg & Reihlen, 2008; Rouse & Morris, 1986; Walsh, 1988). Additional knowledge exchanges that are consistent with this model make it more elaborated and robust. Moreover, frequent reciprocal interactions provide opportunities for partners to discuss their knowledge transfer interactions and thus make them more aware of potential misalignments in their models. Should there be misalignments, the frequent reciprocal

interactions will provide exchange partners with more opportunities to clear up misunderstandings and take action towards a stronger shared mental model (cf. Mathieu et al., 2000). In addition, knowledge transfer episodes with partners with whom one frequently interacts reciprocally are usually routinized and facilitate cognitive ease, which triggers automated cognitive processing, and makes corresponding dominance of shared mental model more likely. Hence, we posit:

*Hypothesis 1: More frequent reciprocal work interactions between actors A and B increase (reduce) the likelihood of alignment (misalignment) in their knowledge transfer perceptions.*

**Mutual Meta-Knowledge.** An important dimension of familiarity of exchange partners relates to an exchange partner's knowledge of other's knowledge. In organizations, this knowledge mostly refers to someone's knowledge about others' knowledge, skills, and abilities (KSAs). It is frequently referred to as meta-knowledge or knowledge of 'who knows what' and can be described as organizational members' cognitions of the expertise of others (Ren & Argote, 2011).

Meta-knowledge is essential for facilitating complex knowledge transfer and learning in organizations as it helps identify knowledge demands and sources (Bogenrieder, 2002; Nonaka, 1994). We argue that *mutual* meta-knowledge is also effective in developing shared mental models about dyadic knowledge transfer. If actors A and B are mutually aware of each other's KSAs (Lane et al., 2006), then they will have a better overview of which knowledge transfers between them are feasible and have occurred. Narrowing down the set of potential knowledge transfers between actors makes misalignments between their cognitive representations of knowledge transfers less likely. Because sharedness of personal mental models between the exchange partners also determines how they perceive specific knowledge transfer episodes, we propose:

*Hypothesis 2: The more A and B know about each other's knowledge, skills and abilities, the more (less) likely the alignment (misalignment) in their knowledge transfer perceptions.*



**Mutual Trust.** In organizations, the existence of frequent work interactions and meta-knowledge can be accompanied by a trust relationship (Chowdhury, 2005). In our conceptual framework, trust creates a potential for the strongest form of familiarity, which extends the more functional types of relations that we addressed before (work interaction and meta-knowledge) into the expressive domain (Espinosa et al., 2007). While intense interactions are important for establishing shared mental models, we argue that mutual trust between partners fosters a level of understanding that facilitates the elaboration of more robust shared mental models.

Mutual trust implies that both the source and the recipient of knowledge are willing to expose themselves to situations where they are vulnerable to the actions of the other party because they expect that the other party will not use it against them (cf. Mayer et al., 1995). This causes the trusting partners involved in a knowledge transfer to benevolently accept each other's knowledge (Levin & Cross, 2004), it involves less suspicion in interpersonal interactions, and encourages the bridging of differences in partners' views. All of these elements are essential for effective social learning, which facilitates the development and reinforcement of shared mental models (Mohammed & Dumville, 2001). Further, a mental model shared with a trustworthy partner also improves the confidence in the shared mental model, which leads to a stronger representation of knowledge exchanges that are consistent with the model. Finally, mutual trust also creates conditions where individuals feel safe and at ease, especially when in-groups are concerned (Edmondson, 1999). They are thus more likely to process new experiences in a routinized, automated way relying on existing shared mental models. Therefore, we posit:

*Hypothesis 3: A mutual trust-laden relationship between actors A and B increases (decreases) the likelihood of alignment (misalignment) in their knowledge transfer perceptions.*

## Methods

### Participants and Procedure

To explore the origins of (mis)alignments in perceptions of dyadic knowledge transfer in organizations, we use data from a knowledge-intensive firm in the ICT industry. The data were collected as a part of an in-depth sociometric survey, where all 119 employees were potential respondents. Close cooperation with the top management of the participating firm and its support for the research project were critical for successful data collection (cf. Cross & Cummings, 2004), and we obtained a final response rate of 92% (110 employees), equivalent to 767 relational ties, representing employees' perceptions of dyadic knowledge transfer. The majority of respondents in the firm were male (80%) with an average tenure of 69 months ( $SD = 53$  months). Respondents span 4 hierarchical levels (with approximately 4.5% at the top two levels, 30% at the middle level, and 65.5% at the lowest hierarchical level) and 6 functional areas (amounting to 15, 21, 26, 7, 20, and 11% each).

The sociometric questionnaire consisted of multiple name generators and corresponding name interpreters (Marsden, 1987; McCallister & Fischer, 1978). Respondents selected names of their contacts from a roster that included all employees, without restrictions on the number of nominations, and answered questions regarding the quality and intensity of their relationships (Marsden, 1987, p. 123).

We collected employees' perceptions of both knowledge sharing as well as knowledge receiving. Hence, we obtained a complete picture of their perceptions (self- and other-perceptions) of incoming and outgoing knowledge transfer ties within a dyad for a pre-specified time period. We constructed the knowledge sharing and knowledge receiving questions based on the relational knowledge transfer literature (Cross & Sproull, 2004; Gray & Meister, 2004; Levin & Cross, 2004; Szulanski, 2000). In particular, respondents were asked to nominate co-workers who provided them with work-related advice in the six months period prior to the survey, with an emphasis that the advice inquiry reflected *transfer of*

*complex knowledge transmitted by means of observation or face-to-face interaction.*<sup>2</sup> We specifically asked them about the following action-oriented knowledge content: (a) knowledge that contributed to customer satisfaction, (b) knowledge that created value for the company, and (c) knowledge that was useful for their personal performance improvement.<sup>3</sup> Each respondent was also asked to nominate co-workers, who they shared work-related advice with, representing outgoing knowledge flows. As above, employees also indicated the content of the knowledge transfer. Hence, for each pair of respondents, we gathered their perceptions about both directions of potential knowledge transfer. Our sociometric instruments produced complete social network data on two networks of perceived knowledge transfer, one representing knowledge sharing, and the other knowledge receiving. Both networks were represented as asymmetrical, binary,<sup>4</sup> matrices.

Additionally, we collected data work cooperation ('how frequently do you interact with X at work'), knowledge of others' KSAs (Knowledge, Skills, and Abilities) ('how well do you know KSA of X'), and interpersonal trust ('to what extent do you generally trust X'). The instruments we used for collecting this data were adapted from the knowledge transfer, social network, and social capital literatures (Cross & Sproull, 2004; Levin & Cross, 2004; Reagans & McEvily, 2003; Tsai, 2002). Finally, we obtained individuals' demographic information (i.e., gender, functional area, tenure) from company records.

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<sup>2</sup> We focus on complex knowledge because it is difficult to codify and the observability and traceability of its transfer between actors is not clearly observable and objectively verifiable because it usually occurs by means of face-to-face interaction or observation/imitation (Von Krogh et al., 2000). Transfers of complex knowledge are more exposed to perceptual processes of parties involved in the transfer.

<sup>3</sup> We empirically established high correlation among the three knowledge contents, which provided support for their aggregation.

<sup>4</sup> We binarized matrices above 0 in order to capture even weaker advice giving and seeking relationships and to avoid that our measure of alignment and misalignment relies on differences in the strength of the relationship.

## Measures

Our dependent variables are *Alignment* and *Misalignment* in perceptions of dyadic knowledge transfer. Both variables are binary, directed, square matrices, resulting from the combination between the advice receiving and sending matrices. The *Alignment*<sup>5</sup> measure was computed by multiplying the transposed advice receiving matrix with the advice sending matrix. Cells in the Alignment matrix take the value of 1 if A nominated B as a complex knowledge exchange partner and B nominated A as a complex knowledge exchange partner, and 0 otherwise. The *Misalignment* measure was developed by subtracting the advice sending matrix from the transposed advice receiving matrix. Nonzero values were recoded to one to obtain the *Misalignment* measure. As such, a 1 in the misalignment matrix that A nominated B as a complex knowledge exchange partner and B did not nominate A, or that B nominated A but A did not nominate B. To distinguish between these two possibilities, we also developed measures for Type 1 and Type 2 misalignments. The *Type 1 misalignment* measure was constructed by calculating the difference between the transposed advice receiving matrix and the advice sending matrix for values *lower* than zero and the *Type 2 misalignment* measure was constructed from values *higher* than zero.

The independent variables were used to operationalize exchange partner's mutual familiarity. Consistent with our theory, mutual familiarity was operationalized with three variables: Strong reciprocal work interactions (*Reciprocal Strong Work Ties*), Mutual trust (*Mutual Trust Ties*), and Mutual meta-knowledge (*Mutual KSA Ties*). Each of these

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<sup>5</sup> Conceptually, misalignment and alignment are the opposite of each other. Empirically, this is more complex due to the fact that alignment in not sending and receiving knowledge has no practical relevance (especially for dyads without any work interaction); while conceptually it still represents an alignment in perceptions. Therefore, in our data we define three mutually exclusive states for each dyad: (1) the dyad has an aligned perception of knowledge transfer (covered by our Alignment outcome variable), (2) the dyad has a misaligned perception of knowledge transfer (covered by our Misalignment outcome variable), or (3) the dyad has no perception of knowledge transfer (null value in our data). Moreover, we control for work interaction in the dyad (Work Tie) in all empirical models.

variables is a matrix obtained from a single-item question that respondents had to answer using a 5-point Likert scale. Consistent with our theory, we binarized the reciprocal work tie matrix above or equal to 4 and the Mutual Trust and KSA ties matrices above 0. The *Reciprocal Strong Work Ties*, *Mutual Trust Ties*, and *Mutual KSA Ties* matrices were symmetrized using the minimum method so that we only considered reciprocal work, mutual trust, and mutual KSA ties to predict alignment and misalignments of knowledge transfer perceptions.

We included several controls in our models. To understand the impact of familiarity above and beyond the existence of a simple work relationship, we created a *Work Tie* measure. In order to compute this measure, we used the same initial matrix as for the Mutual Strong Work ties, but binarized above zero and not symmetrized. All results of our analyses should thus be considered as ‘above and beyond having a work tie with a co-worker’ (cf. van der Vegt et al., 2010). We controlled whether employees were in a *Different Organizational Unit*. The variable takes the value 0 if both actors in the dyad are in the same organizational unit and the value 1 otherwise. We also created variables to control for homophily along several demographic dimensions. *Gender Homophily* takes the value of one if both actors in the dyad are of the same gender and zero otherwise. *Tenure Differential* is the absolute value of the difference between the tenure of the sender and the tenure of the recipient (in months).

We also included a set of endogenous network configuration variables. The *Density* parameter can be interpreted as the extent to which ties (i.e., (mis)alignments of perceptions in dyadic knowledge transfer) tend to appear on their own or embedded with the other configurations present in the model. *Reciprocity* indicates the extent to which ties in the alignment and in the misalignment networks tend to be reciprocated. We also control for the indegree and outdegree distributions (see Bondonio, 1998) and for the tendency of alignments and misalignments to be clustered (see Quintane, 2013).

## Data Analyses

We used Exponential Random Graph Models (ERGM or  $p^*$  modelling) to examine the determinants of the existence of a mis/alignment in perceptions between two actors. ERGM is a methodology designed to examine both local network microstructure and actor attributes conjointly in order to estimate the relative contribution of our variables of interest to the existence of an (alignment or misalignment) tie between each pair of actors in the network, accounting for actor attributes, as well as local and global network structure (for an introduction and review, see Robins et al., 2007).

ERGMs are based on the statistical representation of an observed network using an autologistic model. The dependent variable is the presence or absence of a relational tie between two actors (in our case presence or absence of alignment/misalignment of knowledge transfer perceptions), which is modelled as a function of effects including the local structure of the network surrounding the two actors that are involved in the tie as well as the individual attributes of the actors themselves (Lusher et al., 2013). Unlike simpler logit models, the autologistic form of ERGMs ensures that careful account is taken of dependencies of observations typical in network data (Anderson et al., 1999).

## Results

### Descriptive Statistics

Descriptive statistics presented in Table 1 show that there are more misalignments (519) than alignments (248) in perceptions between knowledge transfer partners. This means that in the observed company employees exhibit a considerable level of disagreement regarding the occurrence of dyadic knowledge transfer with only 32% of perceptions aligned.

**Table 1** Descriptive information about the variables included in the model

Variables	Value
Alignment	248 <sup>a</sup> (124) ties
Misalignment	519 ties
Type 1	303 ties
Type 2	216 ties
Mutual Familiarity	
Mutual KSA ties	182 ties
Mutual Trust Ties	330 ties
Strong Reciprocal Work Ties	190 ties
Controls	
Work ties	972 ties
Different Organizational Units	408 ties
Gender Homophily	Average = 0.66 (66% of dyads are same gender) Max = 1 Min = 0
Tenure Differential	Average = 61 months Max = 192 months Min = 0

<sup>a</sup>Comparable count is given; each aligned dyad consists of two dyads that are aligned (raw count is provided in parentheses)

## Hypotheses Testing

Table 2 presents the results of two ERG models,<sup>6</sup> where we test hypothesized predictors of alignments and misalignments. Model 1 uses *Alignment* as a dependent variable, while *Misalignment* is used as a dependent variable in Model 2.

Our first hypothesis was that more frequent reciprocal work interactions would increase the alignment and reduce misalignment (H1) in dyadic perceptions of knowledge transfer. Our results provide no

<sup>6</sup> Goodness of fit of the models is not reported but is available from the authors. The goodness of fit is assessed by simulating 1,000,000 graphs based on the model and comparing the features of 10,000 graphs selected randomly to the observed data. The features of the graphs are compared across more than 50 indices. The models presented here had very good fit for all but 3 indices that represent degree distribution. Hence, our models capture only partially the degree distribution of the networks. Because modelling completely/perfectly the degree distribution of these networks is not a main aim of this paper and it does not affect the other results (all of which have an excellent fit), we prefer to present these simpler models.

**Table 2** ERG models for alignment and misalignment of knowledge transfer perceptions

Effects	Model 1—Alignment	Model 2—Misalignment
Mutual Familiarity		
Mutual Strong Work Tie	0.37 (0.34)	0.33 (0.21)
Mutual Meta-Knowledge (KSA) Tie	<b>1.20 (0.28)</b>	<b>0.58 (0.20)</b>
Mutual Trust Tie	<b>1.22 (0.49)</b>	-0.46 (0.24)
Controls		
Work Ties	<b>1.69 (0.44)</b>	<b>2.17 (0.16)</b>
Different Organizational Unit	-0.67 (0.53)	-0.42 (0.14)
Tenure Differential	0.00 (0.00)	-0.00 (0.00)
Gender Homophily	0.34 (0.20)	0.13 (0.07)
Density	<b>-6.71 (0.39)</b>	<b>-4.33 (0.45)</b>
Reciprocity	<b>1.91 (0.58)</b>	<b>0.91 (0.26)</b>
Two Path	<b>-0.31 (0.08)</b>	
Indegree Control	0.10 (0.21)	-0.36 (0.22)
Outdegree Control	<b>0.94 (0.18)</b>	<b>0.38 (0.14)</b>
Transitive Clustering	<b>1.27 (0.22)</b>	<b>0.79 (0.08)</b>
Cyclic Clustering	<b>-1.18 (0.37)</b>	<b>-0.16 (0.06)</b>

Standard Errors reported in parenthesis; Substantial effects (the parameter estimate equals at least twice its standard error) are indicated in bold

support for this hypothesis. In our second hypothesis, we hypothesized that having mutual knowledge about the exchange partner's KSAs would increase the likelihood of alignment in perceptions of dyadic knowledge transfer and decrease the likelihood of misalignment. The empirical test provides only partial support for this hypothesis: mutual meta-knowledge about partner's KSAs increases both the likelihood of alignment and misalignment of dyadic knowledge transfer perceptions. Our third hypothesis proposed that the existence of mutual trust between two actors would increase the likelihood of alignment and reduce the likelihood of misalignment. The empirical test shows a partial support for our hypothesis: the existence of mutual trust significantly increases the likelihood of alignment in perceptions of knowledge transfer; however, it is not significantly associated with the (lower) likelihood of misalignment of these perceptions. We note that the sign of the effect for misalignment is in the hypothesized direction (i.e., negative).



Our controls show that gender homophily and tenure differentials are not important predictors of either alignment or misalignment in perceptions of knowledge transfer. We also find that reciprocity has a significant and positive effect on the alignment and misalignment of knowledge transfer perceptions. Further, we find that belonging to different functional areas significantly reduces the likelihood of misaligned perceptions, but it does not significantly increase the likelihood of aligned perceptions. In both models we identified significant heterogeneity in the outdegree distribution (i.e., there are a few actors, who 'send' many alignments or misalignments), but not in their indegree distribution (all actors receive a relatively similar number of alignments or misalignments). These parameters suggest that individual differences might be helpful to further explain an individual's propensity to be involved in perceptual alignments or misalignments. Finally, clustering and connectivity parameters were also significant. A situation featuring positive transitive clustering and a negative cyclic clustering effects (as is the case here) is typically interpreted as a hierarchical process of group formation. This implies that alignments and misalignments of perceptions of knowledge transfer beyond the dyad might be hierarchically arranged.

## Statistical Modelling of Different Misalignment Types

In additional analyses, we distinguished between two types of misalignments: Type 1 misalignment refers to the sender reporting the knowledge transfer while the recipient does not, and Type 2 misalignment refers to the recipient reporting the knowledge transfer while the sender does not.

In Table 3 we show models where we explored how mutual familiarity of exchange partners relates to Type 1 and Type 2 misalignments. In a similar way to the previous models, the likelihood of both types of misalignments is not affected by actors being involved in frequent reciprocal work interactions (H1). The different types of misalignments enable us to disentangle the effects of mutual meta-knowledge of KSA (H2) and mutual trust (H3). In the case of Type 1 misalignment, mutual meta-knowledge of KSA and mutual trust between the two partners are not significantly related to the existence of a misalignment between the

two exchange partners. By contrast, for Type 2 misalignment, mutual meta-knowledge of KSA and mutual trust between the partners are significantly and positively related to the existence of a misalignment between them.

The results of these additional analyses suggest that the two types of misalignments, which we introduced here, are affected by different patterns of predictors. While the result that mutual trust increases the Type 2 misalignments appears contradictory to our finding in Model 2, it is important to note that the focal parameter in Model 2 denotes an aggregated effect for both types of misalignments. Type 2 misalignments are also less frequent than Type 1 misalignments and they may have valence for both work relationships specifically and knowledge exchange in organizations more generally. Based on our findings we can argue that Type 1 and Type 2 misalignments are qualitatively different, with potentially different implications for knowledge processes in organizations, and

**Table 3** ERG Models for two types of misalignments of knowledge transfer perceptions

Effects	Misalignment Type 1	Misalignment Type 2
Mutual familiarity		
Mutual Strong Work Tie	0.27 (0.31)	-0.18 (0.35)
Mutual Meta-Knowledge (KSA) Tie	0.31 (0.28)	<b>1.10 (0.33)</b>
Mutual Trust Tie	-0.18 (0.27)	<b>1.68 (0.54)</b>
Controls		
Work Ties	<b>2.72 (0.18)</b>	0.12 (0.46)
Different Organizational Unit	<b>-0.99 (0.21)</b>	-0.38 (0.61)
Tenure Differential	-0.00 (0.00)	0.00 (0.00)
Gender Homophily	0.20 (0.11)	0.02 (0.10)
Density	<b>-5.12 (0.36)</b>	<b>-6.21 (0.27)</b>
Reciprocity	-1.10 (0.56)	-1.27 (0.82)
Two-Paths		<b>-0.15 (0.03)</b>
Indegree Control	0.02 (0.17)	<b>-0.96 (0.43)</b>
Outdegree Control	<b>0.60 (0.13)</b>	<b>0.64 (0.15)</b>
Transitive Clustering	<b>0.75 (0.11)</b>	<b>0.90 (0.13)</b>
Cyclic Clustering	0.09 (0.14)	<b>1.22 (0.14)</b>
Transitive connectivity	<b>-0.12 (0.03)</b>	
Activity-based connectivity	<b>0.02 (0.01)</b>	

Standard Errors reported in parenthesis; Substantial effects (the parameter estimate equals at least twice its standard error) are indicated in bold

should thus be interpreted differently as we do in more detail in the next section.

## Discussion

This paper rests on the premise that individuals involved in dyadic transfer of complex knowledge can be misaligned in their perception of the existence of knowledge transfer. We developed a conceptual model based on the dual model of cognitive processing to propose that mutual familiarity of partners involved in the transfer of complex knowledge leads to perceptual alignment. The empirical tests of the model highlight the role of mutual trust in fostering perceptual alignment. Beyond these straightforward findings, we also detected some more interesting patterns, which warrant a more nuanced discussion.

First, a basic descriptive analysis of our data suggests that *misalignment of knowledge transfer perceptions in dyads is a pervasive phenomenon in organizations*. More so, the ratio between perceptual misalignments and alignments in the observed company is approximately 2:1 in favour of misalignments. In other words, the respondents in our study were more often not in agreement with their partners about their perceptions of complex knowledge transfer, than they were. Although this result is surprising, similar observations can be traced back to the early literature on mental models, which reports that miscommunications are more likely in complex contexts (Rouse et al., 1992).

Second, exchange partners' mutual familiarity based on the intensity of reciprocal work interactions and mutual meta-knowledge of each other's KSAs proved to be an *ambiguous* factor of perceptual alignment. In particular, strong reciprocal interactions with exchange partner was not related to either alignment or misalignment, while mutual meta-knowledge of KSAs significantly predicted both alignment and misalignment in perceptions of complex knowledge transfer. Although mutual meta-knowledge might help individuals develop shared mental models of typical knowledge transfers with their exchange partners, they are not effective in preventing misalignments in perceptions of knowledge transfer episodes. A possible explanation for this finding may

be that intense reciprocal interactions and mutual meta-knowledge as predominately functional ties are not profound enough to develop robust shared mental models of complex dyadic knowledge transfer. Only when mutual trust, a more expressive relational tie between exchange partners is present, such mental models can be developed and activated.

Indeed, theoretical work (Healey et al., 2015) suggests that shared cognition among team members forms on two levels: the explicit (reflective) level and the implicit (reflexive) level. The main assertion is that these two levels are not necessarily aligned. Our study indicates that mutual familiarity of exchange partners, which is not based on mutual trust could indeed be related to what Healey et al. (2015) call *illusory concordance*—a situation, where partners' cognitions are shared on the surface, while simultaneously they are not in agreement on a more profound, reflexive level. The existence of such an ambiguous situation provides an explanation for why in our study shared mental models based only on mutual meta-knowledge relate to both perceptual alignment and misalignment. Mutual trust, on the other hand, seems to facilitate robust shared mental models that make illusory concordance less likely.

Third, additional analyses shed light on the two types of misalignment that we identified. Considering the knowledge transfer from the perspective of the sender and of the recipient enables us to propose a more substantive explanation of Type 1 and Type 2 misalignments. Type 1 misalignment is characterized by a sender who perceives to have sent knowledge while the designated recipient does not confirm receiving it. This asymmetry in perceptions is potentially negative because the sender might expect some form of acknowledgement or reciprocation from the recipient, which is unlikely to occur since the recipient has not perceived that knowledge has been transferred. This lack of acknowledgement or reciprocation might jeopardize future knowledge transfer attempts from the sender to the recipient and could cause difficulties for knowledge transfer in the organization. Our results show that Type 1 misalignments are more likely to occur when a weak work relationship exists between the sender and the recipient who are not mutually familiar, implying an absence of a shared mental model in the dyad. We also know that this type of misalignment is significantly less likely with exchange partners who are salient due to their different organizational affiliation. As such,

Type 1 misalignments, occur among colleagues who are aware of, but not necessarily familiar with each other and who are not mutually salient. Additional research is needed in order to understand better the determinants and consequences of what seems to be a prototypical misalignment in perceptions of complex knowledge transfer within a dyad.

Type 2 misalignment, on the other hand, refers to a situation, where a potential sender is not aware of sending knowledge, while the recipient confirms reception. We propose that this type of misalignment could be related to vicarious learning (cf. Bandura, 1965) and is more positive than Type 1 misalignment because it entails a potential for reciprocation (unexpected by the sender) of knowledge flow in the future. The latter could facilitate knowledge transfers between the actors in the future. Our findings suggest that Type 2 misalignment is more likely to occur between partners who are familiar with each other (i.e., having mutual meta-knowledge of other's KSA and mutual trust) but not necessarily salient, which is consistent with the concept of vicarious learning. This is also one of the plausible explanations for the apparent inconsistency between Model 2 and findings of our additional analyses. This result might also explain the ambivalent role of meta-knowledge of each other's KSA as a predictor of both alignments and misalignments. In our dataset, the ratio between Type 1 and Type 2 misalignments is approximately 2:3 in favour of Type 1.

## Theoretical Contributions and Implications

First and foremost, this chapter contributes to the social network view of knowledge management. We show that, in organizational settings, complex knowledge transfer perceptions are more often misaligned than not. Perceptual misalignments are multifaceted with significant (different) implications for knowledge-based processes in organizations. An implication for studying knowledge-based processes is that researchers should pay attention not only to the dynamics of knowledge transfer or to the perceptions of the content being transferred but also to perceptions of knowledge transfers *per se*. This suggests consideration of the socio-cognitive perspective (Ringberg & Reihlen, 2008) and

more careful conceptualization and measurement of knowledge transfer constructs, possibly collecting information about the flow from both actors involved in a complex knowledge transfer.

Further, we adopt a new theoretical perspective to identify another reason for the important role trust plays in facilitating effective knowledge transfer. Above and beyond what is reported in the literature (cf. Alexopoulos & Buckley, 2013; Van Wijk et al., 2008), our study demonstrates that mutual trust between partners involved in complex knowledge transfer makes an essential contribution to the development of robust shared mental models that facilitate perceptual alignment. Based on the recent theoretical developments on shared cognition (cf. Healy et al., 2015), we suspect that trust might be facilitating concordance between reflective and reflexive levels of cognition among individuals in organizations.

Second, our work contributes to an emerging literature on asymmetries in organizational behaviour. Recently, researchers have started questioning the symmetry logic underlying well-known constructs in organizational behaviour research that addresses relational phenomena such as trust and power (De Jong & Dirks, 2012; Korsgaard et al., 2015; Van der Vegt et al., 2010). Our paper speaks to the need to openly address asymmetries by building on the premise that misalignments in knowledge transfer exist and do not have an entirely symmetrical genesis to perceptual alignments. It also offers an example of how this can be done conceptually and methodologically. By addressing perceptions of dyadic knowledge transfer we show that asymmetries exist and have meaningful implications. Moreover, by recognizing that asymmetries exist we are able to define perceptual alignment and two types of perceptual misalignment (Type 1 and Type 2). We believe this has broader implications; based on our study we can propose that after asymmetries are recognized as an essential feature of relational constructs at least three sub-constructs (i.e., general misalignment and two specific types of misalignment) can be conceptualized to offer additional insight into the explored relational phenomena.

The logic adopted in this chapter could be extended to other areas in organization research that focus on understanding dyadic relationships and their dynamics. For example, research in the Leader Member

eXchange (LMX) typically examines the exchange from the viewpoint of either leaders or followers, while misalignments in their perceptions are rarely explicitly addressed (Gerstner & Day, 1997). Examining misalignment would make it possible to explore the extent to which perceptions of the leader and/or of the followers regarding their relationships may affect the benefits that each derives from the relationship. In a similar vein, Černe et al. (2014) found that knowledge hiding can hurt one's future creativity because of the implications of violating the norm of reciprocity. The authors assumed that actors have aligned perceptions of the potential exchange (and of the hiding). Following our results, it would be valuable to distinguish between cases in which there is agreement about hiding from those, where one actor may not perceive that hiding is taking place.

Finally, our research contributes to a better understating of individual cognition of relational ties in organizations and offers additional support for claiming that cognition of relational ties matters. Recent reviews of cognitive networks (e.g., Kilduff & Brass, 2010; Taselli et al., 2015) identified cognition of relational ties as one of the key challenges of the social network research programme. This work joins a stream of research (e.g., Brands et al., 2015; Carnabuci & Diószegi, 2015; DeRue et al., 2015), which shows that mental representations of relational ties (or social structure) are relevant and can have important consequences.

## Limitations and Future Research

Our results are based on the study of a single organization, which may limit their generalizability. However, we have to note that we have data for almost everybody in the complete network and a considerable amount of relations (over 700), which are essential for testing our conceptual model.

In the current study, we focussed on complex knowledge transfer because it was considered most susceptible to perceptual misalignments. However, what is being transferred and where could represent an important moderator of the examined mechanisms. Future research should thus address boundary conditions and examine how the extent of

knowledge complexity, characteristics of knowledge content, and differences between knowledge characteristics that flow within and between organizational units affect the focal mechanisms. In addition, future research could also explore how organizational context features such as the extent of performance demands, type of work setting (physical, hybrid, or remote), intensity of internal competition, and tightness of time constraints affect the potential for perceptual misalignment in organizations.

A closer inspection of some control variables (e.g., statistically significant indegrees and outdegrees) indicates that individual-level factors such as personality or motivation could play an important role in the focal mechanisms. Including specific individual constructs (e.g., self-monitoring, extraverted personality, interpersonal sensitivity) would be beyond the scope of the current study. However, we encourage future research to explicitly address the effects of most relevant individual psychological constructs such as self-monitoring (Fang et al., 2015) on perceptual alignments and misalignments.

Finally, building on our study further research could examine various relevant outcomes of alignment and misalignment of dyadic knowledge transfer perceptions in organizations. For example, at the dyadic level (mis)alignments could have an effect on future knowledge transfers in the dyad and the quality of the relationship between the partners. At the individual (partner) level, on the other hand, (mis)alignments could affect an individual's creativity, learning, preparedness to help co-workers, and performance. We suggest experimental research designs as particularly suitable for empirically examining these effects.

## Implications for Practice

Differences in perceptions of dyadic knowledge transfer are not only interesting *per se* but also because misaligned perceptions of knowledge transfer may result in behavioural responses that adversely affect (other) knowledge-based processes in organizations. For example, based on her perception of knowledge transfer with other organizational members an individual could reciprocate knowledge and offer help or refrain from



doing so. In addition, we know from previous research on shared mental models that (shared) mental models can affect performance (Mathieu et al., 2000). Therefore, our research highlights the need for organizations to pay attention to the issue of misalignment of perceptions of dyadic knowledge transfer because of its prevalence and potentially negative consequences for organizations.

One activity to address this issue is having (periodical) targeted conversations about knowledge exchanges. Misalignments in knowledge transfer perceptions are namely subject to *meta-accuracy* problems. This problem refers to a situation where person A is wrong about how her knowledge transfer behaviours are seen by person B or vice-versa. In the absence of an explicit conversation about knowledge transfer experiences, individuals involved in knowledge transfer interactions usually assume that other people's perceptions of their behaviour are in line with their views. In the case of a misalignment in perceptions, actors are wrongly convinced that their view of how partners see their knowledge transfer behaviours is the same as their partner's views about their behaviour. When misalignments occur, they can frequently be unknown to the parties involved. Regular conversations about dyadic knowledge transfer (episodes), for example, as a part of retrospectives in agile work methodology, might contribute to better recognition of knowledge transfer misalignments and pave the way to their resolution before critical (negative) events that could have revealed them anyway.

Another lever to pull is systematic work on strengthening mutual trust among organizational members. We know from the work on illusionary concordance (Healey et al., 2015) that some misalignments feature a level of disagreement too profound to be addressed with only regular conversations about misalignments. Offering mediation and coaching along with general development of organizational culture that emphasizes prosocial behaviour, perspective taking and empathy can contribute to less misalignments in knowledge transfer perceptions. In addition, the development of mutual trust-laden relationships also has a positive effect on the underlying knowledge transfer process (Hansen, 1999; Levin & Cross, 2004).

Organizations experience two types of perceptual misalignment in knowledge transfer—Type 1 and Type 2. Whereas Type 1 is more

frequently observed and has a stronger potential for negative consequences, Type 2 is less frequent and potentially virtuous. For Type 1 misalignments (i.e., the sender claims knowledge transfer occurred, but the receiver does not confirm it), the above suggested targeted conversations are recommended. In addition, knowledge senders should be more careful in examining if the intended knowledge has actually been transferred in direct interaction with the targeted recipient after the (alleged) transfer. For example, the sender could prompt the receiver to reproduce in knowledge in their own words, use it in a relevant situation, and provide sufficient feedback. Type 2 misalignment (i.e., receiver confirms knowledge transfer that sender is not aware of), on the other hand, should be embraced as a means for facilitating transparency and open-learning in organizations. That said, organizations should find innovative means for recognizing the contributors to such vicarious learning, and recipients of knowledge could be encouraged to model knowledge-sending behaviour to leverage the learning effects and further enhance general reciprocity in the organization (Baker & Bulkley, 2014).

The recent acceleration in remote and hybrid work puts another perspective on misalignments of knowledge transfer perceptions for the future. In our study we have primarily addressed complex knowledge, that is 'transmitted by means of observation or face-to-face interaction'. The pandemic work experience in many organizations at least limited if not completely prevented physical observation and face-to-face interaction. Although we can expect that many aspects of face-to-face interaction will return in the future hybrid work experience, knowledge transfer has changed. Poorer channel bandwidth of synchronous electronic communication (and not being embedded in the same physical context) could result in more Type 1 misalignment. The lack of salience of knowledge exchange partners, facilitated by the shift to more in-silo interactions (see Yang et al., 2022) could further enhance this development. Alternatively, spontaneous observations in a shared physical setting and thus Type 2 misalignments will be less likely. This will probably shift the Type 1/Type 2 ratio further in favour of (more negative) Type 1 misalignments. Mutual trust, as a key lever for reducing misalignments,

will be developed differently and a more superficial type of trust, the so-called swift trust, might play a much bigger role in the future (Neely, 2021). In organizations, this development calls for increased vigilance and attention to knowledge transfer difficulties and misalignments as they optimize their future work and interaction models.

## References

- Alexopoulos, A. N., & Buckley, F. (2013). What trust matters when: The temporal value of professional and personal trust for effective knowledge transfer. *Group & Organization Management, 38*(3), 361–391. <https://doi.org/10.1177/1059601113488939>
- Alter, A. L., & Oppenheimer, D. M. (2009). Uniting the tribes of fluency to form a metacognitive nation. *Personality and Social Psychology Review, 13*(3), 219–235. <https://doi.org/10.1177/1088868309341564>
- Anderson, C. J., Wasserman, S., & Crouch, B. (1999). A p\* primer: Logit models for social networks. *Social Networks, 21*(1), 37–66. [https://doi.org/10.1016/S0378-8733\(98\)00012-4](https://doi.org/10.1016/S0378-8733(98)00012-4)
- Argote, L., & Ingram, P. (2000). Knowledge transfer: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes, 82*(1), 150–169. <https://doi.org/10.1006/obhd.2000.2893>
- Baker, W. E., & Bulkley, N. (2014). Paying it forward vs. rewarding reputation: Mechanisms of generalized reciprocity. *Organization Science, 25*(5), 1493–1510. <https://doi.org/10.1287/orsc.2014.0920>
- Bandura, A. (1965). Vicarious processes: A case of no-trial learning. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 2, pp. 1–55). Academic Press.
- Bernieri, F. J. (2001). Toward a taxonomy of interpersonal sensitivity. In J. A. Hall & F. J. Bernieri (Eds.), *Interpersonal sensitivity: Theory and measurement* (pp. 3–20): Taylor & Francis.
- Bondonio, D. (1998). Predictors of accuracy in perceiving informal social networks. *Social Networks, 20*(4), 301–330. [https://doi.org/10.1016/S0378-8733\(98\)00007-0](https://doi.org/10.1016/S0378-8733(98)00007-0)
- Bernard, H. R., Killworth, P. D., & Sailer, L. (1979). Informant accuracy in social network data IV: A comparison of clique-level structure in behavioral and cognitive network data. *Social Networks, 2*(3), 191–218.

- Bernard, H. R., Killworth, P. D., & Sailer, L. (1981). Summary of research on informant accuracy in network data and the reverse small world problem. *Connections, 4*(2), 11–25.
- Bernard, H. R., Killworth, P. D., & Sailer, L. (1982). Informant accuracy in social-network data V. An experimental attempt to predict actual communication from recall data. *Social Science Research, 11*(1), 30–66.
- Bogenrieder, I. (2002). Social architecture as a prerequisite for organizational learning. *Management Learning, 33*(2), 197–212. <https://doi.org/10.1177/1350507602332003>
- Brands, R. A. (2013). Cognitive social structures in social network research: A review. *Journal of Organizational Behavior, 34*(S1), S82–S103. <https://doi.org/10.1002/job.1890>
- Brands, R. A., & Kilduff, M. (2013). Just like a woman? Effects of gender-biased perceptions of friendship network brokerage on attributions and performance. *Organization Science, 25*(5), 1530–1548. <https://doi.org/10.1287/orsc.2013.0880>
- Brands, R. A., Menges, J. I., & Kilduff, M. (2015). The leader-in-social-network schema: Perceptions of network structure affect gendered attributions of Charisma. *Organization Science, 26*(4), 1210–1225. <https://doi.org/10.1287/orsc.2015.0965>
- Cannella, A. A., & McFadyen, M. A. (2016). Changing the exchange: The dynamics of knowledge worker ego networks. *Journal of Management, 42*(4), 1005–1029. <https://doi.org/10.1177/0149206313511114>
- Cannon-Bowers, J. A., Salas, E., & Converse, S. (1993). Shared mental models in expert team decision making. In N. J. Castellan (Ed.), *Individual and Group Decision Making* (pp. 221–246). Lawrence Erlbaum Associates.
- Carnabuci, G., & Diószegi, B. (2015). Social networks, cognitive style and innovative performance: A contingency perspective. *Academy of Management Journal, 58*(3), 881–905. <https://doi.org/10.5465/amj.2013.1042>
- Carley, K. M., & Krackhardt, D. (1996). Cognitive inconsistencies and non-symmetric friendship. *Social Networks, 18*(1), 1–27. [https://doi.org/10.1016/0378-8733\(95\)00252-9](https://doi.org/10.1016/0378-8733(95)00252-9)
- Carlile, P. R., & Rebentisch, E. S. (2003). Into the black box: The knowledge transformation cycle. *Management Science, 49*(9), 1180–1195. <https://doi.org/10.1287/mnsc.49.9.1180.16564>
- Casciaro, T. (1998). Seeing things clearly: Social structure, personality, and accuracy in social network perception. *Social Networks, 20*(4), 331–351. [https://doi.org/10.1016/S0378-8733\(98\)00008-2](https://doi.org/10.1016/S0378-8733(98)00008-2)

- Chaiken, S., & Trope, Y. (Eds.). (1999). *Dual-process theories in social psychology*. Guilford Press.
- Chowdhury, S. (2005). The role of affect-and cognition-based trust in complex knowledge sharing. *Journal of Managerial Issues*, *17*(3), 310–326.
- Cross, R., & Cummings, J. N. (2004). Tie and network correlates of individual performance in knowledge-intensive work. *Academy of Management Journal*, *47*(6), 928–937. <https://doi.org/10.5465/20159632>
- Cross, R., & Sproull, L. (2004). More than an answer: Information relationships for actionable knowledge. *Organization Science*, *15*(4), 446–462. <https://doi.org/10.1287/orsc.1040.0075>
- Černe, M., Nerstad, C., Dysvik, A., & Škerlavaj, M. (2014). What goes around comes around: Knowledge hiding, perceived motivational climate, and creativity. *Academy of Management Journal*, *57*(1), 172–192. <https://doi.org/10.5465/amj.2012.0122>
- De Jong, B. A., & Dirks, K. T. (2012). Beyond shared perceptions of trust and monitoring in teams: Implications of asymmetry and dissensus. *Journal of Applied Psychology*, *97*(2), 391–406. <https://doi.org/10.1037/a0026483>
- DeRue, S. D., Nahrgang, J. D., & Ashford, S. J. (2015). Interpersonal perceptions and the emergence of leadership structures in groups: A network perspective. *Organization Science*, *26*(4), 1192–1209. <https://doi.org/10.1287/orsc.2014.0963>
- Edmondson, A. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, *44*(2), 350–383. <https://doi.org/10.2307/2666999>
- Espinosa, J. A., Slaughter, S. A., Kraut, R. E., & Herbsleb, J. D. (2007). Familiarity, complexity, and team performance in geographically distributed software development. *Organization Science*, *18*(4), 613–630. <https://doi.org/10.1287/orsc.1070.0297>
- Evans, J. S. B. (2008). Dual-processing accounts of reasoning, judgment, and social cognition. *Annual Review of Psychology*, *59*, 255–278. <https://doi.org/10.1146/annurev.psych.59.103006.093629>
- Eysenck, M. W., & Keane, M. T. (2005). *Cognitive psychology: A student's handbook*. Taylor & Francis.
- Fang, R., Landis, B., Zhang, Z., Anderson, M. H., Shaw, J. D., & Kilduff, M. (2015). Integrating personality and social networks: a meta-analysis of personality, network position, and work outcomes in organizations. *Organization Science*, *26*(4), 1243–1260. <https://doi.org/10.1287/orsc.2015.0972>
- Fiske, S. T., & Neuberg, S. L. (1990). A continuum of impression formation, from category-based to individuating processes: Influences of information

- and motivation on attention and interpretation. *Advances in Experimental Social Psychology*, 23, 1–74. [https://doi.org/10.1016/S0065-2601\(08\)60317-2](https://doi.org/10.1016/S0065-2601(08)60317-2)
- Fiske, S. T., & Taylor, S. E. (1991). *Social cognition*. McGraw-Hill Book Company.
- Fiske, S. T., & Taylor, S. E. (2013). *Social cognition: From brains to culture*. Sage.
- Freeman, L. C., Romney, K. A., & Freeman, S. C. (1987). Cognitive structure and informant accuracy. *American Anthropologist*, 89(2), 310–325. <https://doi.org/10.1525/aa.1987.89.2.02a00020>
- Gerstner, C. R., & Day, D. V. (1997). Meta-Analytic review of leader–member exchange theory: Correlates and construct issues. *Journal of Applied Psychology*, 82(6), 827–844. <https://doi.org/10.1037/0021-9010.82.6.827>
- Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal*, 17(Special issue), 109–122. <https://doi.org/10.1002/smj.4250171110>
- Gray, P. H., & Meister, D. B. (2004). Knowledge sourcing effectiveness. *Management Science*, 50(6), 821–834. <https://doi.org/10.1287/mnsc.1030.0192>
- Haldin-Herrgard, T. (2000). Difficulties in diffusion of tacit knowledge in organizations. *Journal of Intellectual Capital*, 1(4), 357–365. <https://doi.org/10.1108/14691930010359252>
- Hall, J. A., & Bernieri, F. J. (2001). *Interpersonal sensitivity: Theory and measurement*. Taylor & Francis.
- Hansen, M. T. (1999). The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits. *Administrative Science Quarterly*, 44(1), 82–111. <https://journals.sagepub.com/doi/10.2307/2667032>
- Hansen, M. T. (2002). Knowledge networks: Explaining effective knowledge sharing in multiunit companies. *Organization Science*, 13(3), 232–248. <https://doi.org/10.1287/orsc.13.3.232.2771>
- Healey, M. P., Vuori, T., & Hodgkinson, G. P. (2015). When teams agree while disagreeing: Reflexion and reflection in shared cognition. *Academy of Management Review*, 40(3), 399–422. <https://doi.org/10.5465/amr.2013.0154>
- Jacoby, L. L., et al. (1989). Becoming famous overnight: Limits on the ability to avoid unconscious influences of the past. *Journal of Personality and Social Psychology*, 56(3), 326–338. <https://doi.org/10.1037/0022-3514.56.3.326>
- Johnson-Laird, P. N. (1983). *Mental models*. Cambridge University Press.

- Jones, E. E. (1990). *Interpersonal perception*. WH Freeman/Times Books/Henry Holt & Co.
- Kashy, D. A., & Kenny, D. A. (1990). Do you know whom you were with a week ago friday? A re-analysis of the Bernard, Killworth, and Sailer studies. *Social Networks*, 53(1), 55–61. <https://doi.org/10.2307/2786869>
- Kenny, D. A. (1994). *Interpersonal perception: A social Relations Analysis*. Guilford Press.
- Kilduff, M., & Brass, D. J. (2010). Organizational social network research: Core ideas and key debates. *Academy of Management Annals*, 4(1), 317–357. <https://doi.org/10.5465/19416520.2010.494827>
- Kilduff, M., & Krackhardt, D. (2008). *Interpersonal networks in organizations: Cognition, personality, dynamics, and culture*. Cambridge University Press.
- Klimoski, R., & Mohammed, S. (1994). Team mental model: Construct or metaphor? *Journal of Management*, 20(2), 403–437. [https://doi.org/10.1016/0149-2063\(94\)90021-3](https://doi.org/10.1016/0149-2063(94)90021-3)
- Kogut, B., & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science*, 3(3), 383–397. <https://doi.org/10.1287/orsc.3.3.383>
- Korsgaard, M. A., Brower, H. H., & Lester, S. W. (2015). It isn't always mutual a critical review of dyadic trust. *Journal of Management*, 41(1), 47–70. <https://doi.org/10.1177/0149206314547521>
- Krackhardt, D. (1987). Cognitive social structures. *Social Networks*, 9(2), 109–134. [https://doi.org/10.1016/0378-8733\(87\)90009-8](https://doi.org/10.1016/0378-8733(87)90009-8)
- Krackhardt, D. (1992). The strength of strong ties: The importance of philios in organizations. In R. Cross, A. Parker, & L. Sasson (Eds.), *Networks and organizations: Structure, form, and action* (pp. 216–239).
- Lane, P. J., Koka, B. R., & Pathak, S. (2006). The reification of absorptive capacity: A critical review and rejuvenation of the construct. *Academy of Management Review*, 31(4), 833–863. <https://doi.org/10.5465/amr.2006.22527456>
- Levin, D. Z., & Cross, R. (2004). The strength of weak ties you can trust: The mediating role of trust in effective knowledge transfer. *Management Science*, 50(11), 1477–1490. <https://doi.org/10.1287/mnsc.1030.0136>
- Lusher, D., Koskinen, J., & Robins, G. (2013). *Exponential random graph models for social networks: Theory, methods and applications*. Cambridge University Press.
- Mathieu, J. E., Heffner, T. S., Goodwin, G. F., Salas, E., & Cannon-Bowers, J. A. (2000). The influence of shared mental models on team process and

- performance. *Journal of Applied Psychology*, 85(2), 273–283. <https://doi.org/10.1037/0021-9010.85.2.273>
- Marsden, P. V. (1987). Core discussion networks of Americans. *American Sociological Review*, 52, 122–131. <https://doi.org/10.2307/2095397>
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20(3), 709–734. <https://doi.org/10.2307/258792>
- McCallister, L., & Fischer, C. (1978). A procedure for surveying personal networks. *Sociological Methods and Research*, 7(2), 131–148. <https://doi.org/10.1177/004912417800700202>
- McCroskey, J. C., & Richmond, V. P. (1995). *Fundamentals of human communication: An interpersonal perspective*. Waveland Press Inc.
- Mohammed, S., & Dumville, B. C. (2001). Team mental models in a team knowledge framework: Expanding theory and measurement across disciplinary boundaries. *Journal of Organizational Behavior*, 22(2), 89–106. <https://doi.org/10.1002/job.86>
- Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23(2), 242–266. <https://doi.org/10.5465/amr.1998.533225>
- Neeley, T. (2021). *Remote work revolution: Succeeding from anywhere*. Harper Collins.
- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5(1), 14–37. <https://doi.org/10.1287/orsc.5.1.14>
- Osterloh, M., & Frey, B. S. (2000). Motivation, knowledge transfer, and organizational forms. *Organization Science*, 11(5), 538–550. <https://doi.org/10.1287/orsc.11.5.538.15204>
- Payne, B. K. (2012). Control, awareness, and other things we might learn to live without. In S. T. Fiske & C. N. Macrae (Eds.), *Sage handbook of social cognition* (pp. 12–30). Sage.
- Quintane, E. (2013). Comparing networks: structural correspondence between behavioral and recall networks. *Exponential random graph models for social networks: Theory, methods, and applications* (pp. 272–283). Cambridge University Press.
- Reagans, R., & McEvily, B. (2003). Network structure and knowledge transfer: The effects of cohesion and range. *Administrative Science Quarterly*, 48(2), 240–267. <https://doi.org/10.2307/3556658>
- Ren, Y., & Argote, L. (2011). Transactive memory systems 1985–2010: An integrative framework of key dimensions, antecedents, and consequences.



- The Academy of Management Annals*, 5(1), 189–229. <https://doi.org/10.5465/19416520.2011.590300>
- Ringberg, T., & Reihlen, M. (2008). Towards a socio-cognitive approach to knowledge transfer. *Journal of Management Studies*, 45(5), 912–935. <https://doi.org/10.1111/j.1467-6486.2007.00757.x>
- Robins, G., Pattison, P., Kalish, Y., & Lusher, D. (2007). An introduction to exponential random graph (p\*) models for social networks. *Social Networks*, 29(2), 173–191. <https://doi.org/10.1016/j.socnet.2006.08.002>
- Rouse, W. B., & Morris, N. M. (1986). On looking into the black box: Prospects and limits in the search for mental models. *Psychological Bulletin*, 100(3), 349–363. <https://doi.org/10.1037/0033-2909.100.3.349>
- Rouse, W. B., Cannon-Bowers, J., & Salas, E. (1992). The role of mental models in team performance in complex systems. *IEEE Transactions on Systems, Man and Cybernetics*, 22(6), 1296–1308. <https://doi.org/10.1109/21.199457>
- Smith, E. R. (1984). Model of social inference processes. *Psychological Review*, 91(3), 392–413. <https://doi.org/10.1037/0033-295X.91.3.392>
- Smith, E. B., Menon, T., & Thompson, L. (2012). Status differences in the cognitive activation of social networks. *Organization Science*, 23(1), 67–82. <https://doi.org/10.1287/orsc.1100.0643>
- Szulanski, G. (1996). Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal*, 17, 27–43. <https://doi.org/10.1002/smj.4250171105>
- Szulanski, G. (2000). The process of knowledge transfer: A diachronic analysis of stickiness. *Organizational Behavior and Human Decision Processes*, 82(1), 9–27. <https://doi.org/10.1006/obhd.2000.2884>
- Tasselli, S., Kilduff, M., & Menges, J. I. (2015). The microfoundations of organizational social networks: A review and an agenda for future research. *Journal of Management*, 41(5), 1361–1387. <https://doi.org/10.1177/0149206315573996>
- Tsai, W. (2001). Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance. *Academy of Management Journal*, 44(5), 996–1004. <https://doi.org/10.2307/3069443>
- Tsai, W. (2002). Social structure of “Coopetition” within a multiunit organization: Coordination, competition, and intraorganizational knowledge sharing. *Organization Science*, 13(2), 179–190. <https://doi.org/10.1287/orsc.13.2.179.536>

- Tsai, W., & Ghoshal, S. (1998). Social capital and value creation: The role of intrafirm networks. *Academy of Management Journal*, 41(4), 464–476. <https://doi.org/10.5465/257085>
- Van der Vegt, G. S., de Jong, S. B., Bunderson, J. S., & Molleman, E. (2010). Power asymmetry and learning in teams: The moderating role of performance feedback. *Organization Science*, 21(2), 347–361. <https://doi.org/10.1287/orsc.1090.0452>
- Van Wijk, R., Jansen, J. J., & Lyles, M. A. (2008). Inter-and intra-organizational knowledge transfer: A meta-analytic review and assessment of its antecedents and consequences. *Journal of Management Studies*, 45(4), 830–853. <https://doi.org/10.1111/j.1467-6486.2008.00771.x>
- Von Krogh, G., Ichijo, K., & Nonaka, I. (2000). *Enabling knowledge creation: How to unlock the mystery of tacit knowledge and release the power of innovation*. Oxford University Press.
- Walsh, J. P. (1988). Selectivity and selective perception: An investigation of managers' belief structures and information processing. *Academy of Management Journal*, 31(4), 873–896. <https://doi.org/10.5465/256343>
- Weick, K. E. (2001). *Making sense of the organization*. Blackwell.
- Zheng, Y., & Yang, H. (2015). Does familiarity foster innovation? The impact of alliance partner repeatedness on breakthrough innovations. *Journal of Management Studies*, 52(2), 213–230. <https://doi.org/10.1111/joms.12112>
- Yang, L., Holtz, D., Jaffe, S., Suri, S., Sinha, S., Weston, J., ... & Teevan, J. (2022). The effects of remote work on collaboration among information workers. *Nature Human Behaviour*, 6, 43–54. <https://doi.org/10.1038/s41562-021-01196-4>
- Zou, X., & Ingram, P. (2013). Bonds and boundaries: Network structure, organizational boundaries, and job performance. *Organizational Behavior and Human Decision Processes*, 120(1), 98–109. <https://doi.org/10.1016/j.obhdp.2012.09.002>

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# Networks, Knowledge, and Rivalry: The Effect of Performance and Co-Location on Perceptions of Knowledge Sharing

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## Introduction

The importance of knowledge in organizations is well established, with theories highlighting the benefits of the knowledge-based firm (Grant, 1996), including organizations gaining competitive advantage from having diverse knowledge (Argote & Ingram, 2000; Conner & Prahalad, 1996; Kogut & Zander, 1992). While having employees with critical

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knowledge is important, it is not sufficient to create competitive advantage. To be successful, organizations need knowledge to flow between individuals. As Kogut and Zander (1992) have highlighted, what organizations do better than markets is to facilitate the sharing of knowledge. The sharing of knowledge often occurs by one individual seeking knowledge in the form of advice from another (Borgatti & Cross, 2003; Lomi et al., 2014; Tortoriello et al., 2012). The benefits of greater knowledge sharing within an organization, through advice seeking, include increased levels of performance for individuals, teams, and the organization (Cross & Cummings, 2004; McDonald et al., 2008; Phelps et al., 2012; Sparrowe et al., 2001; Zhang et al., 2011).

Workplaces, however, are competitive arenas, and it is generally recognized that “competition is a fact of life; employees compete for promotions, groups of researchers vie for grants, and companies fight for market share” (Kilduff et al., 2010, p. 943). Rivalry occurs in most organizations, with individuals jostling for resources, opportunities, and recognition (Burt, 1992; Frank, 1985; Garcia et al., 2013; Podolny & Baron, 1997; To et al., 2020). Resources that facilitate increased advantage for individuals include the knowledge they can get from their social network (Burt et al., 2013). Existing research, however, tends to ignore how the competitive aspects of the workplace impact perceived willingness or unwillingness to share knowledge. This leaves unanswered the question of to what extent the competitive internal environment of an organization reduces the likelihood of knowledge flow. In this paper, we examine how individuals in competitive situations at work—i.e., they are rivals for scarce resources and opportunities—relates to their perceptions of whether other colleagues are willing to share knowledge. Given the importance of knowledge sharing to organizations, it is important to have a better understanding of how rivalry between individuals can limit the transfer of knowledge.

Competition occurs when there are scarce resources and one individual gains at the cost of others (Deutsch, 1949; Kilduff, 2014). Rivalry differs from competition because it explicitly considers the direct relationships between individuals who are in competitive environments (Kilduff, 2014; Kilduff et al., 2010). Rivalry is based on competition,

but it is between individuals who know each other instead of competition against anonymous others (Kilduff, 2014; Kilduff et al., 2010). Rivalry can occur when two individuals compete against each other to succeed and achieve outcomes such as bonuses and promotions. We seek to understand if rivalry results in perceptions of others being unwilling to share knowledge. To understand which individuals are most likely to be competing with each other we focus on the performance of each employee. First, we examine perceptions of knowledge sharing based on individual performance. We specifically examine those people who are high-performers as they are most likely to compete with others for scarce resources. Second, we examine if individuals who strive for high-performance levels and who are more likely to be the most competitive see other high-performing individuals, who they perceive as rivals, as unwilling to share knowledge. Third, we seek a better understanding of the context of the work situation in which rivalry occurs. If individuals are competing for resources, recognition, and promotion, this is more likely to occur within an individual's own location. Therefore, we examine if performance-based rivalry between individuals regarding knowledge sharing is more likely to operate locally within an employee's work location (Lawrence, 2006).

In this paper, we add to the literature on knowledge sharing (Reagans & McEvily, 2003; Tortoriello et al., 2012; Tsai, 2002) by highlighting how rivalry can affect individual perceptions of whether others are willing to share knowledge. We also add to the recent literature on competition and specifically a relational view of rivalry (Kilduff et al., 2010; To et al., 2020). Specifically, we clarify how network-based rivalry mechanisms are heightened when individuals are co-located. We conducted a study within a global IT department of a large multinational manufacturing corporation to test our ideas. As our analysis is dyadic, we use multiple-regression quadratic assignment procedure (MRQAP) (Dekker et al., 2007; Krackhardt, 1988). Analysis of 185 employees with 34,040 dyadic relationships indicates that high-performing individuals are more likely to perceive others as unwilling to share knowledge, and this effect is enhanced when those individuals are also high-performers, and in particular where individuals are co-located.

## Theory and Hypotheses

The importance of having a better understanding of the impediments to the seeking and giving of advice in organizations is highlighted by the recent upsurge in research on knowledge hiding in organizations (Chatterjee et al., 2021; Connelly et al., 2019; Shrivastava et al., 2021). The hiding of knowledge has been linked to lower levels of creativity (Černe et al., 2014), voluntary turnover (Serenko & Bontis, 2016), and future withholding of knowledge (Connelly & Zweig, 2015). The explanations for why people might withhold knowledge include cultural norms of secrecy (Webster et al., 2008) and distrust (Connelly et al., 2012); as well as individual-level explanations such as withholding knowledge for political gain (Webster et al., 2008) and territorial behavior around a knowledge domain (Brown et al., 2005). There has been limited research at the dyad level concerning why individuals choose to withhold knowledge. Existing research, however, does find that when one individual perceives that another individual is hiding knowledge from them, they will, in return, hide knowledge from that person resulting in a ‘reciprocal distrust loop’ (Černe et al., 2014, p. 174). However, this finding does not fully explain why an individual might perceive that another is hiding or unwilling to share knowledge with them in the first place.

Knowledge-intensive organizations and business units are dependent on collaboration and the sharing of knowledge for innovation and the efficient operation of work (Brown & Duguid, 2000; Davenport & Prusak, 1998; Nonaka & Takeuchi, 1995). While collaboration amongst employees is encouraged in organizations, it does not happen in every dyad. People fail to collaborate for reasons such as not being aware of another employee’s knowledge, not valuing what another employee knows, lacking timely access to a person, and perceiving that there would be too high a cost in asking a colleague for advice (Borgatti & Cross, 2003). In many instances, employees compete for resources, recognition, bonuses, and promotion with the same colleagues they could be sharing knowledge with, creating resistance to knowledge sharing (Riege, 2005; Swap et al., 2001; Webster et al., 2008). Tsai (2002) suggests that this situation of cooperation and competition results in “coopetition”. In Tsai’s analysis of business units in a multiunit organization, he

suggests that informal relationships positively affect knowledge sharing between units that compete for external market share but not for internal resources. This finding highlights, at least for internal resources, that competition is uppermost in people's cognition despite the benefits of collaboration.

## Competition and Rivalry

Deutsch (1949) defines competition as a situation in which the goal attainment of two individuals is negatively correlated with the success of one individual resulting in the failure of the other. Considerable research has examined competition in experimental conditions. For example, research indicates that competition decreases intrinsic motivation (Deci et al., 1981); those who valued doing well had increased perceived confidence and self-determination (Reeve & Deci, 1996); and achievement-orientated individuals had greater enjoyment of competitive games regardless of whether they received positive or negative feedback (Tauer & Harackiewicz, 1999). However, whether experimental research on competition is replicable in organizational settings is questionable as individuals have a relational history not captured using experiments (Kilduff et al., 2010).

Kilduff and colleagues (2010) have differentiated rivalry from competition by specifying that rivalry is inherently a relational construct. Using NCAA men's basketball data, Kilduff et al. (2010) found that perceptions of team rivalry have a high degree of variance at the dyadic level. Teams closer in geographic distance were more likely to be rivals. In addition, prior competitive interactions increased current rivalry. Rivalry has been shown to increase motivation and, subsequently, performance (Kilduff, 2014; Kilduff et al., 2010). Rivalry results in greater unethical behavior by heightening "the psychological stakes of competition (by increasing actors' contingency of self-worth and status concerns), which leads to the adoption of a stronger performance-approach orientation, which then increases unethical behavior" (Kilduff et al., 2016). Rivalry also increases risk-taking and a focus on winning (To et al., 2018). Overall, research on rivalry suggests that it is different from competition as rivals are

individuals with a need to win but also rivals focus on specific others they perceive as competing for scarce resources. This finding begs the question, under what conditions is rivalry between individuals activated?

## High-Performance and Perceptions of Unwillingness to Share Knowledge

One aspect of being successful at work is recognizing, accessing, and utilizing scarce resources. These resources include the social capital that resides in the network of relationships that individuals have in the workplace (Lin, 2002). Individuals gain advantages from their social networks in various ways (Burt et al., 2013). These advantages are based on greater or timelier access to knowledge and new ideas. High-performing employees are motivated to do well and are likely to value and understand the importance of scarce resources such as knowledge. Recognizing the importance of knowledge can result in a sense of “knowledge is power” (Hobbes, [1651] 1965). When high-performing individuals project their own view of knowledge as a scarce resource onto others, they are more likely to perceive others as being unwilling to share knowledge. In addition, within organizations, there are limited opportunities for advancement. The top performers compete for these promotions. Thus, we expect high-performing employees to perceive others as less willing to share as they are aware they are engaged in a competition.

**Hypothesis 1** High-performing employees are more likely to perceive others as unwilling to share knowledge compared to low-performing employees



## Rivalry in Dyads: High-Performance Dyads and Perceptions of Unwillingness to Share Knowledge

In the previous hypothesis, we suggest that high-performing individuals will generally perceive that others will be less willing to share knowledge with them. We theorize that the relationship is more targeted than just general behavior. The perception of another person being unwilling to share knowledge is activated by rivalry between individuals. Social comparison theory explains why individuals perceive some others as rivals (Festinger, 1954). The key premise of the theory is that individuals are motivated to succeed, which results in a desire for improved performance with respect to the performance of others (Festinger, 1954). This desire to perform better than others results in rivalry and competitive behavior (Johnson, 2012) and the desire to win (Malhotra, 2010). It also has other outcomes, such as lying (Argo et al., 2006) and biased recommendations (Garcia et al., 2010). Garcia and colleagues (2013) state that social comparison and the resultant rivalry between two individuals are partly based upon the individual performance level of two individuals. In an experiment, Dakin and Arrowood (1981) showed that rivalry with regard to shape recognition increased between individuals of similar performance levels.

Our interest is specifically in whether certain individuals see others as rivals and whether this results in the perception of others being unwilling to share knowledge. If social comparison theory is correct, individuals with the same level of performance should see each other as rivals. However, this does not necessarily result in perceptions of others' unwillingness to share knowledge. There is no clear reason for a low-performing person to see a high-performing person as unwilling to share knowledge. The high-performing person is not in competition with the low-performing person and hence has nothing to lose by sharing knowledge with them. Likewise, a high-performing individual is unlikely to perceive a low-performance actor as having useful knowledge. They are also unlikely to see them as being unwilling to share knowledge. A low-performing individual is unlikely to see another low-performing

individual as having useful knowledge. They will not perceive them as being unwilling to share knowledge. The final combination is that of two high-performing individuals who are potentially competing for scarce resources, opportunities, and promotion and see each other as rivals. This rivalry can lead one individual to perceive the other as unwilling to share knowledge. This has obvious practical implications for organizations as knowledge sharing by their highest performers, sometimes referred to as star performers, would likely bring about enhanced problem-solving and innovation (Aguinis & O'Boyle, 2014).

Based on the argument above, we theorize that high-performing employees are likely to see other high-performing employees as rivals. Hence, they are more likely to perceive those individuals as unwilling to share knowledge.

**Hypothesis 2** When both people in a dyad have higher performance levels, they are more likely to report that the other person is unwilling to share knowledge with them

## Co-Located Dyadic Rivalry and Unwillingness to Share Knowledge

We theorize that physical closeness can also influence how individuals will become more competitive. Co-located individuals are more likely to cross paths with each other as part of their daily work lives, and hence they are more likely to know each other (Allen, 1977; Festinger et al., 1950; Reagans, 2011). Propinquity—co-located individuals—increases the awareness of who knows what and increases the likelihood of interacting with an individual. A considerable amount of research indicates that people are more likely to ask for advice from people with whom they are co-located (Cross & Cummings, 2004; Lomi et al., 2014).

We theorize that co-location brings about increased social comparison of others (Festinger, 1954). As noted in Hypothesis 2, it is between two high-performing individuals that perceptions of unwillingness to share knowledge are most likely to occur. High-performers are likely to see

other high-performers in the same location as rivals for resources instead of people in different locations who are competing for a different pool of resources. Organizations are made up of structures created to coordinate tasks throughout the organization (Thompson, 1967). These tasks are allocated to roles that are within units that managers oversee. These managers are allocated resources and perform assessments of staff that result in bonuses and promotions (Bower, 1972). People in the same location are more aware of who their colleagues are and how well they are doing with regard to getting access to a finite amount of resources and rewards. Therefore, the relationship between individuals who are both high-performers and perceptions of others being unwilling to share knowledge will be heightened for co-located individuals. This is particularly problematic for organizations as it is within locations where valuable knowledge is frequently shared (Lomi et al., 2014). In contrast, low-performers in the same location will be less likely to perceive other co-located low-performers as unwilling to share knowledge. In general, low-performers are perceived as less likely to have valuable knowledge. Therefore, we hypothesize the following:

**Hypothesis 3** The high-performer-unwillingness to share knowledge association is higher when the dyad is co-located

## Method

### Data

We surveyed a large multinational corporation's global IT department (200 employees). The IT department contained 11 global functional workgroups. The work of the IT department requires information sharing and decision-making by a variety of individuals both within their workgroups and across workgroups. This IT department was particularly relevant to our focus on rivalry as there was considerable competition between individuals with regard to promotion. We presented the entire roster of IT employees to participants as possible network connections.

We chose to use this roster method of data collection as it has been shown to result in accurate and reliable data (Marsden, 1990, 2005). The response rate of 93% is comparable to other network studies (e.g., Sasovova et al., 2010; Sparrowe et al., 2001). In the final sample ( $N = 185$ ), we analyzed 34,040 dyadic relationships. Employees averaged 15.38 years of service ( $SD = 7.58$ ) and resided across 17 locations. The majority of participants were male (79.5%) and had supervisory responsibilities (56%). Non-respondents did not significantly differ from respondents with respect to gender, hierarchy, or tenure.

## Measures

**Unwillingness to Share Knowledge.** Participants first selected all the individuals they “interact with on a regular basis” from the roster of IT employees. Participants then rated their network connections on the remaining relationship interpreter questions. To assess perceived unwillingness to share knowledge, we asked the participants to rate their network connections on the following question: “If you went to this person for help or advice on work-related matters, to what extent do you think they would be willing to share knowledge or information with you?” Respondents rated all of their contacts on the following scale: 1 = not at all to 5 = great extent. This measure was recoded so that higher values indicate that individuals were perceived as more likely to be unwilling to share information with the respondent (5 = not at all likely to share information to 1 = share a great extent of information) (Mean = 1.76,  $SD = 0.98$ ).

**Performance.** We collected individual performance ratings from the HR department. Each individual was rated annually by their immediate supervisor on knowledge skills and people skills. Each dimension was evaluated on a scale of 1 (low level of performance) to 4 (exceptional performance). The overall score was based on the average of the two ratings. While the performance scores are based upon the subjective views of managers as opposed to being an objective measure, research on performance evaluations by managers indicates that they are relatively valid measures of actual performance (Arvey & Murphy, 1998).

We control for ego's performance (the individual evaluating their dyadic partner about willingness to share knowledge) and the alter's performance (the individual whose willingness to share knowledge is being evaluated). To test our hypotheses, we use the mean-centered product of the performance of both dyad members to account for the level of performance within the dyad.

**Location Matching.** Individuals were spread across 17 locations; most were located in the United States. Based on data provided by the Human Resources Department, we created a dummy variable that indicates if both dyad members reside in the same physical location (56% of dyads were co-located).

**Control Variables.** We control for network and demographic variables that may account for unwillingness to share knowledge. First, we account for the frequency of communication within the dyad; this allows us to separate the effects of performance and co-location from the frequency of interaction (Allen, 1977; Festinger et al., 1950; Reagans, 2011). Our measure of the communication frequency network is based upon the survey question: "How often do you communicate with the following people?" Respondents rated their contacts on the following scale: 1 = rarely, less than every month to 5 = daily. We include the frequency of interaction within the dyad (average tie was rated 2.44,  $SD = 1.25$ ). We also control for triadic closure, as previous studies have found that social cohesion increases knowledge transfer (Reagans & McEvily, 2003). To calculate this measure, we used the communication network as our source network; we dichotomized the network at 1, indicating a communication tie within the dyad. For triadic closure, we used Ucinet (Borgatti et al., 2002) to calculate the tendency for transitivity (if a is connected to b, and b is connected to c, the likelihood that c is connected to a). In addition, we controlled for friendship. Respondents indicated for each individual they know if that individual "is your friend or companion, someone you socialize with during your free time." This was coded as a 1 if the respondent indicated they were friends with that individual or 0 if they were not (16% of ties indicated a friendship relationship was present).

In addition, we control for individual demographics, which could also account for the likelihood of someone seeing another person as being unwilling to share knowledge (Garcia et al., 2013; Goethals & Darley, 1977). We were given access to demographic records of all respondents by the HR division of the organization on gender, hierarchical level, age, and group membership (in addition to the performance records and location records indicated above). We include several measures to account for how demographics could influence the perceptions of unwillingness to share knowledge. First, we include an indicator for whether dyad members are of the same gender (67% of dyads are of the same gender). Second, we control for group membership, including an indicator for dyads belonging to the same workgroup (19% of dyads are in the same functional group). Third, we include a measure of the hierarchical level for both the ego (the individual evaluating their dyadic partner) and the alter (the one being evaluated); higher values indicate a higher level within the organization. We also control for hierarchical level matching as individuals with the same hierarchical level may be more likely to be rivals. Finally, we control for the absolute difference in age within the dyad because social comparison theory (Garcia et al., 2013) suggests that individuals of a similar age are more likely to be competitive (absolute difference Mean = 7.27 years, SD = 6.07).

## Data Analysis

Our data analysis involved observations at the dyadic level, which gave us 34,040 (non-independent) observations ( $N \times [N-1]$ ). The dyadic relationships between members of the IT department are likely to be highly dependent. Therefore, the data do not meet a primary assumption of traditional analysis methods such as ordinary least squares (OLS) regression which requires cases to be independent. Therefore, we use quadratic assignment procedure (QAP) (Krackhardt, 1988). In a QAP analysis, the rows and columns of the dependent variable matrix are randomly permuted while taking into account the dependence structure. This results in a new dependent variable matrix from which regression coefficients can be calculated. This procedure was repeated 10,000 times, each

**Table 1** Descriptive statistics of network variables

	Number of Ties	Density	Average Geodesic Distance	Degree Mean	Degree SD
Communication Frequency	4390	0.13	2.10	2.44	1.25
Friendship	3006	0.09	4.30	0.16	0.37
Unwillingness to Share Knowledge	3159	0.09	2.30	1.76	0.98

$N = 185$ , Number of dyads = 34,040

time using a different random dependent variable matrix. The coefficient values of the independent variables form a distribution. If five percent of the permuted coefficient values are larger than the observed coefficient, it is significant at 0.05 (Kilduff & Tsai, 2003). Specifically, we use multiple-regression quadratic assignment procedure (MRQAP) with the semi-partialing option recommended by Dekker and colleagues (2007) as it is more robust to autocorrelation and collinearity in the data.<sup>1</sup> We used MRQAP for our analysis strategy as we were able to maintain the continuous nature of our dependent variable rather than dichotomizing the variable as would be necessary for alternative modeling strategies such as Exponential Random Graph Models (Robins et al., 2007) or linear probability models (Feiler & Kleinbaum, 2015). MRQAP is also an appropriate method of analysis for our interaction effects. Analysis was conducted using Ucinet software (Borgatti et al., 2002).

## Results

Descriptive statistics of all network variables are presented in Table 1. The correlations and descriptive statistics of all variables are presented in Table 2.

<sup>1</sup> We also estimated our models using Exponential Random Graph Models (or ERGMs) (Robins et al., 2007; Snijders et al., 2006; Wasserman & Pattison, 1996), with results similar in direction and significance. Results of the ERGMs are available from the authors upon request.

**Table 2** Means, standard deviations, and QAP correlations

	Mean	SD	1	2	3	4	5	6	7	8	9	10	
1	Communication Frequency	2.44	1.25	-									
2	Communication Frequency Triads	3.25	4.67	0.42	-								
3	Gender Homophily	0.67	0.40	0.00	-0.01	-							
4	Group Homophily	0.19	0.38	0.33	0.26	0.01	-						
5	Hierarchy Homophily	0.34	0.47	0.06	0.02	0.01	0.08	-					
6	Hierarchical Level	3.46	1.24	0.06	0.17	0.01	0.02	-0.16	-				
7	Age (absolute difference)	7.27	6.07	-0.04	-0.06	-0.02	0.00	0.00	0.00	-			
8	Friendship	0.16	0.37	0.14	0.00	0.08	0.04	0.03	0.01	-0.06	-		
9	Location Homophily	0.56	0.35	0.15	0.21	-0.11	0.13	0.02	-0.09	-0.02	0.00	-	
10	Performance	2.73	0.50	-0.01	0.00	0.01	0.03	0.00	-0.01	0.00	0.03	-0.10	
11	Unwillingness to Share Knowledge	1.76	0.98	-0.10	-0.06	-0.01	-0.02	0.03	-0.05	0.03	-0.12	-0.03	0.12

Number of dyads = 34,040, correlations greater than 0.03 are significant at  $p < 0.05$ , greater than 0.04 are significant at  $p < 0.01$



We estimated four models. The first model in Table 3 includes only the control variables. In Model 2, we add the independent variables for the ego's performance. We also include alter's performance. In Model 3, we test the two-way interaction effect between ego's and alter's performance.<sup>2</sup> In Model 4, we test the three-way interaction between ego's performance, alter's performance, and location.

In Model 1, we find that communication frequency is negatively associated with perceived unwillingness to share knowledge ( $\beta = -0.18$ ,  $p < 0.01$ ): when individuals in a dyad communicate more frequently, the less likely an individual is to perceive their partner as being unwilling to share knowledge with them. Colleagues who are higher in the organizational hierarchy were perceived to be less likely to be unwilling to share knowledge ( $\beta = -0.05$ ,  $p < 0.05$ ). Colleagues viewed as friends were also less likely to be perceived as unwilling to share knowledge ( $\beta = -0.09$ ,  $p < 0.01$ ). All other control variables failed to reach significance.

In Model 2, we add our ego and alter performance variables and find that high-performing individuals were more likely to perceive others as unwilling to share knowledge with them ( $\beta = 0.12$ ,  $p < 0.05$ ). This finding provides support for Hypothesis 1. The control variables maintain their direction and significance. In addition, the performance level of the alter is positive but not significant. In Model 3, we find a positive and marginally significant effect of the product of ego and alters performance ( $\beta = 0.03$ ,  $p < 0.1$ ); therefore, there is marginal support for Hypothesis 2. The higher the level of performance within a dyad, the more the focal individual perceives high-performing partners to be unwilling to share knowledge. The control variables maintain their direction and significance as in Model 1. In Fig. 1, we plot the interaction effect.

Model 4 includes the mean-centered three-way interaction effect of ego's performance, alter's performance, and co-location. We find there is a positive effect for this three-way interaction ( $\beta = 0.13$ ,  $p < 0.01$ ). When high-performing dyads are co-located, high-performers perceive co-located high-performing partners to be even more unwilling to share

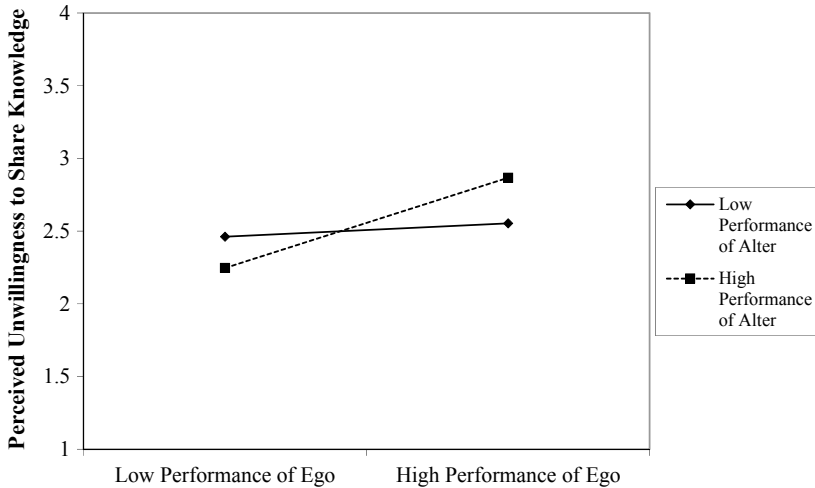
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<sup>2</sup> All terms in the interactions are mean-centered.

**Table 3** QAP regression coefficients predicting unwillingness to share knowledge

	Model 1			Model 2			Model 3			Model 4		
	$\beta$	Std. Err	Sig.	$\beta$	Std. Err	Sig.	$\beta$	Std. Err	Sig.	$\beta$	Std. Err	Sig.
Communication Frequency	-0.18	0.03	**	-0.17	0.03	**	-0.17	0.03	**	-0.17	0.03	**
Communication Triads	-0.02	0.00		-0.02	0.00		-0.02	0.00		-0.01	0.00	
Gender Homophily	-0.02	0.06		-0.01	0.06		-0.01	0.06		-0.01	0.06	
Group Homophily	0.03	0.06		0.01	0.06		0.01	0.06		0.02	0.06	
Hierarchy Homophily	0.01	0.05		0.01	0.05		0.01	0.05		0.01	0.05	
Hierarchical Level Ego	-0.03	0.05		-0.03	0.05		-0.03	0.05		-0.02	0.05	
Hierarchical Level Alter	-0.05	0.02	*	-0.06	0.02	**	-0.06	0.02	*	-0.05	0.02	*
Age (absolute difference)	0.03	0.01		0.02	0.01		0.02	0.00		0.03	0.00	
Friendship	-0.09	0.07	**	-0.09	0.07	**	-0.09	0.07	**	-0.10	0.07	**
Location Matching	-0.01	0.08		0.00	0.09		0.00	0.08		0.00	0.08	
Performance Ego (H1)				0.12	0.08	*	0.10	0.11	*	0.08	0.10	+
Performance Alter				0.01	0.03		-0.01	0.07		-0.02	0.07	
Performance Ego X Performance Alter (H2)							0.03	0.04	+	-0.10	0.04	*
Performance Ego X Performance Alter X Location Matching (H3)										0.13	0.03	**
$R^2$	0.05			0.07			0.09			0.11		
Change in $R^2$				0.02			0.02			0.02		

Number of dyads = 34,040, \*\* $p < 0.01$ , \* $p < 0.05$ , + $p < 0.10$



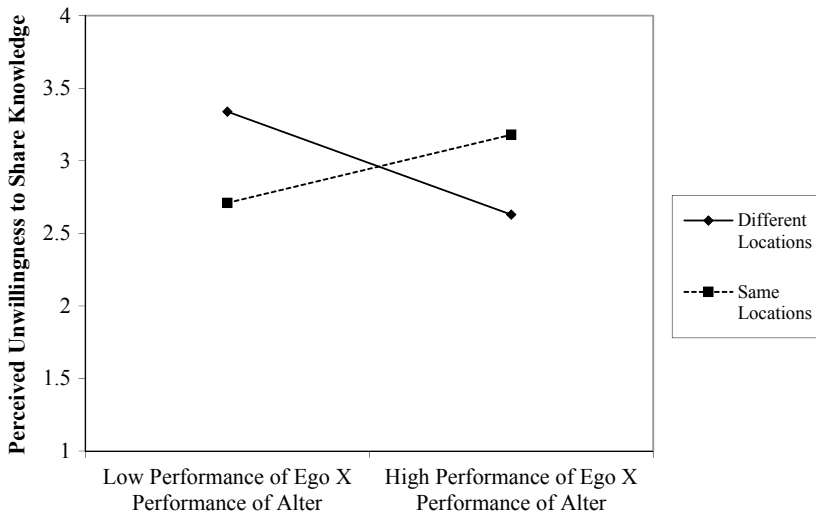
**Fig. 1** Unwillingness to share knowledge predicted by performance of ego and alter

knowledge (see Fig. 2 for a graphical depiction of the interaction effect). This finding supports Hypothesis 3. The controls maintain their significance. This finding suggests that the local effect of direct ties between high-performing individuals plays a role in predicting unwillingness to share knowledge. We review the implications of these findings in the discussion section.

## Discussion

### Theoretical Implications

We add to the literature on rivalry (Kilduff, 2014; Kilduff et al., 2010; To et al., 2018) by highlighting that when individuals compete for scarce resources, it can result in perceptions of others withholding knowledge. Specifically, we show that high-performing individuals are most likely to perceive others as unwilling to share information, especially when they are themselves high-performers and co-located. While scarce resources are important for most employees, high achievers likely understand the



**Fig. 2** Unwillingness to share knowledge predicted by performance of ego and alter by co-location

value of knowledge held by those they see as rivals and view them as the most reluctant to share knowledge.

We also contribute to the literature on knowledge networks (Phelps et al., 2012). This literature has tended to focus on how advice seeking brings about the flow of knowledge within an organization (Lomi et al., 2014). The connections between individuals are often seen as the pipes by which information, new ideas, and knowledge move throughout an organization (Borgatti & Halgin, 2011). An individual's position in the structure of these pipes determines the network advantage that they receive. In this paper, we suggest that it is more than the structure of the pipes that determine where knowledge flows. Individuals compare themselves with those to whom they are connected. This comparison leads to perceptions of whether another employee is more or less likely to share knowledge with them. Ultimately, this perception is likely to influence their own likelihood of sharing knowledge. Our findings highlight that rivalry based upon performance and co-location results in increased perception of others being unwilling to share knowledge. We suggest that individuals control the taps that allow knowledge, information, and ideas

to flow through the pipes that make up organizations' social networks. In some instances, individuals will choose to partially or even fully close these taps, resulting in knowledge flow being impeded or even stopped. This finding has implications for individual, team, and organizational level outcomes.

Research on propinquity—being co-located—has shown that people are more likely to know each other, ask for advice, and share knowledge when co-located (Allen, 1977; Festinger et al., 1950; Reagans, 2011). We add to this research by clarifying that co-location does not always lead to knowledge sharing. Our findings indicate that when individuals are co-located, they are more likely to perceive their colleagues as unwilling to share knowledge. Specifically, when high-performing individuals are co-located, they can see each other as rivals, resulting in a perception that these rivals will be unwilling to share knowledge.

## Limitations

As with all research, ours is not without limitations. First, we only measure our performance and network variables in the IT department of one organization. Replicating our study in different organizational contexts would enhance the generalizability of our findings. Second, we do not explicitly measure rivalry at the dyadic level but infer rivalry based upon the level of performance and being co-located. There is an opportunity to develop a dyadic measure of rivalry that specifically measures rivalry based upon competition for resources, opportunities, and recognition. Third, an individual's willingness to share knowledge may depend on the type of knowledge to be shared. For example, people may perceive others as more willing to share explicit knowledge than tacit knowledge (Nonaka & Takeuchi, 1995). Future research could identify how different kinds of knowledge affect the perceptions of willingness to share.

## Managerial Implications

If individuals perceive others are unwilling to share knowledge, it creates barriers to knowledge sharing and has important consequences for organizations. This is especially important when high-performing employees are unwilling to share knowledge. It is high-performing individuals who are most likely to produce creative ideas if they are collaborating with other high-performing employees. In addition, while star performers are very influential in the success of organizations (Aguinis & O'Boyle, 2014), these star performers do not create success by themselves but through collaboration with others. Individuals also look to star performers for role models and mentorship, and there is a danger that norms of unwillingness to share knowledge could develop.

There are various options for managers when faced with staff who perceive others are unwilling to share knowledge. That high-performers have these perceptions suggests a norm of competition for resources, especially within locations. This norm can be broken by changing HR policies. For example, rewards could be team-based rather than individual-based. Individuals should not get merit raises, and performance evaluations should allow employees who do well to receive the highest evaluation rather than forced distributions into categories (Pfeffer & Sutton, 2000). In addition, there could be a redefinition of work and roles so that individuals have more autonomy which encourages knowledge sharing (Gagné et al., 2019). Furthermore, leaders can develop office norms, including an open-door policy. It is much more likely individuals will perceive co-located others as hiding knowledge if they are hidden away behind closed office doors.

The perceptions regarding unwillingness to share knowledge that we have shed light upon are very much at the dyadic level instead of necessarily throughout the organization. Therefore, how perceptions can be challenged and potentially changed should also be at the dyadic level. In some cases, you can build trust within dyads by having colleagues work more closely on projects. In addition, having high-performing individuals interact through development reviews or 360 feedback could bring about better awareness of the challenges and opportunities that an individual faces. Opportunities to see the behaviors of others can

change inaccurate perceptions and result in giving behaviors that bring long-term reciprocal benefits (Grant, 2013).

Managers can instigate some more general changes to move away from a competitive work environment and create a knowledge sharing culture through recognition and rewards for sharing knowledge. These may include monthly awards, such as monetary rewards or recognition in newsletters, meetings, and conference calls. Building knowledge sharing into annual reviews whereby individuals are evaluated on how they share knowledge is another option. Notably, it is important to use 360 performance evaluations rather than rely on managerial assessment as this will highlight the extent to which an individual shares knowledge with their peers.

## Conclusion

Considerable research has examined the antecedents and benefits of knowledge sharing in organizations, yet there has until recently been little attention on the unwillingness to share knowledge. We theorize and find empirical support that individuals perceive others as unwilling to share knowledge under some conditions—namely, when there is a rivalry between dyads. We focus on how employee performance can result in perceptions of others' unwillingness to share knowledge, especially amongst high-performing employees. We highlight that conditions that have usually been seen as beneficial for knowledge sharing can, under some circumstances, actually amplify the tendency to perceive others as being unwilling to share knowledge. Specifically, we show that when high-performing employees are co-located, perceptions of others' unwillingness to share knowledge are enhanced. Our perspective illustrates that rivalry between high-performing employees negatively affects perceptions of knowledge sharing and could result in a firm losing its competitive advantage.

## References

- Aguinis, H., & O'Boyle, E., Jr. (2014). Star performers in twenty-first century organizations. *Personnel Psychology*, *67*(2), 313–350. <https://doi.org/10.1111/peps.12054>
- Allen, T. J. (1977). *Managing the flow of technology: Technology transfer and the dissemination of technological information within the R&D organization*. MIT Press.
- Argo, J. J., White, K., & Dahl, D. W. (2006). Social comparison theory and deception in the interpersonal exchange of consumption information. *Journal of Consumer Research*, *33*(1), 99–108. <https://doi.org/10.1086/504140>
- Argote, L., & Ingram, P. (2000). Knowledge transfer: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes*, *82*(1), 150–169. <https://doi.org/10.1006/OBHD.2000.2893>
- Arvey, R. D., & Murphy, K. R. (1998). Performance evaluation in work settings. *Annual Review of Psychology*, *49*, 141–168. <https://doi.org/10.1146/annurev.psych.49.1.141>
- Borgatti, S. P., & Cross, R. (2003). A relational view of information seeking and learning in social networks. *Management Science*, *49*(4), 432–445. <https://doi.org/10.1287/mnsc.49.4.432.14428>
- Borgatti, S. P., Everett, M. G., & Freeman, L. C. (2002). Ucinet for windows: Software for social network analysis. *Analytic Technologies*.
- Borgatti, S. P., & Halgin, D. S. (2011). On network theory. *Organization Science*, *22*(5), 1168–1181.
- Bower, J. L. (1972). *Managing the resource allocation process: A study of corporate planning and investment*. Irwin.
- Brown, J. S., & Duguid, P. (2000). *The social life of information*. Harvard Business School Press.
- Brown, G., Lawrence, T. B., & Robinson, S. L. (2005). Territoriality in organizations. *Academy of Management Review*, *30*(3), 577–594. <https://doi.org/10.5465/amr.2005.17293710>
- Burt, R. S. (1992). *Structural holes: The social structure of competition*. Harvard University Press.
- Burt, R. S., Kilduff, M., & Tasselli, S. (2013). Social network analysis: Foundations and frontiers on advantage. *Annual Review of Psychology*, *64*, 527–547. <https://doi.org/10.1146/annurev-psych-113011-143828>
- Černe, M., Nerstad, C. G., Dysvik, A., & Škerlavaj, M. (2014). What goes around comes around: Knowledge hiding, perceived motivational climate,



- and creativity. *Academy of Management Journal*, 57(1), 172–192. <https://doi.org/10.5465/amj.2012.0122>
- Chatterjee, S., Chaudhuri, R., Thrassou, A., & Vrontis, D. (2021). Antecedents and consequences of knowledge hiding: The moderating role of knowledge hiders and knowledge seekers in organizations. *Journal of Business Research*, 128, 303–313. <https://doi.org/10.1016/j.jbusres.2021.02.033>
- Connelly, C. E., Černe, M., Dysvik, A., & Škerlavaj, M. (2019). Understanding knowledge hiding in organizations. *Journal of Organizational Behavior*, 40(7), 779–782. <https://doi.org/10.1002/job.2407>
- Connelly, C. E., & Zweig, D. (2015). How perpetrators and targets construe knowledge hiding in organizations. *European Journal of Work and Organizational Psychology*, 24(3), 479–489. <https://doi.org/10.1080/1359432X.2014.931325>
- Connelly, C. E., Zweig, D., Webster, J., & Trougakos, J. P. (2012). Knowledge hiding in organizations. *Journal of Organizational Behavior*, 33(1), 64–88. <https://doi.org/10.1002/job.737>
- Conner, K. R., & Prahalad, C. K. (1996). A resource-based theory of the firm: Knowledge versus opportunism. *Organization Science*, 7(5), 477–501. <https://doi.org/10.1287/orsc.7.5.477>
- Cross, R., & Cummings, J. N. (2004). Tie and network correlates of individual performance in knowledge-intensive work. *Academy of Management Journal*, 47(6), 928–937. <https://doi.org/10.5465/20159632>
- Dakin, S., & Arrowood, A. J. (1981). The social comparison of ability. *Human Relations*, 34(2), 89–109.
- Davenport, T. H., & Prusak, L. (1998). *Working knowledge: How organizations manage what they know*. Harvard Business School Press.
- Deci, E. L., Betley, G., Kahle, J., Abrams, L., & Porac, J. (1981). When trying to win: Competition and intrinsic motivation. *Personality and Social Psychology Bulletin*, 7(1), 79–83.
- Dekker, D., Krackhardt, D., & Snijders, T. A. (2007). Sensitivity of MRQAP tests to collinearity and autocorrelation conditions. *Psychometrika*, 72(4), 563–581.
- Deutsch, M. (1949). A theory of cooperation and competition. *Human Relations*, 2, 129–151.
- Feiler, D. C., & Kleinbaum, A. M. (2015). Popularity, similarity, and the network extraversion bias. *Psychological Science*, 26(5), 593–603.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7(2), 117–140.

- Festinger, L., Schachter, S., & Back, K. (1950). *Social pressures in informal groups: A study of human factors in housing*. Stanford University Press.
- Fletcher, T. D., Major, D. A., & Davis, D. D. (2008). The interactive relationship of competitive climate and trait competitiveness with workplace attitudes, stress, and performance. *Journal of Organizational Behavior, 29*(7), 899–922.
- Frank, R. H. (1985). *Choosing the right pond: Human behavior and the quest for status*. Oxford University Press.
- Gagné, M., Tian, A. W., Soo, C., Zhang, B., Ho, K. S. B., & Hosszu, K. (2019). Different motivations for knowledge sharing and hiding: The role of motivating work design. *Journal of Organizational Behavior, 40*(7), 783–799.
- Garcia, S. M., Song, H., & Tesser, A. (2010). Tainted recommendations: The social comparison bias. *Organizational Behavior and Human Decision Processes, 113*(2), 97–101.
- Garcia, S. M., Tor, A., & Schiff, T. M. (2013). The psychology of competition: A social comparison perspective. *Perspectives on Psychological Science, 8*(6), 634–650.
- Goethals, G., & Darley, J. (1977). Social comparison theory: An attributional approach. In J. Suls & R. L. Miller (Eds.), *Social comparison processes: Theoretical and empirical perspectives* (pp. 259–278). Hemisphere.
- Grant, A. M. (2013). *Give and take*. Viking.
- Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal, 17*(S2), 109–122.
- Hobbes, T. ([1651] 1965). *The leviathan*. Everyman.
- Johnson, C. (2012). Behavioral responses to threatening social comparisons: From dastardly deeds to rising above. *Social & Personality Psychology Compass, 6*(7), 515–524.
- Kilduff, G. J. (2014). Driven to win: Rivalry, motivation, and performance. *Social Psychological and Personality Science, 5*(8), 944–952.
- Kilduff, G. J., Elfenbein, H. A., & Staw, B. M. (2010). The psychology of rivalry: A relationally-dependent analysis of competition. *Academy of Management Journal, 53*(5), 943–969.
- Kilduff, G. J., Galinsky, A. D., Gallo, E., & Reade, J. J. (2016). Whatever it takes to win: Rivalry increases unethical behavior. *Academy of Management Journal, 59*(5), 1508–1534.
- Kilduff, M., & Tsai, W. (2003). *Social networks and organizations*. Sage.

- Kogut, B., & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science*, 3(3), 383–397.
- Krackhardt, D. (1988). Predicting with networks: Nonparametric multiple regression analysis of dyadic data. *Social Networks*, 10(4), 359–381.
- Lawrence, B. S. (2006). Organizational reference groups: A missing perspective on social context. *Organization Science*, 17(1), 80–100.
- Lin, N. (2002). *Social capital: A theory of social structure and action*. Cambridge University Press.
- Lomi, A., Lusher, D., Pattison, P. E., & Robins, G. (2014). The focused organization of advice relations: A study in boundary crossing. *Organization Science*, 25(2), 438–457.
- Malhotra, D. (2010). The desire to win: The effects of competitive arousal on motivation and behavior. *Organizational Behavior and Human Decision Processes*, 111(2), 139–146.
- Marsden, P. V. (1990). Network data and measurement. *Annual Review of Sociology*, 16, 435–463.
- Marsden, P. V. (2005). Recent developments in network measurement. In P. J. Carrington, J. Scott, & S. Wasserman (Eds.), *Models and methods in social network analysis* (pp. 8–30). Cambridge University Press.
- McDonald, M. L., Khanna, P., & Westphal, J. D. (2008). Getting them to think outside the circle: Corporate governance, CEOs' external advice networks, and firm performance. *Academy of Management Journal*, 51(3), 453–475.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. Oxford University Press.
- Phelps, C., Heidl, R., & Wadhwa, A. (2012). Knowledge, networks, and knowledge networks: A review and research agenda. *Journal of Management*, 38(4), 1115–1166.
- Pfeffer, J., & Sutton, R. I. (2000). *The knowing-doing gap: How smart companies turn knowledge into action*. Harvard Business School Press.
- Podolny, J. M., & Baron, J. N. (1997). Resources and relationships: Social networks and mobility in the workplace. *American Sociological Review*, 62(5), 673–693.
- Reagans, R. (2011). Close encounters: Analyzing how social similarity and propinquity contribute to strong network connections. *Organization Science*, 22(4), 835–849.

- Reagans, R., & McEvily, B. (2003). Network structure and knowledge transfer: The effects of cohesion and range. *Administrative Science Quarterly*, 48(2), 240–267.
- Reeve, J., & Deci, E. L. (1996). Elements of the competitive situation that affect intrinsic motivation. *Personality and Social Psychology Bulletin*, 22(1), 24–33.
- Riege, A. (2005). Three-dozen knowledge-sharing barriers managers must consider. *Journal of Knowledge Management*, 9(3), 18–35.
- Robins, G., Pattison, P., Kalish, Y., & Lusher, D. (2007). An introduction to exponential random graph ( $p^*$ ) models for social networks. *Social Networks*, 29(2), 173–191.
- Sasovova, Z., Mehra, A., Borgatti, S. P., & Schippers, M. C. (2010). Network churn: The effects of self-monitoring personality on brokerage dynamics. *Administrative Science Quarterly*, 55(4), 639–670.
- Serenko, A., & Bontis, N. (2016). Understanding counterproductive knowledge behavior: Antecedents and consequences of intra-organizational knowledge hiding. *Journal of Knowledge Management*, 20, 1199–1224.
- Shrivastava, S., Pazzaglia, F., & Sonpar, K. (2021). The role of nature of knowledge and knowledge creating processes in knowledge hiding: Reframing knowledge hiding. *Journal of Business Research*, 136, 644–651.
- Snijders, T. A., Pattison, P. E., Robins, G. L., & Handcock, M. S. (2006). New specifications for exponential random graph models. *Sociological Methodology*, 36(1), 99–153.
- Sparrowe, R. T., Liden, R. C., Wayne, S. J., & Kraimer, M. L. (2001). Social networks and the performance of individuals and groups. *Academy of Management Journal*, 44(2), 316–325.
- 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.
- Tauer, J. M., & Harackiewicz, J. M. (1999). Winning isn't everything: Competition, achievement orientation, and intrinsic motivation. *Journal of Experimental Social Psychology*, 35(3), 209–238.
- Thompson, J. D. (1967). *Organizations in action: Social science bases of administrative theory*. McGraw-Hill.
- To, C., Kilduff, G. J., Ordoñez, L., & Schweitzer, M. E. (2018). Going for it on fourth down: Rivalry increases risk taking, physiological arousal, and promotion focus. *Academy of Management Journal*, 61(4), 1281–1306.

- To, C., Kilduff, G., & Rosikiewicz, B. (2020). When interpersonal competition helps and when it harms: An integration via challenge and threat. *Academy of Management Annals*, 14(2), 908–934.
- Tortoriello, M., Reagans, R., & McEvily, B. (2012). Bridging the knowledge gap: The influence of strong ties, network cohesion, and network range on the transfer of knowledge between organizational units. *Organization Science*, 23(4), 1024–1039.
- Tsai, W. (2002). Social structure of “copetition” within a multiunit organization: Coordination, competition, and intraorganizational knowledge sharing. *Organization Science*, 13(2), 179–190.
- Wasserman, S., & Pattison, P. (1996). Logit models and logistic regressions for social networks: I. An introduction to Markov graphs and p. *Psychometrika*, 61(3), 401–425.
- Webster, J., Brown, G., Zweig, D., Connelly, C. E., Brodt, S., & Sitkin, S. (2008). Beyond knowledge sharing: Withholding knowledge at work. In J. J. Martocchio (Ed.), *Research in personnel and human resources management* (Vol. 27, pp. 1–37). Emerald Publishing.
- Zhang, Z., & Peterson, S. J. (2011). Advice networks in teams: The role of transformational leadership and members’ core self-evaluations. *Journal of Applied Psychology*, 96(5), 1004–1017.

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# **Friendship and Trust in Organizations**



# Workplace Friendships: Antecedents, Consequences, and New Challenges for Employees and Organizations

Natalie A. David , James A. Coutinho ,  
and Julia Brennecke 

## Introduction

Workplace friendships are a common phenomenon in organizations (Methot et al., 2016; Zarankin & Kunkel, 2019). They occur when work colleagues are friends at the same time. More precisely, a workplace friendship is defined as an informal, voluntary relationship between two coworkers that is based on reciprocal liking and mutual interest in each other as whole persons (Berman et al., 2002; Ingram & Zou, 2008).

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Although studies of friendship in the workplace have a long tradition (e.g., Blau, 1955; Lincoln & Miller, 1979), scholarly and practitioner interest in the topic has increased in recent decades due to two changes in the nature of work. First, tasks have become increasingly interdependent and reliant on teams (O'Neill & Salas, 2018), providing more opportunities for the development of friendships as employees work closely together and strive towards a common objective (Zhang et al., 2021). Second, the lines between employees' work and private lives are more and more blurred (Olson-Buchanan & Boswell, 2006) due to, for instance, prolonged work hours encroaching on private time, social events outside work organized by management, and virtual working. As a result, individuals increasingly develop relationships that match this new reality, most notably friendships within the workplace (Whitman & Mandeville, 2021).

Mirroring the increasing prevalence of workplace friendships in many people's daily lives, a considerable number of studies has investigated the implications of workplace friendships at the individual, group, and organizational level, and many of these studies have highlighted positive outcomes, such as enhanced employee well-being (Zhang et al., 2021) and job satisfaction (Cranmer et al., 2017) or organizational performance (Krackhardt & Stern, 1988). Others, however, have examined potential drawbacks of workplace friendships, pointing, for example, to divergent and potentially conflicting norms ruling work and private relationships (Pillemer & Rothbard, 2018) that increase perceived tensions for employees, eventually leading to emotional exhaustion and lower performance (Methot et al., 2016). These findings on upsides and downsides of workplace friendships underscore the need to further our understanding of this important and complex phenomenon in the contemporary workplace.

In addition to their implications, we must also better understand what shapes workplace friendships to be able to identify levers that organizations can pull to manage them more effectively. Different studies

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have investigated the determinants of workplace friendships, taking into account individual-level factors such as personality, characteristics of pairs of employees such as perceived similarity, as well as organizational factors such as formal organizational structure and the spatial composition of organizations (Klein et al., 2004; Sias et al., 2012a, 2012b).

Apart from implications and antecedents, more recent work investigates *multiplex* workplace friendships, where a friendship tie overlaps with another relationship of a different kind (Methot et al., 2016; Schinoff et al., 2020). For instance, workplace friends are frequently tied to each other through some form of work-focused relationship, such as the exchange of work-related resources needed to execute a task (Umphress et al., 2003), or a competitive relationship where both employees target the same promotion. The fundamental idea underlying the study of these multiplex relationships is that work-focused and friendship ties are not independent but mutually influence each other. Work-focused relationships provide the breeding ground for the formation of friendship, as regular task-related interaction fosters trust, leading to increased closeness between employees (Berman et al., 2002). Conversely, friendship influences the extent to which people seek each other out for work-related input, even trumping performance-related considerations such as perceived competence as a determinant of cooperation (Casciaro & Lobo, 2008). Better understanding this phenomenon of mutual influence between friendship and work-related relationships has important implications for organizations, as it makes clear how affective and instrumental concerns are intertwined in employees' relationships with their coworkers, and explains what forces are at play in employees' interaction patterns at work.

Against the backdrop of the overall practical relevance and research attention dedicated to workplace friendships, the objective of this chapter is threefold. First, we define the phenomenon of workplace friendships and clarify what differentiates friendships from other relationships at work. Second, we provide an overview of the existing literature on workplace friendships, bringing together studies on their antecedents and consequences, and examining multiplex workplace friendships. Third, we engage in a critical discussion of the practical implications of workplace friendships, focusing on recent developments including increases

in virtual work, the growing focus on social inequalities at work, and the critical examination of work-life balance. We provide recommendations for organizations on how they can more effectively manage workplace friendships, reap the benefits arising from them, and avoid their potential drawbacks.

## What Are Workplace Friendships?

Workplace friendships are characterized by four defining features that distinguish them from other relationships at work. First, workplace friendships are informal relationships, in that they are not subjected to predefined role prescriptions as is the case for formal work relationships such as reporting lines (Berman et al., 2002; Pillemer & Rothbard, 2018). They are voluntary, as employees are free to engage in friendship with coworkers whereas they are in general not able to choose with whom they work (Sias et al., 2020; Zhang et al., 2021). Different from other informal, voluntary relationships that employees might maintain with coworkers, such as the exchange of task-related information, workplace friendships are holistic and personalistic in that employees' interest in and concern for their friends goes beyond instrumental considerations and recognizes them as whole persons with all their unique qualities (Sias et al., 2020; Silver, 1990). Finally, workplace friendships are characterized by reciprocal positive affect, as friends like each other, are mutually committed to one another and exchange emotional and other forms of support (Berman et al., 2002; Derfler-Rozin et al., 2021; Zhang et al., 2021).<sup>1</sup>

Many studies investigating workplace friendships have emphasized beneficial aspects for individual employees and their organization. Having friends at work helps employees to fulfill fundamental needs

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<sup>1</sup> Similar but not synonymous concepts to workplace friendships that are used in the literature are affective and expressive workplace relationships, which both take a broader perspective. Affective relationships comprise behaviors, attitudes, and emotions which can be positive (e.g., friendship, liking, perceived enjoyment in the interaction with someone else) or negative (e.g., avoidance, disliking, strain) (Casciaro, 2014; 2020). Expressive relationships are a related concept and are defined as relationships in which individuals express affect towards each other (Umphress et al., 2003). In this chapter, we focus on workplace friendships.

of belongingness and relatedness (Maslow, 1943; Ryan & Deci, 2000) that are essential for employee well-being (Baumeister & Leary, 1995). From an organizational perspective, workplace friendships are the main components of the informal intra-organizational network that acts as a conduit for knowledge flows across the organization, helping to maintain connection across the organizational boundaries between teams or departments (Kilduff & Krackhardt, 1994; Krackhardt & Stern, 1988). They thereby complement formally defined work relationships and help employees get their work done (Krackhardt & Hanson, 1993).

Despite their many upsides, critical views of workplace friendships can also be found in the literature. Taking an ethical perspective, several authors have questioned the extent to which true friendship, without any instrumental ulterior motive, can be part of business environments, as the qualities of this type of friendship are likely to be corroded by the pursuit of work-related goals (Cooley, 2002; Sommers, 1997). In sociology, early works on bureaucracy emphasized that organizations should be impersonal and that friendship should be kept out of the workplace to avoid compromising organizational effectiveness. These works promoted the separation of work and affective concerns as essential for organizational goal attainment and success (Weber, 1968).

Although it has long been established that organizations are not affect-free and that friendship is an inherent part of organizational life which develops naturally from human interactions and collaboration (Casciaro, 2014, 2020; Lincoln & Miller, 1979), more recent literature has emphasized that the tensions and conflicts which might arise from workplace friendships should be better understood (Methot et al., 2016; Pillemer & Rothbard, 2018). These tensions and conflicts accrue mainly from different norms ruling work life and friendships. These divergences are particularly apparent in multiplex workplace friendships where workplace friends also share a work-focused tie, such as the exchange of task-related resources, a competitive relationship, or a formal hierarchical relationship. Indeed, friendship is based on communal norms, meaning that support is given to a friend based on need instead of

based on the previous receipt of support. This is opposed to the principle of exchange based on reciprocity (Clark & Mills, 1979), which is the prevalent norm ruling instrumental relationships in organizations (Pillemer & Rothbard, 2018). When workplace friends exchange instrumental resources that they need for their work they are confronted with both norms—those relating to friendships and those relating to instrumental relationships—and might be unsure which one to give priority.

As another illustration, when two workplace friends compete for the same promotion, the perceived conflict can be even more intense and lead to a real dilemma. Friendship requires that each friend wants the other to flourish and succeed (Sommers, 1997). At the same time, both friends pursue their own goal of getting ahead to satisfy their need for self-fulfillment. Giving priority to one of these objectives could mean giving up on the other one.

In sum, workplace friendships force employees to take on different roles with regard to each other, to switch between these roles, and to reconcile conflicting expectations on the appropriate behavior to adopt in different work situations (Pillemer & Rothbard, 2018). Experiencing this tension can lead to deleterious consequences for individuals, calling into question the common assumption that workplace friendships are always positive.

## Antecedents of Workplace Friendships

A significant body of research has focused on the antecedents of workplace friendships, including factors that precipitate friendship between colleagues, and how workplace friendships develop over time. In this section, we review these factors. Key antecedents are summarized in Table 1.

**Table 1** Overview of antecedents of workplace friendships

Antecedent	Example studies
Dyadic antecedents of workplace friendships	
Proximity	Sias and Cahill (1998)
Similarity	Gibbons and Olk (2003), Ibarra (1992) and Sias et al. (2012a, 2012b)
Communication	Ellwardt et al. (2012)
Shared tasks	Sias et al. (2012a, 2012b), Sias et al. (2020) and Yakubovich and Burg (2019)
Individual network position	
Personality	Bhardwaj et al. (2016), Klein et al. (2004) and Sasovova et al. (2010)
Race	Ibarra (1995), Lincoln and Miller (1979), Leonard et al. (2008) and Mehra et al. (1998)
Sex	Ibarra (1992) Lincoln and Miller (1979) and Mehra et al. (1998)
Contextual influences on workplace friendships	
Group/team	Balkundi et al. (2007) and Schulte et al. (2012)
Organization	Mao et al. (2009)
Culture/wider context	Jo et al. (2021) and Morris et al. (2008)
Multiplex workplace friendships	
Development	Ibarra (1993), Porter and Woo (2015) and Schinoff et al. (2020)
Structure	Lazega and Pattison (1999) and Rank et al. (2010)
Virtuality	Casciaro and Lobo (2008) and Schinoff et al. (2020)

## The Development of Workplace Friendships

Organizational scholars have seen friendship development as taking place in stages, including relationship initiation, development, and maintenance, with different factors affecting friendships at each stage (Sias & Cahill, 1998; Sias et al., 2012a, 2012b). For example, Sias and Cahill (1998) found that friendships with organizational peers experienced three primary transitions. The first transition was from coworker to friend and was influenced by working together in physical proximity, having things in common and socializing outside of work. The second transition, from friend to close friend, was precipitated by sharing support and assistance regarding work and personal problems and was associated with more frequency, intimate, and personal communication. Finally, the transition from a close friend to an almost-best friend was occasioned by increasing intimacy and support around work and personal problems, and further extra-organizational socializing. Other work has looked at how people maintain their workplace friendships. Sias et al. (2012a, 2012b) identify the tactics employees use to maintain peer friendships in 'escalating' situations (when an individual feels a friendship is becoming too close) and 'deteriorating' situations (when an individual feels a peer is withdrawing from a friendship). Some tactics are perceived as politer and more face-saving for the coworker than others, and perceived politeness is a strong predictor of tactic use in both escalating and deteriorating situations. Further, both individual attachment styles and sharing common tasks with the coworker predict tactic use.

## Dyadic Antecedents of Workplace Friendships

Dyadic factors refer to the characteristics of a pair of employees and how these characteristics impact relationships between them. Several key dyadic factors have been shown to precipitate friendship. First, physical proximity. In general, individuals who spend more time in physical proximity to one another are more likely to develop a relationship (Kadushin, 2012) and the same is true for workplace friendships (Sias & Cahill, 1998).

Second, similarity in demographic characteristics. Homophily is the tendency for individuals who share similar characteristics to form relationships with one another (McPherson et al., 2001). Two of the most studied characteristics are sex and race. Lincoln and Miller (1979) examined the effect of different shared traits on network proximity (measured as path distance, or the number of network links) between employees in three organizations. They found that similarity in authority and education influences friendship and work-focused ties equally, while sex and race similarity are more likely to influence proximity in the friendship network. Gibbons and Olk (2003) found that shared ethnicity was a strong predictor of friendship development between individuals and of the attainment of similar structural position in friendship networks. Similarly, Mollica et al. (2003) showed that newcomers to organizations are more likely to make friends with others from their own racial group, and this effect is stronger for those who identify more strongly with their race. Ibarra (1992) found that while men tended to choose other men as network partners across friendship networks, other forms of expressive networks, and instrumental networks, women tended to be more homophilous in their friendship and expressive choices while they were more heterophilous in their instrumental ties. Mehra et al. (1998) found that women and racial minorities are more likely to have friends within their own groups and that for racial minorities this was due to both exclusionary pressures and choice, while for women it was due solely to exclusionary pressures.

Beyond similar demographic characteristics, similarity in attitudes, values, and interests influences friendship initiation (Sias et al., 2012a, 2012b). An individual's attitude towards a coworker is related to friendship initiation, including whether they like the co-worker, are attracted to them and think they have a good personality (ibid.).

Another precursor to friendship is communication. In a longitudinal study, Ellwardt et al. (2012) found that gossip between two employees increases the likelihood of their future friendship formation, but that friendship does not increase the likelihood of gossip. They also found that individuals with disproportionately high gossip activity have fewer workplace friends.

Finally, shared tasks (known as task interdependence) are important to the creation of friendship ties, especially in virtual contexts (Schinoff et al., 2020; Sias et al., 2012a, 2012b; Yakubovich & Burg, 2019). Sias et al. (2020) found that shared tasks result in communication and trust, and thereby influence friendship initiation and closeness. They also found that friends were less subject to negative effects of dependence asymmetry (where one coworker is more dependent on the other) on trust than non-friends.

## **Antecedents of Individuals' Position in Workplace Friendship Networks**

Another significant body of research focuses on the characteristics of employees that are associated with the attainment of (usually advantageous) positions in workplace friendship networks. Researchers have examined personality traits, such as self-monitoring. High self-monitors are people who adapt their self-presentation depending on the social setting. They are more likely to attract friends over time and attain advantageous positions bridging otherwise unconnected groups, and their ties are more likely to be to relative strangers (Sasovova et al., 2010). However, while high self-monitors have been shown to be more central in early-stage close friendships and socializing networks, these popularity advantages decline over time as relationships are dissolved, perhaps because people are put off by high self-monitors' inconsistent self-presentation (Bhardwaj et al., 2016).

As well as being precursors to friendship development between employees, race, and sex are important predictors of individual status attainment in workplace friendship networks. Lincoln and Miller (1979) found that high-status people occupy more central network positions. Four attributes were found to be status determinants: sex, race, education, and formal authority. White males with high education in formal positions of authority have high probabilities of occupying the most central positions in organizational networks. Ibarra (1992) found that women were less able to convert human capital into advantageous network positions, providing evidence for systematic barriers preventing



women from obtaining power. Barriers to racial minorities attaining advantageous network positions appear to go beyond their preferences for same-race friendships and barriers within the organization to include differences in social status and numeric representation in society at large (Leonard et al., 2008).

## Contextual Influences on Workplace Friendships

Contextual influences on workplace friendships include formal aspects of the organization or relatively fixed aspects of the work context over which employees have little influence, but which shape their interpersonal relationships. They include group/team factors, organizational factors, and cultural/wider contextual factors.

### Group/Team Factors

Belonging to the same organizational group is associated with friendship tie formation. In a field experiment, Yakubovich and Burg (2019) followed pairs of managers formally assigned to temporary project teams. They found that being assigned to the same team influences informal (friendship and work-focused) tie creation and persistence, that pre-existing tie strength has a positive effect on informal tie persistence, and that the effect of team co-assignment on tie persistence is weaker for pre-existing strong ties. Team composition, or how the team is constituted in terms of the attributes of its members, is also important to friendship formation. Balkundi et al. (2007) found that teams with age-diverse memberships have fewer structural holes in friendship networks (i.e., are less fragmented) than less age-diverse teams. They speculate that age diversity is associated with more intergenerational mentorship and less rivalry. Finally, team climate, which refers to team members' shared perceptions of organizational policies, practices, and procedures (Anderson & West, 1998), has been linked to friendship. Psychological safety climate, or the shared perception that the team is safe for interpersonal risk-taking, is associated with more friendship among team members (Schulte et al., 2012).

## Organization Factors

The structure and prevalence of workplace friendships differs across different organizations, suggesting that organizational context plays a role in structuring friendships (Lincoln & Miller, 1979; Mao et al., 2009; Stackman & Pinder, 1999). For example, in a comparative study across industries, Mao et al. (2009) found that employees in more bureaucratic industries have fewer workplace friendships. They propose that the hierarchy, rigid procedures, and impersonality of bureaucracy encourage the dissociation of work from personal life and discourage workplace friendship. However, to date, there is little work examining in detail how organization type shapes friendship, or the role friendship plays in different kinds of organization.

## Cultural and Wider Contextual Factors

National culture appears to be an important factor in shaping workplace friendships. Morris et al. (2008) argue that culture is reflected by the relationship patterns in which people are embedded. Basic relational models differ across cultures and spill over into the workplace, acting as templates for workplace relationships. For example, they find that Americans have market transactions as a salient template, and consequently their friendship and work-focused ties are less likely to overlap. Spanish culture, in contrast, is characterized by codes of honor, reflected in a higher ratio of friendships to required work ties, and longer-lasting friendships.

Researchers have recently been interested in the impact of COVID-19 on employees and organizations. Jo et al. (2021) found that friendships were less likely to be maintained following the onset of the COVID-19 pandemic, despite their role in providing emotional support. This effect was lessened for individuals who believed that others would be receptive to emotional support requests, and these beliefs were particularly beneficial for sustaining cross-race friendships.

## Antecedents of Multiplex Workplace Friendships

A small and quite recent body of work has examined the interplay of friendship and work-focused ties—or multiplex workplace friendships.

### The Development of Multiplex Workplace Friendships

Ibarra's early theoretical work examined multiplex relationship development among women and minorities (Ibarra, 1993). She proposed that formal organizational context and interaction dynamics constrain network choices for women and minorities, leading to differences in personal network structure compared with white male counterparts. Primarily, women and minorities will have fewer strong and multiplex ties because they are structurally constrained to have a preponderance of cross-sex and cross-race relationships. Porter and Woo (2015) develop a theoretical framework focused on strategic networking behavior as a driver of relationship development. They argue that early on work relationships are driven by instrumental considerations, but as relationships mature and trust develops they progress to a 'maintenance stage' where exchange is more 'social'—i.e., involving less expectation of immediate reciprocity and the exchange of more particularistic (i.e., friendship-related) resources. Overall, there is limited research on how multiplex workplace friendships develop and are managed over time, and much of this work is theoretical rather than empirical.

### The Structure of Multiplex Workplace Friendships

A small body of research has examined the structural features of overlapping work-focused and friendship networks and the implications of multiplex structure for organizations. This work argues that friendship eases cooperation in organizations by enabling *social* exchange, characterized by the voluntary exchange of a broad range of resources without the need for immediate reciprocity, as opposed to *economic* or *quid pro quo* exchange (Lazega & Pattison, 1999; Rank et al., 2010). This special role of friendship helps to account for its complex overlapping structure

with work-focused networks. Since workplaces are characterized by status competition and free-riding risks, employees tend not to provide instrumental resources to colleagues without reciprocation (Lazega & Pattison, 1999; Rank et al., 2010). However, in their study of a law firm, Lazega and Pattison (1999) found that advice and friendship ties are often reciprocal, meaning that one person will nominate another as an advisor who in turn nominates them as a friend. Thus, friendship appears to be associated with non-instrumental resources that can be exchanged reciprocally for instrumental ones. In terms of more complex triadic structures, they find that employees who provide advice to a common third party also tend to be friends, implying friendship offsets status competition created by giving advice to a common subordinate. Similarly, Rank et al. (2010) find that friendship lessens the need for direct reciprocity in instrumental resource transfer and that indirect reciprocation is facilitated by local hierarchical triads. They also find that friendship ties exert more structuring effects on cooperative relationships than the formal organization. In sum, friendship inhibits the potentially negative consequences of workplace competition and to an extent supplements the formal organization as a governance mechanism by enabling social exchange among employees.

### **Virtuality and Multiplex Friendships**

Virtuality is one aspect of work which has been well-explored with respect to multiplexity. Since virtual interactions are more likely to be work-related, work-focused relationships seem to be more important as pre-cursors to friendship in virtual contexts than in face-to-face contexts (Schinoff et al., 2020; Sias et al., 2012a, 2012b). Virtuality is negatively related to the importance of personality to friendship initiation, as people are less able to learn about and become personally familiar with one another early in a relationship; and positively related to the importance of shared tasks (Sias et al., 2012a, 2012b). Furthermore, in virtual contexts friendships may be predicated on perceptions of competence (Schinoff et al., 2020), whereas in face-to-face environments employees seem to prefer to work with people they like, and will seek out resources from

less-competent colleagues who they like rather than more-competent colleagues who they do not (Casciaro & Lobo, 2008). Work-focused relationships have often been seen as undermining workplace friendships, but Schinoff et al. (2020) find that in a virtual context, friendship and work-focused relationships are deeply intertwined and instrumentality is a facilitator, rather than a stressor, of friendship. Overall, research on multiplex friendships in virtual contexts suggests that much work is to be done on contingencies in both the antecedents and consequences of such relationships.

### **Future Research Directions on the Antecedents of Workplace Friendships**

Taking stock of these findings on the antecedents of workplace friendships at different levels, we identify several gaps which require further research. Firstly, there are few longitudinal empirical studies on the evolution of friendship networks, the interdependence between friendship and work-focused relationships, or what factors shape multiplex friendships over time. Secondly, the antecedents and structure of friendships should be studied more extensively in different contexts, including different cultural contexts (e.g., high vs. low power-distance cultures) and different types of organizations (e.g., more- or less-formally structured organizations, different kinds of work). This is particularly important as the globalized nature of contemporary work means that organizations often work across multiple countries, and employees manage relationships with colleagues from diverse backgrounds. Thirdly, more work should be done on formal interventions and workplace friendships—in other words, how can organizations intervene using policies, practices, and formal structures to shape workplace friendship among employees and deliver positive organizational outcomes?

## Consequences of Workplace Friendships

A broad range of studies has investigated the consequences of workplace friendships for a variety of outcomes across levels and settings. The following sections provide an overview of this research, discussing outcomes at the individual level, dyad, and group level, as well as organizational level. In a separate subsection, we synthesize those studies that investigate the consequences of multiplex workplace friendships. Table 2 summarizes the main outcome categories across levels.

### Individual-Level Consequences

#### Perceptions and Attitudes

Several studies investigate the influence of workplace friendships on employee satisfaction, mostly job satisfaction or life satisfaction. While some studies fail to establish significant relationships (e.g., Colbert et al., 2016; Haggard et al., 2011), others show that employees with more workplace friends are more satisfied with their jobs (Craig & Kuykendall, 2019; Cranmer et al., 2017; Winstead et al., 1995). Rai and Agarwal (2018) provide evidence that the negative effect of workplace bullying on job satisfaction is weakened if employees have workplace friends. Beyond satisfaction, Zhang et al.'s (2021) study of Chinese employees demonstrates that workplace friendships have a well-being-enhancing effect.

Workplace friendships also act as important sources of information that employees use to make judgements about their work, thus influencing their perceptions of their work environment. For instance, having friends at work has been linked to positive perceptions of support received from coworkers (Lobel et al., 1994) and the perceived quality of relationships between individuals and members of their team (Tse et al., 2008). Labianca et al. (1998) demonstrate that individuals whose friends have friends in other groups perceive less inter-group conflict. In a conceptual study, Pillemer and Rothbard (2018) examine the dark sides of workplace friendships and propose that friendships lead to perceived inter-role conflict between formal and informal roles.

**Table 2** Overview of consequences of workplace friendships

Outcome	Example studies
Individual level	
Perceptions and attitudes	
Satisfaction	Colbert et al. (2016), Crammer et al. (2017), Rai and Agarwal (2018) and Winstead et al. (1995)
Well-being	Zhang et al. (2021) and Craig and Kuykendall (2019)
Perception of the work environment	Labianca et al. (1998), Lobel et al. (1994) and Tse et al. (2008)
Others	Bondonio (1998), Dabos and Rousseau (2013) and Ho et al. (2006)
Performance	Liu et al. (2013), Lobel et al. (1994), Sias et al. (2004) and Shah et al. (2017)
Behavior	D'Cruz and Noronha (2011), Guo et al. (2022), Lee and Duffy (2018) and Vardaman et al. (2015)
Dyad and group level	
Relationship characteristics	Chua et al. (2008, 2009) and Grosser et al. (2010)
Similarity between friends	Gibbons (2004), Ho and Levesque (2005) and Ibarra and Andrews (1993)
Others	Mehra et al. (2006), Ren et al. (2015) and Pillemer and Rothbard (2018)
Organization level	
Performance	Krackhardt and Stern (1988) and Vissa and Chacar (2009)
Others	Keller et al. (2020), Krackhardt (1992) and Pillemer and Rothbard (2018)
Multiplex workplace friendships	
Performance	Hood et al. (2017), Shah et al. (2017) and Song et al. (2020)
Others	Bridge and Baxter (1992), Grosser et al. (2010) and Methot et al. (2016)

## Performance

Across settings and using both quantitative (e.g., Gómez-Solórzano et al., 2019; Shah et al., 2017) and qualitative (Lobel et al., 1994) research designs, scholars have found a positive influence of employees having workplace friendships on their job performance. Adding nuance to this research, Sias et al. (2004) conducted interviews to look into the consequences of workplace friendship deterioration. Their interviewees reported negative performance as a consequence of losing a friend at work.

## Behavior

Workplace friendships have also been shown to influence employee behavior, mostly in beneficial ways. For instance, employees with workplace friends are less likely to leave the organization (Sias et al., 2004; Vardaman et al., 2015). Besides turnover, workplace friendships benefit a number of positive behaviors at work such as informal leadership (Guo et al., 2022) and speaking up with positive ideas and suggestions (Venkataramani et al., 2016). Using data collected from call center agents in India, D’Cruz and Noronha (2011) describe behaviors that individuals exhibit in reaction to friends at work being bullied. For instance, they try to make sense of the situation jointly with their bullied friends, provide support, or may approach the bullies or HR managers. Lee and Duffy (2018) show that employees who envy particular coworkers are more likely to seek them out for observational learning and advice when they are also friends. Thus, friendship helps counter negative workplace phenomena such as envy or bullying.

## Dyadic and Group-Level Consequences

Several studies explore how workplace friendships influence the quality and characteristics of coworkers’ relationships. Chua et al. (2008) show that friendship ties are positively associated with affect-based trust but not related to cognition-based trust. Moreover, testing differences



between U.S. American and Chinese managers, they provide evidence that friendship ties are more positively related to affect-based trust for U.S. managers than for Chinese managers (Chua et al., 2009), thus shedding light on the importance of attending to cultural differences when studying the consequences of workplace friendships. Given that interpersonal trust has important consequences for organizations (e.g., Dirks & de Jong, 2022), the studies by Chua and colleagues suggest the need to attend to the way friendship impacts trust in different organizational settings.

Research investigating whether workplace friendships give rise to similarity between friends gives mixed findings for contagion of attitudes and values via friendship networks. On the one hand, studies show that workplace friends have similar professional values (Gibbons, 2004) and similar perceptions of organizational features, such as flexibility and conflict (Ho & Levesque, 2005; Ibarra & Andrews, 1993). On the other hand, Ho and Levesque (2005) show that employees' perceptions related to pay and project flexibility differ from their friends' perceptions when employees see these friends as potential work substitutes. Zagenczyk et al. (2015) find that close friends working for the same supervisor have dissimilar leader-member-exchange perceptions. They explain this finding by pointing to a mechanism whereby individuals compare themselves to similar others and evaluate the treatment received by their supervisor as less favorable relative to their coworker friend.

Research also shows that individuals' workplace friendships have broader implications for their groups. For instance, Mehra et al. (2006) find that leader centrality in a friendship network of peer group leaders is positively related to group performance. Leader centrality in the group's friendship network and the density of the group's friendship network are positively related to customer loyalty but not sales performance. Ren et al. (2015) provide evidence that friendship ties that bridge subgroups created by faultlines within a group mitigate the negative effect of faultlines on team performance.

## Organization-Level Consequences

Only few studies investigate the bottom-up influence of workplace friendships on outcomes at the organizational level. Linking workplace friendships to organizational performance, Krackhardt and Stern (1988) use experimental evidence to show that organizations with many friendships across subunits performed better than organizations in which most friendships are within the subunits. Vissa and Chacar (2009) show that the extent of friendship among members of entrepreneurial teams reinforces the influence of the teams' external advice networks on their ventures' performance.

In early research on workplace friendships, Krackhardt (1992) provides a detailed illustration of how employees' central position in a friendship network and their understanding of the overall friendship network within the organization related to their influence over a unionization campaign. Finally, shedding light on the downsides of workplace friendships for organizations, Pillemer and Rothbard (2018) reason that workplace friendships may also inhibit knowledge sharing across the broader organization because of the formation of cliques that have fewer interactions with non-clique members.

## Consequences of Multiplex Workplace Friendships

Many scholars have investigated the consequences of multiplex workplace friendships, accounting for the overlap of friendship ties with other (positive and negative) relationships that are common in organizations. Several of these studies focus on performance as an outcome. While Methot et al. (2016) find that the overlap of assistance-seeking and friendship relationships is positively related to individual performance, Shah et al. (2017) find an inverted U-shaped relationship between multiplex relationships consisting of advice and friendship ties and employee performance, such that performance increases with a rising number of multiplex workplace friendships up to a certain point from where it starts to decrease. They explain this finding with costs associated with additional multiplex relationships (such as the consumption of time

and cognitive resources) exceeding additional marginal benefits. Gómez-Solórzano et al. (2019) demonstrate that being involved simultaneously in non-overlapping knowledge-sharing and friendship cliques is negatively related to individuals' innovative performance, presumably putting too much strain on individuals' time and attention. This suggests that overlapping friendship and knowledge-sharing relationships could be more efficient to maintain for employees.

Examining group-level performance, Song et al. (2020) provide evidence that denser multiplex networks consisting of leadership and friendship relations are positively related to management team cohesion, leading to better business unit performance. Hood et al. (2017) investigated the multiplex overlap of friendships among team members and two types of intrateam conflict (i.e., task- and relationship conflict) for team performance. They find that relationship conflict among team members who are friends negatively influences team performance, while the interplay between task conflict and friendship within a group is unrelated to team performance. Clarke et al. (2022) find that team leader multiplex centrality in advice and friendship networks was a better predictor of a team performance improvement than centrality in either the friendship or the advice network alone.

Apart from performance, research has linked multiplex workplace friendships to other types of outcomes such as exhaustion, positive affect, coworker emotional support, coworker trust, felt obligation towards coworkers, and maintenance difficulty (Methot et al., 2016), as well as transmission of positive and negative gossip (Grosser et al., 2010), and the experience of tension (Bridge & Baxter, 1992).

## **Future Research Directions on the Consequences of Workplace Friendships**

The above summary makes clear that the findings of research on the consequences of workplace friendships are not always consistent. This may be due to the varying ways in which scholars have defined and measured friendship. Further, cultural or institutional differences that impact workplace friendship may play a role. Scholars should investigate

how such differences influence the effects of friendship ties on work-related outcomes. The study by Chua et al. (2009) is a notable start to build upon.

By and large, the above-summarized research emphasizes the benefits of workplace friendships. Given the tensions inherent in friendships among coworkers, we call for future research on potential undesirable consequences of workplace friendships, such as distraction or the formation of cliques and exclusion of non-clique members from knowledge transfers. Finally, while there is some qualitative evidence of the consequences of losing friends at work (Sias et al., 2004), we see significant potential to extend this stream of research. Losing friends could affect individual well-being or job performance, or work group cohesion. The same could be true for new friends being added to a work group. Given that individuals frequently move roles within an organization or to a different organization, exploring the consequences of friendship network change is of high relevance to the modern organization.

## **Practical Implications of Workplace Friendships**

Thus far, we have synthesized findings on the antecedents, structure, and consequences of workplace friendships to provide an overview of the organizational importance of these relationships. In this section, we explore the practical implications of these findings for organizations and managers. We first briefly summarize the implications that have been suggested by the studies that we have reviewed. Moving beyond this, we direct our attention to three prominent issues related to recent developments in work and society at large: (i) the rise in virtual work, which accelerated due to the COVID-19 pandemic, and its impact on workplace friendship, (ii) a raised awareness of social and organizational inequalities faced by minority groups, and how these inequalities may be exacerbated by workplace friendships, and (iii) an increasing desire by (especially younger) employees for an improved work-life balance and

a clearer separation between work and private life that questions the encouragement of workplace friendships by management. We discuss each of these in turn.

## Practical Recommendations as Discussed in the Literature

Many of the reviewed studies have suggested ways organizations can encourage friendship development among employees. These studies tend to adopt the perspective that more workplace friendships are good for employees and organizations. Given the fact that an important antecedent for friendship formation is physical proximity between employees (Sias & Cahill, 1998), there have been recommendations on the spatial organization of workplaces, such as open office designs where employees who work together also sit close to one another to encourage interactions (Sailer & McCulloh, 2012), as well as spaces that favor spontaneous encounters and communication between employees from different parts of the organization, such as water coolers or photocopier rooms (Fayard & Weeks, 2007).

Scholars have also highlighted the importance of structuring tasks and work teams to increase opportunities for friendship development through task interdependence and interactions (Sias et al., 2020; Yakubovich & Burg, 2019). Also, the use of human resource management instruments, such as high commitment work systems, has been emphasized as a catalyst for friendship development among employees. By valuing employee participation, internal promotion, job security, team rewards, and shared goals, such work systems help create a common identity and interdependence among employees (Zhang et al., 2021). They encourage employees to build close work relationships based on high-quality exchange to attain their shared goals, and thereby create favorable conditions for the building of friendships. Finally, an organizational culture that values open communication, collaboration, and mutual helping has been highlighted as an essential determinant of the development of workplace friendships (Berman et al., 2002; Tse et al., 2008). Besides these recommendations linked to the work context,

several authors have stressed the importance of informal socializing outside work—such as picnics, BBQs, or sports activities arranged by managers—as opportunities for employees to get to know each other beyond their work roles, and thereby to facilitate friendship development (Berman et al., 2002; Tse & Dasborough, 2008; Tse et al., 2008). Prominent exponents of these efforts are Google, Amazon, or Lego, which provide sports and activity centers, garden areas, or cozy kitchens for their staff at their headquarters. These measures are intended not only to favor informal exchange among coworkers to enhance creativity and performance but also to help employees to get to know each other better and to build a sense of community, belonging, and, ultimately, friendship.

Studies that emphasize the potential for tensions and conflicts inherent in workplace friendships have provided practical recommendations on how managers can minimize the emergence and impact of such tensions. Berman et al. (2002) stress that workplace friends should clarify their roles when interacting in the work context (e.g., “I am now speaking to you as a manager/friend”, p. 220) and for organizations to provide training for managers on how to build relationships of trust and friendship with subordinates while raising their awareness on potential conflicts of interest.

Overall, we observe that studies have too often assumed that more workplace friendship is necessarily beneficial for organizations and have made practical recommendations accordingly. In line with our recommendations that research should take a more nuanced view on the contingent outcomes of workplace friendships, we suggest that organizations should pay more heed to negative and unintended consequences of workplace friendships and how to manage them.

## **Workplace Friendships in a Virtual World**

In recent years, there has been a large increase in virtual work in organizations across the globe (Jo et al., 2021; Schinoff et al., 2020). More employees work from home more days per week. This evolution has been accelerated by the COVID-19 pandemic and employees’ massive

shift to home-working. While virtual work provides more flexibility for employees and benefits for organizations, it also amplifies challenges with regard to the building and maintaining of workplace friendships that have been identified by previous literature on virtual working (e.g., Jo et al., 2021; Kurland & Cooper, 2002). First, the lack of physical proximity between home-working employees reduces opportunities for spontaneous interaction and serendipitous encounters as compared to co-located office work (Sias & Cahill, 1998). As a result, employees are less likely to build friendship ties with their coworkers, and virtual and hybrid employees' workplace friendships tend to more closely align with their work-focused relationships (Schinoff et al., 2020; Sias et al., 2012a, 2012b). Computer-mediated instead of face-to-face communication poses other challenges for relationship building and maintenance. Communication via electronic media conveys fewer social cues and less intimacy than face-to-face communication and thereby discourages self-disclosure and trust-building which are essential building blocks of friendship (Sias et al., 2012a, 2012b; Zarankin & Kunkel, 2019). If some employees in a team work from home and others work at the office, there is a risk of decreased team cohesion, as home workers may be the subject of negative gossip and decreased trust from their coworkers (Kurland & Cooper, 2002) and tend to feel professionally isolated (Bartel et al., 2012; Cooper & Kurland, 2002). Managers have an important role to play in overcoming these challenges, and creating trust and cohesion in teams where either some or all of the members work from home. To do so, they should improve conditions for friendship building and maintenance for their employees in both virtual and face-to-face settings.

To help home workers build connections to their coworkers, managers can recreate informal gatherings in virtual settings to compensate for the lack of physical proximity and its opportunities for spontaneous exchange. Regular times for informal chats between colleagues during the work week, such as the Friday afternoon drink with coworkers online, can help overcome distance and build team cohesion. Given the importance of friendships and informal socializing ties that cross organizational boundaries for enabling flexibility and innovation (Krackhardt & Stern, 1988), these team encounters could be complemented with larger gatherings that include employees from other units to provide opportunities for

home workers to build connections beyond their own units. Simultaneously, it is crucial to make employees work on shared tasks and common projects to encourage interactions between them (Yakubovich & Burg, 2019), especially where some team members work from home and others work on-site (Sias et al., 2012a, 2012b).

Furthermore, organizations could exploit the possibilities offered by developments in telecommunication technologies to help improve employees' interaction experience and recreate a face-to-face feeling as much as possible. 3D video conferencing tools and hologram technology, for example, enable participants to be seen in high-quality 3D view. They aim to convey more social cues as compared to traditional video-conferencing tools, for participants to experience colleagues as almost physically present, and to thereby improve the quality of communication and understanding among coworkers who are geographically dispersed. Metaverse technologies based on augmented and virtual reality claim that they go even further in that they enable people to meet in a common universe, thereby coming very close to the experience of a face-to-face meeting. However, as these technologies are just emerging in the organizational context, research on their effectiveness to improve communication quality and recreate a feeling of physical proximity among employees is lacking. Whether they will ultimately deliver on their promise and benefit workplace friendships remains to be seen.

Despite the potential of promising new technologies, face-to-face, in-person interactions should still be organized regularly as they are the best way for employees to reconnect with each other, helping them to maintain workplace friendship ties and build new relationships with coworkers (Sias et al., 2012a, 2012b). The scheduling of co-located work days for teams composed of remote workers is an opportunity for employees to meet each other face-to-face on a regular basis and strengthen their otherwise mainly virtual relationships (Gajendran & Harrison, 2007). However, this arrangement primarily helps employees to sustain their pre-existing friendship ties with coworkers from their own team which, as we know, tend to overlap more strongly with work-focused ties. Organizations could therefore arrange regular events that bring together employees from different parts of the organization, such as large-scale seminars and off-site trainings, to provide opportunities



for employees, and especially virtual workers, to build ties to coworkers beyond their daily work interactions. Given that friendship is built over time through repeated interactions (Sias & Cahill, 1998), organizations should consider ways to facilitate follow-up interactions among employees, as one-off events may not lead to lasting relationships.

## Workplace Friendships and Inequality

Another contemporary challenge faced by organizations, and which has relevance for workplace friendships, is inequality among employees with regard to their access to social capital at work. In particular, women and ethnic minorities are disadvantaged as compared to white males with regard to opportunities for building and maintaining the kinds of friendships and friendship networks that lead to advantageous outcomes (Ibarra, 1992, 1995). Although this is not a new phenomenon, it has recently been resurfaced and brought to greater public attention by broader social movements including Me Too and Black Lives Matter, which highlight persistent social inequalities and discrimination faced by women and minorities in society in general and in organizations. Individuals' tendency towards homophily, i.e., their preference to become friends with similar others (McPherson et al., 2001), penalizes minority groups in organizations, as shown by a recent review (Ertug et al., 2022). Several studies investigating cross-race friendships have demonstrated that in diverse contexts, race becomes a more salient source of identity for minorities, leading individuals to primarily choose members of their own race as friends (Leonard et al., 2008; Mehra et al., 1998; Mollica et al., 2003). Ibarra (1992) studied multiplex workplace friendship networks of women and men and found that while white male employees tend to build homophilous multiplex ties across the organization, including influential white male counterparts, women tend to have less overlap between their friendship and their work-focused network, making it harder for them to attain influential positions. Further, compared to their male counterparts, women develop more intimate and persistent relationships at work, which might lead to less of the network renewal that

has been shown to benefit status-attainment, performance, and creativity (Carboni et al., 2020; Soda et al., 2021).

Organizations may therefore wish to intervene formally to help disadvantaged groups build their social capital, which is essential to access influential positions within the organization. Such moves not only benefit minority employees but also organizational performance. For example, having a more gender- and racially-diverse workforce has been shown to benefit performance by introducing diverse ideas and perspectives, greater legitimacy, and checking management perceptions against broader experiences of reality (e.g., Carboni et al., 2020; Gong, 2006; Richard, 2000). Studies have explored practical solutions for helping minorities build workplace social capital. For example, a field experiment in the Chinese context showed that formal mentoring helps employees expand their workplace networks (including their friendship network) and that such programs are particularly effective for women due to the legitimacy-enhancing signals of mentorship (Srivastava, 2015). Similarly, Mollica et al. (2003) have suggested that organizations implement formal networking groups for racial minorities that create opportunities for mentorship and career advancement. Taking into account that work-focused relationships are important determinants for friendship building (Sias et al., 2020; Yakubovich & Burg, 2019), organizations could deliberately create diverse teams and work groups to provide the opportunity for cross-sex and cross-race friendships to develop (Marelich, 1996).

Organizations can also encourage informal relationship-building by employees themselves. Network training for employees helps them understand their own workplace networks, how to implement strategies to develop them (Cross et al., 2013), and, crucially, how the implicit biases and explicit choices of majorities constrain outcomes for minority colleagues. Organizations must also recognize that advantageous networking strategies are not uniform for all groups. Ibarra (1995) for instance found that high-potential minority employees had more cross-race ties in their instrumental network relative to high-potential white employees. She concludes that, rather than trying to imitate network development strategies of white males, minority employees can benefit from building heterophilous relationships in addition to their mainly homophilous friendship networks to compensate for their

disadvantaged positioning in intra-organizational networks and to access influential individuals in the organization.

However, diversity policies implemented by organizations may also have unintended consequences and organizations should be wary of these. For example, Elsesser and Peplau (2006) coined the term 'glass partition' to describe obstacles to the development of cross-sex friendships at work. They point out that organizational policies to prevent workplace romances and sexual harassment might discourage employees from building friendships with employees of the other sex because they fear misinterpretation of friendship by others as romantic or sexual interest. This glass partition limits women's networking opportunities with peers and supervisors, especially in male-dominated organizations. Moreover, both white male and minority employees may resent efforts by organizations to integrate their networks because such efforts might be interpreted as a lack of confidence by the organization in minority employees' social competence, or as a special treatment of minorities which can be perceived as unfair by white male employees (Mollica et al., 2003). While we do not wish to suggest that majority resentment should be coddled or should guide organizational policy, it is nonetheless necessary for organizations to recognize potential backlash and find ways to preclude or mitigate it.

Beyond helping minorities build workplace friendships that provide advantages in intra-organizational networks, it is crucial that organizations address the structural and cultural barriers that impede minority employees. We see two important aspects that need attention in that regard: first, majorities in the organization should be trained and made aware that natural preferences for building homophilous friendship ties exclude minority group members from building influential networks in the organization. Second, minority groups should be sensitized about the internalization of potentially disadvantageous beliefs about workplace relationships that can result from social inequalities. For example, women and racial minorities may believe that they should not be 'too pushy' when it comes to workplace relationships, or that networking behavior is morally dubious (Casciaro et al., 2014). One way for organizations to address these challenges is to build comprehensive training programs both for the majority and minority groups, as well as integrated

programs, that explicitly touch upon these aspects to raise employee awareness and create legitimacy for building workplace friendship across demographic and cultural boundaries.

## **Workplace Friendships and the Melding of Professional and Private Life**

Despite the above suggestions for fostering workplace friendships, we also see a limit in the active involvement of organizations in creating these intimate and affective social ties among their employees. Organizations need to consider that workplace friendships create tensions that can translate into negative outcomes for individuals and organizations, as discussed previously. This potential for tensions and conflicts as perceived by employees is increasingly referenced in the current debate on work-life balance and the appropriate degree of separation between work life and private life (Feldmann, 2022; Rothbard et al., 2005). Younger generations in particular may be less willing than their forebears to sacrifice their personal life for work (Hoffower, 2021; Janeska-Iliev et al., 2019). They show a greater desire to separate their work and private lives (Hoffower, 2021). As a consequence, the encroachment of work life on private life through long working hours, employee permanent availability via modern communication media, and coworker socializing outside work is increasingly being questioned (Feldmann, 2022; Krause, 2018). The recent modifications in work organization brought about by the COVID-19 pandemic and the imposition of remote work have pushed many employees' tolerance of the overlap between their work and private lives to a limit, increasing, for example, risks of parental burnout (Griffith, 2020) and job stress related to work-family conflict (Galanti et al., 2021). At the same time, many employees have experienced social disconnection from their work relationships, including their workplace friendships (Jo et al., 2021), leading to feelings of isolation (Galanti et al., 2021; Toscano & Zappalà, 2020). These experiences have raised employees' awareness of the risks of overlap between their work and private lives (Feldmann, 2022), and organizations will have to address this issue to remain attractive as employers. In particular, it is probable

that more and more employees will take a critical and perhaps dismissive stance towards organizational efforts to promote socializing outside of work hours as a means to workplace friendship development. They may perceive these efforts as a meddling of the organization with their private lives.

One potential course of action is for organizations to change their perspective on socializing time, and recognize it as productive time that is likely to benefit the organization (for example, by increasing connectivity and flexibility across organization boundaries). They could therefore make time for more socializing events during work hours, instead of expecting employees to engage in networking interactions with their coworkers outside work.

From a broader perspective, organizations should critically examine strategies for promoting overlap between employees' work and private lives, as championed by companies like Google, Lego, or Amazon. Indeed, these pose the risk that employees interpret them as an expectation by their organization of an 'always on, always working' culture (Krause, 2018), with negative consequences for employees such as burnout. Such strategies may work to some extent for companies like Google, who are seen as prestigious employers and are able to attract employees who are willing to sacrifice much of their private lives to the organization. But in less prestigious companies such sacrifice may become increasingly unattractive to prospective employees. It is possible that in coming years, we will witness a shift in expectations regarding the relationship between employees and employers, and a prioritization by employees of their private lives, eventually leading to changes in the role that friendship plays at work.

## Conclusion

Workplace friendships result from multiple processes. They are shaped partly by employees themselves, who are drawn to their coworkers to satisfy needs of relatedness and belonging. They are partly a side effect of organizational arrangements, such as increased teamwork. They are also deliberately encouraged by organizations through various activities, such

as socializing outside work or providing spaces for informal encounters for employees. Our review of studies investigating the consequences of workplace friendships has shown that they have important outcomes for individuals, teams, and organizations alike, but also that these studies exhibit mixed findings. On the one hand, workplace friendships lead to positive outcomes, increase employees' well-being at work, enhance their performance and facilitate exchange throughout the organization. On the other hand, they can lead to tensions, as workplace friends face conflicting demands through the interaction of friendship-related and work-related concerns. These are particularly salient when friendship overlaps with a work-focused relationship, as research on multiplex workplace friendships demonstrates.

The review allowed us to identify avenues for future research, and to articulate recommendations for organizations and managers on how to reap the benefits of workplace friendships while avoiding their drawbacks. In particular, we identified three aspects of work that have become increasingly important and that impact workplace friendships: the increase in virtual work and the challenges that this engenders with regard to workplace friendships, inequalities with regard to the building of workplace friendships which penalize women and minorities in organizations, and an increasing desire by employees to rebalance their work and private lives that might reduce their willingness to maintain workplace friendships. Organizations have much to gain by attending to these new challenges related to workplace friendships, and by developing strategies that address the issues they bring about.

## References

- Anderson, N. R., & West, M. A. (1998). Measuring climate for work group innovation: Development and validation of the team climate inventory. *Journal of Organizational Behavior*, *19*(3), 235–258. [https://doi.org/10.1002/\(SICI\)1099-1379\(199805\)19:3%3C235::AID-JOB837%3E3.0.CO;2-C](https://doi.org/10.1002/(SICI)1099-1379(199805)19:3%3C235::AID-JOB837%3E3.0.CO;2-C)

- Balkundi, P., Kilduff, M., Barsness, Z. I., & Michael, J. H. (2007). Demographic antecedents and performance consequences of structural holes in work teams. *Journal of Organizational Behavior*, 28(2), 241–260. <https://doi.org/10.1002/job.428>
- Bartel, C. A., Wrzesniewski, A., & Wiesenfeld, B. M. (2012). Knowing where you stand: Physical isolation, perceived respect, and organizational identification among virtual employees. *Organization Science*, 23(3), 743–757. <https://doi.org/10.1287/orsc.1110.0661>
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497–529. <https://doi.org/10.1037/0033-2909.117.3.497>
- Berman, E. M., West, J. P., & Richter, Jr, M. N. (2002). Workplace relations: Friendship patterns and consequences (according to managers). *Public Administration Review*, 62(2), 217–230. <https://doi.org/10.1111/0033-3352.00172>
- Bhardwaj, A., Qureshi, I., Konrad, A. M., & Lee, S. H. (2016). A two-wave study of self-monitoring personality, social network churn, and in-degree centrality in close friendship and general socializing networks. *Group & Organization Management*, 41(4), 526–559. <https://doi.org/10.1177/1059601115608027>
- Blau, P. (1955). *The dynamics of bureaucracy: A study of interpersonal relation in two government agencies*. University of Chicago Press.
- Bondonio, D. (1998). Predictors of accuracy in perceiving informal social networks. *Social Networks*, 20(4), 301–330. [https://doi.org/10.1016/S0378-8733\(98\)00007-0](https://doi.org/10.1016/S0378-8733(98)00007-0)
- Bridge, K., & Baxter, L. A. (1992). Blended relationships: Friends as work associates. *Western Journal of Communication (includes Communication Reports)*, 56(3), 200–225. <https://doi.org/10.1080/10570319209374414>
- Carboni, I., Cross, R., Page, A., & Parker, A. (2020). Invisible network drivers of women's success. *Organizational Dynamics*, 49(4). <https://doi.org/10.1016/j.orgdyn.2019.100735>
- Casciaro, T. (2014). Affect in organizational networks. In D. J. Brass, G. Labianca, A. Mehra, D. S. Halgin, and S. P. Borgatti (Eds.), *Research in the sociology of organizations: Vol. 40. Contemporary perspectives on organizational social networks*. Emerald Group Publishing Limited. [https://doi.org/10.1108/S0733-558X\(2014\)0000040011](https://doi.org/10.1108/S0733-558X(2014)0000040011)
- Casciaro, T. (2020). Networks and affect in the workplace. In D. J. Brass and S. P. Borgatti (Eds.), *SIOP organizational frontiers series: Social networks at work* (pp. 23–48). Routledge. <https://doi.org/10.4324/9780203701942-3>

- Casciaro, T., Gino, F., & Kouchaki, M. (2014). The contaminating effects of building instrumental ties: How networking can make us feel dirty. *Administrative Science Quarterly*, 59(4), 705–735. <https://doi.org/10.1177/0001839214554990>
- Casciaro, T., & Lobo, M. S. (2008). When competence is irrelevant: The role of interpersonal affect in task-related ties. *Administrative Science Quarterly*, 53(4), 655–684. <https://doi.org/10.2189/asqu.53.4.655>
- Chua, R. Y. J., Ingram, P., & Morris, M. W. (2008). From the head and the heart: Locating cognition- and affect-based trust in managers' professional networks. *Academy of Management Journal*, 51(3), 436–452. <https://doi.org/10.5465/amj.2008.32625956>
- Chua, R. Y. J., Morris, M. W., & Ingram, P. (2009). Guanxi vs networking: Distinctive configurations of affect-and cognition-based trust in the networks of Chinese vs American managers. *Journal of International Business Studies*, 40(3), 490–508. <https://doi.org/10.1057/palgrave.jibs.8400422>
- Clark, M. S., & Mills, J. (1979). Interpersonal attraction in exchange and communal relationships. *Journal of Personality and Social Psychology*, 37(1), 12. <https://doi.org/10.1037/0022-3514.37.1.12>
- Clarke, R., Richter, A. W., & Kilduff, M. (2022). One tie to capture advice and friendship: Leader multiplex centrality effects on team performance change. *Journal of Applied Psychology*, 107(6), 968–986. <https://doi.org/10.1037/apl0000979>
- Colbert, A. E., Bono, J. E., & Purvanova, R. K. (2016). Flourishing via workplace relationships: Moving beyond instrumental support. *Academy of Management Journal*, 59(4), 1199–1223. <https://doi.org/10.5465/amj.2014.0506>
- Cooley, D. R. (2002). False friends. *Journal of Business Ethics*, 36(3), 195–206. <https://doi.org/10.1023/A:1014042005642>
- Cooper, C. D., & Kurland, N. B. (2002). Telecommuting, professional isolation, and employee development in public and private organizations. *Journal of Organizational Behavior*, 23(4), 511–532. <https://doi.org/10.1002/job.145>
- Craig, L., & Kuykendall, L. (2019). Examining the role of friendship for employee well-being. *Journal of Vocational Behavior*, 115, 103313. <https://doi.org/10.1016/j.jvb.2019.06.001>
- Cranmer, G. A., Goldman, Z. W., & Booth-Butterfield, M. (2017). The mediated relationship between received support and job satisfaction: An initial application of socialization resources theory. *Western Journal of Communication*, 81(1), 64–86. <https://doi.org/10.1080/10570314.2016.1231931>



- Cross, R., Kaše, R., Kilduff, M., & King, Z. (2013). Bridging the gap between research and practice in organizational network analysis: A conversation between Rob Cross and Martin Kilduff. *Human Resource Management, 52*(4), 627–644. <https://doi.org/10.1002/hrm.21545>
- Dabos, G. E., & Rousseau, D. M. (2013). Psychological contracts and informal networks in organizations: The effects of social status and local ties. *Human Resource Management, 52*(4), 485–510. <https://doi.org/10.1002/hrm.21540>
- D’Cruz, P., & Noronha, E. (2011). The limits to workplace friendship. *Employee Relations, 33*(3), 269–288. <https://doi.org/10.1108/01425451111121777>
- Derfler-Rozin, R., Sherf, E. N., & Chen, G. (2021). To be or not to be consistent? The role of friendship and group-targeted perspective in managers’ allocation decisions. *Journal of Organizational Behavior, 42*(6), 814–833. <https://doi.org/10.1002/job.2490>
- Dirks, K. T., & de Jong, B. (2022). Trust within the workplace: A review of two waves of research and a glimpse of the third. *Annual Review of Organizational Psychology and Organizational Behavior, 9*, 247–276. <https://doi.org/10.1146/annurev-orgpsych-012420-083025>
- Ellwardt, L., Steglich, C., & Wittek, R. (2012). The co-evolution of gossip and friendship in workplace social networks. *Social Networks, 34*(4), 623–633. <https://doi.org/10.1016/j.socnet.2012.07.002>
- Elsesser, K., & Peplau, L. A. (2006). The glass partition: Obstacles to cross-sex friendships at work. *Human Relations, 59*(8), 1077–1100. <https://doi.org/10.1177/0018726706068783>
- Ertug, G., Brennecke, J., Kovács, B., & Zou, T. (2022). What does homophily do? A review of the consequences of homophily. *Academy of Management Annals, 16*(1), 38–69. <https://doi.org/10.5465/annals.2020.0230>
- Fayard, A.-L., & Weeks, J. (2007). Photocopiers and water-coolers: The affordances of informal interaction. *Organization Studies, 28*(5), 605–634. <https://doi.org/10.1177/0170840606068310>
- Feldmann, J. (2022, January 18). The importance of separating work and personal life in a remote environment. *Forbes*. <https://www.forbes.com/sites/forbeshumanresourcescouncil/2022/01/18/the-importance-of-separating-work-and-personal-life-in-a-remote-environment/>
- Gajendran, R. S., & Harrison, D. A. (2007). The good, the bad, and the unknown about telecommuting: Meta-analysis of psychological mediators and individual consequences. *Journal of Applied Psychology, 92*(6), 1524. <https://doi.org/10.1037/0021-9010.92.6.1524>

- Galanti, T., Guidetti, G., Mazzei, E., Zappalà, S., & Toscano, F. (2021). Work from home during the COVID-19 outbreak: The impact on employees' remote work productivity, engagement, and stress. *Journal of Occupational and Environmental Medicine*, 63(7), e426–e432. <https://doi.org/10.1097/JOM.0000000000002236>
- Gibbons, D. E. (2004). Friendship and advice networks in the context of changing professional values. *Administrative Science Quarterly*, 49(2), 238–262. <https://doi.org/10.2307/4131473>
- Gibbons, D. E., & Olk, P. M. (2003). Individual and structural origins of friendship and social position among professionals. *Journal of Personality and Social Psychology*, 84(2), 340–351. <https://doi.org/10.1037/0022-3514.84.2.340>
- Gómez-Solórzano, M., Tortoriello, M., & Soda, G. (2019). Instrumental and affective ties within the laboratory: The impact of informal cliques on innovative productivity. *Strategic Management Journal*, 40(10), 1593–1609. <https://doi.org/10.1002/smj.3045>
- Gong, Y. (2006). The impact of subsidiary top management team national diversity on subsidiary performance: Knowledge and legitimacy perspectives. *Management International Review*, 46(6), 771–790. <https://doi.org/10.1007/s11575-006-0126-2>
- Griffith, A. K. (2020). Parental burnout and child maltreatment during the COVID-19 pandemic. *Journal of Family Violence*, 1–7. <https://doi.org/10.1007/s10896-020-00172-2>
- Grosser, T. J., Lopez-Kidwell, V., & Labianca, G. (2010). A social network analysis of positive and negative gossip in organizational life. *Group & Organization Management*, 35(2), 177–212. <https://doi.org/10.1177/1059601109360391>
- Guo, Z. A., Heidl, R. A., Hollenbeck, J. R., Yu, A., & Howe, M. (2022). When discretionary boundary spanning relationships cease becoming discretionary: The impact of closed ties on informal leadership perceptions. *Journal of Applied Psychology*, 107(6), 898–916. <https://doi.org/10.1037/apl0000911>
- Haggard, D. L., Robert, C., & Rose, A. J. (2011). Co-rumination in the workplace: Adjustment trade-offs for men and women who engage in excessive discussions of workplace problems. *Journal of Business and Psychology*, 26(1), 27–40. <https://doi.org/10.1007/s10869-010-9169-2>
- Ho, V. T., & Levesque, L. L. (2005). With a little help from my friends (and substitutes): Social referents and influence in psychological contract fulfillment. *Organization Science*, 16(3), 275–289. <https://doi.org/10.1287/orsc.1050.0121>

- Ho, V. T., Rousseau, D. M., & Levesque, L. L. (2006). Social networks and the psychological contract: Structural holes, cohesive ties, and beliefs regarding employer obligations. *Human Relations*, 59(4), 459–481. <https://doi.org/10.1177/0018726706065370>
- Hoffower, H. (2021, November 6). Gen Z and millennials actually want the same things at work. But Gen Z has the upper hand. *Business Insider*. <https://www.businessinsider.com/millennials-versus-gen-z-workplace-trends-flexibility-work-life-balance-2021-11>
- Hood, A. C., Cruz, K. S., & Bachrach, D. G. (2017). Conflicts with friends: A multiplex view of friendship and conflict and its association with performance in teams. *Journal of Business and Psychology*, 32(1), 73–86. <https://doi.org/10.1007/s10869-016-9436-y>
- Ibarra, H. (1992). Homophily and differential returns: Sex differences in network structure and access in an advertising firm. *Administrative Science Quarterly*, 37(3), 422–447. <https://doi.org/10.2307/2393451>
- Ibarra, H. (1993). Personal networks of women and minorities in management: A conceptual framework. *Academy of Management Review*, 18(1), 56–87. <https://doi.org/10.5465/amr.1993.3997507>
- Ibarra, H. (1995). Race, opportunity, and diversity of social circles in managerial networks. *Academy of Management Journal*, 38(3), 673–703. <https://doi.org/10.2307/256742>
- Ibarra, H., & Andrews, S. B. (1993). Power, social influence, and sense making: Effects of network centrality and proximity on employee perceptions. *Administrative Science Quarterly*, 38(2), 277–303. <https://doi.org/10.2307/2393414>
- Ingram, P., & Zou, X. (2008). Business friendships. *Research in Organizational Behavior*, 28, 167–184. <https://doi.org/10.1016/j.riob.2008.04.006>
- Janeska-Iliev, A., Postolov, K., & Magdinceva Sopova, M. (2019). Generational differences in achieving work-life balance. *MEST Journal*, 7(1), 7–15. <https://doi.org/10.12709/mest.07.07.01.02>
- Jo, J. K., Harrison, D. A., & Gray, S. M. (2021). The ties that cope? Reshaping social connections in response to pandemic distress. *Journal of Applied Psychology*, 106(9), 1267–1282. <https://doi.org/10.1037/apl0000955>
- Kadushin, C. (2012). *Understanding social networks: Theories, concepts, and findings*. Oxford University Press.
- Keller, J., Wong, S.-S., & Liou, S. (2020). How social networks facilitate collective responses to organizational paradoxes. *Human Relations*, 73(3), 401–428. <https://doi.org/10.1177/0018726719827846>

- Kilduff, M., & Krackhardt, D. (1994). Bringing the individual back in: A structural analysis of the internal market for reputation in organizations. *Academy of Management Journal*, 37(1), 87–108. <https://doi.org/10.2307/256771>
- Klein, K. J., Lim, B. C., Saltz, J. L., & Mayer, D. M. (2004). How do they get there? An examination of the antecedents of centrality in team networks. *Academy of Management Journal*, 47(6), 952–963. <https://doi.org/10.2307/20159634>
- Krackhardt, D. (1992). The strength of strong ties: The importance of philos in organizations. In N. Nohria & R. G. Eccles (Eds.), *Networks and organizations: Structure, form, and action* (pp. 216–239). Harvard Business School Press.
- Krackhardt, D., & Hanson, J. R. (1993). Informal networks: The company behind the charts. *Harvard Business Review*, 71(4), 104–111.
- Krackhardt, D., & Stern, R. N. (1988). Informal networks and organizational crises: An experimental simulation. *Social Psychology Quarterly*, 51(2), 123–140. <https://doi.org/10.2307/2786835>
- Krause, R. (2018). “Always-on”: The collapse of the work–life separation in recent developments, deficits and counter-strategies. In *Working in Digital and Smart Organizations* (pp. 223–248). Springer. [https://doi.org/10.1007/978-3-319-77329-2\\_11](https://doi.org/10.1007/978-3-319-77329-2_11)
- Kurland, N. B., & Cooper, C. D. (2002). Manager control and employee isolation in telecommuting environments. *The Journal of High Technology Management Research*, 13(1), 107–126. [https://doi.org/10.1016/S1047-8310\(01\)00051-7](https://doi.org/10.1016/S1047-8310(01)00051-7)
- Labianca, G., Brass, D. J., & Gray, B. (1998). Social networks and perceptions of intergroup conflict: The role of negative relationships and third parties. *Academy of Management Journal*, 41(1), 55–67. <https://doi.org/10.2307/256897>
- Lazega, E., & Pattison, P. E. (1999). Multiplexity, generalized exchange and cooperation in organizations: A case study. *Social Networks*, 21(1), 67–90. [https://doi.org/10.1016/S0378-8733\(99\)00002-7](https://doi.org/10.1016/S0378-8733(99)00002-7)
- Lee, K., & Duffy, M. K. (2018). A functional model of workplace envy and job performance: When do employees capitalize on envy by learning from envied targets? *Academy of Management Journal*, 62(4), 1085–1110. <https://doi.org/10.5465/amj.2016.1202>
- Leonard, A. S., Mehra, A., & Katerberg, R. (2008). The social identity and social networks of ethnic minority groups in organizations: A crucial test of

- distinctiveness theory. *Journal of Organizational Behavior*, 29(5), 573–589. <https://doi.org/10.1002/job.488>
- Lincoln, J. R., & Miller, J. (1979). Work and friendship ties in organizations: A comparative analysis of relation networks. *Administrative Science Quarterly*, 24(2), 181–199. <https://doi.org/10.2307/2392493>
- Liu, J., Kwan, H. K., Fu, P. P., & Mao, Y. (2013). Ethical leadership and job performance in China: The roles of workplace friendships and traditionality. *Journal of Occupational & Organizational Psychology*, 86(4), 564–584. <https://doi.org/10.1111/joop.12027>
- Lobel, S. A., Quinn, R. E., St. Clair, L., & Warfield, A. (1994). Love without sex: The impact of psychological intimacy between men and women at work. *Organizational Dynamics*, 23(1), 5–16. [https://doi.org/10.1016/0090-2616\(94\)90084-1](https://doi.org/10.1016/0090-2616(94)90084-1)
- Mao, H.-Y., Chen, C.-Y., & Hsieh, T.-H. (2009). The relationship between bureaucracy and workplace friendship. *Social Behavior and Personality: An International Journal*, 37(2), 255–266. <https://doi.org/10.2224/sbp.2009.37.2.255>
- Marelich, W. D. (1996). Can we be friends? *HR Focus*, 73(8), 17–18.
- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50(4), 370–396.
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27, 415–444. <https://doi.org/10.1146/annurev.soc.27.1.415>
- Mehra, A., Dixon, A. L., Brass, D. J., & Robertson, B. (2006). The social network ties of group leaders: Implications for group performance and leader reputation. *Organization Science*, 17(1), 64–79. <https://doi.org/10.1287/orsc.1050.0158>
- Mehra, A., Kilduff, M., & Brass, D. J. (1998). At the margins: A distinctiveness approach to the social identity and social networks of underrepresented groups. *Academy of Management Journal*, 41(4), 441–452. <https://doi.org/10.5465/257083>
- Methot, J. R., Lepine, J. A., Podsakoff, N. P., & Christian, J. S. (2016). Are workplace friendships a mixed blessing? Exploring tradeoffs of multiplex relationships and their associations with job performance. *Personnel Psychology*, 69(2), 311–355. <https://doi.org/10.1111/peps.12109>
- Mollica, K. A., Gray, B., & Trevino, L. K. (2003). Racial homophily and its persistence in newcomers' social networks. *Organization Science*, 14(2), 123–136. <https://doi.org/10.1287/orsc.14.2.123.14994>

- Morris, M. W., Podolny, J., & Sullivan, B. N. (2008). Culture and coworker relations: Interpersonal patterns in American, Chinese, German, and Spanish divisions of a global retail bank. *Organization Science*, *19*(4), 517–532. <https://doi.org/10.1287/orsc.1070.0333>
- Olson-Buchanan, J. B., & Boswell, W. R. (2006). Blurring boundaries: Correlates of integration and segmentation between work and nonwork. *Journal of Vocational Behavior*, *68*(3), 432–445. <https://doi.org/10.1016/j.jvb.2005.10.006>
- O'Neill, T. A., & Salas, E. (2018). Creating high performance teamwork in organizations. *Human Resource Management Review*, *28*(4), 325–331. <https://doi.org/10.1016/j.hrmr.2017.09.001>
- Pillemer, J., & Rothbard, N. P. (2018). Friends without benefits: Understanding the dark sides of workplace friendship. *Academy of Management Review*, *43*(4), 635–660. <https://doi.org/10.5465/amr.2016.0309>
- Porter, C. M., & Woo, S. E. (2015). Untangling the networking phenomenon: A dynamic psychological perspective on how and why people network. *Journal of Management*, *41*(5), 1477–1500. <https://doi.org/10.1177/0149206315582247>
- Rai, A., & Agarwal, U. A. (2018). Examining workplace bullying-outcomes relationships among Indian managers. *Employee Relations*, *40*(6), 1015–1035. <https://doi.org/10.1108/ER-02-2017-0031>
- Rank, O. N., Robins, G. L., & Pattison, P. E. (2010). Structural logic of intraorganizational networks. *Organization Science*, *21*(3), 745–764. <https://doi.org/10.1287/orsc.1090.0450>
- Ren, H., Gray, B., & Harrison, D. A. (2015). Triggering faultline effects in teams: The importance of bridging friendship ties and breaching animosity ties. *Organization Science*, *26*(2), 390–404. <https://doi.org/10.1287/orsc.2014.0944>
- Richard, O. C. (2000). Racial diversity, business strategy, and firm performance: A resource-based view. *Academy of Management Journal*, *43*(2), 164–177. <https://doi.org/10.5465/1556374>
- Rothbard, N. P., Phillips, K. W., & Dumas, T. L. (2005). Managing multiple roles: Work-family policies and individuals' desires for segmentation. *Organization Science*, *16*(3), 243–258. <https://doi.org/10.1287/orsc.1050.0124>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>

- Sailer, K., & McCulloh, I. (2012). Social networks and spatial configuration—How office layouts drive social interaction. *Social Networks*, *34*(1), 47–58. <https://doi.org/10.1016/j.socnet.2011.05.005>
- Sasovova, Z., Mehra, A., Borgatti, S. P., & Schippers, M. C. (2010). Network churn: The effects of self-monitoring personality on brokerage dynamics. *Administrative Science Quarterly*, *55*(4), 639–670. <https://doi.org/10.2189/asqu.2010.55.4.639>
- Schinoff, B. S., Ashforth, B. E., & Corley, K. G. (2020). Virtually (in)separable: The centrality of relational cadence in the formation of virtual multiplex relationships. *Academy of Management Journal*, *63*(5), 1395–1424. <https://doi.org/10.5465/amj.2018.0466>
- Schulte, M., Cohen, N. A., & Klein, K. J. (2012). The coevolution of network ties and perceptions of team psychological safety. *Organization Science*, *23*(2), 564–581. <https://doi.org/10.1287/orsc.1100.0582>
- Shah, N. P., Parker, A., & Waldström, C. (2017). Examining the overlap: Individual performance benefits of multiplex relationships. *Management Communication Quarterly*, *31*(1), 5–38. <https://doi.org/10.1177/0893318916647528>
- Sias, P. M., & Cahill, D. J. (1998). From coworkers to friends: The development of peer friendships in the workplace. *Western Journal of Communication (includes Communication Reports)*, *62*(3), 273–299. <https://doi.org/10.1080/10570319809374611>
- Sias, P. M., Gallagher, E. B., Kopaneva, I., & Pedersen, H. (2012a). Maintaining workplace friendships: Perceived politeness and predictors of maintenance tactic choice. *Communication Research*, *39*(2), 239–268. <https://doi.org/10.1177/0093650210396869>
- Sias, P. M., Pedersen, H., Gallagher, E. B., & Kopaneva, I. (2012b). Workplace friendship in the electronically connected organization. *Human Communication Research*, *38*(3), 253–279. <https://doi.org/10.1111/j.1468-2958.2012.01428.x>
- Sias, P. M., Heath, R. G., Perry, T., Silva, D., & Fix, B. (2004). Narratives of workplace friendship deterioration. *Journal of Social and Personal Relationships*, *21*(3), 321–340. <https://doi.org/10.1177/0265407504042835>
- Sias, P. M., Tsetsi, E., Woo, N., & Smith, A. D. (2020). With a little help from my friends: Perceived task interdependence, coworker communication, and workplace friendship. *Communication Studies*, *71*(4), 528–549. <https://doi.org/10.1080/10510974.2020.1749863>

- Silver, A. (1990). Friendship in commercial society: Eighteenth-century social theory and modern sociology. *American Journal of Sociology*, 95(6), 1474–1504. <https://doi.org/10.1086/229461>
- Soda, G., Mannucci, P. V., & Burt, R. S. (2021). Networks, creativity, and time: Staying creative through brokerage and network rejuvenation. *Academy of Management Journal*, 64(4), 1164–1190. <https://doi.org/10.5465/amj.2019.1209>
- Sommers, M. C. (1997). Useful friendships: A foundation for business ethics. *Journal of Business Ethics*, 16(12/13), 1453–1458. [https://doi.org/10.1007/978-94-009-1475-9\\_24](https://doi.org/10.1007/978-94-009-1475-9_24)
- Song, Y., Fang, Y., Wang, M., & Shi, J. (2020). A multiplex view of leadership structure in management teams. *Personnel Psychology*, 73(4), 615–640. <https://doi.org/10.1111/peps.12388>
- Srivastava, S. B. (2015). Network intervention: Assessing the effects of formal mentoring on workplace networks. *Social Forces*, 94(1), 427–452. <https://doi.org/10.1093/sf/sov041>
- Stackman, R. W., & Pinder, C. C. (1999). Context and sex effects on personal work networks. *Journal of Social and Personal Relationships*, 16(1), 39–64. <https://doi.org/10.1177/0265407599161003>
- Toscano, F., & Zappalà, S. (2020). Social isolation and stress as predictors of productivity perception and remote work satisfaction during the COVID-19 pandemic: The role of concern about the virus in a moderated double mediation. *Sustainability*, 12(23), 9804. <https://doi.org/10.3390/su12239804>
- Tse, H. H. M., & Dasborough, M. T. (2008). A study of exchange and emotions in team member relationships. *Group & Organization Management*, 33(2), 194–215. <https://doi.org/10.1177/1059601106293779>
- Tse, H. H. M., Dasborough, M. T., & Ashkanasy, N. M. (2008). A multi-level analysis of team climate and interpersonal exchange relationships at work. *The Leadership Quarterly*, 19(2), 195–211. <https://doi.org/10.1016/j.leaqua.2008.01.005>
- Umphress, E. E., Labianca, G., Brass, D. J., Kass, E., & Scholten, L. (2003). The role of instrumental and expressive social ties in employees' perceptions of organizational justice. *Organization Science*, 14(6), 738–753. <https://doi.org/10.1287/orsc.14.6.738.24865>
- Vardaman, J. M., Taylor, S. G., Allen, D. G., Gondo, M. B., & Amis, J. M. (2015). Translating intentions to behavior: The interaction of network structure and behavioral intentions in understanding employee



- turnover. *Organization Science*, 26(4), 1177–1191. <https://doi.org/10.1287/orsc.2015.0982>
- Venkataramani, V., Zhou, L., Wang, M., Liao, H., & Shi, J. (2016). Social networks and employee voice: The influence of team members' and team leaders' social network positions on employee voice. *Organizational Behavior & Human Decision Processes*, 132, 37–48. <https://doi.org/10.1016/j.obhdp.2015.12.001>
- Vissa, B., & Chacar, A. S. (2009). Leveraging ties: The contingent value of entrepreneurial teams' external advice networks on Indian software venture performance. *Strategic Management Journal*, 30(11), 1179–1191. <https://doi.org/10.1002/smj.785>
- Weber, M. (1968). Bureaucracy. In G. Roth & C. Wittich (Eds.), *Economy and society: An outline of interpretive sociology* (pp. 956–1005). Bedminister Press.
- Whitman, M. V., & Mandeville, A. (2021). Blurring the lines: Exploring the work spouse phenomenon. *Journal of Management Inquiry*, 30(3), 285–299. <https://doi.org/10.1177/1056492619882095>
- Winstead, B. A., Derlega, V. J., Montgomery, M. J., & Pilkington, C. (1995). The quality of friendships at work and job satisfaction. *Journal of Social and Personal Relationships*, 12(2), 199–215. <https://doi.org/10.1177/0265407595122003>
- Yakubovich, V., & Burg, R. (2019). Friendship by assignment? From formal interdependence to informal relations in organizations. *Human Relations*, 72(6), 1013–1038. <https://doi.org/10.1177/0018726718789479>
- Zagenczyk, T. J., Purvis, R. L., Shoss, M. K., Scott, K. L., & Cruz, K. S. (2015). Social influence and leader perceptions: Multiplex social network ties and similarity in leader–member exchange. *Journal of Business and Psychology*, 30(1), 105–117. <https://doi.org/10.1007/s10869-013-9332-7>
- Zarankin, T. G., & Kunkel, D. (2019). Colleagues and friends: A theoretical framework of workplace friendship. *Journal of Organizational Psychology*, 19(5). <https://doi.org/10.5465/AMBPP.2019.10100abstract>
- Zhang, Y., Sun, J.-M., Shaffer, M. A., & Lin, C.-H. (2021). High commitment work systems and employee well-being: The roles of workplace friendship and task interdependence. *Human Resource Management*, Article hrm.22093. Advance online publication. <https://doi.org/10.1002/hrm.22093>

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# Friendship at Work: Inside the Black Box of Homophily

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## Introduction

To join a work organization is to be plunged into a world of similar and dissimilar others. Of the many people one encounters at work, only some become our personal friends. The question of why people

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become friends with some people and not others is important because we know that workplace friendship ties influence key outcomes, such as job satisfaction, turnover, job performance, and promotions (for a review, see Brass, 2022). Perhaps the most influential response to this question draws on Lazarsfeld and Merton's classic work on "homophily," defined as "a tendency for friendships to form between those who are alike in some designated respect" (1954, p. 23). Similarity, from the homophily perspective, breeds friendship.

But if similarity is to be used to explain patterns of friendship choice, on what basis is similarity to be assessed? In their study of friendships in "Hilltown" (a bi-racial, low-rent housing project in Pennsylvania) and "Crafttown" (a housing project consisting of mostly white families in New Jersey), Lazarsfeld and Merton distinguished between two different bases of homophily. The first—which they labeled "status homophily"—focused on sociodemographic dimensions that stratify society, such as race and gender. The other—"value homophily"—included a wide variety of internal psychological states and attitudes, such as opinions about whether or not "colored and white people should live together in housing projects" (Lazarsfeld & Merton, 1954, p. 26). Similarly, the conceptually related work on "The Attraction Paradigm" (Byrne, 1971) examined both demographic variables and psychological attitudes as precursors of interpersonal attraction. This line of work found that similarity in terms of demography and psychological beliefs were both related to interpersonal attraction, but the effect sizes for the demographic variables were anemic compared to those for attitude similarity: Individuals tended to be attracted to people who shared similar attitudes, even if these individuals happened to be of a different gender or race (Byrne, 1971, pp. 127–163).

Classic work on homophily recognized the importance of assessing perceptions of similarity (and dissimilarity). But most of the work on homophily in the workplace has tended to focus on demographic characteristics to the exclusion of cognitive ones (e.g., Brass, 1985; Ibarra, 1992, 1995; Lawrence & Shah, 2020; Lincoln & Miller, 1979, for a review). The structural take on homophily focuses on readily observable demographic variables (such as sex and race) rather than on an examination of underlying psychological states. There are good reasons for

the popularity of the structural perspective on homophily in investigations of workplace friendship. For one thing, it possesses the virtues of parsimony and expediency: Individuals' cognitions don't have to be assessed; they can be inferred by examining easily observed demographic proxies (Pfeffer, 1983). Demographic similarity is treated as a proxy for underlying but unobserved cognitive processes, such as shared cultural beliefs and attitudes (McPherson et al., 2001, p. 435). On the other hand, the strategy of bypassing individuals' psychological beliefs and attitudes "obscures clear thinking" (Lawrence, 1997, p. 3; Lawrence & Shah, 2020). This is because the structural approach assumes that demographic variables also capture the variation in underlying, but unmeasured, psychological concepts. Although this "congruence assumption" (Lawrence, 1997, p. 3) is regularly invoked in explanations of why demographic similarity is related to friendship choice, it is seldom examined in the empirical research in work organizations (Harrison et al., 2002; cf. Kilduff et al., 2000). This raises a troubling possibility: We know that demographic similarity is related to friendship choice in work organizations (Brass, 1985; Ibarra, 1992; e.g., Lincoln & Miller, 1979), but is it possible the rationale underlying this observed relationship is mis-specified?<sup>1</sup>

The primary goal of our field-based study is to submit to empirical test the explanatory theory that is implicit in structural accounts of workplace homophily. Specifically, we examine whether interpersonal cognitions mediate the relationship between demographic characteristics (we examined rank and sex) and workplace friendship choice at the dyadic level of analysis. Looking inside the black box of homophily, we directly examine the perceptions of similarity that presumably explain why demographically similar people are more likely to be friends in the workplace. We also examine individuals' perceptions of dissimilarity. As Simmel (1950, p. 30) pointed out long ago: "... for the actions of the

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<sup>1</sup> Lazarsfeld and Merton (1954, p. 23, footnote 10) cautioned that the term homophily represents statistical regularity rather than an explanation for that regularity—i.e., they noted that they intended the concept as "descriptive" rather than "interpretive." Nonetheless, structurally informed empirical work on the formation of interpersonal relationships routinely describes homophily as a "self-organizing mechanism." A tendency, however, is a statistical regularity; it is not a mechanism/explanation (see the discussion in Chen et al., 2021).

individual, his difference from others is of far greater interest than his similarity with them.” The tendency to ignore dissimilarity as an independent force in friendship formation is perhaps not surprising given the relative neglect of negative ties in organizational research (Labianca & Brass, 2006). In allowing for the possibility that perceptions of dissimilarity play a unique role in the choice of friends, we hope to provide a “useful antidote” to the “emphasis on similarity as the pervasive dynamic in groups” (Weick, 1969, p. 14).

A second and related goal of this research is to expand the current focus of organizational homophily research from visible demographic characteristics to include the less visible but psychologically relevant characteristics that make up individual personality. Although personality characteristics were examined in classic work on the similarity attraction paradigm (see the summary in Byrne, 1971, pp. 164–187), they have received relatively little attention in subsequent research on homophily (see the review in Ertug et al., 2022). There is, however, a reason to suspect that personality plays an important role in friendship formation (e.g., Klohnen & Luo, 2003; Sasovova et al., 2010). Of the many possible personality theories that can be used to differentiate individuals, we focused on one that has been shown to be of importance to the structure of workplace friendship relations: self-monitoring (e.g., Fang et al., 2015; Mehra et al., 2001). Self-monitoring theory is concerned with systematic “differences in the extent to which people value, create, cultivate, and project social images and public appearances” (Gangestad & Snyder, 2000, p. 531; for an organizationally oriented review of self-monitoring theory and evidence, see Day & Schleicher, 2006; Kudret et al., 2019). Some people (“high self-monitors”), out of a concern for situational appropriateness, monitor and regulate their self-presentation for the sake of creating desired public appearances. The behaviors of others (“low self-monitors”), by contrast, are largely a reflection of their inner attitudes and dispositions. Whereas high self-monitors are akin to social pragmatists who are willing and able to project images intended to impress others, low self-monitors seem unwilling and unable to carry off appearances (Gangestad & Snyder, 2000, p. 531).

Given these sharply contrasting approaches to managing their social worlds, it seems likely that people of the same self-monitoring

orientation would see each other as similar and those of opposite self-monitoring orientation would see each other as dissimilar. The homophily principle can be used to anticipate that, in work organizations, individuals will tend to befriend others of the same self-monitoring orientation as themselves because they will be more likely to perceive these others as similar to themselves and those of the opposite self-monitoring orientation as dissimilar to themselves (Snyder & Smith, 1986, pp. 71–73). Whether this is in fact the case is an empirical question, and it is one this research attempts to answer.

## Methods

### Site

We collected survey-based data from a small high-tech organization that researched and produced sophisticated chromatographic equipment. The organization had been kept deliberately flat to enhance speed and responsiveness, which were critical to success in a competitive environment that pitted the firm against bigger rivals. The small size meant that people at the company knew each other on a first name basis and regularly ran into each other in the spacious atrium, that included a cafeteria, surrounded by plants and small trees, where employees from all parts of the organization ran into each other. The firm had won industry awards for its innovative products, customer service, and its inclusive culture.

### Data

Data on social networks and self-monitoring were collected through a questionnaire sent to all 116 employees (68 men, 48 women). 102 people provided data on their friendship ties. We used the roster method to collect this “whole-network” data. People were free to nominate as many individuals as they liked as friends. Missing data on self-monitoring reduced the total usable sample in this study to 93.

## Measures

### Friendship

The raw data on friendship relations were arranged in a  $93 \times 93$  binary matrix. Each cell  $X_{ij}$  in this matrix initially corresponded to one individual  $i$ 's relation to another individual  $j$  as reported by  $i$ . For example, if  $i$  reported  $j$  as a friend, then cell  $X_{ij}$  was coded as 1. Because we were interested in this study in reciprocal friendship choice, we symmetrized this matrix using the rule that  $X_{ij} = 1$  if and only if  $X_{ij} = X_{ji} = 1$ . That is, both  $i$  and  $j$  had to list each other as a friend for the pair to be considered friends.

### Perceived Similarity

We used the same sociometric approach to capture data on perceived interpersonal similarity as we did for friendship (for a previous application of this measure, see Mehra et al., 1998, p. 443). Individuals were asked, on the questionnaire, to identify those individuals they considered "especially similar" to themselves. We noted, on the questionnaire, that we were interested in the respondents' perceptions and the basis of judging similarity was entirely up to them. As with the friendship data, we initially arranged these responses in a  $93 \times 93$  binary matrix, which we then symmetrized using the rule that cell  $X_{ij}$  was coded as 1 if and only if both  $i$  and  $j$  reported the other as someone who was especially similar to themselves.

### Perceived Dissimilarity

We used the same approach to code and symmetrize this  $93 \times 93$  binary matrix as we did the perceived similarity matrix. The question we used to gather data asked individuals to identify individuals at the firm who they thought of as "especially dissimilar" to themselves. Cell  $X_{ij}$  in the final matrix was coded as 1 if and only if both  $i$  and  $j$  reported the other as someone who they considered "especially dissimilar."



## Self-monitoring

Self-monitoring was measured with an 18-item true–false questionnaire (Snyder & Gangestad, 1986). A sample item is “In different situations with different people, I often act like very different persons.” This measure correlates highly ( $r = 0.93$ ) with the original 25-item measure (Snyder, 1974) and has been demonstrated to be both more reliable and factorially pure (Snyder & Gangestad, 1986). In the present study, the reliability for this scale as measured by Cronbach’s alpha was 0.80.

## Personality Difference

This dyadic measure was computed, for each pair of individuals in the sample, as the absolute difference in the self-monitoring scores between the two individuals. This variable was arranged as a  $93 \times 93$  valued matrix where cell  $X_{ij}$  was coded as the absolute difference between self-monitoring orientations of  $i$  and  $j$ . The observed values range from 0 to 17. To ease interpretation of the MRQAP regression coefficient associated with this variable, we rescaled this variable by dividing it by 10.

## Gender Similarity

Data on gender was obtained from company records. We converted these data into a  $93 \times 93$  binary matrix where cell  $X_{ij}$  was 1 if and only if both  $i$  and  $j$  were of the same gender.

## Rank Similarity

Data on rank came from company records. We simplified data on rank into two categories: supervisors (i.e., those who had one or more persons formally reporting to them) and non-supervisors (all others). These data were converted into a  $93 \times 93$  binary matrix such that cell  $X_{ij}$  was coded as 1 if and only if both  $i$  and  $j$  were of the same rank.

## Control Variables

### Workflow

Because friendships are more likely to form between people who come into regular contact with each other (Festinger et al., 1950), we included as a control the  $93 \times 93$  binary “workflow” matrix. Data on workflow relations were obtained from the sociometric survey by asking people to identify their workflow contacts (i.e., the set of people from whom one regularly exchanged workflow inputs and/or outputs—see Mehra et al., 2001 for additional details). Cell  $X_{ij}$  in the symmetrized workflow matrix used for analysis in this paper was coded as 1 if and only if both  $i$  and  $j$  identified the other as a workflow partner.

### Analysis

We used the Matrix Regression Quadratic Assignment Procedure (MRQAP) in UCINET 6 (Borgatti et al., 2002) to test our ideas. This analytic approach is a better choice than OLS regression because MRQAP is a procedure designed specifically to account for the lack of independence in network data (Krackhardt, 1988; see the discussion in the methodological appendix of Chen et al., 2021). We used the standard procedure to examine mediation (Baron & Kenny, 1986).

## Results

Table 1 reports descriptive statistics and zero-order correlations for each of the matrixes used in the MRQAP analyses.

The first question we sought to investigate was: Is the relationship between demographic similarity and friendship choice mediated by psychological perceptions of similarity and dissimilarity? To test for mediation, we examined, first, if there was a significant relationship between demographic similarity in terms of rank and gender and friendship choice. Second, we checked to see if this relationship was eliminated

**Table 1** Means, standard deviations, and QAP correlations among matrices

Variable	Mean	SD	1	2	3	4	5	6
1 Friendship	0.02	0.14						
2 Same rank	0.65	0.48	0.02					
3 Same gender	0.53	0.50	0.06***	-0.03 <sup>†</sup>				
4 Personality difference	0.45	0.33	0.03 <sup>†</sup>	0.05	-0.01			
5 Workflow	0.20	0.40	0.12***	-0.07**	0.04*	-0.07**		
6 Similarity	0.01	0.10	0.31***	0.01	0.05**	-0.01	0.07***	
7 Dissimilarity	0.01	0.09	-0.01	0.00	-0.01	0.01	0.03 <sup>†</sup>	-0.01

N = 4278

<sup>†</sup>p < 0.10; \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001 (two-tailed tests)

or significantly reduced once perceptions of similarity and dissimilarity were added to the regression model. The results presented in model 1 of Table 2 show that, controlling for the significant effects of being workflow partners on friendship ( $b = 0.04, p < 0.001$ ), gender similarity ( $b = 0.02, p < 0.001$ ) predicted dyadic friendship choice. Similarity in rank, by contrast, was not a significant predictor of dyadic friendship ( $b = 0.01, p = \text{n.s.}$ ). Model 2 in Table 2 shows that perceived similarity ( $b = 0.43, p < 0.001$ )—but not perceived dissimilarity ( $b = -0.02, p = \text{n.s.}$ )—predicted dyadic friendship choice. However, the relationship between gender similarity and dyadic friendship choice was not significantly diminished once perceived similarity and dissimilarity were also included in the regression (see model 3 in Table 2). Moreover, as shown in Table 3, the demographic similarity was only inconsistently related to underlying perceptions of similarity and dissimilarity: gender similarity predicted perceived similarity ( $b = 0.01, p < 0.01$ ) but did not predict perceived dissimilarity. And rank similarity did not significantly predict perceived similarity or perceived dissimilarity. Overall, these results indicate that gender similarity and perceived similarity had significant but independent effects on dyadic friendship choice. Thus, there was no support for the argument that the effects of demographic similarity on friendship are mediated by underlying perceptions of similarity and dissimilarity.

A second question we sought to investigate was: Does self-monitoring personality predict friendship choice? If so, is the effect mediated by perceptions of similarity and dissimilarity? The results in Table 2, model 1 show that the greater the difference in the self-monitoring score of two individuals, the more likely they were to be friends ( $b = 0.00, p < 0.10$ ). There was, however, no evidence that differences in self-monitoring personality were significantly related to perceptions of similarity and dissimilarity (see Table 3); and, even with the inclusion of these perceptual variables in the model, the greater the difference in the self-monitoring scores of two individuals, the more likely they were to be friends ( $b = 0.00, p < 0.05$ ; Table 2, model 3).

We found further evidence of this complementarity in analysis that, first, coded a person as a high self-monitor if that person scored above 11 on the 18-point self-monitoring scale and as a low self-monitor

**Table 2** MRQAP analyses predicting dyadic friendship choice

Variable	Model 1	Model 2	Model 3
Workflow	0.04***	0.04***	0.04***
Demographic similarity			
Rank similarity	0.01		0.01
Gender similarity	0.02***		0.01**
Personality difference	0.01 <sup>†</sup>		0.02*
Social identity			
Perceived similarity		0.43***	0.42***
Perceived dissimilarity		-0.02	-0.02
Intercept	-0.01***	0.01***	-0.01***
Adj. <i>R</i> -Squared	0.02	0.10	0.11
<i>N</i>	4278	4278	4278

<sup>†</sup> $p < 0.10$ ; \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$  (two-tailed tests)  
Significance levels are based on 20,000 permutations

**Table 3** MRQAP analyses predicting perceived similarity and dissimilarity

Variable	Perceived similarity	Perceived dissimilarity
Workflow	0.02***	0.01 <sup>†</sup>
Demographic similarity		
Rank similarity	0.00	0.00
Gender similarity	0.01**	-0.00
Personality difference	-0.00	0.00
Intercept	0.00***	0.00***
Adj. <i>R</i> -Squared	0.01	0.00
<i>N</i>	4278	4278

<sup>†</sup> $p < 0.10$ ; \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$  (two-tailed tests)  
Significance levels are based on 20,000 permutations

otherwise.<sup>2</sup> Next, we examined the mean score for “preference-based homophily,” computed using a formula that adjusted for the relative numbers of high and low self-monitors in our sample (for the formula, see Ibarra, 1992; Krackhardt, 1990). We found that the mean for both high self-monitors (mean = -0.01, SD = 0.08) and low self-monitors

<sup>2</sup> Self-monitoring has been theorized to be a class variable. A score higher/lower than 11 on the 18 point has been used as an indicator that a person is either a high self-monitor or a low self-monitor (Gangestad & Snyder, 2000).

(mean =  $-0.01$ , SD =  $0.12$ ) was negative, an indication that high self-monitors were more likely to prefer friends who were low self-monitors, and vice versa. These mean scores were not significantly different ( $t = -0.18$ ,  $p = \text{n.s.}$ ), so high self-monitors and low self-monitors did not differ to the extent to which they were heterophilous. Complementarity, it appears, rather than similarity is the principle that governs the relationship between self-monitoring personality and friendship choice.

## Discussion

This paper reported an empirical test of the idea, implicit in structural research on homophily, that demographic indicators, such as gender and rank, accurately capture underlying psychological perceptions of similarity and dissimilarity, and these, in turn, drive friendship choice. The results of our investigation suggest that this mediation model is misspecified. Looking inside the black box of homophily, we examined whether perceptions of similarity and dissimilarity contributed to the observed tendency for people to be friends with those of the same gender and rank as themselves. We found that similarity in gender (but not rank) predicted dyadic friendship, but this effect was not mediated by underlying perceptions of similarity or dissimilarity. Instead, both gender similarity and perceived similarity independently predicted dyadic friendship.

Although several theorists (e.g., Simmel, 1950; Weick, 1969) have argued for greater attention to dissimilarity as an independent force in organizational life, these negative cognitive ties—like negative social ties more generally—have received relatively little attention in the organizational literature. We found no evidence that perceptions of dissimilarity were associated with differences in gender, rank, or personality. Moreover, perceptions of dissimilarity did not predict dyadic friendship. It may be that perceptions of dissimilarity only infrequently play a role in friendship choice, and this rarity of dissimilarity ties may also make it difficult to detect this otherwise plausible effect. Nonetheless, even if infrequent, perceptions of dissimilarity may play a decisive role

in friendship dynamics. This is a topic that deserves more empirical attention.

A goal of our study was to examine whether the homophily principle applied to self-monitoring personality (Snyder, 1974). We focused on self-monitoring personality because it has been shown to have clear implications for friendship dynamics in work settings (e.g., Sasovova et al., 2010). Moreover, past work suggests that individuals can accurately identify the self-monitoring orientation of people with whom they interact (Snyder, 1974). From the homophily perspective, individuals of the same self-monitoring orientation should be more likely to choose one another as friends than individuals of opposite self-monitoring orientations. What our study found, however, was that the greater the *difference* in the self-monitoring score of two individuals, the *more* likely they were to be friends. Heterophily,<sup>3</sup> not homophily, seems to be the principle that governs the relationship between self-monitoring personality and dyadic friendship choices in organizations. Further, as with gender, we found no evidence that perceptions of similarity and dissimilarity mediated the effects of self-monitoring on dyadic friendship.

## Implications for Theory and Future Research

Our results have three implications for theory. First, our results suggest that although the structural perspective on homophily in work organizations is parsimonious and accounts for much of the variance in friendship relations in work organizations, the rationale for why it does so deserves further scrutiny. We found that similarity in gender was related to friendship choice, but this relationship was not mediated by underlying psychological perceptions of similarity and dissimilarity. Alternative theoretical accounts may be needed to explain why similarity in gender is related to friendship choice in the workplace even in the absence of corresponding psychological perceptions of similarity and dissimilarity (see

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<sup>3</sup> Heterophily was the term Lazarsfeld and Merton (1954, p. 23) coined to describe the (statistical) tendency “for friendships to form between those who differ in some designated respect.”

Montoya et al., 2008). An intriguing possibility is that workplace friendship means different things to women and men. There is some evidence, for example, that women tend to see their friendships as a vehicle for the receiving and giving of social support whereas men think of work friends as someone to do things with, such as socialize outside work (Argyle & Henderson, 1985, pp. 75–81). These gendered differences in what friendship means may provide fresh clues about the mechanisms that explain friendship choices at work (for a plea for greater attention to mechanisms underlying the relationship between gender and social networks, see, e.g., Brands et al., 2022; Woehler et al., 2021).

A second and related implication of our study is that the homophily perspective in organizational research may need to re-inject the earlier emphasis on underlying perceptions of similarity as an independent basis for homophily in friendship choice. We found that people were more likely to befriend those they perceived to be especially similar to themselves, irrespective of whether those people were demographically similar to them. By ignoring the psychological bases of friendship formation in work organizations, structural research on homophily offers an incomplete account of the antecedents of friendship choice in organizations. Perceptions of similarity matter for friendship, above and beyond demographic similarity. We are not driven in our choice of friends at work by structural forces alone; our inner beliefs and cognitive processes also play an important if neglected role.

The third implication of our work is that the homophily principle may explain why similarity in demographic characteristics is related to friendship, but heterophily may be the more appropriate principle when it comes to how personality influences friendship choice. In contrast to the pervasive emphasis on how “birds of a feather flock together,” it appears that sometimes it is birds of different feathers that flock together. Past work has argued that similar individuals are preferred as friends because similar others provide consensual validation of one’s own views and beliefs (e.g., Byrne & Clore, 1967; Snyder & Smith, 1986). However, individuals may sometimes prefer different yet complementary others. Plato, in his famous dialogue, “Lysis,” argued that those who resemble us excite in us feelings of envy and competitiveness whereas dissimilar



others can inspire and attract. Despite the intuitive appeal of Plato's argument, the idea that similarity is the basis for interpersonal attraction has come to be accepted as axiomatic. Organizational research and practice could profit from a richer understanding of the conditions under which opposites attract.

The questions we are in pursuit of beg for longitudinal data. The analytical approach we used for analyzing our cross-sectional data is a type of regression in which the cases are dyads, the dependent variable is the state of the dyad, and the independent variables are dyadic properties, such as differences in gender or self-monitoring. The p-values in MRQAP, however, are calculated via a permutation-based method that avoids assuming a mathematical distribution and instead generates its own distribution of beta coefficients. With cross-sectional data, the MRQAP can be considered as modeling tie formation (see the appendix in Chen et al., 2021). Nonetheless, it would be fruitful to explicitly observe and model changes in workplace friendships over time (Nestler et al., 2015). With longitudinal data, coevolution modeling can be used to distinguish whether people select those they perceive as similar or whether, over time, people come to influence each other, thereby coming to see each other as similar (e.g., de Klepper et al., 2010). It might also be worth manipulating perceptions of similarity and dissimilarity to see if changes in similarity/dissimilarity shape network dynamics. It is possible that whereas perceived dissimilarity did not emerge in our analysis as a significant predictor of friendship choice, it could be a potent predictor of friendship dissolution. It is also possible that whereas dissimilarity does not predict friendship choice, it may predict other relationships, such as advice, or role modeling, that we did not examine in this paper.

Our study is limited in its reliance on just two items to measure the underlying perceptions that presumably mediate the relationship between visible, demographic markers and friendship choice. The benefit of this approach is that respondents were free to make a determination based on individually-salient criteria unbiased by researcher-imposed categories. However, an alternative strategy would be to ask people about the extent to which others are similar/dissimilar to them regarding their views on specific topics and/or values. It may be that our approach to

measuring the psychological beliefs that mediate between demographic similarity and friendship was simply too coarse-grained.

## Managerial Implications

Work organizations in the post-(Covid) pandemic world have been scrambling to find ways to enhance employees' sense of connectedness to their colleagues at work. A firm called Imperative is using an interesting approach to addressing this challenge, one that dovetails nicely with our findings (Hurst, 2022). In a nutshell, the firm uses software to have each employee identify their "purpose drivers," the things that they are intrinsically motivated by at work, and the outcomes they most care about. Drawing on this psychological data on attitudes and beliefs, the firm creates meaningful connections between people who were otherwise unlikely to connect. This approach to directly collecting data on relevant attitudes could be one way that firms can grow workplace friendships. As our research shows, irrespective of whether people were demographically similar, they were more likely to be friends if they perceived one another as similar. Managers cannot control the gender or personality of the people they would like to turn into workplace friends, but what they can do is shape people's sense of interpersonal similarity by helping them see what they have in common despite their demographic differences.

## Conclusion

Why do people befriend certain others at work? An influential answer relies on the "homophily" principle, which posits that similarity breeds friendship. Although early formulations of this principle accounted for similarity in terms of both observable demographic markers (such as gender and race) and underlying perceptions of similarity and dissimilarity, the study of friendship choice in work settings has since come to focus almost exclusively on readily observable surface characteristics.

Looking inside the black box of homophily, our research suggests that the gains in methodological expediency that result from the adoption of a structural perspective on homophily need to be carefully weighed against the possibility that the underlying psychological assumptions it relies upon are mis-specified. It can be pragmatic for a theory to focus on predictive success at the expense of explanatory accuracy. The trouble arises when the model starts to be confused with reality.<sup>4</sup>

## References

- Argyle, M., & Henderson, M. (1985). *The anatomy of relationships*. Penguin Books.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173. <https://doi.org/10.1037//0022-3514.51.6.1173>
- Blau, P. (1977). *Inequality and heterogeneity*. Free Press.
- Borgatti, S. P., Everett, M. G., & Freeman, L. C. (2002). *UCINET for windows: Software for social network analysis* (Vol. 6, pp. 12–15). Analytic Technologies.
- Borgatti, S. P., & Foster, P. C. (2003). The network paradigm in organizational research: A review and typology. *Journal of Management*, 29(6), 991–1013. [https://doi.org/10.1016/S0149-2063\\_03\\_00087-4](https://doi.org/10.1016/S0149-2063_03_00087-4)
- Brands, R., Ertug, G., Fonti, F., & Tasselli, S. (2022). Theorizing gender in social network research: What we do and what we can do differently. *Academy of Management Annals*. <https://doi.org/10.5465/annals.2020.0370>
- Brass, D. J. (1985). Men's and women's networks: A study of interaction patterns and influence in an organization. *Academy of Management Journal*, 28(2), 327–343. <https://doi.org/10.5465/256204>
- Brass, D. J. (2022). New developments in social network analysis. *Annual Review of Organizational Psychology and Organizational Behavior*, 9. <https://doi.org/10.1146/annurev-orgpsych-012420-090628>

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<sup>4</sup> See, for example, Kilduff et al. (2011) on how neo-classical economics deliberately emphasized predictive success over explanation, and Graeber (2019) on how this epistemological stance has led to a troubling confusion of model with reality.

- Byrne, D. E. (1971). *The attraction paradigm* (Vol. 462). Academic Press.
- Byrne, D., & Clore Jr, G. L. (1967). Effectance arousal and attraction. *Journal of Personality and Social Psychology*, 6(4, Pt.2), 1–18. DOI: <https://doi.org/10.1037/h0024829>
- Chen, H., Mehra, A., Tasselli, S., & Borgatti, S. P. (2021). Network dynamics and organizations: A review and research agenda. *Journal of Management*, 48(6), 1602–1660.
- Day, D. V., & Schleicher, D. J. (2006). Self-monitoring at work: A motive-based perspective. *Journal of Personality*, 74(3), 685–714.
- De Klepper, M., Sleebos, E., Van de Bunt, G., & Agneessens, F. (2010). Similarity in friendship networks: Selection or influence? The effect of constraining contexts and non-visible individual attributes. *Social Networks*, 32(1), 82–90. <https://doi.org/10.1016/j.socnet.2009.06.003>
- Fang, R., Landis, B., Zhang, Z., Anderson, M. H., Shaw, J. D., & Kilduff, M. (2015). Integrating personality and social networks: A meta-analysis of personality, network position, and work outcomes in organizations. *Organization Science*, 26(4), 1243–1260.
- Festinger, L., Schachter, S., & Back, K. (1950). *Social pressures in informal groups: A study of human factors in housing*. Harper.
- Ertug, G., Brennecke, J., Kovács, B., & Zou, T. (2022). What does homophily do? A review of the consequences of homophily. *Academy of Management Annals*, 16(1), 38–69. <https://doi.org/10.5465/annals.2020.0230>
- Gangestad, S., & Snyder, M. (1985). “To carve nature at its joints”: On the existence of discrete classes in personality. *Psychological Review*, 92(3), 317. <https://doi.org/10.1037/0033-295X.92.3.317>
- Gangestad, S. W., & Snyder, M. (2000). Self-monitoring: Appraisal and reappraisal. *Psychological Bulletin*, 126(4), 530. <https://doi.org/10.1037/0033-2909.126.4.530>
- Graeber, D. (2019). Against economics. *The New York Review of Books*, 66(19), 52–58.
- Harrison, D. A., Price, K. H., Gavin, J. H., & Florey, A. T. (2002). Time, teams, and task performance: Changing effects of surface-and deep-level diversity on group functioning. *Academy of Management Journal*, 45(5), 1029–1045. <https://doi.org/10.5465/3069328>
- Hurst, A. (2022). *How companies are busting silos in remote work through peer coaching networks*. [www-nasdaq-com.cdn.ampproject.org](http://www-nasdaq-com.cdn.ampproject.org)
- Ibarra, H. (1992). Homophily and differential returns: Sex differences in network structure and access in an advertising firm. *Administrative Science Quarterly*, 422–447. <https://doi.org/10.2307/2393451>

- Ibarra, H. (1995). Race, opportunity, and diversity of social circles in managerial networks. *Academy of Management Journal*, 38(3), 673–703. <https://doi.org/10.5465/256742>
- Ibarra, H. (1999). Provisional selves: Experimenting with image and identity in professional adaptation. *Administrative Science Quarterly*, 44(4), 764–791. <https://doi.org/10.2307/2667055>
- Kilduff, M., Angelmar, R., & Mehra, A. (2000). Top management-team diversity and firm performance: Examining the role of cognitions. *Organization Science*, 11(1), 21–34. <https://doi.org/10.1287/orsc.11.1.21.12569>
- Kilduff, M., Mehra, A., & Dunn, M. B. (2011). From blue sky research to problem solving: A philosophy of science theory of new knowledge production. *Academy of Management Review*, 36(2), 297–317. <https://doi.org/10.5465/amr.2009.0164>
- Krackhardt, D. (1988). Predicting with networks: Nonparametric multiple regression analysis of dyadic data. *Social Networks*, 10(4), 359–381. [https://doi.org/10.1016/0378-8733\(88\)90004-4](https://doi.org/10.1016/0378-8733(88)90004-4)
- Krackhardt, D. (1990). Assessing the political landscape: Structure, cognition, and power in organizations. *Administrative Science Quarterly*, 342–369. <https://doi.org/10.2307/2393394>
- Klohnen, E. C., & Luo, S. (2003). Interpersonal attraction and personality: What is attractive—self similarity, ideal similarity, complementarity or attachment security? *Journal of Personality and Social Psychology*, 85(4), 709. <https://doi.org/10.1037/0022-3514.85.4.709>
- Kudret, S., Erdogan, B., & Bauer, T. N. (2019). Self-monitoring personality trait at work: An integrative narrative review and future research directions. *Journal of Organizational Behavior*, 40(2), 193–208.
- Labianca, G., & Brass, D. J. (2006). Exploring the social ledger: Negative relationships and negative asymmetry in social networks in organizations. *Academy of Management Review*, 31(3), 596–614. <https://doi.org/10.5465/amr.2006.21318920>
- Lawrence, B. S. (1997). Perspective—The black box of organizational demography. *Organization Science*, 8(1), 1–22. <https://doi.org/10.1287/orsc.8.1.1>
- Lawrence, B. S., & Shah, N. P. (2020). Homophily: Measures and meaning. *Academy of Management Annals*, 14(2), 513–597. <https://doi.org/10.5465/annals.2018.0147>
- Lazarsfeld, P., & Merton, R. K. (1954). Friendship as a social process: A substantive and methodological analysis. In: M. Berger, T. Abel, & H. Charles (Eds.), *Freedom and control in modern society*. Van Nostrand.

- Lincoln, J. R., & Miller, J. (1979). Work and friendship ties in organizations: A comparative analysis of relation networks. *Administrative Science Quarterly*, 181–199. <https://doi.org/10.2307/2392493>
- Marsden, P. V. (1987). Core discussion networks of Americans. *American Sociological Review*, 122–131. <https://doi.org/10.2307/2095397>
- McPherson, J. M., & Smith-Lovin, L. (1987). Homophily in voluntary organizations: Status distance and the composition of face-to-face groups. *American Sociological Review*, 370–379. <https://doi.org/10.2307/2095356>
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27(1), 415–444. <https://doi.org/10.1146/annurev.soc.27.1.415>
- Mehra, A., Kilduff, M., & Brass, D. J. (1998). At the margins: A distinctiveness approach to the social identity and social networks of underrepresented groups. *Academy of Management Journal*, 41(4), 441–452. <https://doi.org/10.5465/257083>
- Mehra, A., Kilduff, M., & Brass, D. J. (2001). The social networks of high and low self-monitors: Implications for workplace performance. *Administrative Science Quarterly*, 46(1), 121–146. <https://doi.org/10.2307/2667127>
- Montoya, R. M., & Horton, R. S. (2004). On the importance of cognitive evaluation as a determinant of interpersonal attraction. *Journal of Personality and Social Psychology*, 86(5), 696. <https://doi.org/10.1037/0022-3514.86.5.696>
- Montoya, R. M., Horton, R. S., & Kirchner, J. (2008). Is actual similarity necessary for attraction? A meta-analysis of actual and perceived similarity. *Journal of Social and Personal Relationships*, 25(6), 889–922.
- Nestler, S., Grimm, K. J., & Schönbrodt, F. D. (2015). The social consequences and mechanisms of personality: How to analyse longitudinal data from individual, dyadic, round-robin and network designs. *European Journal of Personality*, 29(2), 272–295. <https://doi.org/10.1002/per.1997>
- Pfeffer, J. (1983). Organizational demography. *Research in Organizational Behavior*, 5, 299–357.
- Sasovova, Z., Mehra, A., Borgatti, S. P., & Schippers, M. C. (2010). Network churn: The effects of self-monitoring personality on brokerage dynamics. *Administrative Science Quarterly*, 55(4), 639–670. <https://doi.org/10.2189/asqu.2010.55.4.639>
- Simmel, G. (1950). *The sociology of Georg Simmel*. Simon and Schuster.
- Snyder, M. (1974). Self-monitoring of expressive behavior. *Journal of Personality and Social Psychology*, 30(4), 526.

- Snyder, M. (1987). *Public appearances*. The psychology of self-monitoring. WH Freeman/Times Books/Henry Holt & Co.
- Snyder, M., & Gangestad, S. (1986). On the nature of self-monitoring: Matters of assessment, matters of validity. *Journal of personality and social psychology*, 51(1), 125.
- Snyder, M., & Smith, D. (1986). Personality and friendship: The friendship worlds of self-monitoring. In *Friendship and social interaction* (pp. 63–80). Springer.
- Weick, K. E. (1969). *The social psychology of organizing*. Addison-Wesley Pub. Co.
- Woehler, M. L., Cullen-Lester, K. L., Porter, C. M., & Frear, K. A. (2021). Whether, how, and why networks influence men's and women's career success: Review and research agenda. *Journal of Management*, 47(1), 207–236. <https://doi.org/10.1177/0149206320960529>

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# A Network Perspective on Interpersonal Trust Dynamics

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## Introduction

Trust is an important and sensitive aspect of workplace relationships. A commonly accepted definition of trust at the interpersonal level is “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor

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or control that other party” (Mayer et al., 1995, p. 712). In the workplace, trust between employees has been associated with enhanced psychological safety, effective communication, and individual and organizational performance (Dirks & Ferrin, 2001; Fulmer & Gelfand, 2012; Zaheer et al., 1998). Hence, scholars have devoted considerable attention to exploring the antecedents of trust, among which network-related antecedents have received increasing attention over the past two decades. Researchers have investigated associations between trust and network variables such as reciprocity (Schoorman et al., 2007), the presence of third parties (Ferrin et al., 2006; Lau & Liden, 2008), or aspects such as the ego-centric network (Chua et al., 2008; Wong & Boh, 2010), and the whole network (Gupta et al., 2016). This body of research, while laying the foundations for future research on trust from a network perspective, is still in an early stage. In synthesizing the literature, we observe that extant research on this topic remains largely fragmented and inconclusive.

Because trust is embedded in interpersonal networks, there is good reason to assume that trust changes along with network relations and structures (Baer et al., 2018; Giest, 2019). Yet, given the scattered scholarly landscape on trust-network associations, advancements can be made by integrating previous research and providing guidelines that may assist in exploring how networks affect trust from a dynamic perspective. Therefore, we conduct a systematic literature review to integrate the literature and answer the research question: *How does network embeddedness affect trust dynamics?* In line with previous research (Chua et al., 2008; De Cremer et al., 2018), we define *trust dynamics* as a system of changes in interpersonal trust relationships. This system of changes includes the three stages of trust, formation, decay, and repair (Bachmann et al., 2015), and it pairs well with the voluntary and vulnerable relational notion that underlies the trust dynamics (Mayer et al., 1995, p. 712).

To explicate trust dynamics, this chapter focuses on two network mechanisms: *relational embeddedness* that describes the quality of a tie between trustor and (potential) trustee and *structural embeddedness* that captures the patterns and configurations of ties surrounding this relationship (Gulati, 1998). We organize the literature by identifying relational and structural dimensions of networks that affect trust in the stages of

trust formation, decay, and repair and provide implications for practice based on the research.

## Key Concepts

### Network Embeddedness

The concept of embeddedness was introduced in sociology to investigate the interdependence between social structure and behavior (Coleman, 1958). Granovetter (1985) further developed this concept and distinguished between embeddedness as “concrete personal relations and structures (or “networks”) of such relations” (Granovetter, 1985, p. 490). Following Granovetter’s seminal work, Nahapiet and Ghoshal (1998) further distinguished between relational embeddedness and structural embeddedness. *Relational embeddedness* refers to “the kind of personal relationships people have developed with each other through a history of interactions” (Nahapiet & Ghoshal, 1998, p. 244). *Structural embeddedness*, in turn, refers to the configurations of the relationships. Both relational and structural embeddedness are characterized by a broad set of dimensions, and this literature review aims to investigate which of them are relevant in explaining trust dynamics in an intra-organizational context.

### Trust Dynamics

In some prior studies embedded in the field of general management, trust dynamics are understood as behavioral or psychological changes (Lewicki et al., 2006). This view, however, would limit trust dynamics to isolated individuals. Such a view has become conceptually problematic as more recently, network researchers found that trust levels change over time in a network, depending on the presence of other actors (Jones & Shah, 2016; Kim & Song, 2011; Wittek, 2001). As an active notion, trust changes following a trajectory of “formation, dissolution, and restoration” (Korsgaard et al., 2018, p. 142). Accordingly, this chapter focuses

on trust as a dynamic process of trust formation, decay, and repair (Bachmann et al., 2015). *Trust formation* is a process in which a trust relationship is built between two individuals. Formed trust relationships are not always stable as trust is fragile and easily broken. As a result, trust violations occur frequently in a workplace and may lead to serious consequences, such as revenge (Aquino et al., 2001), distrust (Bijlsma-Frankema et al., 2015), and damaged trust (Schweitzer et al., 2006). These phenomena are representative of *trust decay*, referring to a process in which an existing trust relationship disappears, or wherein the level of trust in the relationship declines following the occurrence of trust violations (Dirks et al., 2009). A lack of trust—or broken trust—challenges the functioning of organizations. Researchers thus show an increasing interest in trust repair. *Trust repair* refers to the process of rebuilding or restoring a trust relationship that has been broken due to a trust violation, back to the previous state, or an even more positive state (Gillespie & Dietz, 2009; Kim et al., 2009; Ren & Gray, 2009).

## Methodology

To answer the research question, we conducted a systematic literature search in the Web of Science Core Collection to ensure a high-quality sample of peer-reviewed articles. Based on a systematic-screening and selection process,<sup>1</sup> we finally identified 31 articles (see Table 1 for an overview of the included articles).

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<sup>1</sup> We used keywords from the trust literature (“trust dynamics” or “trust building” or “trust formation” or “trust decay” or “trust decline” or “trust repair” or “trust restoration” or “trust violation” or “trust process” or “trust” or “trustworthiness”) and the social networks literature (“social network analysis” or “network embeddedness” or “social networks” or “network position” or “structural holes” or “brokerage” or “centrality” or “tie strength” or “third party”). We used three selection criteria: journal impact factor no less than 2 in 2018, interpersonal level, and quantitative studies.

**Table 1** Trust as a consequence of network embeddedness

Network embeddedness dimension	Trust formation as a consequence of network embeddedness				
	Author	Journal	Data	Setting	Findings
Tie content	Olk and Elvira (2001)	Group & Organization Management	Experiment	208 MBA students in the US	Friends have higher levels of trust than nonacquaintances in negotiation
Tie content	Methot et al. (2016)	Personnel Psychology	Two cross-sectional network surveys	168 insurance company employees and 182 restaurant and retail sales employees in the US	Multiplexity of friendship and instrumental ties is positively related to coworker trust
Tie content	Bianchi et al. (2018)	Social Networks	Qualitative research and a cross-sectional network study	29 independent professionals in a shared working space in Italy	Collaboration relations predict trust relations directly
Tie content Tie strength	Levin and Cross (2004)	Management Science	Longitudinal survey	127 respondents from three companies in the US, the UK, and Canada	Advice-seeking tie strength is highly correlated with trust, regarding the dimension of competence and benevolence

(continued)

**Table 1** (continued)

Trust formation as a consequence of network embeddedness					
Network embeddedness dimension	Author	Journal	Data	Setting	Findings
Tie strength Density	Karlan et al. (2009)	Quarterly Journal of Economics	Cross-sectional network survey	299 households in two low-income shantytowns in Peru	Strong ties are related to trust formation; Dense networks improve valuable assets transaction through bonding social capital and trust
Tie strength	Levin et al. (2011)	Organization Science	Longitudinal survey	129 executive MBA students in the US and Canada	Reconnecting dormant strong ties produces higher trust than reconnecting weak ties

Trust formation as a consequence of network embeddedness					
Network embeddedness dimension	Author	Journal	Data	Setting	Findings
Tie strength Density	Jonczyk et al. (2016)	Academy of Management Journal	Longitudinal network survey	68 (67) service professionals from three companies in Europe and North America	Tie longevity and frequency are positive predictors of emotional trust building in the process of new tie gaining; Dense network limits the new trust relationship building More interactions induce trust development
Tie strength	Barrera (2007)	Social Networks	Experiment	144 undergraduate students	

(continued)

Table 1 (continued)

Trust formation as a consequence of network embeddedness		Setting	Findings
Network embeddedness dimension	Author	Journal	Data
Tie strength Reciprocity Third parties	Barrera and van de Bunt (2009)	European Sociological Review	Longitudinal network survey
			Around 40 respondents in a dialysis department of a Dutch hospital
			Past trust relationship improves current trust relationship; Reciprocity contributes to trust formation; Information ego acquired from third parties about alters will influence how ego trusts alter

Trust formation as a consequence of network embeddedness					
Network embeddedness dimension	Author	Journal	Data	Setting	Findings
Tie strength Third parties	Buskens et al. (2010)	Social Networks	Experiment	72 undergraduate students	Previous interaction experiences predict further trust development in the experiment; Sanctioning opportunities due to the existence of third parties affect the trustworthiness of trustees
Tie strength	Van Miltenburg et al. (2012)	Social Networks	Experiment	138 students in the Netherlands	Previous interaction experiences predict further trust development

(continued)



**Table 1** (continued)

Trust formation as a consequence of network embeddedness					
Network embeddedness dimension	Author	Journal	Data	Setting	Findings
Reciprocity Transitivity	Robins and Pattison (2001)	Journal of Mathematical Sociology	Longitudinal network survey	14 participants in a temporary training group in Australia	Reciprocity contributes to trust formation; Transitive triads in trust network are very stable once formed, and new transitive triads are most likely to emerge from two individuals who both trust the same people (common third parties)
Reciprocity	Lusher et al. (2012)	Social Networks	Cross-sectional network survey	47 top managers in an international multi-unit industrial group in Italy	Expressed trust does not show a significant effect of reciprocity

Network embeddedness dimension		Trust formation as a consequence of network embeddedness			
	Author	Journal	Data	Setting	Findings
Similarity	Comulada et al. (2012)	Social Networks	Longitudinal network survey	A drug-using community in the US	Trust and drug use similarity are not consistently correlated
Similarity	Mäkelä et al. (2012)	International Business Review	Cross-sectional network survey	326 inter-personal cross-border relationships in MNC firms in Finland	Interpersonal similarities regarding culture and functional similarities do not affect trust significantly

(continued)

**Table 1** (continued)

Trust formation as a consequence of network embeddedness					
Network embeddedness dimension	Author	Journal	Data	Setting	Findings
Structural equivalence Third parties	Wittek (2001)	Journal of Mathematical Sociology	Longitudinal network survey	25 salesmen in the furniture department of a North American retail sales store	Structural equivalence between two actors does not predict trust formation between them over time; Trustor tends to maintain trust relationship to trustee who occupies a third-party intermediary position providing updated information concerning others' trustworthiness; Ego tends to trust alters who are trusted by other alters who occupy a similar position as ego

Trust formation as a consequence of network embeddedness		Journal	Data	Setting	Findings
Network embeddedness dimension					
Structural equivalence	Sparrowe and Liden (2005)	Administrative Science Quarterly	Longitudinal network survey	Around 200 respondents in a manufacturing firm and around 30 respondents in a telecommunications organization	In a trust network, structural equivalence between employee and leader increases the possibility that the employee is seen as trustworthy and reliable

(continued)

**Table 1** (continued)

Trust formation as a consequence of network embeddedness					
Network embeddedness dimension	Author	Journal	Data	Setting	Findings
Structural equivalence Transitivity Density	Ferrin et al. (2006)	Journal of Applied Psychology	Cross-sectional network survey	68 employees in a medium-sized work organization in the US	Structural equivalence between trustor and trustee is significantly related to trust relationship between them; Trust can be transferred through common trusted third parties and thus contribute to new trust relationship formation; Network closure improves trust formation

Network embeddedness dimension		Trust formation as a consequence of network embeddedness			
	Author	Journal	Data	Setting	Findings
Transitivity	Lau and Liden (2008)	Journal of Applied Psychology	Cross-sectional network survey	146 members of four diverse organizations in the US	Coworkers tend to place more trust in fellow coworkers who are trusted by the leader Transitivity is significant in trust network
Transitivity	Robins et al. (2009)	Social Networks	Cross-sectional network survey	A training group of 23 new recruits	Advocates' network density, non-overlapping contacts, and heterogeneity, improve central manager's trustworthiness reputation
Third parties	Wong and Boh (2010)	Academy of Management Journal	Cross-sectional network survey	157 senior managers from a large emergency response firm	

(continued)

**Table 1** (continued)

Trust formation as a consequence of network embeddedness					
Network embeddedness dimension	Author	Journal	Data	Setting	Findings
Third parties	Kvaløy and Luzuriaga (2014)	Experimental Economics	Experiment	180 students from the University of Stavanger, Norway	With the involvement of third parties and delegation behaviors, the reciprocity behaviors from trustee to trustor decrease
Third parties	Frey et al. (2019)	Social Networks	Experiment	342 students at Utrecht University	Network embeddedness with third parties increases trustfulness and trustworthiness

Trust formation as a consequence of network embeddedness					
Network embeddedness dimension	Author	Journal	Data	Setting	Findings
Third parties	Gérxhani et al. (2013)	Social Networks	Experiment	234 participants, mainly undergraduate students at the University of Amsterdam	Information sharing from third-party affects trust judgment of employers in candidates
Centrality	Sarker et al. (2011)	Journal of Management Information Systems	Cross-sectional network survey	111 globally distributed student teams in the US, Denmark, and Norway	Communication degree centrality is related to trust centrality
Centrality	Tsai and Ghoshal (1998)	Academy of Management Journal	Cross-sectional survey	15 business units in a multinational electronics company	Betweenness centrality of an actor in a social interaction network affects the level of the actor's perceived trustworthiness

(continued)



**Table 1** (continued)

Network embeddedness dimension		Trust formation as a consequence of network embeddedness			
Author	Journal	Data	Setting	Findings	
Density	Gargiulo and Benassi (2000)	Cross-sectional network survey	19 managers in a single organizational unit in Italy	Network closure provides a good environment for trust development, but limits flexibility to build new relationships required by a new task	
Density	Burt and Burzyska (2017)	Retrospective network study through interviews	Around 700 entrepreneurs' networks in China	Network density improves trust also in the Chinese context	
Network embeddedness dimension	<i>Trust decay as consequences of network embeddedness</i>				

Trust formation as a consequence of network embeddedness					
Network embeddedness dimension	Author	Journal	Data	Setting	Findings
Third parties	Lee and Chuang (2018)	Business Ethics-a European Review	Experiment	137 business school students in Taiwan	Trustor and trustee are possible to collude to make benefits for themselves by sacrificing third party's benefits
Social relations	Yenkey (2018)	Administrative Science Quarterly	Longitudinal archival data	Database from Kenya's ethnically diverse Nairobi Securities Exchange	Social relations between victim and perpetrator affect the formation and diffusion of distrust
Network embeddedness dimension	<i>Trust repair as consequences of network embeddedness</i>				(continued)

**Table 1** (continued)

Network embeddedness dimension		Trust formation as a consequence of network embeddedness			
	Author	Journal	Data	Setting	Findings
Third parties	Yu et al. (2017)	Journal of Business Research	Experiment	84 employees from an outward liaison department through WeChat in China	Third parties influence victims' willingness to reconcile and thus continuity intention

## Results

Table 2 provides an overview of the major findings and suggestions for future research, indicating that network-trust dynamics shows a multi-dimensional characteristic and that more attention is called for the research on trust decay and repair. Figure 1 shows the conceptual framework.

### Trust Formation

#### Relational Embeddedness and Trust Formation

In the extant trust literature, we identified four relational dimensions that affect trust formation: tie content, tie strength, reciprocity, and similarity.

**Tie content** refers to specific resource-based or identity-based content involved in a social tie (Podolny & Baron, 1997). Although tie content plays a role in explaining the outcomes related to a tie, limited research has been conducted to directly investigate the role of tie content in trust formation. In our review, four studies shed light on the effect of tie content on trust formation (Bianchi et al., 2018; Levin & Cross, 2004; Methot et al., 2016; Olk & Elvira, 2001). These studies show that the existence of friendship ties (Olk & Elvira, 2001) and collaboration ties (Bianchi et al., 2018) positively affect trust formation. Besides, Levin and Cross (2004) found that advice-seeking ties are also positively associated with seekers' trust in givers. Going beyond a single type of tie content, Methot et al. (2016) found that multiplexity, which refers to the overlap of instrumental and friendship ties in a workplace, is positively related to coworker trust because multiplexity produces a strong emotional bond between coworkers.

**Tie strength** refers to a combination of the duration, closeness, and interaction frequency of a tie (Baer, 2010). The literature (eight articles) provides consistent results regarding how tie strength affects trust formation. Researchers have found evidence that strong ties are not only related to higher trust (Karlan et al., 2009; Levin & Cross, 2004; Levin et al., 2011) but also predict higher trust over time (Jonczyk et al., 2016).

**Table 2** Summary of major findings and future research

	Trust formation		Experimental	Trust decay	Trust repair	Findings	Future research suggestions
	Longitudinal	Cross-sectional					
Relational embeddedness	Tie content (Levin & Cross, 2004)	(Bianchi et al., 2018; Method et al., 2016)	(Olk & Elvira, 2001)	×	×	Tie content affects trust formation	Other types of ties, such as negative and neutral ties; The effects of tie content on trust decay and trust repair; More longitudinal evidence
	Tie strength (Barrera & van de Bunt, 2009; Jonczyk et al., 2016; Levin & Cross, 2004; Levin et al., 2011)	(Karian et al., 2009)	(Barrera, 2007; Buskens et al., 2010; Van Miltenburg et al., 2012)	×	×	Results are consistent that strong ties are related to higher trust	The effects of tie strength on trust decay and trust repair

Trust formation		Trust decay	Trust repair	Findings	Future research suggestions
Longitudinal	Cross-sectional	Experimental			
Reciprocity (Barrera & van de Bunt, 2009; Robins & Pattison, 2001)	(Lusher et al., 2012)	×	×	Reciprocity predicts trust formation over time but trust is not always reciprocal	The effect of reciprocity across networks; The effects of reciprocity on trust decay and trust repair
Similarity (Comulada et al., 2012)	(Mäkelä et al., 2012)	×	×	Similarities regarding culture and function are not related to trust formation; Difference regarding network positions affects trust formation	The effects of similarity on trust decay and trust repair; Tie formation or related interactions might work as a mediator between similarity and trust formation; Differences explain trust relationship changes

(continued)

Table 2 (continued)

	Trust formation		Trust decay	Trust repair	Findings	Future research suggestions
	Longitudinal	Cross-sectional				
Structural embeddedness	Sparrowe & Liden, 2005; Wittek, 2001	(Ferrin et al., 2006)	×	×	Results are inconclusive	Studies using mixed methods are expected to explain the conflicts; The effects of structural equivalence on trust decay and trust repair
Transitivity	(Robins & Pattison, 2001)	(Ferrin et al., 2006; Lau & Liden, 2008; Robins et al., 2009)	×	×	Transitivity improves trust formation	Hierarchy in relations needs attention; The effects of transitivity on trust decay and trust repair
Third parties	(Barrera & van de Bunt, 2009; Wittek, 2001)	(Wong & Boh, 2010)	(Buskens et al., 2010; Frey et al., 2019; Gërkhani et al., 2013; Kvaløy & Luzuriaga, 2014)	(Yenkey, 2018)	Third parties play both passive and proactive roles	Effects of third parties on trust decay and trust repair

Trust formation		Cross-sectional		Experimental		Trust decay	Trust repair	Findings	Future research suggestions
Longitudinal	sectional	Longitudinal	sectional	Experimental	Experimental				
Centrality	×	×	(Sarker et al., 2011; Tsai & Ghoshal, 1998)	×	×	×	×	Centrality improves trust formation	Closeness centrality; The effects of centrality on trust decay and trust repair; Seek longitudinal evidence
Density	(Jonczyk et al., 2016)	×	(Burt & Burzynska, 2017; Ferrin et al., 2006; Gargiulo & Benassi, 2000; Karlan et al., 2009)	×	×	×	×	Density improves trust formation within a network but impedes trust formation across network boundaries	Network boundaries are of importance; The effects of network centralization on trust dynamics



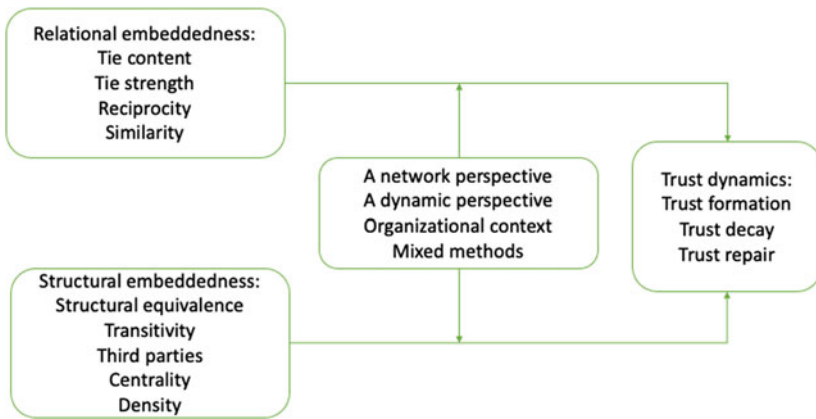


Fig. 1 Conceptual framework: Network embeddedness and trust dynamics

In addition, numbers of previous interactions, reflecting the strength of a tie, were found to affect trust formation positively (Barrera, 2007; Barrera & van de Bunt, 2009; Buskens et al., 2010; Van Miltenburg et al., 2012).

**Reciprocity** refers to the symmetry of a tie, i.e., the extent to which a tie from Actor A to Actor B is perceived as mutual also from the perspective of Actor B to Actor A (e.g., based on returning favors) (Borgatti et al., 2018). We discuss reciprocity separately instead of treating it as one of the dimensions of tie strength because an asymmetric tie, such as an advice-seeking tie, can also be strong. Reciprocity occurs within dyads, and it is argued to improve trust development through mutual recognition (Barrera & van de Bunt, 2009). However, we found inconsistent results from three studies in the review. On the one hand, in longitudinal studies researchers observed that reciprocity contributed to trust development over time (Barrera & van de Bunt, 2009; Robins & Pattison, 2001). On the other hand, in a cross-sectional study, Lusher et al. (2012) found that expressed trust relationships are not significantly reciprocated. Despite the inconclusive results, a clear distinction can be made: Although reciprocity predicts trust formation and persistence over time, at a given point in time, trust should not be assumed to be reciprocated.

*Similarity* is a relational concept, which is “operationally defined on such dimensions as age, sex, education, prestige, social class, tenure, and occupation” (Brass et al., 2004, p. 796). Similarity is commonly argued to predict tie formation, while the effect of similarity on trust formation has been less investigated. In our review, only two studies shed light on the relationship between similarity and trust formation (Comulada et al., 2012; Mäkelä et al., 2012). Researchers did not find consistent evidence that similarity, in terms of nationality (Mäkelä et al., 2012) or drug use (Comulada et al., 2012), is related to trust formation. We think that this lack of evidence may be caused because the studies failed to take mediators into account. Similarity predicts tie formation because similar people have more opportunities to interact with each other (Brass et al., 2004; Ertug et al., 2021; McPherson et al., 2001). Building on a formed tie, trust is then likely to develop. Therefore, we propose that similarity affects trust formation indirectly, through tie formation.

### **Structural Embeddedness and Trust Formation**

We identified five structural dimensions that influence trust formation: structural equivalence, transitivity, third parties, centrality, and density.

*Structural equivalence* refers to the extent to which two actors are similar regarding their connections and disconnections with others in a network (Ferrin et al., 2006). Research findings (three studies) are inconclusive regarding the effect of structural equivalence on trust formation. On the one hand, structural equivalence between an individual and a third party has an effect on trust formation. When a trustor and a third party share a great number of connections, the trustor is more likely to develop trust in a trustee who is trusted by the third party (Witteck, 2001). Sparrowe and Liden (2005) found that when an employee and a leader occupy similar connections within an organization, the employee is likely seen as influential, trustworthy, and reliable by other colleagues. On the other hand, structural equivalence between a trustor and a trustee was found to have inconclusive effects on trust formation between the trustor and trustee. Research concerning the evolution of a trust network did not find evidence that structural equivalents tend to develop trust

in each other over time (Witteck, 2001). The situation appears different in a communication network in a cross-sectional dataset. Ferrin et al. (2006) found that structural equivalence in a communication network was significantly related to trust: When two employees have communication connections with the same set of actors, they tend to trust each other. Considering that different methods are used in these two studies, the inconclusive findings can be summarized as follows: Although structural equivalence (between the trustor and trustee) is positively related to trust, it may not lead to trust over time.

**Transitivity** refers to the tendency to build relationships with contacts' contacts (Burk et al., 2007; Mirc & Parker, 2020). It describes a triadic structure: If Actor A has a tie to Actor B, and Actor B has a tie to Actor C, then Actor A tends to build a tie with Actor C (Holland & Leinhardt, 1977; Louch, 2000). Four studies in the review found that transitivity leads to trust formation (Ferrin et al., 2006; Lau & Liden, 2008; Robins & Pattison, 2001; Robins et al., 2009). Researchers found that a tendency towards transitivity existed in trust networks (Ferrin et al., 2006; Robins et al., 2009). Robins and Pattison (2001) investigated transitivity in a trust network from a dynamic perspective and found that transitive triads were stable over time once they formed. Under specific conditions, nevertheless, transitivity presented special features. For instance, Lau and Liden (2008) studied transitivity in a leadership context and found that employees tended to place more trust in fellow coworkers who were trusted by the leader. The conclusion was supported even though the precondition that the employees should have high trust in the leader was not found. In this case, the influence of the leader improved trust formation while the structure of transitivity is incomplete. This study indicates that apart from the structural features of transitivity, contextual factors, such as hierarchy, are relevant when investigating transitivity and trust formation. In conclusion, these studies provide empirical evidence supporting the relationship between transitivity and trust formation.

**Third Parties** Apart from the focus on the trustor and the trustee, the role of third parties has received considerable attention in explaining trust formation (seven articles in this review). We discuss the role of third parties separately from structural equivalence and transitivity, because in

this section we focus on third parties who are not assuming a specific position of structural equivalence or transitivity. On the one hand, we found that third parties can play a passive role in influencing trust formation between a trustor and a trustee because both trustor and trustee make decisions considering a broader reference—the presence of third parties. For instance, when trustees have connections with third parties who have more information and resource advantages, trustors tend to maintain trust relationships with the trustees (Wittek, 2001). Besides, a third party's entire network affects the process. Wong and Boh (2010) found that the ego network characteristics of employees who act as advocates of managers influence these managers' reputation among peers. Results in a trust game also show that a trustee was less likely to reciprocate trust to a trustor when the trustor was delegated to play the game for a third party's benefits instead of their own benefits (Kvaløy & Luzuriaga, 2014). Moreover, the presence of third parties functions as a sanctioning mechanism that can improve trust formation by reducing opportunistic behaviors (Buskens et al., 2010; Frey et al., 2019). This research suggests that the presence of third parties affects the trust relationship between a trustor and a trustee and that the effects are conditional on different contexts. On the other hand, we found that third parties can play a proactive role in influencing trust formation, e.g., by conveying information between a trustor and a trustee, third parties can influence their judgments about each other (Barrera & van de Bunt, 2009; Gërkhani et al., 2013).

**Centrality** refers to the extent to which “an actor is central [or core] to a network” (Brass, 2003, p. 288). Centrality can be operationalized through various measures in social network analysis, such as degree centrality, closeness centrality, and betweenness centrality (Freeman, 1978), which highlight different patterns of “traffic flows” through a network (Borgatti, 2005). As one of the most frequently studied concepts, centrality is generally argued to be advantageous because it provides greater power and influence (Bruning et al., 2018; Ibarra, 1993). Despite the popularity and advantages of centrality in social network studies, trust formation relative to centrality has been relatively deprived of scholarly attention. Only two studies in the review shed light on the roles of degree centrality and betweenness centrality in trust

formation (Sarker et al., 2011; Tsai & Ghoshal, 1998). Degree centrality refers to “the number of direct connections that a given actor (or node) has with other actors” (Li et al., 2013, p. 1517). Betweenness centrality refers to “the proportion of the shortest paths between all pairs of nodes that pass-through a given actor in the network” (Li et al., 2013, p. 1517). Sarker et al. (2011) found that an actor’s degree centrality in a communication network was positively related to that actor’s direct trust ties with others because the higher degree of communication the actor engages in increases others’ perceptions on the actor’s trustworthiness. Similarly, Tsai and Ghoshal (1998) found that an actor’s betweenness centrality in a social interaction network improved trust formation. These two studies used cross-sectional data to test the correlation between centrality and trust but did not investigate whether centrality could predict trust formation over time. In addition, other centrality patterns, such as closeness centrality, have not been explored to explain trust formation.

*Density* refers to “the ratio of existing ties between team members relative to the maximum possible number of such ties” (Balkundi & Harrison, 2006, p. 50). Density is used to explain how the whole network affects trust formation among actors in a network because density is perhaps “the most common way to index network structure as a whole” (Balkundi & Harrison, 2006, p. 50). Many studies in the review investigated the connection between network density and trust formation. Researchers found consistent evidence that network density improved trust formation, e.g., in social communities (Karlan et al., 2009), in managers’ networks (Gargiulo & Benassi, 2000), in intra-organizational networks (Ferrin et al., 2006), and in different contexts of West and East (Burt & Burzynska, 2017). In spite of the consistency regarding the relationship between density and trust within a network, Jonczyk et al. (2016) came up with a different rationale. In their empirical work, they found that internal network density limited the new trust relationship building across network boundaries. Therefore, when investigating how density affects trust formation, it is also important to consider the network boundaries.

## Trust Decay

Only limited attention has been paid to investigating trust decay from a network perspective, as outlined by the low count of occurrence of trust decay studies in Table 1. In the review, only two studies shed light on this topic (Lee & Chuang, 2018; Yenkey, 2018). After the occurrence of a trust violation, Yenkey (2018) found that the relations between the victim (trustor) and violator (trustee) affect the formation and diffusion of distrust. Specifically, when the victim and violator belonged to the same social group, the victim was less likely to attribute the blame to the group wherein they have the same identity. The study of Yenkey (2018) suggests that dyadic relational characteristics, such as ties strength and reciprocity, affect trust decay. Apart from dyadic factors, another study by Lee and Chuang (2018) indicates that third parties play a role in trust decay. Lee and Chuang (2018) considered the loss of benefits of a third party when they investigated immoral behaviors between a trustor and a trustee. They found that the trustor and the trustee could collude to generate benefits for themselves by sacrificing a third party's benefits. This implies the possibility that third parties may behave proactively in trust decay, with the purpose of protecting their own benefits.

## Trust Repair

Trust repair has received much attention in research, although rarely from a social network perspective. In our review, only one study investigated how third parties contribute to trust repair (Yu et al., 2017). Yu et al. (2017) found in an experiment that persuasion and guarantees from third parties increased trustors' willingness to reconcile with trustees after the occurrence of violations. This study indicates that third parties are able to influence trust repair between the trustor and trustee. In general, considering that both trustor and trustee, as well as events of violations and repair actions are situated in a network (Kim et al., 2013), we argue that research on trust repair needs to be enriched by further investigations from a network perspective (Kähkönen et al., 2021).

## Discussion and Conclusion

Responding to calls to investigate trust from a social network perspective (Gupta et al., 2016) and from a dynamic perspective (Fulmer & Gelfand, 2012), this chapter provides a systematic literature review to examine how intra-organizational network embeddedness influences interpersonal trust dynamics. We identified dimensions of network embeddedness as antecedents of trust dynamics, including four relational factors (tie content, tie strength, reciprocity, and similarity) and five structural factors (structural equivalence, transitivity, third parties, centrality, and density). We then analyzed the effects of network embeddedness on trust in each stage of trust formation, decay, and repair. We found that network embeddedness has diverse effects on trust dynamics. However, we also contend that, although the review spans a long period, this research question has not been clearly answered and significant gaps remain. We propose a research agenda to address this question.

## Future Research Agenda

### A Network Perspective

Trust is embedded in social relations, whose quality and configuration affect trustors' and trustees' judgments of and reactions to each other (Schilke et al., 2021). Previous research has justified this argument, and more is to be unpacked in future research to deepen our understanding of trust from a network perspective. First, apart from the network dimensions summarized above, space remains for future research to explore how other network dimensions affect trust dynamics. For instance, extant research shows that ego's degree centrality (Sarker et al., 2011) and betweenness centrality (Tsai & Ghoshal, 1998) increase the probability of being perceived as trustworthy, while the effect of closeness centrality remains unexplored. Closeness centrality refers to "the mean shortest distance by which a given actor is separated from all other nodes in a network" (Li et al., 2013, p. 1517). With the shortest distance to reach out to all others in an organization (Freeman, 1978), it remains

interesting to investigate whether closeness centrality improves the focal actor's trust relationships with others. Researchers need to be aware that a high closeness centrality means a high degree of exposure to multiple and diverse others, which might influence the stability of the focal actor's trust relationships with certain trustees. In addition, at a network level, we obtained insights into the effects of density on trust formation (Gargiulo & Benassi, 2000; Karlan et al., 2009), while it remains unclear whether centralization plays a role in trust development. Centralization refers to "the extent to which exchange relationships are concentrated among a few individuals" (Chung et al., 2011, p. 739). Different from density, which shows the degree of cohesion of a network, centralization additionally shows the distribution of the cohesion (Chung et al., 2011). The question of whether a centralized context improves or impedes trust development deserves further research. Individuals in a centralized network tend to develop a shared identity, which leads to trust development. However, centralization might indicate lower density and impede the formation of trust. Another question that prior research has left unexplored is how multiple network dimensions, which often co-exist, interact to affect trust dynamics (Chung et al., 2011). For instance, the effect of degree centrality on trust formation in a centralized context might differ from the effect in a decentralized context, as a decentralized structure may weaken the advantages of an individual's degree centrality.

Moreover, we suggest that a network perspective enriches the research on trust decay and repair. For instance, in a dyadic context, tie strength is a critical factor influencing trust decay. Considering that weak ties are built without strong emotional foundations, they may suffer more from trust violations, which thus more likely lead to trust decay. Nevertheless, strong ties may also lead to trust decay with a higher probability because (certain types of) trust violations can damage the trustor's identity and positive expectations regarding the strong relationship. Another topic that is interesting for future research is the role of third parties. Tying in with current developments in the network literature to move beyond dyadic and bilateral relationships as antecedents to trust, future work could explore third and further n-party effects on trust dynamics between individuals or groups (Dirks & de Jong, 2021; Gupta et al., 2016). For instance, building on the effect of direct reciprocity involving



two parties on trust, which is the mainstream of extant research, future research may also explore how indirect reciprocity involving third parties affects trust (Molm, 2010). This is a promising avenue to make a contribution because so far, these two topics are mainly investigated in a dyadic or individual context.

## A Dynamic Perspective

Prior research investigated the connection between network embeddedness and trust (for a review, see Fulmer & Gelfand, 2012), while the dynamic perspective needs more attention. First, the relations between trust formation, decay, and repair can be explored to enrich our understanding of trust dynamics. To date, extant research has investigated the effects of network embeddedness on trust formation. Research on trust decay and repair could build on the extant research on trust formation under the condition that the connections between the three stages are clear. For instance, strong ties are found to predict trust formation (Jonczyk et al., 2016; Levin et al., 2011), but it remains unexplored how strong ties affect trust decay or repair. Tie strength between the trustor and trustee may lead to different levels of tolerance towards and expectations of each other; as a result, they may display varying attitudes and behaviors responding to trust decay and trust repair. Providing that the connections between trust formation, decay, and repair are made clear, researchers can investigate the effects of tie strength on trust decay and repair based on extant research on trust formation.

Second, we suggest focusing on the difference/alignment between trustfulness and trustworthiness in a trust relationship (Fulmer & Gelfand, 2012). As Bachmann et al. (2015) suggest the trustor and the trustee play different roles in a trust relationship and both influence trust development. For instance, Jones and Shah (2016) found that the trustor and the trustee influence trust formation differently in that the trustor's influence decreases while trustee's influence increases over time. When the trustor's level of trustfulness does not correspond to the level of the trustee's trustworthiness, this trust relationship is unbalanced and may change. The alignment and mis-alignment may also explain

the dynamics of trust. Additionally, trust is not divorced from environmental uncertainty and potential risks involved because trusting means that trustors are willing to take risks in an uncertain environment. Environmental factors, such as uncertainty, change over time and affect trust dynamics accordingly. Cheshire et al. (2010) have found that shifting between high and low uncertain environments and high and low cooperative situations affect the level of trust of interactive parties. Their work inspires future research to shed light on the dynamics of the environment and social networks, which affect the dynamics of trust. A network perspective and a dynamic perspective should not be treated as separate angles; instead, the combination and integration of both are likely to make a difference in future research.

### **Organizational Context**

Different organizational contexts also account for inconclusive findings in extant research and are a factor that needs to be considered. First, to better understand the complex process of trust dynamics, it helps to identify clear network boundaries (Bachmann et al., 2015; Pirson & Malhotra, 2011). For instance, internal network density was argued to affect trust formation either positively within the network (Ferrin et al., 2006) or negatively across networks (Jonczyk et al., 2016). What also matters is the network context. Reciprocity in a friendship network may work differently from how reciprocity in an advice network affects trust dynamics given their underlying expectations of (a)symmetry. Furthermore, we propose to pay attention to hierarchical or status differences involved in the relations. Depending on the hierarchical level of the trustor, the trustee, and the third parties, trust development shows different features. Hierarchy in leadership could offset incomplete transitivity in leading to trust formation (Lau & Liden, 2008). De Cremer et al. (2018) and Fulmer and Ostroff (2017) also developed a trickle-down and a trickle-up model across hierarchical levels and found that trust can be transferred from subordinates to top managers via a direct supervisor. Thus, hierarchy influences the direction of trust transfer and trust formation. Future work could also look into the effect of sudden network changes due to exogenous network factors on interpersonal trust

dynamics. Recent work on intra-organizational network disruption, for instance, identified the role of sudden tie loss as an exogenous trigger for an individual's inclination towards discretionary new tie formations (Aalbers, 2020). A related mechanism may hold for the trust dynamics in these relationships.

## Mixed Methods

In this review, we found that some findings are inconclusive because of the usage of different methods. For instance, in longitudinal studies reciprocity was found to contribute to trust formation over time (Barrera & van de Bunt, 2009; Robins & Pattison, 2001), while in a cross-sectional study trust ties did not show a significant reciprocal effect (Lusher et al., 2012). This implies that reciprocity increases trust formation over time, whereas trust is not always reciprocated (Schoorman et al., 2007). The same issue also exists in the relationship between structural equivalence and trust formation. This might inspire future research to use mixed methods to enhance the validity of the results. Moreover, endogeneity problems are present in many network studies (Ellwardt et al., 2012), and they may also occur in examining the relationship between network embeddedness and trust dynamics. Recently, network studies have started testing theoretical models using mixed methods (e.g., a combination of a cross-sectional survey and an experiment, see Dirks & Skarlicki, 2009; a combination of two cross-sectional surveys and an experiment, see McCarthy & Levin, 2019). Given the possibility to examine causality in longitudinal studies, and correlations in cross-sectional studies, as well as the flexibility in terms of research design in experiments, we propose a combination of multiple methods to test the relationships between network embeddedness and trust dynamics.

## Limitations

The first limitation concerns the selection criteria that were used to include articles in the systematic literature review. Articles from journals with lower impact factors were excluded to warrant the quality of the

reviewed work. This increases the risk of missing articles that may also be relevant. Although the formal selection criteria included quantitative articles, possibly missing important theoretical and qualitative research, additional literature has been considered as background information. Content-wise, we narrowed the literature down to interpersonal level interactions, while we did not consider articles concerning trust in organizations, teams, or groups. Although this choice allows sufficient depth to analyze the literature by focusing on trust at the interpersonal level, we admit that a review of trust incorporating other levels would enrich the theoretical system. Finally, we focused on the dynamics of trust in three stages while we did not shed light on the dimensionality of trust. We believe that network embeddedness may produce different effects on separate dimensions of trust (e.g., affective vs cognitive dimension) and that this topic deserves further attention.

## Practical Implications

Our research provides several implications for practitioners to build and repair trust in an organizational context. Our findings unveil a series of network factors that can explain trust dynamics. These factors could serve as a foundation for future trust-building and repair activity by management. Trust dynamics form the informal backbone of an organization—and our findings allow management to better understand the social infrastructure that partially carries a firm's trust climate. As such, our research implications extend prior work that directs senior executives seeking to implement strategic change to consider the social structures as a way to get employees connected and reconnected with each other, thereby improving individual and organizational performance.

We find that network structures are an important antecedent that is malleable for managers to improve trust networks between employees. First, increasing organizational network density can increase the possibility of trust building within the organization because in a dense network people are less likely to adopt opportunistic behavior. Managers can improve trust formation by encouraging internal interactions, such

as organizing formal and informal activities, between employees. Meanwhile, increasing density internally may have a negative effect on extending ties to other organizational units—a trade-off managers have to be aware of. Depending on the organizational goals, managers need to help build and at the same time balance the internal and external networks of their employees. In a sales organization, wherein employees are supposed to reach out to external stakeholders, managers not only need to stimulate an internal climate of trust and network density but also need to create space to develop external networks.

Second, third parties can help mediate after a trust violation and repair trust between the trustor and trustee. Managers can orchestrate a third-party coordination mechanism to repair trust between employees. In some cases, parties involved in a trust violation lack the motivation or opportunity to be reconciled. A third party can play a role in bringing both parties together. Giving that trust violations create a negative climate in an organization and may have a bad effect on individual and organizational performance, a third-party coordination mechanism thus deserves managers' attention and effort. Meanwhile, they should be aware that a third party needs to be neutral or have positive connections with both parties without being partial.

Third, we find that there is a potential tension between employees who occupy similar positions in an organization, which should draw managers' attention. Although two employees sharing a higher level of similar connections may be more likely to trust each other, they are also interchangeable and can be competitors. This consideration should also raise managers' awareness to coordinate relationships between such employees.

Managers may also want to know who occupies a central position in their organizational network. Occupation of a central position means power and access to resources. Such employees are likely trusted by others because of their possession of resources but also are likely questioned and doubted by others because they control resource flows. To effectively run the organization and improve organizational functionality, managers should be able to influence and manage centrality. For instance, managers may need to reward and retain an employee who occupies a central position and is trusted by many colleagues. Managers

may hope to mitigate the conflicts between a central employee and others when that employee is disliked by others because he/she controls and takes advantage of the resource flows between others.

Finally, our insights signal why and when individuals turn to their social network environment to obtain cues when looking for information regarding who can be trusted and whether it is worthwhile to repair trust. Employees often encounter a dilemma in which they want to collaborate with a colleague but do not know whether that colleague is trustworthy, or they might hesitate to forgo or repair a relationship when their trust in someone was violated. Our insights suggest that in such cases, network structure, such as tie strength, provides a cue for individuals to judge whether that person can be relied on in the future. Although practitioners are limited in the information that they can directly obtain, the network environment provides them with possibilities to obtain and process additional information from their contacts. Management, in turn, could invest in the monitoring and screening of individual relational and trust profiles in preparation for future interventions, as a manner to help direct the potentially limited support resources more effectively and in a manner that retains or restores trust levels in the organization.

Practitioners might be confused of how to make use of the network structures since neither interpersonal interactions nor network ties among employees are overt. Research shows that social network analysis can make these interactions visible by analyzing and visualizing them (Cross et al., 2003). Practitioners are able to make use of the networks to improve the organizational trust climate and performance, bearing in mind network characteristics and trust-network associations. To summarize, such awareness and knowledge are the main practical implications of our research.

## Contributions

This chapter looked into the trust-network link as a potential answer to how organizations can make use of the understanding of their social networks to develop and repair trust among employees. First, we

extended the research of trust from an individual phenomenon into an organizational context by adapting a network perspective. Considering the social nature of trust, we showed that it is necessary to complement prior research by studying how network ties influence trust (Ferrin et al., 2006). We identified relational and structural dimensions of network embeddedness that affect trust dynamics. By doing so, we responded to the call to integrate psychology and network perspectives to investigate organizational phenomena (Casciaro et al., 2015). Second, we deepened the understanding of the complete trust dynamics process by investigating trust dynamics as a process of trust formation, decay, and repair. We observed that, compared to trust formation, trust decay and repair received far less attention from a network perspective; trust repair is mostly studied in experimental settings. To conclude, in this chapter, we have identified major research gaps, proposed promising avenues for future research, and suggested practical implications for management.

## References

- Aalbers, R. H. (2020). Rewiring the intrafirm network under downsizing: The role of tie loss on discretionary tie formation. *Long Range Planning*, 53(3), 1–13. <https://doi.org/10.1016/j.lrp.2018.11.002>
- Aquino, K., Tripp, T. M., & Bies, R. J. (2001). How employees respond to personal offense: The effects of blame attribution, victim status, and offender status on revenge and reconciliation in the workplace. *Journal of Applied Psychology*, 86(1), 52–59. <https://doi.org/10.1037/0021-9010.86.1.52>
- Bachmann, R., Gillespie, N., & Priem, R. (2015). Repairing Trust in Organizations and Institutions: Toward a Conceptual Framework. *Organization Studies*, 36(9), 1123–1142. <https://doi.org/10.1177/0170840615599334>
- Baer, M. (2010). The strength-of-weak-ties perspective on creativity: A comprehensive examination and extension. *Journal of Applied Psychology*, 95(3), 592–601. <https://doi.org/10.1037/a0018761>
- Baer, M. D., Matta, F. K., Kim, J. K., Welsh, D. T., & Garud, N. (2018). It's not you, it's them: Social influences on trust propensity and trust dynamics. *Personnel Psychology*, 71(3), 423–455. <https://doi.org/10.1111/peps.12265>

- Balkundi, P., & Harrison, D. A. (2006). Ties, leaders, and time in teams: Strong inference about network structure's effects on team viability and performance. *Academy of Management Journal*, 49(1), 49–68. <https://doi.org/10.5465/amj.2006.20785500>
- Barrera, D. (2007). The impact of negotiated exchange on trust and trustworthiness. *Social Networks*, 29(4), 508–526. <https://doi.org/10.1016/j.socnet.2007.03.004>
- Barrera, D., & van de Bunt, G. G. (2009). Learning to trust: Networks effects through time. *European Sociological Review*, 25(6), 709–721. <https://doi.org/10.1093/esr/jcn078>
- Bianchi, F., Casnici, N., & Squazzoni, F. (2018). Solidarity as a byproduct of professional collaboration: Social support and trust in a coworking space. *Social Networks*, 54, 61–72. <https://doi.org/10.1016/j.socnet.2017.12.002>
- Bijlsma-Frankema, K., Sitkin, S. B., & Weibel, A. (2015). Distrust in the balance: The emergence and development of intergroup distrust in a court of law. *Organization Science*, 26(4), 1018–1039. <https://doi.org/10.1287/orsc.2015.0977>
- Borgatti, S. P. (2005). Centrality and network flow. *Social Networks*, 27(1), 55–71. <https://doi.org/10.1016/j.socnet.2004.11.008>
- Borgatti, S. P., Everett, M. G., & Johnson, J. C. (2018). *Analyzing social networks*. Sage.
- Brass, D. J. (2003). A social network perspective on human resources management. In R. Cross, A. Parker, & L. Sasson (Eds.), *Networks in the knowledge economy* (pp. 283–323). Oxford University Press.
- Brass, D. J., Galaskiewicz, J., Greve, H. R., & Tsai, W. (2004). Taking stock of networks and organizations: A multilevel perspective. *Academy of Management Journal*, 47(6), 795–817. <https://doi.org/10.5465/20159624>
- Bruning, P. F., Alge, B. J., & Lin, H. C. (2018). The embedding forces of network commitment: An examination of the psychological processes linking advice centrality and susceptibility to social influence. *Organizational Behavior and Human Decision Processes*, 148, 54–69. <https://doi.org/10.1016/j.obhdp.2018.07.002>
- Burk, W. J., Steglich, C. E., & Snijders, T. A. (2007). Beyond dyadic interdependence: Actor-oriented models for co-evolving social networks and individual behaviors. *International Journal of Behavioral Development*, 31(4), 397–404. <https://doi.org/10.1177/0165025407077762>
- Burt, R. S., & Burzynska, K. (2017). Chinese entrepreneurs, social networks, and guanxi. *Management and Organization Review*, 13(2), 221–260. <https://doi.org/10.1017/mor.2017.6>



- Buskens, V., Raub, W., & van der Veer, J. (2010). Trust in triads: An experimental study. *Social Networks*, *32*(4), 301–312. <https://doi.org/10.1016/j.socnet.2010.05.001>
- Casciaro, T., Barsade, S. G., Edmondson, A. C., Gibson, C. B., Krackhardt, D., & Labianca, G. (2015). The integration of psychological and network perspectives in organizational scholarship. *Organization Science*, *26*(4), 1162–1176. <https://doi.org/10.1287/orsc.2015.0988>
- Cheshire, C., Gerbasi, A., & Cook, K. S. (2010). Trust and transitions in modes of exchange. *Social Psychology Quarterly*, *73*(2), 176–195. <https://doi.org/10.1177/0190272509359615>
- Chua, R. Y. J., Ingram, P., & Morris, M. W. (2008). From the head and the heart: Locating cognition-and affect-based trust in managers' professional networks. *Academy of Management Journal*, *51*(3), 436–452. <https://doi.org/10.5465/amj.2008.32625956>
- Chung, M. H., Park, J., Moon, H. K., & Oh, H. (2011). The multilevel effects of network embeddedness on interpersonal citizenship behavior. *Small Group Research*, *42*(6), 730–760. <https://doi.org/10.1177/1046496411417732>
- Coleman, J. S. (1958). Relational analysis: The study of social organizations with survey methods. *Human Organization*, *17*(4), 28–36.
- Comulada, W. S., Muth, S. Q., & Latkin, C. A. (2012). The analysis of multiple ties in longitudinal egocentric network data: A case study on bidirectional relationships between trust and drug use. *Social Networks*, *34*(4), 691–700. <https://doi.org/10.1016/j.socnet.2012.08.005>
- Cross, R., Parker, A., Prusak, L., & Borgatti, S. P. (2003). Knowing what we know. In R. Cross, A. Parker, & L. Sasson (Eds.), *Networks in the knowledge economy* (pp. 100–120). Oxford University Press.
- De Cremer, D., van Dijke, M., Schminke, M., De Schutter, L., & Stouten, J. (2018). The trickle-down effects of perceived trustworthiness on subordinate performance. *Journal of Applied Psychology*, *103*(12), 1335–1357. <https://doi.org/10.1037/apl0000339>
- Dirks, K. T., & de Jong, B. (2021). Trust within the workplace: A review of two waves of research and a glimpse of the third. *Annual Review of Organizational Psychology and Organizational Behavior*, *9*, 247–276. <https://doi.org/10.1146/annurev-orgpsych-012420-083025>
- Dirks, K. T., & Ferrin, D. L. (2001). The role of trust in organizational settings. *Organization Science*, *12*(4), 450–467. <https://doi.org/10.1287/orsc.12.4.450.10640>

- Dirks, K. T., Lewicki, R. J., & Zaheer, A. (2009). Repairing relationships within and between organizations: Building a conceptual foundation. *Academy of Management Review*, *34*(1), 68–84. <https://doi.org/10.5465/amr.2009.35713285>
- Dirks, K. T., & Skarlicki, D. P. (2009). The relationship between being perceived as trustworthy by coworkers and individual performance. *Journal of Management*, *35*(1), 136–157. <https://doi.org/10.1177/0149206308321545>
- Ellwardt, L., Wittek, R., & Wielers, R. (2012). Talking about the boss: Effects of generalized and interpersonal trust on workplace gossip. *Group & Organization Management*, *37*(4), 521–549. <https://doi.org/10.1177/1059601112450607>
- Ertug, G., Brennecke, J., Kovacs, B., & Zou, T. (2021). What does homophily do? A review of the consequences of homophily. *Academy of Management Annals*, *16*(1), 38–69. <https://doi.org/10.5465/annals.2020.0230>
- Ferrin, D. L., Dirks, K. T., & Shah, P. P. (2006). Direct and indirect effects of third-party relationships on interpersonal trust. *Journal of Applied Psychology*, *91*(4), 870–883. <https://doi.org/10.1037/0021-9010.91.4.870>
- Freeman, L. C. (1978). Centrality in social networks conceptual clarification. *Social Networks*, *1*(3), 215–239. [https://doi.org/10.1016/0378-8733\(78\)90021-7](https://doi.org/10.1016/0378-8733(78)90021-7)
- Frey, V., Buskens, V., & Corten, R. (2019). Investments in and returns on network embeddedness: An experiment with trust games. *Social Networks*, *56*, 81–92. <https://doi.org/10.1016/j.socnet.2018.07.006>
- Fulmer, C. A., & Gelfand, M. J. (2012). At what level (and in whom) we trust: Trust across multiple organizational levels. *Journal of Management*, *38*(4), 1167–1230. <https://doi.org/10.1177/0149206312439327>
- Fulmer, C. A., & Ostroff, C. (2017). Trust in direct leaders and top leaders: A trickle-up model. *Journal of Applied Psychology*, *102*(4), 648–657. <https://doi.org/10.1037/apl0000189>
- Gargiulo, M., & Benassi, M. (2000). Trapped in your own net? Network cohesion, structural holes, and the adaptation of social capital. *Organization Science*, *11*(2), 183–196. <https://doi.org/10.1287/orsc.11.2.183.12514>
- Gërkhani, K., Brandts, J., & Schram, A. (2013). The emergence of employer information networks in an experimental labor market. *Social Networks*, *35*(4), 541–560. <https://doi.org/10.1016/j.socnet.2013.08.001>
- Giest, S. (2019). Trust dynamics in innovation networks: The Chicago life science cluster. *Administration & Society*, *51*(2), 325–343. <https://doi.org/10.1177/0095399717701522>

- Gillespie, N., & Dietz, G. (2009). Trust repair after an organization-level failure. *Academy of Management Review*, *34*(1), 127–145. <https://doi.org/10.5465/amr.2009.35713319>
- Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, *91*(3), 481–510. <https://doi.org/10.1086/228311>
- Gulati, R. (1998). Alliances and networks. *Strategic Management Journal*, *19*(4), 293–317. [https://doi.org/10.1002/\(SICI\)1097-0266\(199804\)19:4](https://doi.org/10.1002/(SICI)1097-0266(199804)19:4)
- Gupta, N., Ho, V., Pollack, J. M., & Lai, L. (2016). A multilevel perspective of interpersonal trust: Individual, dyadic, and cross-level predictors of performance. *Journal of Organizational Behavior*, *37*(8), 1271–1292. <https://doi.org/10.1002/job.2104>
- Holland, P. W., & Leinhardt, S. (1977). A method for detecting structure in sociometric data. In *Social networks* (pp. 411–432). Elsevier. <https://doi.org/10.1016/B978-0-12-442450-0.50028-6>
- Ibarra, H. (1993). Network centrality, power, and innovation involvement: Determinants of technical and administrative roles. *Academy of Management Journal*, *36*(3), 471–501. <https://doi.org/10.5465/256589>
- Jonczyk, C. D., Lee, Y. G., Galunic, C. D., & Bensaou, B. M. (2016). Relational changes during role transitions: The interplay of efficiency and cohesion. *Academy of Management Journal*, *59*(3), 956–982. <https://doi.org/10.5465/amj.2013.0972>
- Jones, S. L., & Shah, P. P. (2016). Diagnosing the locus of trust: A temporal perspective for trustor, trustee, and dyadic influences on perceived trustworthiness. *Journal of Applied Psychology*, *101*(3), 392–414. <https://doi.org/10.1037/apl0000041>
- Kähkönen, T., Blomqvist, K., Gillespie, N., & Vanhala, M. (2021). Employee trust repair: A systematic review of 20 years of empirical research and future research directions. *Journal of Business Research*, *130*, 98–109. <https://doi.org/10.1016/j.jbusres.2021.03.019>
- Karlan, D., Mobius, M., Rosenblat, T., & Szeidl, A. (2009). Trust and social collateral. *The Quarterly Journal of Economics*, *124*(3), 1307–1361. <https://doi.org/10.1162/qjec.2009.124.3.1307>
- Kim, P. H., Cooper, C. D., Dirks, K. T., & Ferrin, D. L. (2013). Repairing trust with individuals vs. groups. *Organizational Behavior and Human Decision Processes*, *120*(1), 1–14. <https://doi.org/10.1016/j.obhdp.2012.08.004>
- Kim, P. H., Dirks, K. T., & Cooper, C. D. (2009). The repair of trust: A dynamic bilateral perspective and multilevel conceptualization. *Academy*

- of Management Review*, 34(3), 401–422. <https://doi.org/10.5465/amr.2009.40631887>
- Kim, Y. A., & Song, H. S. (2011). Strategies for predicting local trust based on trust propagation in social networks. *Knowledge-Based Systems*, 24(8), 1360–1371. <https://doi.org/10.1016/j.knosys.2011.06.009>
- Korsgaard, M. A., Kautz, J., Bliese, P., Samson, K., & Kostyszyn, P. (2018). Conceptualising time as a level of analysis: New directions in the analysis of trust dynamics. *Journal of Trust Research*, 8(2), 142–165. <https://doi.org/10.1080/21515581.2018.1516557>
- Kvaløy, O., & Luzuriaga, M. (2014). Playing the trust game with other people's money. *Experimental Economics*, 17(4), 615–630. <https://doi.org/10.1007/s10683-013-9386-4>
- Lau, D. C., & Liden, R. C. (2008). Antecedents of coworker trust: Leaders' blessings. *Journal of Applied Psychology*, 93(5), 1130–1138. <https://doi.org/10.1037/0021-9010.93.5.1130>
- Lee, W. S., & Chuang, Y. H. (2018). Experimental investigation into the role of trust in collusion. *Business Ethics-a European Review*, 27(1), 81–94. <https://doi.org/10.1111/beer.12175>
- Levin, D. Z., & Cross, R. (2004). The strength of weak ties you can trust: The mediating role of trust in effective knowledge transfer. *Management Science*, 50(11), 1477–1490. <https://doi.org/10.1287/mnsc.1030.0136>
- Levin, D. Z., Walter, J., & Murnighan, J. K. (2011). Dormant ties: The value of reconnecting. *Organization Science*, 22(4), 923–939. <https://doi.org/10.1287/orsc.1100.0576>
- Lewicki, R. J., Tomlinson, E. C., & Gillespie, N. (2006). Models of interpersonal trust development: Theoretical approaches, empirical evidence, and future directions. *Journal of Management*, 32(6), 991–1022. <https://doi.org/10.1177/0149206306294405>
- Li, E. Y., Liao, C. H., & Yen, H. R. (2013). Co-authorship networks and research impact: A social capital perspective. *Research Policy*, 42(9), 1515–1530. <https://doi.org/10.1016/j.respol.2013.06.012>
- Louch, H. (2000). Personal network integration: Transitivity and homophily in strong-tie relations. *Social Networks*, 22(1), 45–64. [https://doi.org/10.1016/S0378-8733\(00\)00015-0](https://doi.org/10.1016/S0378-8733(00)00015-0)
- Lusher, D., Robins, G., Pattison, P. E., & Lomi, A. (2012). “Trust Me”: Differences in expressed and perceived trust relations in an organization. *Social Networks*, 34(4), 410–424. <https://doi.org/10.1016/j.socnet.2012.01.004>

- Mäkelä, K., Andersson, U., & Seppälä, T. (2012). Interpersonal similarity and knowledge sharing within multinational organizations. *International Business Review*, 21(3), 439–451. <https://doi.org/10.1016/j.ibusrev.2011.05.003>
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20(3), 709–734. <https://doi.org/10.5465/amr.1995.9508080335>
- McCarthy, J. E., & Levin, D. Z. (2019). Network residues: The enduring impact of intra-organizational dormant ties. *Journal of Applied Psychology*, 104(11), 1434–1445. <https://doi.org/10.1037/apl0000410>
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27, 415–444. <https://doi.org/10.1146/annurev.soc.27.1.415>
- Methot, J. R., Lepine, J. A., Podsakoff, N. P., & Christian, J. S. (2016). Are workplace friendships a mixed blessing? Exploring tradeoffs of multiplex relationships and their associations with job performance. *Personnel Psychology*, 69(2), 311–355. <https://doi.org/10.1111/peps.12109>
- Mirc, N., & Parker, A. (2020). If you do not know who knows what: Advice seeking under changing conditions of uncertainty after an acquisition. *Social Networks*, 61, 53–66. <https://doi.org/10.1016/j.socnet.2019.08.006>
- Molm, L. D. (2010). The structure of reciprocity. *Social Psychology Quarterly*, 73(2), 119–131. <https://doi.org/10.1177/0190272510369079>
- Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23(2), 242–266. <https://doi.org/10.2307/259373>
- Olk, P., & Elvira, M. (2001). Friends and strategic agents: The role of friendship and discretion in negotiating strategic alliances. *Group & Organization Management*, 26(2), 124–164. <https://doi.org/10.1177/1059601101262002>
- Pirson, M., & Malhotra, D. (2011). Foundations of organizational trust: What matters to different stakeholders? *Organization Science*, 22(4), 1087–1104. <https://doi.org/10.1287/orsc.1100.0581>
- Podolny, J. M., & Baron, J. N. (1997). Resources and relationships: Social networks and mobility in the workplace. *American Sociological Review*, 62(5), 673–693. <https://doi.org/10.2307/2657354>
- Ren, H., & Gray, B. (2009). Repairing relationship conflict: How violation types and culture influence the effectiveness of restoration rituals. *Academy of Management Review*, 34(1), 105–126. <https://doi.org/10.5465/amr.2009.35713307>

- Robins, G., & Pattison, P. (2001). Random graph models for temporal processes in social networks. *Journal of Mathematical Sociology*, 25(1), 5–41. <https://doi.org/10.1080/0022250X.2001.9990243>
- Robins, G., Pattison, P., & Wang, P. (2009). Closure, connectivity and degree distributions: Exponential random graph ( $p^*$ ) models for directed social networks. *Social Networks*, 31(2), 105–117. <https://doi.org/10.1016/j.socnet.2008.10.006>
- Sarker, S., Ahuja, M., Sarker, S., & Kirkeby, S. (2011). The role of communication and trust in global virtual teams: A social network perspective. *Journal of Management Information Systems*, 28(1), 273–310. <https://doi.org/10.2753/Mis0742-1222280109>
- Schilke, O., Reimann, M., & Cook, K. S. (2021). Trust in social relations. *Annual Review of Sociology*, 47, 239–259. <https://doi.org/10.1146/annurev-soc-082120-082850>
- Schoorman, F. D., Mayer, R. C., & Davis, J. H. (2007). An integrative model of organizational trust: Past, present, and future. *Academy of Management Review*, 32(2), 344–354. <https://doi.org/10.5465/amr.2007.24348410>
- Schweitzer, M. E., Hershey, J. C., & Bradlow, E. T. (2006). Promises and lies: Restoring violated trust. *Organizational Behavior and Human Decision Processes*, 101(1), 1–19. <https://doi.org/10.1016/j.obhdp.2006.05.005>
- Sparrowe, R. T., & Liden, R. C. (2005). Two routes to influence: Integrating leader-member exchange and social network perspectives. *Administrative Science Quarterly*, 50(4), 505–535. <https://doi.org/10.2189/asqu.50.4.505>
- Tsai, W., & Ghoshal, S. (1998). Social capital and value creation: The role of intrafirm networks. *Academy of Management Journal*, 41(4), 464–476. <https://doi.org/10.2307/257085>
- Van Miltenburg, N., Buskens, V., & Raub, W. (2012). Trust in triads: Experience effects. *Social Networks*, 34(4), 425–428. <https://doi.org/10.1016/j.socnet.2012.01.006>
- Witek, R. (2001). Mimetic trust and intra-organizational network dynamics. *Journal of Mathematical Sociology*, 25(1), 109–138. <https://doi.org/10.1080/0022250X.2001.9990246>
- Wong, S. S., & Boh, W. F. (2010). Leveraging the ties of others to build a reputation for trustworthiness among peers. *Academy of Management Journal*, 53(1), 129–148. <https://doi.org/10.5465/amj.2010.48037265>
- Yenkey, C. B. (2018). Fraud and market participation: Social relations as a moderator of organizational misconduct. *Administrative Science Quarterly*, 63(1), 43–84. <https://doi.org/10.1177/0001839217694359>

- Yu, Y., Yang, Y., & Jing, F. (2017). The role of the third party in trust repair process. *Journal of Business Research*, 78, 233–241. <https://doi.org/10.1016/j.jbusres.2017.01.015>
- Zaheer, A., McEvily, B., & Perrone, V. (1998). Does trust matter? Exploring the effects of interorganizational and interpersonal trust on performance. *Organization Science*, 9(2), 141–159. <https://doi.org/10.1287/orsc.9.2.141>

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# Correction to: Understanding Workplace Relationships

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The original version of FM, Chapters 3 and 11 were inadvertently published with incorrect affiliations for authors Julia Brennecke and Andrew Parker, which have now been updated. The chapters have been updated with the changes.

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