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A social network perspective on workplace inclusion: The role of network closure, network centrality, and need for affiliation

Abstract

Organizations are increasingly recognizing the important role employee inclusion perceptions play in promoting positive employee attitudes and behaviors. Although social networks are frequently cited as being a driver of perceived inclusion, little empirical work has examined the social network conditions that give rise to it. We address this gap by examining how both network position (indegree centrality) and network structure (network closure) relate to perceived workplace inclusion. We test our hypotheses with a sample of 364 professionals in a multinational pharmaceutical firm. We find that both indegree centrality and network closure are positively related to perceived workplace inclusion. The relationship between network centrality and perceived workplace inclusion is strengthened by a high level of network closure. In addition, the relationship between network closure and perceived workplace inclusion is strengthened by a high level of need for affiliation. Our results, therefore, suggest that both network centrality and closure play an important role in employee perceptions of inclusion and demonstrate the importance of considering need for affiliation as a boundary condition. We conclude by discussing the implications of these findings for theory and practice.

Keywords: workplace inclusion, social network centrality, social network closure, need for affiliation

Practitioner Notes

What is currently known?

1. Although organizations stand to gain performance benefits by having a diverse workforce, these benefits are unlikely to be realized if employees lack a sense of workplace inclusion.
2. Workplace inclusion has been linked to multiple employee outcomes, including job performance, job satisfaction, organizational commitment, and lower turnover intentions.
3. Initial empirical evidence suggests that occupying a central position in an organization's social network is associated with higher levels of perceived workplace inclusion.

What this paper adds?

1. A field-based social network study examining the social network characteristics associated with employees' perceptions of workplace inclusion.
2. Results suggest that both social network position (indegree centrality) and social network structure (network closure) in the organization's information-seeking network are positively associated with perceived workplace inclusion.
3. Network closure strengthens the relationship between indegree centrality and perceived workplace inclusion.
4. Need for affiliation strengthens the relationship between network closure and perceived workplace inclusion.

Implications for practitioners

1. HR professionals should consider supplementing diversity management programs with a social network audit, which is an effective means by which to examine how integrated diverse individuals are in the informal groupings of an organization.
2. To build stronger information-seeking networks—which foster greater inclusion—companies would benefit from the creation of a knowledge repository, such as a searchable database detailing the unique skills, training, expertise, and project experience held by each employee.
3. Social network training aimed at helping employees recognize, form, and maintain professional social networks is also likely to strengthen employee networks and enhance perceptions of inclusion.

Mounting evidence suggests that organizations and employees benefit when workplaces are inclusive (i.e., when employees feel accepted and treated as an insider by others in an organizational context; Pelled, Ledford, Mohrman, 1999). Perceived workplace inclusion has been linked to a host of individual-level outcomes, including higher job performance (Chung, Ehrhart, Shore, Randel, Dean, & Kedharnath, 2020), organizational commitment (Chen & Tang, 2018), job satisfaction (Acquavita, Pittman, Gibbons, & Castellanos-Brown, 2009) and lower turnover intentions (Hwang & Hopkins, 2012). Moreover, research has shown that inclusion can unlock the creative potential of diverse teams (Li, Lin, Tien, & Chen, 2015); employees feel safe contributing their unique perspectives in an inclusive culture. Organizations are increasingly recognizing the business case for incorporating diversity and inclusion (D&I) into their strategic visions. Corporations are dedicating substantial financial and human capital to such efforts (Mor Barak, 2017; Newkirk, 2019), and this work falls squarely on the shoulders of human resource management (HRM) professionals. A recent survey of nearly 9,000 executives and HR professionals for Deloitte's 2020 *Global Human Capital Trends* report found that 91% of respondents believe fostering a sense of belonging (or inclusion) greatly supports organizational performance (Harmon et al., 2020). Sadly, only 46% of those respondents indicated that they were ready to address this challenge. Similarly, McKinsey and Company conducted a sentiment analysis of publicly available employee reviews of the companies they worked for and found that a majority of employees (61%) have negative views of how their companies handle employee inclusion (Dixon-Fyle, Hunt, Dolan, & Prince, 2020). These statistics point to both the importance of workplace inclusion and the lack of clarity among practitioners about how to

foster it. We aim to help address this lack of understanding by examining the social network conditions that promote employee perceptions of inclusion. A greater understanding of the social network conditions associated with inclusion will not only advance academic research on workplace inclusion, it will also result in actionable knowledge for HR practitioners who seek to foster an environment that results in enhanced employee perceptions of inclusion.

An employee's position in the organization's informal social network is likely to have a significant impact on perceptions of workplace inclusion. Indeed, the importance of social networks for workplace inclusion is reflected in how scholars have described the inclusion construct. For example, Pearce and Randel (2004: 84) explain that workplace inclusion "captures the extent to which employees have *informal social ties* [emphasis added] with others at work and feel as if they belong and are socially included by others in their workplace." Although scholars have made the theoretical case for the importance of social networks in the workplace inclusion literature, empirical work on networks and inclusion is sparse. The work examining network drivers of inclusion has tended to focus on how being a central source of professional information in the organizational network relates to perceived inclusion. For example, recent research suggests that being sought out for advice by many high-status others within an organization is associated with perceptions of inclusion (Farh, Liao, Shapiro, Shin, & Guan, 2021).

This research has been valuable in establishing that being highly sought out in a social network is a significant predictor of workplace inclusion because it signals to a focal employee that they are a valuable source of information upon whom others in the organization depend. Models of workplace inclusion, however, also suggest that having access to information and resources is a significant antecedent to perceptions of workplace inclusion (Mor-Barak & Cherin,

1998). In a recent review, Shore, Cleveland, and Sanchez (2018: 182) note that having access to information and resources is "…one of the most commonly cited aspects of inclusion." Empirical research has yet to examine the social network characteristics likely to provide the information and resource access that is conducive to perceptions of workplace inclusion. In this paper, we suggest that the structure, or pattern, of relationships in one's immediate social network enables such access, and therefore serves as an antecedent of inclusion alongside previously identified network centrality measures. Specifically, we examine structure by focusing on network closure, a form of communal social capital that facilitates enhanced trust, information flow, and helping behaviors among individuals (Burt & Knez, 1995; Reagans & McEvily, 2003). We, therefore, posit that network closure is likely to foster conditions that provide greater access to information from more motivated exchange partners and will thus impact perceptions of inclusion above and beyond the effects of being highly sought out by others in a network.

Although we argue that inclusion is an important consideration for all organizational members, recent research has suggested that individual differences may play a role in shaping perceptions of inclusion through differences in the assessment and acceptance of social environments (Alexandra, Ehrhart & Randel, 2021). As such, we propose that there will be boundary conditions to the direct relationship between possessing a network structure conducive to information access and perceived workplace inclusion. First, we argue that being the source of information in a network and having access to information in a network provide distinct social signals to an employee that contribute to a feeling of inclusion, and we propose that these two constructs will interact to create a synergistic effect. Second, we expect that individual differences may affect the process by which individuals form perceptions of inclusion from social cues in their organizations. We argue that need for affiliation is an individual difference

that impacts an employee's awareness of the social environment and will therefore strengthen the effect of information access on perceived workplace inclusion. Our conceptual model is depicted in Figure 1.

Insert Figure 1 about here

Our work contributes to the workplace inclusion and social networks literature in multiple ways. First, we contribute to the inclusion literature by exploring the role that both network centrality and network closure play in employee perceptions of workplace inclusion. Most of the work to date on the antecedents of inclusion has focused on the impact of organizational policies and practices that are enacted at the organizational or group level. In contrast, our approach of examining the effects of individual network centrality and closure— and subsequently exploring the practical implications of our findings—aims to provide insights that are actionable at the individual employee level (Fahr et al., 2021). Second, we contribute to the inclusion literature by simultaneously examining the effects of both network centrality and closure. Although networks feature prominently in theoretical conceptions of inclusion, it is yet unclear whether network closure and centrality play independent, synergistic, or complementary roles in impacting inclusion perceptions. Our study answers this question by demonstrating the additive and multiplicative effects that exist between network centrality and closure. Third, this work contributes to the social networks literature by exploring the relationship between network closure and inclusion. Although we posit that social network closure is a theoretically logical network antecedent, recent work on outcomes that are conceptually related to inclusion suggests that this supposition is not a foregone conclusion. For example, work on the relationship between network closure and perceived social support has been equivocal, with some work finding a

positive effect of closure on perceived social support and other work finding a null relationship (Marti, Bolibar, & Lozares, 2017). Thus, we contribute to the evolving understanding of the effect of network closure on employee perceptions and attitudes by confirming its relationship to perceived inclusion. Finally, we add to the limited research that has been done on individual differences and inclusion by exploring the moderating role of need for affiliation. Individual differences have been shown to influence the way in which employees perceive inclusion in the workplace (e.g., Alexandra, Erhart, & Randel, 2021), and we aim to add to this conversation by examining an individual difference that impacts an employee's awareness of the social environment and perceptions of inclusion. In doing so, we identify how need for affiliation may serve as a useful boundary condition in future social network research.

THEORY AND HYPOTHESES

The need to feel a sense of inclusion in social environments has been identified as a fundamental human need (Baumeister & Leary, 1995). While the inclusionary status of traditionally disadvantaged groups is of critical importance, inclusion perceptions have ramifications for all employees, regardless of background. Feeling respected and valued and having access to required information and resources have been identified as two fundamental conditions that engender feelings of inclusion (Shore et al., 2011). Recent reviews of workplace inclusion find that themes reflective of both conditions are well represented in the literature (e.g., Shore et al., 2018). Perceiving that one has valued characteristics and is also able to secure needed informational resources from others will therefore yield the highest levels of perceived workplace inclusion (Shore et al., 2011). In the following sections, we apply a social network perspective to this thinking. We suggest that being sought out for professional information is

likely to confer feelings of value upon an individual and network closure will confer the ability

to effectively access needed information. We focus on information-seeking network ties for two

reasons. First, theorizing in the workplace inclusion literature has emphasized the importance of

information ties as being the conduits of resources that promote inclusion perceptions (e.g., Mor

Barak & Cherin, 1998). Moreover, information network access has been prominently featured in

measures of workplace inclusion. For example, the multi-item inclusion scale developed by

Findler, Wind, and Mor Barak (2007) features access to the organizational information network

as one of two dimensions of workplace inclusion (along with participation in organizational

decision making). Second, expressive network relationships such as emotional support or

friendship ties tend to be more localized, whereas instrumental relationships such as information

network ties tend to be more widely and evenly dispersed (Farh et al., 2021; Lincoln & Miller,

1979). This distribution pattern suggests that friendship ties are more relevant for workgroup

inclusion and information ties are more relevant for the generalized workplace inclusion

perceptions examined in this paper[1].

Social Network Centrality

Informal information exchange networks constitute a key means by which employees

transfer critical knowledge in organizations. Employees rely heavily on their social network

contacts for information that helps them complete their routine job tasks and solve complex

problems (Cross, Borgatti, & Parker, 2002). Informal networks play a significant role in

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[1] Although perceived employee inclusion has been examined in the context of multiple foci (e.g., workgroup inclusion, leader inclusion, organizational inclusion), we focus on how included employees feel in the context of the entire organization. This conceptualization of perceived employee inclusion has received broad support in the inclusion literature and has been linked to multiple outcomes such as increased diversity climate perceptions, job satisfaction, organizational commitment, employee well-being, and decreased turnover intentions (for a review, see Shore et al., 2018).

employee socialization (Fang, Duffy, & Shaw, 2011; Morrison, 2002) and retention (Porter, Woo, Allen, & Kieth, 2019; Soltis, Agneessens, Sasovova, & Labianca, 2013). Therefore, it should come as little surprise that researchers have acknowledged informal workplace social networks as being likely to have a significant impact on perceived workplace inclusion (Farh et al., 2021; Mor Barak, 2017).

Being central in an organization's information exchange network is likely to foster perceptions of inclusion. More specifically, the extent to which one is named as a source of information by others in a network (i.e., the extent to which one is high in *indegree centrality*; Freeman, 1979) will likely prompt feelings of being valued. Indeed, research suggests that valuing one's expertise is a precondition for seeking information from another person (Borgatti & Cross, 2003). Being a source of information to whom others turn signals that others trust one to provide useful professional input. Those who are highly central sources of information are seen by others as influential (Brass & Burkhardt, 1993) and will consequently come to understand that others depend upon their knowledge. The realization that others value one's knowledge contributes to feelings of inclusion (Shore et al., 2011). In support of this reasoning, recent empirical work found that employees who were central sources of professional advice in a multinational organization had higher levels of perceived workplace inclusion (Farh et al., 2021). In summary, consistent with prior research, we propose that being a source of information for many others (i.e., having high indegree centrality in the information-seeking network) will signal to a focal individual (henceforth referred to as *ego*) that they possess valued information that is in demand. Seeing oneself as a valued source of information will, in turn, foster a sense of inclusion. Because this hypothesis is consistent with previous empirical findings (Fahr et al., 2021), we offer it as a baseline hypothesis.

Baseline hypothesis – *Indegree centrality in the information-seeking network is positively associated with perceived workplace inclusion.*

Social Network Closure

Among the workplace conditions that promote perceptions of inclusion, a cohesive environment characterized by trust and the free flow of information plays a prominent role (Shore et al., 2018). Employees who work in an environment marked by trusting relationships where coworkers cooperate with one another in the free exchange of information are more likely to feel included due to their access to needed informational resources. Social network theorists have argued that network structure, or the pattern by which ties in a social network are arranged, engenders environmental conditions that can have a meaningful impact on the way individuals accomplish work together (Borgatti & Halgin, 2011). Specifically, network closure is a widely studied structural construct that impacts the norms of a group. Network closure (also referred to as ego network density) is the extent to which ego's contacts have network connections amongst themselves. High levels of network closure result in an employee having common third-party connections with each network contact. This network construct is associated with a cohesive sense of community due to the role it plays in fostering a normative environment that promotes interpersonal trust and cooperation. Network theory maintains that higher levels of monitoring and sanctioning occur under conditions of network closure (Coleman, 1988; Granovetter, 1973). That is, individuals embedded in a dense network of relationships are more vulnerable to reputational penalties for counter-normative behavior by virtue of the redundant relationships among individuals. Such interconnections enable individuals to monitor the behavior of network members and efficiently coordinate a response to behavior that is seen as undesirable. Thus, sanctions can be effectively levied upon an offender due to the preexisting connections among

network members, which enable effective communication and coordination. The capacity for monitoring and sanctioning has the effect of creating a norm for cooperation and for promoting trust among network members (Coleman, 1990). As a result, network closure creates a safe environment conducive to the relatively unconstrained flow of resources among individuals.

We posit that network closure will generate a sense of inclusion by providing an individual with both access to information as well as general prosocial support from others. First, empirical work suggests that individuals embedded in dense networks will have greater access to the knowledge their network contacts possess. Gargiulo, Ertug, and Galunic (2009) found that density among those whom ego reported seeking out for interactions (i.e., knowledge providers) was significantly related to ego's subsequent performance. Gargiulo et al. (2009: 326) conclude that network closure provides ego with more motivated interaction partners resulting in enhanced knowledge acquisition outcomes: "…closure may compel providers to put more time and energy into the exchange than they might have preferred." Elsewhere, work at the dyadic level of analysis suggests that pairs who are embedded in dense networks of relationships are more likely to invest time transferring knowledge and information to one another (Reagans & McEvily, 2003). Highly embedded pairs of employees are also more likely to share negative gossip (Grosser, Lopez-Kidwell, & Labianca, 2010). Exchanging sensitive information such as gossip with others leads to stronger relational bonds (Bosson, Johnson, Niederhoffer, & Swann, 2006) and is consequently likely to contribute to one's feelings of inclusion.

Second, there is evidence that individuals embedded in dense networks demonstrate higher levels of prosocial behavior with one another. The number of common third-party relationships that a dyad has in common is positively associated with the extent of extra-role helping behavior displayed between individuals (Venkataramani & Dalal, 2007). Similarly, the

degree to which a focal employee's network ties overlap with a coworker's is positively related to the amount of extra role help provided to the focal employee (Ferrin, Dirks, & Shah, 2006). These findings suggest that the network embeddedness associated with network closure contributes to the type of prosocial interpersonal behavior likely to make ego feel supported and able to obtain needed resources. Moreover, more indirect evidence from team research suggests that team-level network closure is associated with prosocial outcomes (Chung, Park, Moon, & Oh, 2011; Varella, Javidan, & Waldman, 2012).

Taken together, these results suggest that the embedded ties occurring in closed (i.e., dense) ego networks enable ego to access various types of useful workplace knowledge (e.g., complex technical knowledge, strategic social information, etc.) and also increase the likelihood that ego will obtain discretionary help and resources from network contacts. Therefore, network closure is likely to foster supportive interpersonal behaviors associated with feeling a sense of inclusion.

Hypothesis 1: *Closure in the information-seeking network is positively related to perceived workplace inclusion.*

Interactive Effects of Indegree Centrality and Network Closure

We have thus far argued that characteristics of the information-seeking network provide the opportunity and environment for employees to experience being a valued and respected member possessing access to the information and resources needed to be successful in an organization. Indegree centrality in the information-seeking network signals to employees that they provide significant value (Farh et al., 2021) and contribute to important work processes (Mor Barak, 1999). Closure in the information-seeking network leads to increased access to information (Reagans & McEvily, 2003), the exchange of sensitive information signifying trust

(Bosson et al., 2006), and the receipt of more prosocial behavior from others (Ferrin et al., 2006). As perceptions of inclusion are largely based on feeling valued and having access to information, we would expect that the combination of indegree centrality and network closure is likely to exhibit synergistic effects.

We posit that the inclusionary effect of indegree centrality will be weakened when ego's network is characterized by low levels of closure. As ego is increasingly sought out by others for information in the context of an open network, there is a higher risk of feeling that the interactions seem merely transactional (Uzzi, 1997). That is, without the cohesiveness of a closed network as a structural backdrop, ego is less likely to feel that she is part of a professional community marked by trust, goodwill, and reciprocity. Although ego may continue to enjoy a sense of status, being a source of professional information for others in an instrumental climate lacking in trust is less likely to generate a strong sense of inclusion. Indeed, it is possible that ego may feel simply like a resource to be exploited as opposed to a valued member of a group in this scenario (Burt, Opper & Holm, 2022). In contrast, being highly sought out for information in the context of network closure is likely to lead to a different experience for ego. In this situation, ego is likely to not only experience the status that comes with being a prominent source of knowledge for others, she is also likely to experience this in an environment constituted by mutual trust and cooperation. As a result, ego is more likely to feel that she is an esteemed member of a community that she can access and benefit from, leading to a strong sense of inclusion (Shore et al., 2018). The shift in social norms that comes with network closure is therefore likely to strengthen the effect that being a central source of information has on one's perceptions of inclusion. The foregoing arguments, therefore, suggest that network closure will

strengthen the effect of indegree centrality on perceived employee inclusion such that the relationship will be stronger when network cohesion is higher.

Hypothesis 2: The positive relationship between indegree centrality and perceived workplace inclusion will be moderated by network closure such that the relationship is stronger at higher levels of network closure.

The Moderating Role of Need for Affiliation

The interactionist perspective in the social sciences maintains that personal characteristics and situational conditions interactively combine to influence outcomes (Lewin, 1935; Mischel, 1977), and a significant amount of organizational research lends support to this perspective (e.g., Judge & Zapata, 2015; van Knippenberg & Hirst, 2020). Although research on individual differences in perceptions of inclusion is nascent, there is evidence that the interplay between personal characteristics and situational conditions may influence how employees perceive inclusion in the workplace. For example, recent work on the effect of cultural intelligence (CQ) on inclusion suggests that the relationship between cultural intelligence and perceived inclusion is stronger when there is a higher level of diversity in the workplace (Alexandra, et al., 2021).

Social network research has also recently begun to adopt an interactionist perspective by examining how various individual differences interact with the situational conditions created by social network structure. For example, employees' social network structure has been found to interact with both cognitive style (Carnabuci & Diószegi, 2015) and political skill (Grosser et al., 2018) in predicting individual innovation outcomes. Because we posit that network closure impacts workplace inclusion by facilitating ego's access to instrumental relationships and social resources, we reason that ego's need for affiliation is an appropriate individual difference to

examine as a moderator. That is, the inherently relational nature of our social network focus is consistent with the inherently relational nature of the need for affiliation construct.

Need for affiliation is an individual difference that pertains to an individual's desire for belongingness and connection to others (McClelland, 1985). The desire for belongingness and social connection has been identified as a fundamental human need that drives cognition and behavior in a wide variety of contexts (Baumeister & Leary, 1995). Wiesenfeld et al. (2001) argue that the need for affiliation is closely related to the degree to which an individual's self-construal is interdependent vs. independent. This self-construal shapes one's needs, values, cognitions, and emotions in social settings (Markus & Kitayama, 1991).

We suggest that need for affiliation will strengthen the relationship between network closure and perceived workplace inclusion because the inclusionary conditions fostered by network closure will be more salient to, and appreciated by, those high in need for affiliation. This contention is supported by work on the *social monitoring system*. The social monitoring system framework describes the regulatory system that attunes individuals to information that will aid individuals in navigating their social environment (Gardner, Pickett, & Brewer, 2000). The social monitoring system becomes highly engaged when an individual's need for belonging is unmet. This results in an individual being highly attentive to social information relevant for gaining inclusion to satisfy the unmet belongingness need. The upshot of this framework is that unmet needs for belongingness can significantly influence how individuals process social information. This is borne out by empirical evidence. For example, individuals whose belongingness needs were threatened in a laboratory setting by being subjected to a social rejection experience demonstrated better recall for social information during a subsequent task than individuals who experienced social acceptance (Gardner et al., 2000). Importantly,

individuals with a high need for affiliation are thought to have their social monitoring systems perpetually activated (Pickett, Gardner, & Knowles, 2004). That is, a high need for affiliation is likely to cause an individual to be highly attentive to environmental cues that signal their inclusionary status. Thus, those high in need for affiliation will be more observant of cues in their social environment that indicate their level of inclusion, and cues suggesting acceptance and inclusion will be particularly valued. The enhanced awareness of, and appreciation for, inclusionary signals in the social environment will strengthen the relationship between network closure and perceived inclusion. In contrast, those low in need for affiliation are less likely to be as cognizant of the positive social conditions fostered by network closure and will therefore be less impacted by it.

Hypothesis 3: The positive relationship between network closure and perceived workplace inclusion will be moderated by need for affiliation such that the relationship is stronger at higher levels of need for affiliation.

METHOD

Research Setting and Sample

The sample consists of employees working in a research-oriented unit of a multinational pharmaceutical firm. The firm is widely recognized as being a champion of diversity and inclusion (D&I). In recent years, the firm has implemented multiple initiatives aimed at improving D&I through talent acquisition, training, and multicultural enrichment programs. It has been globally recognized with several prestigious awards for its leadership in the D&I domain, and it regularly receives top scores on third-party D&I indices. The mission of the focal unit, which is organized into ten sub-units, is focused on drug discovery and development. The unit's population of 428 employees was invited to complete an online sociometric survey. Three

hundred and seventy-eight (378) employees returned usable responses. Listwise deletion resulted

in a total of 364 observations, for an effective response rate of 85%. In addition to the data

collected via survey, we obtained data on each respondent's demographic profile (gender) and

position in the organization (formal rank, tenure, geographic location) from archival sources

provided by the company. Ninety-five percent (95%) of the sample reported having a scientific

educational background. Most respondents (72.2%) had a tenure of five years or greater. The

majority of respondents were male (60%), and 36% were in a managerial position. Employees

were split between two office locations, with 70% located in Europe and 30% in the United

States.

Measures

   Perceived workplace inclusion. We used Pearce and Randel's (2004) three-item inclusion

scale to measure employee perceptions of organizational inclusion. Respondents reported how

much they agree with the following statements about their job on a five-point scale (1 = *strongly*

disagree to 5 = *strongly agree*): "I feel like an accepted part of a team," "I feel included in most

activities at work," and "sometimes I feel like an outsider" (reverse-coded). The scale

demonstrated an acceptable level of internal validity ($\alpha = 0.73$).

   Indegree centrality. We measured the information-seeking network by asking each

respondent to indicate whom they turn to for "Information/data that I need to perform my daily

work tasks" (Cross & Parker, 2004). This question resulted in a binary 428x428 adjacency

matrix. Indegree centrality in the information-seeking network was calculated using UCINET

version 6 (Borgatti et al., 2002). This yielded a count of the number of contacts reporting that

they turn to ego for information or data to perform their daily work tasks. Thus, this measure

captures the centrality of a person's position within the information-seeking network and can be

thought of as how prominent or in-demand an individual is as an information source within the unit (Knoke & Burt, 1983).

Network closure. We measured network closure using each employee's ego network density score in the information-seeking network. Ego network density is a frequently used measure of network closure (Borgatti, Jones, Everett, 1998; Gargiulo et al., 2009). Ego network density was calculated by counting the number of ties among ego's direct-tie contacts and then dividing this sum by the total number of possible ties (i.e., $n(n - 1)/2$). Density scores, calculated using UCINET version 6 (Borgatti, Everett, & Freeman, 2002), range between 0 and 1, with 1 indicating maximal network closure.

Need for affiliation. We adapted items from Hill's (1987) measure of affiliation motivation for an organizational context. Two key informants at our research site confirmed the face validity and appropriateness of the scale for this context. The scale comprised the following three items: "having friends at work is very important to me," "it is satisfying for me to have close relationships with others at work," and "it is important for me to be well-liked by my coworkers." Respondents answered on a five-point scale (1 = *strongly disagree* to 5 = *strongly agree*). The scale demonstrated an acceptable level of internal validity ($\alpha = 0.74$).

Control Variables

We control for covariates in each regression model that might provide alternative explanations for our hypothesized effects. We controlled for ego's *tenure* (1 = less than 1 year, 2 = 1-3 years, 3 = 3-5 years, 4 = 5-10 years, 5 = 10-20 years, and 6 = greater than 20 years) and *rank* (1 = manager, 0 = individual contributor) because these factors may impact perceptions of inclusion by affecting an employee's access to resources and ability to participate in decision-making (Mor Barak, 2000). We included *gender* (1 = male, 0 = female) as a control because it

has been shown to significantly affect perceptions of workplace inclusion (Findler, Wind, Mor Barak, 2007). Respondents worked in one of two offices located in different geographic locations, so we included *location* (1 = USA; 0 = Europe) to control for any differences in perceived inclusion attributable to geography. We controlled for employee age using three generational categories tracked by the organization at the time of data collection in 2014 (1 = "Generation Y" [18-33 years old]; 2 = "Generation X" [34-49 years old]; 3 = "Baby Boomers" [50-68 years old]) to account for any age-based differences in perceived inclusion. We control for *outdegree centrality* in the information-seeking network (i.e., the count of the number of contacts that ego reports turning to for information or data to perform their daily work tasks) to account for each employee's general level of dependence on others, which may impact perceptions of inclusion. We also included dummy variables to control for each respondent's *sub-unit* affiliation to account for any differences in perceived inclusion driven by sub-unit membership.

RESULTS

Table 1 contains variable means, standard deviations, and bivariate correlations. Variables were centered prior to conducting analyses. The results of node-level regression analyses are depicted in Table 2. Node-level regression is a nonparametric approach to multiple regression that yields permutation-based parameter estimates and standard errors and is not bound by the same assumptions of independence required in OLS regression. Analyses were conducted with UCINET, using the y-permutation method and 10,000 permutations. The highest variance inflation factor was 3.91, indicating that multicollinearity was not a concern. Because our interaction terms reached statistical significance, we test our main effect hypotheses and

moderation hypotheses in the same model (Model 2, Table 2) to avoid specification error (Aiken & West, 1991; Aguinis, Edwards, & Bradley, 2017).

Insert Tables 1 and 2 about here

Our baseline hypothesis was that indegree centrality in the information-seeking network will be positively associated with perceived workplace inclusion. As seen in Model 2 of Table 2, this relationship is positive and statistically significant ($b = 0.17$, $t = 2.58$, $p < .05$). Therefore, consistent with prior research, we find support for our baseline hypothesis. Hypothesis 1 states that network closure in the information-seeking network will be positively associated with perceived workplace inclusion. As Model 2 indicates, this relationship is positive and significant ($b = 0.13$, $t = 2.02$, $p < .05$), thus supporting Hypothesis 1. Hypotheses 2 posits that network closure will moderate the relationship between indegree centrality and perceived workplace inclusion. The moderation effect, found in Model 2, is positive and significant ($b = 0.165$, $t = 2.19$, $p < .05$). The interaction is plotted in Figure 2. A simple slopes test (Aiken & West, 1991) indicates that the relationship between indegree centrality and perceived workplace inclusion is stronger for those with higher network closure (+1 *SD*; $b = 0.32$, $t = 2.65$, $p < .01$) than for those with lower network closure (-1 *SD*; $b = 0.01$, $t = 0.15$, *ns*). These results, therefore, provide support for Hypothesis 2.

Hypothesis 3 states that need for affiliation will moderate the relationship between network closure and perceived workplace inclusion. The interaction coefficient for this moderation effect in Model 2 is positive and significant ($b = 0.10$, $t = 2.68$, $p < .01$). This relationship is plotted in Figure 3. A simple slopes test indicates that the relationship between network closure and perceived workplace inclusion is stronger for those with a high level of need

for affiliation (+1 SD; $b = 0.23$, $t = 3.20$, $p < .01$) than for those with a low level (-1 SD; $b = 0.03$, $t = 0.45$, ns). This pattern of results lends support to Hypothesis 3.

Insert Figures 2 and 3 about here

DISCUSSION

This study provides support for an expanded social network perspective on organizational inclusion. Specifically, our results indicate that network closure in the intra-organizational information-seeking network is positively associated with perceived workplace inclusion. This effect is robust even after controlling for both indegree and outdegree centrality. It therefore appears that dense local network structures create inclusionary environmental conditions above and beyond how central an employee is in the social network. In addition, a high level of network closure was found to strengthen the relationship between indegree centrality and perceived workplace inclusion. This finding suggests that the perceived inclusion fostered by indegree centrality is amplified when coupled with the sense of cohesion and information access provided by a high level of network closure. Finally, need for affiliation moderated the relationship between network closure and perceived workplace inclusion such that the relationship was stronger for those high in need for affiliation. This finding suggests that individuals with high levels of need for affiliation are more likely to perceive and value the inclusionary conditions fostered by network closure.

Theoretical Implications

Although the inclusion literature often alludes to the importance of social networks, empirical work has largely been absent. This study demonstrates the importance of social networks for employee perceptions of inclusion, and it suggests that the social network context

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should be considered a significant factor alongside previously identified contextual antecedents of inclusion such as inclusive leadership and a climate for both justice and diversity (Shore et al., 2018). We find an effect for network closure on perceived workplace inclusion over and above the effect of indegree centrality, suggesting that network structure and network centrality uniquely contribute to an employee's sense of inclusion. We theorize that one's prominence or status in a social network—indexed by indegree centrality—affects one's sense of being valued at work. In contrast, we reason that the primary effect of network closure is that it enables access to information and other social resources, which positively impacts perceptions of inclusion. Our results suggest that the effects of network closure and indegree centrality are not simply additive, but are also multiplicative, with high levels of both working synergistically to result in the strongest perceptions of inclusion. Thus, this work reinforces the importance of considering the role that information giving and information access play in impacting inclusion perceptions in organizations.

The inclusion literature is beginning to explore the interaction between individual differences and characteristics of the social environment that may combine to influence perceptions of inclusion. We see, for example, that individuals higher in cultural intelligence will be more likely to perceive inclusion in diverse social environments (Alexandra, Ehrhart & Randel, 2021) and our results suggest that individuals higher in need for affiliation will be more likely to perceive inclusion in cohesive cooperative social environments. This study therefore contributes to the inclusion literature by examining need for affiliation as a boundary condition. Although the need for affiliation is universal, this need can be fulfilled in various ways (i.e., through bonds with family, friends, and/or work colleagues), and individuals who have sufficient social bonds are less likely to be interested in forming additional relationships than those who

have not had their need satiated (Baumeister & Leary, 1995); it is therefore reasonable to assume that individuals will differ in the extent to which they desire to experience strong social connections in the workplace. In line with this, our results suggest that network closure only affects inclusion perceptions for those who have a high need for affiliation. Thus, this work identifies the need for affiliation as a potential boundary condition to be explored in future studies that examine the relationship between social connectedness and employee perceptions of inclusion. This approach could be particularly useful for understanding null or mixed results in the inclusion literature. For example, Findler et al. (2007) failed to find a hypothesized negative relationship between employee immigrant status and perceptions of workplace inclusion in a study of an Israeli high-tech organization. Examining need for affiliation as a moderator may help in explaining the reason for such unexpected findings.

An unexpected finding in this study was the relatively strong positive relationship between need for affiliation and perceptions of workplace inclusion ($r = 0.21$; Table 2). Although this was not a relationship that we hypothesized a priori, this result raises a question about the reason for this association. It is possible, for example, that those with higher need for affiliation may be more proactive in helping others and positioning themselves to participate in decision making (e.g., by volunteering for committees or special project teams). Indeed, evidence suggests that an employee's need for affiliation is positively associated with organizational citizenship behavior (Johnson, 2008) and employee voice behavior (Kong, Huang, Liu, & Zhao, 2017). Such behaviors are likely to contribute to an employee's feelings of inclusion at work. It is also possible that those high in need for affiliation behave in a manner that leads to people seeking them out for information, which in turn affects their inclusion perceptions. A fruitful direction for future research would be to examine the specific mechanisms behind this

relationship using a longitudinal study that would allow researchers to disentangle the causal

dynamics underlying the relationship between need for affiliation and perceived inclusion. A

second unexpected finding is that inclusion perceptions were significantly higher at the European

office location in comparison to the U.S. office. We speculate that this may be because the

company headquarters is located at the European office. Previous work has explored the

importance of employee location in relation to corporate headquarters in driving inclusion

perceptions (Fahr et al., 2021). Thus, it may be that employees located at the company

headquarters location feel more like they are part of the "ingroup" by virtue of being proximate

to senior leaders and the power center of the organization.

This work also has implications for emerging research that combines social networks

with individual differences. Although the focus thus far has predominantly been on the

relationship between networks and personality traits reflective of social skill (for a review, see

Kilduff & Lee, 2020), this study illustrates the importance of integrating need theory into this

program of research. In particular, the need for affiliation, with its relational focus, is a

theoretically compelling construct to consider in conjunction with social networks. Much of the

work on individual differences and social networks tends to focus on how certain characteristics

enable individuals to build or leverage their networks more effectively (e.g., by exploiting

structural holes or central network positions). For example, self-monitoring and empathy have

been linked to the building of brokerage positions (e.g., Mehra, Kilduff, & Brass, 2001;

Kleinbaum, Jordan & Audia, 2015) and political skill has been found to enable individuals to

effectively leverage existing network positions (e.g., Fang, Chi, Chen, & Baron, 2015; Grosser et

al., 2018). In contrast, this study focuses on an individual difference reflective of how much

individuals may value their social ties in an organization. In doing so, our results provide initial

evidence that the value of one's social network position is likely to vary for individuals in ways that will moderate the impact that network characteristics like network closure have on individual outcomes.

Limitations and Future Directions

This study is not without limitations. First, the results are based on a cross-sectional research design, which prevents strong inferences about causality. It is therefore possible that the causality of our results is reversed, such that perceptions of workplace inclusion cause individuals to build closed networks. We contend, however, that an argument for reverse causality inherently assumes that individuals have control over the structure of their information-seeking network. Such an assumption is questionable. Although individuals can attempt to build a closed network by introducing contacts to one another (Obstfeld, 2005), there is no guarantee that these introductions will lead to the information-seeking exchanges between contacts that are needed to increase information-seeking network closure. Nonetheless, we acknowledge that it is possible that network closure and inclusion have a recursive relationship such that closure fosters a greater sense of inclusion, which in turn leads to increased closure. It would be useful for future research to directly examine causality via research designs that are better suited to assess this issue. For example, longitudinal panel data coupled with stochastic actor-oriented modeling (Kalish, 2020) would help to identify any reciprocal relationship that may exist between network closure and perceived inclusion.

A second limitation stems from the fact that this study was conducted in a single organization. Indeed, this is a common feature of whole network research designs in management research. This represents a strength in that the whole network approach enables a more accurate assessment of social network structure than do alternative network designs that are

based on ego's subjective assessment of their own network structure (Brass, 2012). We speculate that—because the organization studied here is a recognized global leader in the promotion of corporate diversity and inclusion—there may be less variance in the observed employee inclusion perceptions relative to that of comparable organizations. As such, this research site may have provided a conservative test of our hypotheses. Nonetheless, it limits the generalizability claims we can make to organizations that are significantly different from the one we examined.

A third limitation is that our theoretical logic is predicated on the notion that indegree centrality primarily contributes to employees feeling that they are valued, and network closure primarily facilitates access to information and social resources, yet these mechanisms are not directly measured in our study. Although the well-developed social network literature suggests that the mechanisms we invoked make sound theoretical sense, an empirical examination confirming them as mediators remains an opportunity for future research.

A fourth limitation is that we did not observe workflow network ties in this study, preventing us from examining how workflow dependencies might impact the effect of information networks on perceived inclusion. Prior research, for example, has demonstrated that the relationship between advice giving and turnover intentions increase when those seeking advice also have a workflow tie with the focal actor (Soltis et al., 2013). In a similar way, a useful avenue of future research will be to explore the implications of information and workflow tie overlap in predicting perceived inclusion. It may be, for example, that being sought out for information has a weaker relationship with perceived inclusion to the extent that those seeking the information also have a workflow tie with the focal actor, thereby opening the possibility that

the information-seeking behavior is based upon workflow dependencies as opposed to being entirely voluntary.

The results of this study suggest that combining need theory with the social network perspective can be an effective integration. Future research on the interplay between need for affiliation and social networks is needed. For example, researchers have recently called for additional examination into the factors that lead individuals to be more accurate in their perceptions of brokerage opportunities (Kilduff & Lee, 2020). Given that individuals who have a stronger need to belong tend to be more careful observers of their social environment (Pickett et al., 2004), it is reasonable to suspect that those high in need for affiliation may be more accurate in their perceptions of the network ties around them. A useful line of future research will therefore be to examine the linkage between need for affiliation and one's accuracy of social network perceptions.

Finally, we considered the effects of network closure from a structural perspective without accounting for the consideration of demographic characteristics of embedded employees. It is possible that subgroups of employees, such as minority groups, can be densely connected to one another while minimally connected to those in the majority which could influence their perceptions of inclusion within the broader organization. It is also possible that closed networks within a majority could foster exclusionary norms towards those seen as outsiders (Cook, Levi, & Hardin, 2009). Future studies should examine patterns of ties between subgroups which could yield even greater and more nuanced insights on the relationship of social structure and perceptions of inclusion.

Practical Implications

Our findings suggest that information sharing network centrality and closure influence the degree to which employees feel a sense of workplace inclusion. These findings support calls by researchers to consider the social context more fully in the application of human resource practices. HR managers should broaden their focus beyond human capital to focus on "social resource management" (Methot, Rosado-Solomon & Allen, 2018; Soltis, Brass & Lepak, 2018) and embrace the role of "social architect" (Kaše, Paauwe & Zupan, 2009).

To capitalize on the benefits offered by a diverse workforce, organizations are increasingly utilizing diversity management programs. The effectiveness of these programs varies widely, and researchers have offered a theoretical framework to explain differential outcomes in diversity management programs. Olsen and Martins (2012) theorize that the degree to which diverse members become acculturated in the organization determines the benefits that can be accrued from diversity. These authors posit that the positive effects of diversity can only arise when diverse employees are represented in the informal groups that form organically in organizations. Thus, Olsen and Martins argue that diversity management programs need to go beyond *structural integration*, which entails ensuring the presence of diverse individuals in formal work groups and departments, by also focusing on *informal integration*, which refers to the representation of diverse members in an organization's informal groups and social networks (Cox, 1993). We suggest that HR professionals should supplement diversity management programs with a social network audit, which is an effective means by which to examine how integrated diverse individuals are in the informal groupings of an organization. Understanding the social structure of an organization through observation alone is difficult and subject to bias and error. Conducting a social network analysis to understand how diverse individuals are

integrated into informal networks of an organization will give a much better indication of inclusion efforts and highlight areas in the network that need to be strengthened.

Aside from diversity management programs, we also consider other specific human resources practices that could positively influence the formation of information sharing networks. These practices provide both motivation and opportunity for employees to seek out information from others and build networks that support perceptions of inclusion. For example, in their study of HR practices that impact social networks, Kaše and colleagues (2009) demonstrate that possessing an understanding of the knowledge, skills, and abilities possessed by coworkers positively impacts the robustness of information-seeking networks. This finding supports earlier theoretical work proposing that the perceived value of contacting a coworker for advice is formed by ego's understanding of contacts' expertise and the level of cognitive trust ego places on a contact (Nebus, 2006). Although expertise awareness seems to be an important driver of information-seeking, HR scholars have argued that—although many organizations do a sufficient job identifying the skills required for formal organizational roles—organizations rarely document the valuable skills and competencies that are unique to the employees as individuals (Jones, 2010). Thus, to improve expertise awareness—and therefore build stronger information-seeking networks—we suggest that companies would benefit from the utilization of a skills inventory. Two of the co-authors of this manuscript were involved in a consulting project at a large knowledge intensive organization where they helped develop a searchable database of employees that included a skills inventory detailing the unique skills, training, expertise, and project experience held by each employee. This skills inventory database included pictures and contact information to encourage employees to reach out and form new information sharing ties.

The implementation of databases such as this may ultimately improve workplace inclusion by building larger and denser information-seeking networks.

Employee demonstrations of expertise are another way to improve the transactive memory of organizations and help employees understand the location of expertise within their networks. Employees can demonstrate expertise through job rotation, team assignments or presentations. The business school of one of the authors of this manuscript has implemented a monthly inter-departmental research presentation colloquium. The purpose of this is to expose faculty to the research and expertise of other faculty located in different departments to facilitate cross departmental information exchange, research collaboration, and overall feelings of inclusion within the business school.

Kaše and colleagues (2009) also provide empirical support for the importance of relationship building training for creating stronger information sharing networks. When these trainings are discretionary, include co-workers from different areas of the organization, focus on wide ranging expertise, and include content on establishing and improving relationships with others; employees are significantly more likely to develop knowledge sharing ties. Thus, we echo calls for organizations to invest in helping individuals recognize, form, and maintain social networks in organizations (see Cullen-Lester, Maupin, and Carter (2017) for a review and framework for implementing network development within organizations). As an example, two co-authors helped a knowledge-intensive organization design a network feedback program as part of an employee development program. After a brief introduction to social network concepts, employees were given periodic social network surveys and provided subsequent feedback on characteristics of their ego network including the size, density, and heterogeneity of their

networks. Employees could then use this information to strategically build their organizational networks.

Our results suggest that network centrality and closure shape employee perceptions of inclusion and we presented several specific human resource practices that create the conditions necessary for the formation of information sharing ties. However, we would like to end with a word of caution and would discourage HR managers from pursuing social network closure as an end in itself. Indeed, researchers have argued that network closure, or density, has a contextually dependent and domain specific relationship with performance. Methot and colleagues (2018) propose that some HR practices designed to increase network density could have a negative impact on performance. Similarly, a study on social networks and transactive memory systems demonstrates the dual effects of density. On the one hand, sufficient density in communication networks is important for understanding the location of expertise in the network. But once members achieve this understanding, they should be more strategic and efficient in their information-seeking since a high level of density could imply that employees are engaged in redundant information-seeking and have failed to divide labor efficiently (Lee, Bachrach & Lewis, 2014). As such, we suggest that it is important to enact HR practices that support the development of information sharing networks for organizational newcomers and minority members early in the socialization process. As employees develop experience and cultivate expertise awareness, supplemental training could be offered to help these tenured organizational members think more strategically about their network connections.

Conclusion

Overall, this study demonstrates the important role that social network structure plays in affecting employee perceptions of workplace inclusion. Closed networks foster a sense of

inclusion, especially for those employees who have a high need for affiliation. Closed networks

also strengthen the relationship between indegree centrality and perceived inclusion. We

encourage researchers to continue to examine the social network context in future work on the

antecedents of perceived workplace inclusion, and we encourage practitioners to consider how

the social networks in their organization can be enhanced to improve employees' experience of

inclusion at work.

REFERENCES

Acquavita, S. P., Pittman, J., Gibbons, M., & Castellanos-Brown, K. (2009). Personal and organizational diversity factors' impact on social workers' job satisfaction: Results from a national internet-based survey. *Administration in Social Work*, *33*, 151-166.

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage.

Aguinis, H., Edwards, J. R., & Bradley, K. J. (2017). Improving our understanding of moderation and mediation in strategic management research. *Organizational Research Methods*, *20*, 665-685.

Alexandra, V., Ehrhart, K. H., & Randel, A. E. (2021). Cultural intelligence, perceived inclusion, and cultural diversity in workgroups. *Personality and Individual Differences*, *168*, 110285.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497-529.

Borgatti, S. P., & Cross, R. (2003). A relational view of information seeking and learning in social networks. *Management Science*, 49, 432-445.

Borgatti, S. P., & Halgin, D. S. (2011). On network theory. *Organization Science*, 22, 1168-118

Borgatti, S., Everett, M., & Freeman, L. (2002). UCINET for Windows: Software for social network analysis. Harvard, MA: Analytic Technologies.

Borgatti, S. P., Jones, C., & Everett, M. G. (1998). Network measures of social capital. *Connections*, *21*, 27-36.

Bosson, J. K., Johnson, A. B., Niederhoffer, K., & Swann Jr, W. B. (2006). Interpersonal chemistry through negativity: Bonding by sharing negative attitudes about others. *Personal Relationships*, 13, 135-150.

Brass, D. J., & Burkhardt, M. E. (1993). Potential power and power use: An investigation of structure and behavior. *Academy of Management Journal*, 36, 441-470.

Brass, D. J. 2011. A social network perspective on industrial/organizational psychology. In S. W. J. Kozlowski (Ed.), *The Oxford handbook of organizational psychology:* 107-117. New York: Oxford University Press.

Brewer, M. B. (1991). The social self: On being the same and different at the same time. *Personality and Social Psychology Bulletin*, 17, 475–482.

Burt, R. S., & Knez, M. (1995). Kinds of third-party effects on trust. *Rationality and Society*, 7,

255-292.

Burt, R. S., Opper, S., & Holm, H. J. (2022). Cooperation beyond the network. *Organization Science*, 33(2), 495-517.

Carnabuci, G., & Diószegi, B. (2015). Social networks, cognitive style, and innovative performance: A contingency perspective. *Academy of Management Journal*, 58, 881-905.

Chen, C., & Tang, N. (2018). Does perceived inclusion matter in the workplace?. *Journal of Managerial Psychology*, 33, 43-57.

Chung, B. G., Ehrhart, K. H., Shore, L. M., Randel, A. E., Dean, M. A., & Kedharnath, U. (2020). Work group inclusion: Test of a scale and model. *Group & Organization Management*, 45, 75-102.

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, 730-760.

Colman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, 95-120.

Coleman, J. S. (1990). *Foundations of social theory*. Cambridge, MA: Harvard University Press.

Cook, K. S., Levi, M., & Hardin, R. (Eds.). (2009). *Whom can we trust? How groups, networks, and institutions make trust possible.* New York: Russell Sage.

Cox, T., Jr. (1993). *Cultural diversity in organizations: Theory, research and practice*. San Francisco, CA: Berrett-Koehler.

Cross, R., & Parker, A. (2004). *The hidden power of social networks: Understanding how work really gets done in organizations*. Cambridge, MA: Harvard Business Press.

Cross, R., Borgatti, S. P., & Parker, A. (2002). Making invisible work visible: Using social network analysis to support strategic collaboration. *California Management Review*, 44, 25-46.

Cullen-Lester, K. L., Maupin, C. K., & Carter, D. R. (2017). Incorporating social networks into leadership development: A conceptual model and evaluation of research and practice. *The Leadership Quarterly*, *28*, 130-152.

Dixon-Fyle, S., Hunt V., Dolan, K., & Prince S. (2020) Diversity wins: How inclusion matters. McKinsey and Company. Available at: https://www.mckinsey.com/featured-insights/diversity-and-inclusion/diversity-wins-how-inclusion-matters (accessed 13 June 2021).

Farh, C. I., Liao, H., Shapiro, D. L., Shin, J., & Guan, O. Z. (2021). Out of sight and out of

mind? Networking strategies for enhancing inclusion in multinational organizations. *Journal of Applied Psychology*, 106, 582–598

Fang, R., Chi, L., Chen, M., & Baron, R. A. (2015). Bringing political skill into social networks: Findings from a field study of entrepreneurs. *Journal of Management Studies*, 52, 175-212.

Fang, R., Duffy, M. K., & Shaw, J. D. (2011). The organizational socialization process: Review and development of a social capital model. *Journal of Management*, 37, 127-152.

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, 870.

Findler, L., Wind, L. H., & Mor Barak, M. E. (2007). The challenge of workforce management in a global society: Modeling the relationship between diversity, inclusion, organizational culture, and employee well-being, job satisfaction and organizational commitment. *Administration in Social Work*, 31, 63-94.

Freeman, L. C. (1979). Centrality in social networks conceptual clarification. *Social Networks*, 1, 215-239.

Gardner, W. L., Pickett, C. L., & Brewer, M. B. (2000). Social exclusion and selective memory: How the need to belong influences memory for social events. *Personality and Social Psychology Bulletin*, 26, 486-496.

Gargiulo, M., Ertug, G., & Galunic, C. (2009). The two faces of control: Network closure and individual performance among knowledge workers. *Administrative Science Quarterly*, 54, 299-333.

Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, 78, 1360-1380.

Grosser, T. J., Obstfeld, D., Choi, E. W., Woehler, M., Lopez-Kidwell, V., Labianca, G., & Borgatti, S. P. (2018). A sociopolitical perspective on employee innovativeness and job performance: The role of political skill and network structure. *Organization Science*, 29, 612-632.

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, 177-212.

Harmon, R. Moore, J., Lilly Owens, T., Johnson, J., Cadet, K., Reta, N., Cheatham, R., Moses, R. (2020). 2020 Deloitte global human capital trends: The social enterprise at work. Deloitte Development, LLC. Available at: https://www2.deloitte.com/content/dam/Deloitte/us/Documents/human-capital/us-report-2020-eri-hc-trends.pdf (accessed 12 June 2021).

Hill, C. A. (1987). Affiliation motivation: people who need people. . . but in different ways. *Journal of Personality and Social Psychology, 52*, 1008–1018.

Hwang, J., & Hopkins, K. (2012). Organizational inclusion, commitment, and turnover among child welfare workers: A multilevel mediation analysis. *Administration in Social Work, 36*, 23–39.

Johnson, A. (2008). *The influence of need for achievement, need for affiliation, leadership support, and organizational culture on organizational citizenship behavior* (Unpublished doctoral dissertation). Alliant International University at Los Angeles, Los Angeles, CA.

Judge, T. A., & Zapata, C. P. (2015). The person-situation debate revisited: Effect of situation strength and trait activation on the validity of the Big Five personality traits in predicting job performance. *Academy of Management Journal, 58*(4), 1149–1179.

Kalish, Y. (2020). Stochastic actor-oriented models for the co-evolution of networks and behavior: An introduction and tutorial. *Organizational Research Methods, 23*(3), 511-534.

Kaše, R., Paauwe, J., & Zupan, N. (2009). HR practices, interpersonal relations, and intrafi rm knowledge transfer in knowledge intensive firms: A social network perspective. *Human Resource Management*, 48, 615–639.

Kilduff, M., & Lee, J. W. (2020). The integration of people and networks. *Annual Review of Organizational Psychology and Organizational Behavior*, 7, 155–179.

Klein, K. J., & D'Aunno, T. A. (1986). Psychological sense of community in the workplace. *Journal of Community Psychology, 14*, 365–377.

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, 1226-1242.

Knoke, D., & Burt, R. S. (1983). Prominence. In R. S. Burt & M. J. Miner (Eds.), Applied network analysis: A methodological introduction: 195-222. Beverly Hills, CA: Sage.

Kong, F., Huang, Y., Liu, P., & Zhao, X. (2017). Why voice behavior? An integrative model of the need for affiliation, the quality of leader– member exchange, and group cohesion in predicting voice behavior. *Group & Organization Management, 42*(6), 792–818.

Lee, J.Y., Bachrach, D.G., & Lewis, K. (2014). Social network ties, transactive memory, and performance in groups. *Organization Science, 25* (3), 951–967.

Lewin, K. (1935). Psycho-sociological problems of a minority group. *Character & Personality, 3*, 175–187.

Li, C. R., Lin, C. J., Tien, Y. H., & Chen, C. M. (2017). A multilevel model of team cultural diversity and creativity: The role of climate for inclusion. *Journal of Creative Behavior, 51*, 163–179.

Lincoln, J. R., & Miller, J. (1979). Work and friendship ties in organizations: A comparative analysis of relation networks. *Administrative Science Quarterly*, *24,* 181-199.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*, 224-253.

Martí, J., Bolíbar, M., & Lozares, C. (2017). Network cohesion and social support. *Social Networks*, *48*, 192-201.

McClelland, D. C. (1985). How Motives, Skills, and Values Determine What People Do. *American Psychologist, 40,* 812-825.

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,* 121–146.

Methot, J. R., Rosado-Solomon, E. H., & Allen, D. G. (2018). Network architecture of human capital: A relational identity perspective. *Academy of Management Review, 43*, 723–748.

Mischel, W. (1977). On the future of personality measurement. *American Psychologist, 32,* 246–254.

Mor Barak, M. E. (1999). Beyond affirmative action: Toward a model of diversity and organizational inclusion. *Administration in Social Work, 23*(3-4), 47-68.

Mor Barak, M. E. (2000). The inclusive workplace: An ecosystems approach to diversity management. *Social Work, 45*(4), 339–354.

Mor Barak, M. E. (2017). *Managing diversity: Toward a globally inclusive workplace* (4th Ed.). Thousand Oaks, CA: Sage.

Mor Barak, M. E., & Cherin, D. A. (1998). A tool to expand organizational understanding of workforce diversity: Exploring a measure of inclusion-exclusion. *Administration in Social Work, 22*(1), 47-64.

Morrison, E. W. (2002). Newcomers' relationships: The role of social network ties during socialization. *Academy of Management Journal, 45*, 1149–1160.

Nebus, J. (2006). Building collegial information networks: A theory of advice network generation. *Academy of Management Review*, *31*, 615-637.

Newkirk, P. (2019). *Diversity, Inc.: The failed promise of a billion-dollar industry*. New York: Bold Type Books.

Obstfeld, D. (2005). Social networks, the *tertius iungens* orientation, and involvement in innovation. *Administrative Science Quarterly*, *50*, 100-130.

O'Leary, M. B., & Mortensen, M. (2010). Go (con)figure: Subgroups, imbalance, and isolates in geographically dispersed teams. *Organization Science, 21*, 115-131.

Olsen, J. E., & Martins, L. L. (2012). Understanding organizational diversity management programs: A theoretical framework and directions for future research. *Journal of Organizational Behavior, 33,* 1168-1187.

Pearce, J. L., & Randel, A. E. (2004). Expectations of organizational mobility, workplace social inclusion, and employee job performance. *Journal of Organizational Behavior, 25,* 81–98.

Pelled, L. H., Ledford, G. E., Jr., & Mohrman, S. A. (1999). Demographic dissimilarity and workplace inclusion. *Journal of Management Studies, 36*, 1013-1031.

Pickett, C. L., Gardner, W. L., & Knowles, M. (2004). Getting a cue: The need to belong and enhanced sensitivity to social cues. *Personality and Social Psychology Bulletin, 30,* 1095–1107.

Porter, C. M., Woo, S. E., Allen, D. G., & Keith, M. G. (2019). How do instrumental and expressive network positions relate to turnover? A meta-analytic investigation. *Journal of Applied Psychology, 104,* 511–536.

Reagans, R., & McEvily, B. (2003). Network structure and knowledge transfer: the effects of cohesion and range. *Administrative Science Quarterly, 48*, 240–67.

Shore, L. M., Randel, A. E., Chung, B. G., Dean, M., Holcombe Ehrhart, K., & Singh, G. (2011). Inclusion and diversity in work groups: A review and model for future research. *Journal of Management, 37*, 1262–1289.

Shore, L. M., Cleveland, J. N., & Sanchez, D. (2018). Inclusive workplaces: A review and model. *Human Resource Management Review, 28*, 176-189.

Soltis, S. M., Agneessens, F., Sasovova, Z., & Labianca, G. (2013). A social network perspective on turnover intentions: The role of distributive justice and social support. *Human Resource Management, 52,* 561-594.

Soltis, S. M., Brass, D., & Lepak, D. (2018). Social resource management: Integrating social network theory and human resource management. *Academy of Management Annals, 12*, 537-573.

Uzzi, B. (1997). Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly, 42*, 35-67.

van Knippenberg, D., & Hirst, G. (2020). A motivational lens model of person × situation interactions in employee creativity. *Journal of Applied Psychology*, *105*, 1129-1144.

Varella, P., Javidan, M., & Waldman, D. A. (2012). A model of instrumental networks: The roles of socialized charismatic leadership and group behavior. *Organization Science, 23,* 582–595.

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*, 952–966.

Wasserman, S., & Faust, K. (1994). *Social network analysis: Methods and applications.* Cambridge, England: Cambridge University Press.

Wiesenfeld, B. M., Raghuram, S., & Garud, R. (2001). Organizational identification among virtual workers: The role of need for affiliation and perceived work-based social support. *Journal of Management, 27*, 213-229.

Table 1.

Means, Standard Deviations, and Bivariate Correlations.

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10
1. Rank (Manager)	0.36	-	-									
2. Location (USA)	0.30	-	0.03	-								
3. Gender (Male)	0.60	-	0.25**	-0.01	-							
4. Generation 1 (Gen Y)	0.16	-	-0.33**	-0.05	-0.14**	-						
5. Generation 2 (Gen X)	0.07	-	0.12*	0.01	0.03	-0.63**	-					
6. Generation 3 (Baby Boomer)	0.13	-	0.20**	0.04	0.11*	-0.30**	-0.56**	-				
7. Outdegree Centrality	9.77	7.35	0.44**	-0.08	0.25**	-0.27**	0.18**	0.07	-			
8. Need for Affiliation	3.95	0.63	0.01	-0.01	-0.15**	-0.03	0.12*	-0.12*	0.05	-		
9. Indegree Centrality	9.39	7.56	0.59**	0.03	0.31**	-0.36**	0.23**	0.11*	0.51**	0.09	-	
10. Network Closure	0.26	0.18	-0.33**	0.10	-0.18**	0.26**	-0.16**	-0.06	-0.41**	-0.01	-0.33**	-
11. Perceived Workplace Inclusion	3.93	0.67	0.09	-0.21**	0.06	-0.07	0.09	-0.04	0.19**	0.21**	0.17**	-0.09

* $p < .05$ (2-tailed)

** $p < .01$ (2-tailed)

Table 2.

Results of Node-Level Regression Analysis.

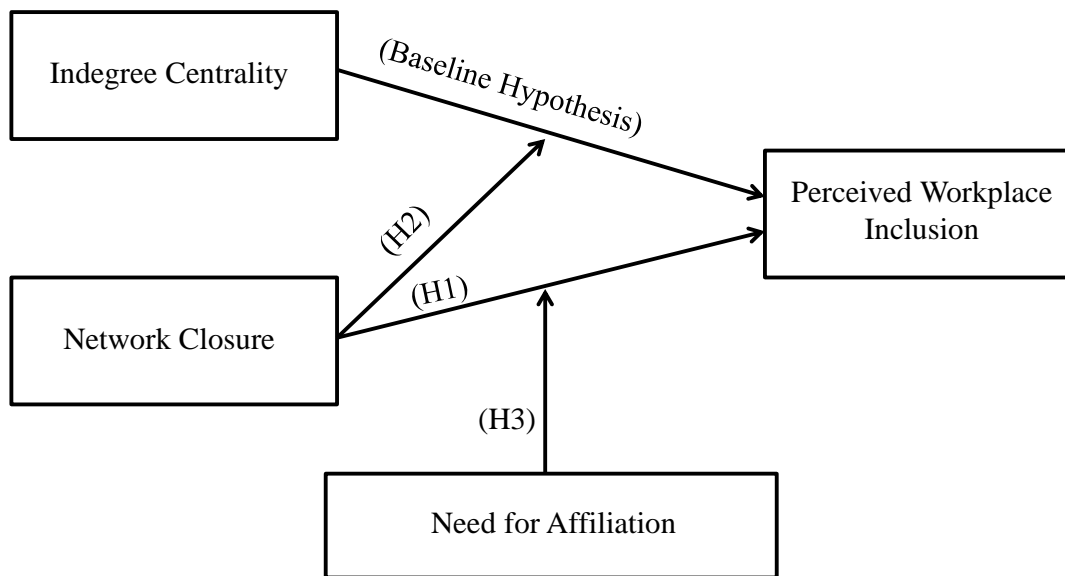| Variable	Perceived Workplace Inclusion			
	Model 1		Model 2	
Constant	3.93***	0.13	3.97***	(0.13)
Control Variables				
Rank (manager)	0.05	(0.09)	0.06	(0.10)
Location (USA)	-0.30**	(0.09)	-0.28**	(0.09)
Gender (male)	0.03	(0.08)	0.07	(0.08)
Generation 1 ("Generation Y")	-0.06	(0.15)	-0.05	(0.15)
Generation 2 ("Generation X")	0.05	(0.11)	-0.02	(0.11)
Sub-Unit	Yes		Yes	
Tenure	Yes		Yes	
Outdegree Centrality	0.10*	(0.04)	0.11*	(0.05)
Independent Variables				
Indegree Centrality			0.17*	(0.06)
Network Closure			0.13*	(0.06)
Moderator Variable				
Need for Affiliation			0.13***	(0.04)
Two-Way Interactions				
Indegree Centrality X Network Closure			0.16*	(0.07)
Network Closure X Need for Affiliation			0.10**	(0.04)
R-Square	0.11		0.18	
ΔR-Square			0.07***	

Note. Standard errors in parentheses; $N = 364$. We also controlled for the sub-unit affiliation of each respondent. Dummy variables for sub-unit and tenure did not reach statistical significance in the regression models. To simplify the table, these coefficients are not reported. ΔR-Square report changes from the previous model. Two-tail tests are reported.
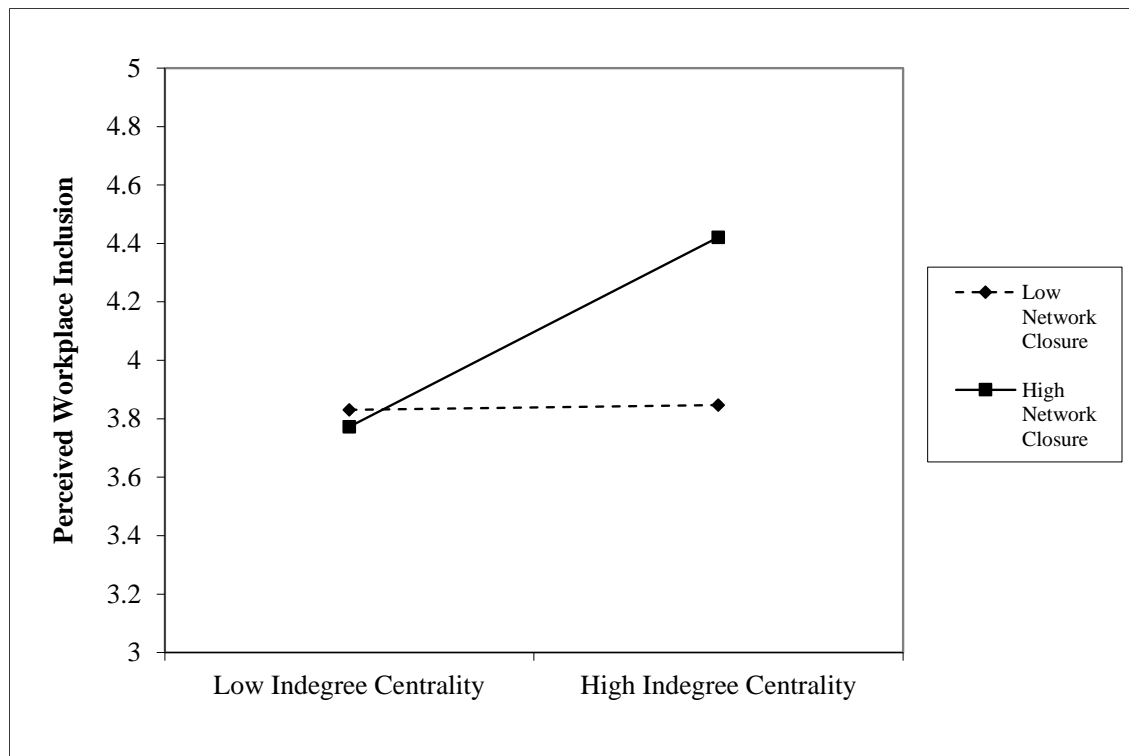
* $p < .05$
** $p < .01$
*** $p < .001$

Figure 1. Conceptual Model

Figure 2. Network closure moderates the relationship between indegree centrality and perceived workplace inclusion.

Figure 3. Need for affiliation moderates the relationship between network closure and perceived workplace inclusion.