A Sociopolitical Perspective on Employee Innovativeness and Job Performance: The Role of Political Skill and Network Structure

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ABSTRACT

We adopt a sociopolitical perspective to examine how an employee's political skill works in conjunction with social network structure to relate to the employee's innovation involvement and job performance. We find that employee innovation involvement mediates the relationship between political skill and job performance and that the number of structural holes employees have in their social network strengthens the positive relationship between political skill and employee innovation involvement. Hypotheses were tested in a large microprocessor manufacturing firm using a sample of 113 employees responsible for generating technological innovations in support of the development of computer microchips. The results of a constructive replication study among medical professionals provide substantial support for our model. This study's contribution is in showing that political skill both leads to innovation involvement and enables employees to take advantage of the innovation-enhancing potential of certain social network positions.

Keywords: employee innovation, political skill, social networks, structural holes, job performance

Understanding the antecedents and outcomes of employee innovation involvement—the extent to which an employee is involved in generating and implementing innovations in their organization—is critical because innovating is essential to improving organizational performance and competitiveness. A great amount of research has been conducted on the individual and contextual characteristics that give rise to employee innovation within organizations (Anderson, Potočnik, & Zhou, 2014). While this work mainly takes an individualistic view, the traditional image of innovation as driven by lone inventors in a social vacuum is now being complemented by work that emphasizes the importance of social connections in the innovation process (Guimerà, Uzzi, Spiro, & Amaral, 2005; Wuchty, Jones, & Uzzi; 2007).

Social connections provide access to knowledge and support that facilitate innovation endeavors. In this vein, a rapidly growing line of research employing social network theory and methodology highlights the social nature of innovation (e.g., Cattani & Ferriani, 2008; Grosser, Venkataramani, & Labianca, 2017; Fleming, Mingo, & Chen, 2007; Tortoriello & Krackhardt, 2010). Although the importance of social networks is well supported, findings suggest that divergent social network structures are likely to facilitate different stages of the innovation process. For example, some research has found that individuals who bridge between many disconnected others—and thus have many structural holes in their networks—are more effective at the idea generation stage (Burt, 2004); other research has found that having dense personal networks where one's contacts are connected to each other facilitates involvement in innovation implementation activities (Obstfeld, 2005). These divergent findings on the effect of personal social network structure have prompted some researchers to explore how employees' individual characteristics, such as adaptive cognitive styles or self-monitoring, might work in conjunction with social network structure to provide more clarity on when and how certain social network structures facilitate innovation and performance (Carnabuci & Diószegi, 2015; Fleming et al., 2007; Mehra, Kilduff,

& Brass, 2001). We also take this approach and integrate it with a sociopolitical perspective on innovation to suggest that individual characteristics related specifically to political skill will work in conjunction with social network structure to affect employee innovation involvement.

The sociopolitical perspective acknowledges the disruptive nature of innovation, which engenders change and upsets the status quo within organizations (Janssen, Van de Vliert, & West, 2004; Pinchot, 1985). Innovation is an inherently political endeavor that prompts those who perceive an innovation as threatening their position to engage in self-interested behavior designed to prevent it from being realized (Frost & Egri, 1991). As a result, innovators often must engage in political behavior to successfully garner necessary support for their innovative ideas (Howell & Higgins, 1990; Kanter, 1988). Recent empirical work has supported the validity of this political view by demonstrating the importance of political support in the implementation of innovation (Baer, 2012), and by showing that political calculations concerning image and reputation significantly influence innovation behavior (Yuan & Woodman, 2010). Yet, while theorists have argued that political skills are an important driver of innovation (Ford, 1996; Glynn, 1996), the specific political competencies that facilitate innovation have seldom been examined empirically.

We begin by arguing that innovation involvement mediates the relationship between political skill and job performance. We then argue that certain network structures—such as having a personal network rich in structural holes—provide contextual conditions that are conducive to innovation involvement, but that political skill is necessary in order to fully capitalize on the opportunities afforded by these conditions. We therefore take an interactionist approach, which views employee innovation as an interaction between individual actors' personal characteristics and their social context (Woodman, Sawyer, & Griffin, 1993), to examine innovation through a sociopolitical lens. In doing so, we contribute

to multiple streams of research. First, our study contributes to the literature on individual innovation by showing that political skill is related to the extent to which employees are involved in innovation. Although this relationship has been proposed, it has not to our knowledge been examined empirically. Second, we contribute to the growing literature on the political skill construct (Ferris et al., 2005; Ferris, Treadway, Perrewé, Brouer, Douglas, & Lux, 2007). Although the relationship between political skill and job performance is well-established, the mediating mechanisms explaining this relationship are poorly understood (cf. Ferris, Treadway, Brouer, & Munyon, 2012). Our results suggest that at least one reason politically skilled employees enjoy higher performance is due to their relatively higher levels of innovation involvement. Finally, we contribute to the social networks literature by exploring the interaction of political skill and social network structure. The nature of the relationship between individual characteristics and social networks is a key debate among social network scholars (Burt, Kilduff, Tasselli, 2013; Kilduff & Brass, 2010). While some have questioned the benefits of examining the interplay of human agency and social network structure (e.g., Mayhew, 1980), others have examined how certain personality characteristics (e.g., self-monitoring) predict social network position (e.g., Kleinbaum, Jordan, & Audia, 2015; Mehra, Kilduff, & Brass, 2001; Oh & Kilduff, 2008; Sasovova, Mehra, Borgatti, & Schippers, 2010), and yet others have made a case that certain attributes may synergistically interact with social network structure (Anderson, 2008; Carnabuci & Diószegi, 2015; Wong & Boh, 2014; Zhou, Shin, Brass, Choi, & Zhang, 2009). This study's results coincide with the latter view and suggest that open network structures rich in structural holes provide both opportunities and challenges that politically skilled employees are uniquely equipped to respectively leverage and surmount. We now turn to elaborating the theoretical basis for our conceptual model (see Figure 1).

Insert Figure 1 about here

THEORETICAL BACKGROUND AND HYPOTHESES

The Sociopolitical Nature of Innovation

Innovation has been defined as "any idea, practice, or material artifact perceived to be new by the relevant unit of adoption" (Zaltman, Duncan, & Holbek, 1973: 10), and therefore represents a significant change to an organizational product or process. The innovation process is often characterized as having two fundamental steps: the first step is creative ideation (i.e., generating a novel and useful idea) and the second is implementation (i.e., successfully getting an organization or an organizational unit to adopt the idea; Amabile, 1988; Kanter, 1988; Scott & Bruce, 1994). This study captures both of these dimensions by focusing on the extent to which employees were involved with initiating innovations that were successfully implemented within their organization. Such innovation involvement therefore necessitates not only introducing a new idea into the organization but also seeing that it is subsequently implemented.

Foundational work on the way in which resources within a firm are allocated to innovation initiatives suggests that the process is highly political, with the political savvy of an initiative's champion being an important element of project success (e.g., Bower, 1970; Burgelman, 1983). Accordingly, innovation within organizations has been conceptualized as a sociopolitical process (Frost & Egri, 1991; Kanter, 1988; Yuan & Woodman, 2010), where the successful initiation and implementation of innovation is dependent upon an employee's ability to obtain necessary resources and enlist the support of others. The innovation process is sociopolitical in nature largely because innovations inherently precipitate organizational change. Employees who initiate and implement innovations cause organizational change and upset established organizational systems and routines (Ford, 1996). Since

innovation can upset organizational power dynamics and cause change to established structures and behavioral patterns (Nord & Tucker, 1987), virtually all innovations encounter resistance from certain individuals in the organizational population. This resistance is not necessarily driven by perceived deficiencies in the idea's merit, but because the idea's mere existence threatens those individuals' interests (Janssen et al., 2004; Kanter, 1988). Indeed, Mintzberg (1983) argues that major innovations are among the most likely causes of political infighting in organizations. As Frost and Egri (1991) argue, the changes brought about by innovation are likely to engage what Pinchot (1985: 189) called the "corporate immune system"—the organizational force that is summoned to fight against change and maintain the status quo whenever change is imminent. Pfeffer echoes a similar sentiment: "accomplishing innovation and change in organizations requires more than the ability to solve technical and analytic problems. Innovation almost invariably threatens the status quo, and consequently, innovation is an inherently political activity" (1992: 7).

Due to this resistance to change, initiating and implementing innovations requires a substantial amount of sociopolitical effort. Organizational innovators must rally support for their ideas and apply a sufficient amount of influence to successfully implement them. The ability to influence others is therefore an integral component of the success of employee innovation efforts (Janssen, 2005; Nutt, 1986). Similarly, the ability to manage social relationships with others who will provide political support for innovation initiatives is critical to an employee's innovation success (Baer, 2012; Kanter, 1988). To successfully implement an innovation, one must be a keen observer of the social landscape in order to understand which key stakeholders must be enlisted and interpret and attend to their interests[1]. Although

[1] It is worthwhile to note that, much like organizational innovators, institutional entrepreneurs are fundamentally concerned with enacting change. An institutional entrepreneur is an actor who leverages resources to create new or

the sociopolitical nature of the innovation process has long been acknowledged, there has been surprisingly little research on the means by which individual political skill is brought to bear on innovation efforts within the firm. While innovation theorists have suggested that political skill plays a significant role in producing innovation (e.g., Amabile 1988; Glynn, 1996), the role that such skill plays in influencing organizational innovation requires greater elucidation.

Political Skill and Innovation

Political skill is defined as "the ability to effectively understand others at work and to use such knowledge to influence others to act in ways that enhance one's personal and/or organizational objectives" (Ferris et al., 2005: 127). The political skill construct consists of four dimensions: social astuteness, interpersonal influence, networking ability, and apparent sincerity (Ferris et al., 2007). *Social astuteness* is how attuned individuals are to the social environment and how astutely they observe and interpret others' behavior. *Interpersonal influence* is the ability to elicit desired responses from others. *Networking ability* concerns one's effectiveness at forging relationships, as well as building coalitions and alliances with others. *Apparent sincerity* is the degree to which an individual appears to be authentic, sincere, and genuine in his or her social interactions. These four political skill sub-domains have been shown to form a single, higher-order, construct (Ferris et al., 2008; Treadway, Adams, Hanes, Perrewé, Magnusen, and Ferris, 2014), which represents a comprehensive set of social competencies with both cognitive and behavioral manifestations (Ferris, et al., 2007).

transform existing institutions (DiMaggio, 1988). Depending on the type of innovation being pursued, it is possible for an innovator to also be pursuing institutional entrepreneurship. Research on institutional entrepreneurship has similarly found that successful institutional entrepreneurs must also be skilled in social persuasion and managing social relationships (for reviews see, Battilana, Leca, & Boxenbaum, 2009; and Hardy & Maguire, 2008).

As a construct that reflects an individual's ability to navigate the workplace social environment, political skill relates to how successfully individuals engage in goal-directed interpersonal interactions. Political skill enables two social behaviors in particular that can improve one's chances of innovation-related goal achievement: 1) the ability to effectively employ influence tactics; and 2) the ability to build beneficial relationships with others. First, political skill increases the success of social influence attempts. For example, Harris, Kacmar, Zivnuska, and Shaw (2007) examined a sample of 173 professionals employed at a state environmental agency and found that impression management tactics generally led to higher supervisor performance ratings when used by individuals high in political skill, whereas the tactics generally led to lower performance ratings when used by individuals low in political skill. Harris and colleagues conclude that political skill enabled employees to engage in social influence attempts more effectively: "the politically skilled appear able to understand the targets of their behaviors and use that knowledge in combination with specific impression management behaviors to influence them" (Harris et al., 2007: 283).

Second, political skill has also been found to affect the way in which individuals go about forming and maintaining work-based relationships. For example, Fang, Chi, Chen, and Baron (2015) examined how 28 entrepreneurs in 10 different industries went about forming and maintaining their social networks. These researchers found that, although the entrepreneurs didn't differ in their total number of ties, entrepreneurs with high levels of political skill maintained stronger ties with a cohesive set of close contacts upon whom they could rely for valuable advice, referrals, and financial support. Entrepreneurs high in political skill also tended to dynamically update their extended networks (i.e., weak ties) as needed, whereas the extended networks of those low in political skill were more stable. This continual updating of extended networks provided politically skilled entrepreneurs with a constant flow of new

ideas and fresh perspectives. Fang and colleagues also found that politically skilled entrepreneurs are better at recognizing and accessing the resources (e.g., business information, financial capital) present in their networks than those low in political skill, allowing them to make more effective use of their social networks compared to less politically skilled entrepreneurs.

We argue that political skill enables individuals to effectively engage in both the creative ideation and implementation stages of the politically-fraught innovation process. First, political skill is likely to enhance creative ideation, which itself can be conceptualized as a two-step process involving 1) the generation or gathering of novel ideas (i.e., *idea generation*), and 2) an assessment of the viability, acceptability, and effectiveness of those ideas (i.e., *idea evaluation*; Cropley, 2006). Successful creative ideation is a process whereby individuals iteratively shift between idea generation and evaluation in order to arrive at an idea that is not only creative, but also useful and appropriate for a given context (Puccio & Cabra, 2012). Politically skilled individuals are keen observers of people across diverse social situations and are sensitive to social norms (Ferris et al., 2007). Indeed, although they are self-aware, politically skilled individuals tend to have an outward focus on others around them (Ferris et al., 2005). This outward focus is likely to facilitate both the idea generation and idea evaluation components of the creative ideation stage because of the heightened amount and quality of attention they pay to their social environment. Theoretical work on the social aspect of creativity argues that the social environment can be a source of knowledge and inspiration that can spark new ideas and facilitate the creative recombination of information (Galunic & Rodan, 1998; Perry-Smith & Shalley, 2003). According to this line of research, others in an individual's social environment can serve as resources for generating ideas (Shalley & Perry-Smith, 2001). Idea generation can therefore be facilitated by attuning oneself to the knowledge and creativity of others in the environment, and politically skilled employees are more likely to recognize

and benefit from the knowledge and creativity of others around them. In addition to simply being attuned to the knowledge of others in their environment, however, politically skilled individuals are also more likely to forge relationships that lead to greater knowledge and idea exchange. Politically skilled individuals are adept at forging relationships with others who have valuable resources (Fang et al., 2015), and they are effective at inspiring trust in those to whom they are tied (Smith, Plowman, Duchon, & Quinn, 2009). Since individuals are more willing to openly share knowledge and ideas with those whom they trust (McEvily, Perrone, Zaheer, 2003), it follows that politically skilled individuals are more likely to have access to valuable knowledge and ideas that those with less political skill may not have.

Politically skilled individuals are also likely to be effective at the idea evaluation component of this stage. Empirical evidence suggests that an outward focus on the social environment might help individuals evaluate creative ideas because they are more likely to have an accurate understanding of the social system that determines the value of ideas in that context (Csikszentmihályi, 1996). Politically skilled individuals are likely to have a deep understanding of the norms and social dynamics within their organization, which helps them effectively judge the value of ideas and select those ideas that are likely to translate into successful innovations. In summary, politically skilled individuals are more likely to be effective at creative ideation because their outward focus on the social environment makes them: 1) more likely to notice and access the knowledge and creative ideas available in their social environment; and 2) better able to evaluate the fit and promise of new ideas.

Second, politically skilled employees are likely to have many of the characteristics necessary for success in the implementation stage. Communicating persuasively and building rapport with others are both crucial activities during the implementation stage (Maguire, Hardy, Lawrence, 2004; Nutt, 1986). Politically skilled employees excel in the art of persuasive communication due to their ability to tailor

their advocacy to the interests and preferences of the stakeholders and situations they encounter (Ferris et al., 2005). Moreover, their tendency to project sincerity helps them establish rapport with others, which can mitigate the fear and resistance to change that the innovation-based disruption of routines might elicit (Nord & Tucker, 1987; Van de Ven, 1986). Politically skilled employees are therefore likely to be effective in inducing cooperation and building the rapport that is needed to implement innovation successfully.

In addition to communicating persuasively and building rapport, successful implementers of innovation, like any agent of change, must also be competent coalition builders (Fligstein, 2001). Strong coalitions are necessary to rally support and overcome the political resistance innovations often face within organizations (Kanter, 1988; Murnighan & Brass, 1991), and the networking ability of politically skilled employees helps them to build effective coalitions. Indeed, entrepreneurs scoring higher in political skill tend to be more proactive in building robust social networks and then leveraging those networks to achieve desired outcomes (Fang et al., 2015). Evidence further suggests that politically skilled employees are better able to leverage their networks due to their ability to influence their contacts and cope with the stress of managing networks (Wei, Chiang, & Wu, 2012). These abilities make it more likely that politically skilled employees will also be effective in the critical activity of building and managing coalitions.

The Mediating Role of Innovation

The relationship between political skill and job performance is well established. Indeed, recent meta-analytic evidence suggests that political skill has a positive incremental effect on task performance above and beyond the effects of both general mental ability and the Big Five personality characteristics (Munyon, Summers, Thompson, & Ferris, 2015). Although the relationship between political skill and

employee performance is robust, the intervening mechanisms that account for this relationship are not yet well understood. Prior research suggests that employees high in political skill are able to generate positive organizational reputations, and this acts as an explanatory mechanism for the relationship between political skill and performance (Blickle, Schneider, Liu, & Ferris, 2011). While this is no doubt true, it begs the question as to how politically skilled individuals actually attain positive reputations. That is, it is not yet clear what actions politically skilled employees are taking to build the positive reputations that lead to performance. Accordingly, scholars of organizational politics have called for additional research into the intermediate linkages between employee political skill and performance (Ferris et al., 2012).

We propose that innovation involvement is an intervening variable that explains the relationship between political skill and employee performance. Although innovation is likely to engender resistance among certain stakeholders in an organization, innovators who are successful in each phase of innovation are likely to be considered high performers given the importance of innovation for firm success and growth. Accordingly, theoretical models of innovation include performance as an ultimate outcome of employee innovation behavior (e.g., Rank, Pace, & Frese, 2004). Empirical work also suggests that there is a positive relationship between supervisor ratings of employee innovation and employee performance ratings (Janssen & Van Yperen 2004). Thus, because political skill is likely to be an antecedent to both innovation involvement and employee performance, and because innovation involvement is likely to contribute to ratings of employee performance, we expect innovation involvement to mediate the relationship between political skill and employee performance.

Hypothesis 1 – Employee innovation involvement mediates the relationship between employee political skill and employee performance.

The Moderating Role of Structural Holes

Given the sociopolitical nature of innovation, it is perhaps not surprising that the social network structure surrounding an individual is related to innovation outcomes. Research has shown that social networks in organizations have implications for the number of new ideas employees are able to generate (Burt, 2004), the probability of innovation involvement (Obstfeld, 2005), and the diffusion of organizational innovations (Krackhardt, 1997). We argue that politically skilled employees possess the capabilities necessary to effectively leverage social network positions that offer opportunities to gather and control information. The structural hole construct is a network analytic measure directly related to the presence of these opportunities (Burt, 1992)[2].

A structural hole exists in an individual's network when a focal individual (hereafter referred to as *ego*) is connected to two individuals (known as ego's *alters*) who are themselves not connected to one another. An actor (ego) possessing a network rich in structural holes is in a position to derive *information* and *control* benefits (Burt, 1992). Specifically, structural holes provide individuals with faster access to valuable information since having disconnected alters provides access to diverse social worlds harboring non-redundant ideas. In contrast, an individual with few structural holes is exposed to more redundant information symptomatic of a closed, interconnected social circle. The control benefits of structural holes stem from the fact that ego has more opportunity to broker between disconnected alters, which places him/her in the advantageous position of controlling the flow of information and resources between the alters. The broker in this case is in a position to decide with whom to share novel information or who to include on an attractive project. The ability to control information and resources therefore endows an

[2] Although network analytic measures of centrality (i.e., closeness centrality; Ibarra, 1993) and network position (i.e., core/periphery indices; Cattani & Ferriani, 2008) have been shown to relate to innovation outcomes, we examine the structural hole construct because it is the most direct measure of a structural position that simultaneously offers information and control benefits.

individual who spans structural holes with a degree of informal influence (Brass, 1984; Sparrowe & Liden, 2005).

Structural holes, however, are not likely to be beneficial for each stage of the innovation process (Oldham & Baer, 2012; Perry-Smith & Mannucci, 2017). Empirical findings suggest that structural holes might benefit the idea generation stage, but not the idea implementation stage. For example, Burt (2004) found that employees with many structural holes in their personal networks were more likely to generate ideas that top managers considered valuable. Similarly, inventors possessing many structural holes have a higher tendency to creatively combine novel knowledge elements to generate patents (Fleming et al., 2007). In a study focused primarily on innovation implementation, however, Obstfeld (2005) found that structural holes were negatively related to an employee's involvement in successfully implemented innovations, arguing that structural holes make it difficult for employees to mobilize a group of supporters to assist with implementation. This pattern of findings suggests that structural holes will not be directly related to overall employee innovation involvement, which includes both idea generation and implementation behavior.

Although structural holes might not affect employee innovation involvement directly, they are likely to amplify the positive relationship between political skill and innovation involvement. This is because bridging structural holes provides resources and opportunities that politically skilled employees are uniquely equipped to leverage. First, the networking ability and social astuteness of politically skilled employees make it likely that they will effectively absorb the nonredundant information benefits that networks rich in structural holes offer. The networking ability of politically skilled employees will make them comfortable engaging with diverse others (Wei et al., 2012), making it more probable that they will proactively interact with their heterogeneous contacts. The social astuteness of politically skilled

employees makes them “astute observers of others” that are “keenly attuned to diverse social situations” (Ferris et al., 2005: 129). This astuteness makes it more likely that they will notice and appreciate the informational benefits of the structural holes in their network. Since politically skilled employees will be more willing to engage with their networks and will be apt to notice the nonredundant information resources around them, they will be more likely to leverage the creativity-enhancing benefits that such nonredundant information brings (Burt, 2004; Perry-Smith & Shalley, 2003; Galunic & Rodan, 1998). Second, politically skilled employees are likely to be effective in managing the control opportunities that structural holes offer. Employees high in political skill are effective in diplomatically exerting influence without incurring the backlash that sometimes accompanies influence attempts (Harris et al., 2007; Kolodinsky, Treadway, & Ferris, 2007). This suggests that politically skilled employees will be more likely to successfully capitalize on the control benefits of structural holes than less politically skilled employees. For example, a politically skilled employee is more likely to be able to charge “rents” for brokering information between two alters without generating resentment for doing so and is more likely to know how to advocate uniquely to disconnected alters. Politically skilled employees will also be effective in combating one of the difficulties associated with managing structural holes: the lack of trust that is an inherent part of sparse networks containing many structural holes (Coleman, 1988). It is this lack of trust that makes it difficult for ego to mobilize individuals in sparse networks to support an innovation initiative (Obstfeld, 2005). The apparent sincerity that politically skilled individuals display, however, is likely to promote trust. Politically skilled individuals are likely to be effective in building rapport with others and generating the trust necessary to mobilize support even among individuals in a sparse social network. Thus, politically skilled employees are likely to be able to mitigate one of the challenges sparse networks present for the implementation of innovation.

In summary, while political skill may lead directly to innovation involvement, we believe that the political skill-innovation relationship will be strongest in the presence of networks with many structural holes. Politically skilled employees are uniquely equipped to exploit the information advantages of structural holes, while at the same time effectively managing control opportunities and mitigating potential challenges posed by structural holes. These arguments therefore suggest that structural holes will moderate the relationship between political skill and employee innovation involvement. Stated formally:

Hypothesis 2 – Structural holes in the ideation network will moderate the relationship between employee political skill and innovation involvement such that the relationship will be stronger for employees with more structural holes.

PRIMARY STUDY: METHOD

Sample

The sample consists of 113 employees working within one division of a large semiconductor manufacturer headquartered in the United States. All respondents were involved in designing and enhancing computer microchips. Respondents' average tenure length was 13.3 years (SD = 6.3). The majority of respondents were male (82%). Twenty seven percent (27%) of the respondents were in a managerial position, 73% worked in a technical functional role, and 24% held a doctoral degree.

Procedure

The primary study was conducted in two phases. In Phase One, we held 22 semi-structured interviews with division managers and senior division engineers. These interviews exhaustively cataloged all of the innovations that had occurred within the division during the preceding 3 years. We identified a total of 146 innovations, each of which was either a newly introduced product/process or a significantly

changed or updated version of a previously existing product or process. Each department manager reviewed the innovations associated with his or her unit to ensure completeness and to verify that each item warranted inclusion on the list. The unit managers reduced the list to 140 innovations. Table 1 contains a representative sample of the innovation list.

Insert Table 1 about here

In Phase Two, an online survey was sent to 523 employees within the division via e-mail from each department head. All employees were assured of anonymity. Based on guidance from senior management, the survey was sent only to employees above an entry-level professional rank to access only those with a substantive opportunity to participate in various innovation initiatives. Usable surveys were returned by 113 employees (22% response rate), with complete data provided by 106 employees for an effective response rate of 20%. No significant differences between respondents and non-respondents were found on the basis of gender ($\chi^2 = .81$, $p = .37$) or job performance ($\chi^2 = .72$, $p = .40$). Those in managerial positions, however, were more likely to respond ($\chi^2 = 4.41$, $p < .05$).

The survey consisted of two sections. In the first section, employees rated their level of involvement in each of the 140 innovation projects that occurred within the division over the preceding 3 years. The second section gathered data used for our independent and control variables and elicited each employee's social network. We employed an egocentric (personal) research design, which exclusively focuses on the direct social network ties of each survey respondent (Marsden, 1990). Egocentric network data has been shown to be a valid measure of network structure (Burt, 2007), and has been used frequently in organizational research (e.g., Baer, 2010; Burt, 2004; Obstfeld, 2005; Podolny & Baron,

1997). Egocentric research designs consist of two parts: 1) a *name generator*, which is designed to help respondents generate a list of social network contacts; and 2) a *name interpreter*, which asks respondents to report on the nature of their relationship to each network contact (ego-alter), as well as on the relationships that exist among contacts (alter-alter).

Following prior egocentric network studies conducted within organizations (e.g., Podolny & Baron, 1997), we used multiple question prompts in the name generator portion of the survey. All questions used to elicit each respondent's network are listed in Appendix 1. The four name generator questions used in this study allowed respondents to list up to seven contacts in response to each name generator question, for a potential maximum of 28 unique contacts [3]. Respondents could list the same individuals multiple times in response to the four name generator questions. The average number of contacts listed was 5.49 (*SD* = 2.31), which is consistent with the average found in recent research conducted in a similar context (Wang, Rodan, Fruin, & Xu, 2014). In the name interpreter sub-section, respondents were asked to indicate the strength of their relationship with each contact, characterizing relationships as "especially close," "close," "less than close," or "distant." Based upon this assessment, each tie was weighted in equal increments between 0 and 1 (e.g., "distant" = 0, "less than close" = .33, "close" = .67, "especially close" = 1). Following Borgatti, Everett, and Johnson (2013), we also asked each respondent to report in more depth about the nature of their relationship with each contact in this section of the survey. For each of their listed contacts, respondents were asked to indicate whether or not a series of relationships applied to that contact. For example, respondents were asked to indicate whether each contact was "somebody to brainstorm and problem solve with" and whether each contact was a

[3] Respondents were told that they could use initials or "nicknames" in lieu of writing the full name of each of their contacts. This option was provided to allay potential confidentiality concerns among respondents.

"source of technical information."

Respondents were next asked about the nature of the relationship *between* each of their contacts. Respondents rated each pairwise relationship in one of the following ways: "unacquainted," "distant," "less than close," "close," or "especially close." These ratings were used to generate numerical weightings for each alter-to-alter tie. Each tie was given a numerical strength ranging between 0 ("unacquainted") and 1 ("especially close") in the same way as the direct ties. This therefore provided information on the *structure* of each respondent's immediate social network by indicating the way in which all of ego's alters were (or were not) connected to each other.

Finally, the firm's human resources department provided archival data pertaining to the division's employees. These data included information on each employee's rank, education, and functional role, as well as data on each employee's performance.

Measures

Dependent variable: Employee performance. This measure was obtained from archival performance evaluation data provided by the human resources department. Employee performance was evaluated annually by each employee's direct manager on a 5-point scale (*improvement required, below expectations, successful, exceeds expectations,* and *outstanding*). The organization based evaluations on a management-by-objectives model and provided managers with standardized training on how to conduct employee evaluations. These annual evaluations were then combined by the human resources department into an organizationally relevant binary outcome, which was provided to us for use in this study. An employee was considered to be a high performer if he/she received an "*exceeds expectations"* or "*outstanding"* evaluation at least twice during the previous three evaluation periods. This metric was tracked internally by the human resources department, and the company refers to these individuals as

"repeat high performers" whose demonstrated pattern of effective job performance triggers organizational recognition and rewards. Twenty-eight percent (28%) of the employees in the sample were rated as repeat high performers. The three evaluation periods considered correspond to the three years during which the 140 innovations occurred.

Independent variable: Political skill. Political skill was assessed using the 18-item Political Skill Inventory (PSI) developed and validated by Ferris et al., (2005). We dropped three cross-loading items from the scale and assessed political skill with the remaining 15 items; this reduced scale correlates with the full 18-item scale at $r = .99$[4]. The PSI comprises four sub-scales for each dimension of political skill: interpersonal influence, networking ability, social astuteness, and apparent sincerity (Ferris et al., 2005; 2007). The fit of a four factor confirmatory factor analysis was acceptable ($x^2 = 155.72$, $df = 84$, $p < .001$; SRMR = .06; RMSEA = .088; CFI = .93), and was significantly better than the fit of a one factor comparison model ($x^2 = 545.75$, $df = 90$, $p < .001$; SRMR = .117; RMSEA = .215; CFI = .49). The PSI has been widely used in organizational research and has been shown to be robust against the effects of social desirability bias (Ferris et al., 2012). Example items include: "It is easy for me to develop good rapport with most people," "I pay close attention to people's facial expressions," and "I am good at using my connections and network to make things happen at work." Respondents answered on a Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). The coefficient alpha for this scale was 0.91.

Mediating variable: Employee innovation involvement. Following prior innovation studies (e.g., Ibarra, 1993; Obstfeld, 2005), we measured innovation involvement by asking respondents to rate the role

[4] All results remain consistent using the full 18-item PSI.

they played in each of the division's 140 innovations based upon 4 categories. The question stem and category choices were worded in the following way:

> "On the next page you will find a list of innovations that occurred during the last three years. Please look at the list and indicate the extent of your involvement in each innovation. Choose "initiator" if you, along with or in conjunction with others, were the initiator of the innovation—that is, if its introduction and use was in large portion your idea. This is the option to choose if the innovation would not have happened without you. (It is expected that initiators will be very rare). Choose "major role" if you were not the initiator but played a major role in the development of the innovation as a whole. This is the option to choose if you played an important role in shaping the innovation—it would not exist in its present form without your contribution. Choose "minor role" if you were associated with the development of the innovation in a more limited capacity, for example, providing advice to the initiator on specific aspects of the innovation. This is the option to choose if you played a minor role in bringing the innovation to the organization. Choose "Don't recognize / Not involved" if it is an innovation you know nothing about and/or were not involved with at all. This will be the default answer for each innovation."

We summed the number of times each respondent indicated that they acted as an "initiator" for the listed innovations to measure employee innovation involvement. As opposed to the other roles described above, initiators are involved in both introducing an idea and making sure it ultimately gets used. In other words, one must be able to generate and implement ideas in order to be a successful initiator. We therefore chose to focus on the initiator role because it most closely aligns with the idea generation and implementation stages of innovation. On average, respondents reported initiating 0.62 (*SD* = 1.16) innovations. (While self-report measures of creativity and innovation have been used in prior organizational research, it is also important to note that our rigorously identified and organizationally-validated list of 140 innovations served to overcome many of the shortcomings of more generalized self-report measures.

Moderating variable: Ideation network structural holes. We focus on relationships that involve the exchange of ideas and creative problem solving because those relationships have been found to be important in the innovation process (e.g., Baer, 2010; Hargadon & Bechky, 2006; Sosa, 2011). These ties convey the innovation-relevant information and knowledge that can be profitably synthesized and/or brokered by an employee with a network rich in structural holes. We refer to the network composed of

these ties as the *ideation network*. As opposed to general advice or communication ties, which might convey information that is irrelevant to innovation, ideation network ties convey the most valuable and relevant information for innovative pursuits. Ethnographic work on the innovation process suggests that innovative outcomes are often the result of the recombination of ideas gathered by brainstorming and problem solving with diverse network contacts (Hargadon & Sutton, 1997). Researchers have similarly noted that obtaining problem solving help from others is an important facilitator of innovation outcomes in organizations (e.g., Reiter-Palmon & Illies, 2004). Each respondent identified their ideation network by indicating who among their contacts is "somebody to brainstorm or problem solve with." The average number of ties in respondents' ideation networks was 4.01 (*SD* = 2.56). Structural holes in the ideation network were calculated using Burt's (1992) measure of constraint. The formula for constraint is:

$$c_i = \sum_j \left(P_{ij} + \sum_q P_{iq} P_{qj} \right)^2, \quad q \neq i, j.$$

Where P_{ij} is the proportion of focal actor *i*'s network time and energy directly invested in alter *j*, and $\sum_q P_{iq} P_{qj}$ is the sum of *i*'s indirect investment in *j* via all alters *q*. Constraint was calculated using E-Net software for the analysis of ego-network data, Version 0.41 (Borgatti, 2006). A high level of constraint indicates that actor *i* is strongly tied to alters who are themselves strongly tied to each other and thus lacks structural holes. We subtracted each respondent's constraint score from 1 to derive the extent of structural holes in the ideation network. The values of this variable range from 0 to 1 with larger numbers indicating the presence of more structural holes in a focal actor's ideation network[5].

[5] As a robustness check, we also conducted our analyses using measures derived from the technical information network instead of the ideation network. Technical information ties were elicited by asking respondents which of their contacts was a "source of technical information." The results obtained from these analyses did not differ substantively from the results reported here.

Controls. We controlled for demographic variables shown to affect innovation and/or performance outcomes, including: *rank* (0 = non-manager, 1 = manager), *gender* (0 = female, 1 = male), *education* (0 = less than a doctoral degree, 1 = doctoral degree), *functional role* (0 = non-technical role, 1 = technical role), and *tenure* (in years). Data on these variables were obtained through archival records provided by the firm's human resources department. We also controlled for each employee's level of *intrinsic motivation*, as this has been shown to impact innovation outcomes (Grant & Berry, 2011) and job performance (e.g., Zapata-Phelan, Colquitt, Scott, & Livingston, 2009). Intrinsic motivation was measured with four items adapted by Grant and Berry (2011). Respondents were asked to rate how much they agreed with the following reasons for why they do their work: "because I enjoy the work itself," "because I find the work engaging," "because it's fun," and "because I enjoy it." Respondents answered on a Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). The coefficient alpha for this scale was 0.91.

Model

The dependent variable for Hypothesis 1, employee performance, was a binary outcome (high performer or non-high performer). We therefore used binary logistic regression to test this hypothesis. We used negative binomial regression analysis to test Hypothesis 2, as the dependent variable in this hypothesis is based upon a count outcome of relatively rare occurrence—instances of successful innovation initiation. A Pearson goodness-of-fit test of an equivalent Poisson regression model indicated evidence of overdispersion (x^2 (98) = 124.91, $p < .05$), making a negative binomial model an appropriate analytical choice. Listwise deletion due to missing data reduced the final number of observations to 106. To minimize the effects of multicollinearity and aid in model interpretation, we centered predictor variables prior to calculating the cross-product for the interaction term.

Results

Table 2 contains the correlation coefficients for this study's variables. Table 3 contains the results of the logistic regression with employee performance as the dependent variable, and Table 4 the results of the negative binomial regression with employee innovation involvement as the dependent variable.

Insert Table 2 about here

Hypothesis 1 (H1) states that innovation involvement will mediate the relationship between political skill and employee performance. We tested this hypothesis by testing for the unconditional indirect effect of political skill on employee performance via innovation involvement employing the bootstrapping methodology outlined by Preacher and Hayes (2004). The use of bootstrapping methods to test indirect effects models has been suggested as a preferred alternative to the causal steps approach to mediation analysis (Shrout & Bolger, 2002). Bias corrected bootstrap results based on 5000 resamples indicates that there is a significant unconditional indirect effect of political skill on employee performance (0.21; 95% confidence interval [CI] = [.008, .580]) via innovation involvement[6]. We therefore find support for H1[7]. Hypothesis 2 (H2) states that ideation network structural holes will moderate the relationship between employee political skill and innovation involvement such that the relationship will

[6] We also found consistent results using confidence intervals derived from a Monte Carlo simulation with 20000 resamples.

[7] We also examined the robustness of the relationship between political skill and innovation involvement in a separate study of 124 professionals in multiple industries across the U.S. We found that the effect of political skill on a lagged measure of self-reported innovation involvement remained positive and significant even after controlling for self-monitoring and social self-efficacy. Results of this analysis are available from the first author upon request.

be stronger for those with many structural holes. Consistent with H2, a positive and significant coefficient for the product term is found in Model 4 of Table 4 (b = .44, χ^2 = 12.42, p < .01). A plot of regression lines with values of the moderator set to two standard deviations above and below the mean is found in Figure 2. Inspection of the plot confirms that the nature of the interaction is as hypothesized: the relationship between political skill and innovation involvement is stronger for employees with many structural holes.

In order to test the full moderated mediation model suggested by our conceptual model, it is necessary to examine the indirect effect of political skill upon employee performance at differing levels of the moderator (Edwards & Lambert, 2007). To do this, we used the bootstrapping approach to conditional indirect effects outlined by Preacher, Rucker, and Hayes (2007). Bias corrected bootstrap results based on 5000 resamples indicate that the indirect effect of employee political skill on employee performance significantly differs as a function of the level of our moderator. As seen in Table 5, the indirect effect was positive and significant at relatively high levels of structural holes in the ideation network (0.52; 95% CI = [.041, 1.347], +1 *SD*) but not significant at relatively low levels (0.04; 95% CI = [-.172, .313], -1 *SD*). Following Hayes (2015) we calculated the index of moderated mediation in order to assess the statistical significance of the moderated mediation effect. The coefficient was 0.25, and bias corrected bootstrap results (5000 resamples) indicate that it is significant: 95% CI [.011, .685]. These analyses therefore suggest that the indirect effects at relatively high and low levels of the moderator differ significantly and provide support for our overall moderated mediation model.

Insert Tables 3, 4, & 5 and Figure 2 about here

Post-Hoc Analysis

Because political skill has proven to be an effective moderating variable in a number of studies (cf. Ferris et al., 2012), we examined the potential moderating effect of employee political skill on the relationship between employee innovation involvement and employee performance. This post-hoc analysis can be found in Model 5 of Table 3. The interaction term was negative and significant (b = -.70, χ^2 = 6.35, p < .05), with the interaction plot presented in Figure 3. This analysis suggests there is more variability in the performance evaluations of employees with low political skill than those with high political skill. Put differently, the performance evaluations of politically skilled employees are uniformly high regardless of their level of innovation involvement, but the performance evaluations of employees lower in political skill are largely contingent on their innovation involvement.

Insert Figure 3 about here

Primary Study Discussion

These results suggest support for both H1 and H2, while providing an intriguing post-hoc result regarding the moderating effect of political skill on the relationship between innovation involvement and job performance. We find that innovation involvement mediates the relationship between political skill and employee performance, and we find that ideation network structural holes moderate the relationship between political skill and innovation involvement. Although our post-hoc analysis yielded a significant result, the nature of this effect differs from what we would have predicted based on prior research, and we discuss these implications further in the general discussion below.

Despite our supportive results, the primary study is not without its limitations. Specifically, our

measure of employee performance was dichotomous rather than continuous, our innovation involvement variable was based on a self-reported measure (which makes common method bias a concern), our response rate was relatively low, and our social network data were based on an egocentric network design rather than a whole network design. Thus, to address these shortcomings and increase the validity and generalizability of our conceptual model, we sought additional support for our model in a constructive replication study. If successful, constructive replications extend the generalizability of research by avoiding exact duplication of an original study's methods (Lykken, 1968). Bearing this in mind, we endeavored to use different variable operationalizations, a dissimilar sample, and a different research design in our replication study.

REPLICATION STUDY: METHOD

Sample

The sample for this replication study consists of 33 cardiac physicians and surgeons in a cardiovascular institute on the main campus of a large hospital system located in the Midwestern United States. Innovativeness is emphasized within the healthcare industry because it can help hospital systems cope with increasing pressures to cut costs, as well as become more efficient and effective. For example, innovations that improve patient satisfaction scores directly increase the reimbursement percentage the government allots for patient care provided. Due to the importance of innovation within healthcare, the cardiovascular institute developed a Center for Innovation to promote physician innovation. This center regularly sent documentation to employees regarding what did and did not constitute innovation within the cardiovascular institute. According to the cardiovascular institute's Center for Innovation documentation, innovation amongst physicians and surgeons included developing new research, patient

care improvements, new teaching practices, introducing new ways to improve patient satisfaction, and developing new processes and procedures for making research, teaching and patient care more efficient, effective, and cost effective. Respondents' average age was 49 years (SD = 11). The majority of respondents were male (82%). Thirty nine percent (39%) of the respondents held a director position. Physicians and surgeons were in three departments: cardiac surgery (18%), vascular surgery (9%), and cardiovascular medicine (73%). As we explain further below, we also gathered data from non-physician employees at this institute. Although these non-physician employees were not a part of our focal sample, they participated in the study in order to provide us with thorough and reliable data on the social networks and performance of the physicians that do comprise our sample.

Procedure

The replication study was conducted in two phases. In Phase One, we held 15 hour-long semi-structured interviews with physicians, administrative leaders, physician assistants, and nurses, and we engaged in three days of observation. These interviews were designed to develop consensus regarding what constituted performance and innovation for physicians and surgeons within the cardiovascular institute. In Phase Two, an online survey was sent to 170 employees, including the 44 cardiac physicians and surgeons belonging to the cardiovascular institute (the population of interest) and the 126 non-physicians (i.e., administrative leaders, nurse practitioners, physician assistants, registered nurses, and technicians) who collaborate with the population of interest. Usable surveys were returned by 35 physicians (78% response rate) and by 94 non-physicians (75% response rate). Missing archival data for two physicians reduced the size of our focal sample to 33 (75% effective response rate).

All employees participating in the study (physicians and non-physicians) received an online survey that consisted of sociometric questions designed to elicit their social network. In this whole

network design, all 170 employees were listed as possible alters. The names of employees pre-populated as respondents began to type names of their network contacts. Employees were prompted to think about coworkers with whom they interact and were allowed to list up to 25 contacts, as interviews with informants and pilot data suggested that employees' networks might include up to 25 employees.

All employees participating in the study were also asked to rate the innovation involvement and job performance of three randomly-chosen physician collaborators that they listed as network contacts[8]. The three physician collaborators each respondent was asked to rate were chosen by enabling the randomization feature in the Qualtrics survey software. The 33 physicians comprising our sample of interest were also asked to rate their own political skill.

Measures

Dependent variable: Job performance. All nurses, technicians, and administrators (i.e., non-physicians) participating in the study were asked to rate the job performance of three of their physician collaborators chosen at random. Interviewees, as well as physician and administrative leadership, agreed that physician performance meant providing high quality patient care and, in accordance with the hospital's mission as a teaching hospital, being a good educator and teacher. At the time of these interviews, physician and administrative leadership were working with the hospital system's human resource professionals to create 360-degree performance reviews that would include having nurses, technicians, and administrators evaluate their physician collaborators' performance. Interviewees also

[8] Our entire survey population provided ratings of their physician collaborators' innovation involvement and job performance. Concerns that common method bias might impact our results led us to examine physician innovation involvement and job performance as rated by separate sets of collaborators, with non-physician respondents rating job performance and physician respondents rating innovation involvement. However, structural equation models examining physicians' innovation involvement and job performance as rated by a physician's entire set of collaborators produced results consistent with the findings reported here.

confirmed that the nurses, technicians, and administrators that worked with a physician would be adequately informed of the extent to which that physician fulfilled these two performance dimensions. Accordingly, respondents were asked the degree to which each physician "provides high quality patient care" and "is a good educator and teacher," using a Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). The coefficient alpha for this scale was 0.89. On average, each physician was rated by 4 other employees (SD = 1.81). Interrater reliability and interrater agreement analyses suggested acceptable rater agreement among the raters (ICC(1) = 0.15; $r_{WG(J)}$=0.87; Bliese, 2000; James, 1982), so the ratings were averaged to form a job performance rating for each physician in our sample.

Independent variable: Political skill. This was measured using 12-items from the Political Skill Inventory (Ferris et al., 2005). Three items from each of the four political skill sub-dimensions were chosen. Physician respondents answered on a Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). The coefficient alpha for this scale was 0.89.

Mediator variable: Innovation involvement. Semi-structured interviews and Center for Innovation documentation revealed that some physician innovations were extremely technical and might be most accurately rated by fellow physicians because they share similar educational credentials and extensive medical experience and knowledge. All physicians participating in the study were asked to rate three of their randomly chosen physician collaborators on their innovation involvement using a 2-item measure. In accordance with prior innovation scholarship, innovation was measured as "a process involving both the generation and implementation of ideas" (Scott & Bruce, 1994: 606). Accordingly, physician respondents were asked the degree to which their physician collaborators were "effective at generating novel and useful ideas and practices at work" and "effective at getting new ideas and practices implemented at work," using a Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). The coefficient

alpha for this scale was 0.93. On average, each physician was rated by 3 of their physician collaborators (SD = 1.26). Interrater reliability and interrater agreement analyses suggested acceptable agreement among the raters (ICC(1) = 0.10; $r_{WG(J)}$=0.81; Bliese, 2000; James, 1982), so the ratings were averaged to form an innovation involvement rating for each physician in our sample.

Moderator variable: Ideation network structural holes. As in the primary study, respondents identified their ideation network by indicating who among their contacts is "somebody to brainstorm or problem solve with." All survey respondents participated in the sociometric portion of the survey and completed this question. The matrices included both respondents and non-respondents. The matrices were 170x170 and yielded 28,730 observations of the ideation ties between all possible pairs of people. Structural holes in the ideation network were calculated in UCINET 6 (Borgatti et al., 2002) using Burt's (1992) measure of constraint. As in the primary study, we subtracted each respondent's constraint score from 1 to derive the extent of each physician's structural holes. Thus, the measure of structural holes we calculated for each physician in our sample of interest was based on the ideation network of all physicians and non-physicians at the cardiovascular institute rather than just the ideation network of physicians. This approach enabled us to more thoroughly and accurately assess the network structure of the physicians in our sample.

Control variables. We controlled for the following background variables, which were significantly related to innovation involvement or employee performance in our primary study: rank (0 = non-director, 1 = director), gender (0 = male, 1 = female), and tenure (in years). Physicians and surgeons were in three functional roles (cardiac surgery, vascular surgery, and cardiovascular medicine), so functional role was controlled for by including dummy variables for cardiac surgery and vascular surgery. Data on these variables were obtained through archival records provided by the hospital system's human

resources department.

Model

Structural equation modeling analysis was conducted using the *lavaan* package (Rosseel, 2012) in the R statistical software. We employed model fits to investigate whether our hypothesized model fit the data well using the model chi-square, which is a 'badness of fit' index (Kline, 2005) in which an insignificant result at a 0.05 threshold indicates good model fit (Barrett, 2007). We also considered the standardized root mean square residual (SRMR), defining an acceptable fit as values less than .05 (Byrne, 1998; Diamantopoulos and Siguaw, 2000), the root mean squared error of approximation (RMSEA), with acceptable fit at values less than 0.10 (Browne & Cudeck, 1993), and the comparative fit index (CFI), with well-fitting models obtaining values greater than 0.90 (Bentler, 1990).

Results

As opposed to the primary study, which necessitated the use of two separate regression models for hypothesis testing, we were able to use a single integrated model to replicate our results with this study. We therefore used structural equation modeling to test our hypotheses. Table 6 contains the correlation coefficients for this study's variables. Table 7 and Figure 4 contain the results of the structural equation model of our full moderated mediation model suggested by our conceptual model.

Insert Tables 6, 7 & 8 and Figure 4 about here

Results of the structural equation model suggest that our hypothesized model fits the data well (x^2 = 9.413, *df* = 7, *p* = .309; SRMR = .044; RMSEA = .083; CFI = .949). The standardized parameter estimates indicated that all of our hypothesized relationships were significant and in the predicted

directions (see Figure 4) when accounting for the control variables. Specifically, Hypothesis 1 (H1) states that innovation involvement will mediate the relationship between political skill and employee performance. A statistically significant parameter estimate was found for the path from political skill to innovation involvement (β = .42, p < .05) and from innovation involvement to performance (β = .72, p < .01), while the path between political skill and performance was not significant. We therefore find support for H1[9]. Hypothesis 2 (H2) states that ideation network structural holes will moderate the relationship between employee political skill and innovation involvement such that the relationship will be stronger for those with many structural holes. Consistent with H2, a positive and statistically significant parameter estimate for the product term was found in the structural equation model (see Table 7; β = .54, p < .01). Our pattern of results matches those found in the primary study, indicating that the interaction is as hypothesized: the relationship between political skill and innovation involvement is stronger for employees with many structural holes[10].

As in our primary study, we used a bootstrapping approach to examine the conditional indirect effects suggested by our model (Preacher et al., 2007). Bias corrected bootstrap results based on 5000 resamples indicate that the indirect effect of employee political skill on employee performance significantly differs as a function of the level of our moderator. As seen in Table 5, the indirect effect was positive and significant at relatively high levels of structural holes in the ideation network (0.42; 95% CI

[9] Utilizing the change in chi-square test (Bentler & Bonett, 1980), we compared our fully mediated hypothesized model with a partially mediated model, which specified the paths in the hypothesized model as well as the direct path from the independent variable (political skill) to the dependent variable (performance). The change in chi-square test showed that there was no significant improvement by adding this direct effect (i.e., in the alternative partially mediated model; x^2 = 1.3292, df=1, p = .249) and therefore the additional complexity is not justified. Thus, the hypothesized fully mediated model was supported as the best-fitting, most parsimonious model.

[10] We also tested the model presented here using OLS regression and our results remained substantively unchanged.

= [0.061, 0.852], +1 *SD*) but not significant at relatively low levels (0.06; 95% CI = [-0.109, 0.071], -1 *SD*). Following Hayes (2015), we calculated the index of moderated mediation in order to assess the statistical significance of the moderated mediation effect. The coefficient was 0.18, and bias corrected bootstrap results (5000 resamples) indicate that it is significant: 95% CI [.009, .448]. These analyses therefore suggest that the indirect effects at relatively high and low levels of the moderator differ significantly and provide support for our overall moderated mediation model.

Post-Hoc Analysis

As in the primary study, we also examined the potential moderating effect of employee political skill on the relationship between employee innovation involvement and employee performance. This post-hoc analysis can be found in Table 8. Unlike the primary study, however, the interaction term was non-significant (β = -0.09, p = 0.73) with this sample.

GENERAL DISCUSSION

The results of the studies reported here illustrate the importance of taking a sociopolitical perspective on innovation. Although researchers have acknowledged the inherently political nature of the innovation process (Frost & Egri, 1991; Kanter, 1988; Van de Ven, 1986) and theorists have suggested that political skill is an important variable to consider (Ford, 1996; Glynn, 1996), limited empirical research has examined how political skill impacts innovation outcomes. Our results suggest that political skill does have a strong relationship with the extent to which employees are involved in organizational innovations. Politically skilled individuals are more likely to notice and absorb the diverse knowledge that the actors in their social environment possess. They are also more likely to have an accurate understanding of the extant norms of a social system, helping them to effectively judge the merit of potential ideas. These competencies positively affect their ability to generate creative ideas, which is the

first step in the innovation process. Politically skilled employees are also more adept at the second step of the innovation process—idea implementation—due to their ability to establish rapport and communicate persuasively with organizational stakeholders whose support is necessary for successful implementation. The finding that political skill contributes to innovation involvement adds to the existing organizational research on political skill, which has shown that it affects other organizational outcomes, such as job performance and career success (cf. Ferris et al. 2012; Munyon et al., 2015). This study's findings also extend prior work that has established the relationship between political skill and job performance by identifying employee innovation involvement as an explanatory mechanism for this relationship. In doing so, we respond to recent calls for additional research on the intermediate linkages between political skill and job performance (Ferris et al., 2012).

Also in line with our sociopolitical perspective on innovation, we find that the extent to which employees span structural holes in the ideation network moderates the relationship between employee political skill and innovation involvement such that the relationship is stronger for those who span many structural holes. These results are consistent across both our primary and replication studies. This suggests that those employees with higher levels of political skill are in a better position to leverage the innovation-enhancing information and control benefits provided by structural holes. It appears that networks rich in structural holes provide opportunities that politically skilled employees are uniquely equipped to realize. That is, our results suggest that politically skilled employees may be able to effectively capitalize on the information benefits offered by structural holes while at the same time managing the control benefits afforded by spanning structural holes. It is worth noting that the main effect of structural holes on employee innovation was not significant in either our primary study (b = .09, *ns*) or our replication study (β = .11, *ns*). This is not surprising given the equivocal nature of this relationship in

prior studies (cf. Oldham & Baer, 2012). The lack of a main effect for structural holes in both of our studies is more evidence for the tradeoff that exists between structural holes and network closure: while structural holes provide access to the nonredundant information that enables ideation, this structure presents a challenge for implementation; conversely, while closure provides the cohesion and trust that enables implementation, this structure is not conducive to ideation (Burt, 2005; Obstfeld, 2005; Perry-Smith & Mannucci; 2017). Our results suggest, however, that this tradeoff is minimized for politically skilled employees who span structural holes.

Our findings also contribute to the ongoing debate on the value of examining the effect of individual attributes in the context of social networks (cf. Burt, Kilduff, & Tasselli, 2013). While some have questioned the benefits of examining the interplay of individual attributes and social network structure (Mayhew, 1980), others have made a case for a contingency view of social networks, which posits that human attributes interact with social network structure in a multiplicative manner (Anderson, 2008; Carnabuci & Diószegi, 2015; Wong & Boh, 2014; Zhou et al., 2009). This study's results coincide with the contingency view and suggest that an open social network structure suggestive of brokerage produces opportunities and challenges that not all individuals are equally equipped to face. Our results complement recent work that examines how cognitive style and structural holes interact to predict employee innovation (Carnabuci & Diószegi, 2015). While Carnabuci and Diószegi take a unique cognitive approach in examining how network structure enhances the effect of cognitive style on innovation, the studies reported here suggest that network structure also enhances the effect of the more behaviorally-oriented political skill construct. Taken together, our results and those of Carnabuci and Diószegi suggest that both cognitive and behavioral attributes are important to consider in combination with social networks in the examination of employee innovation. It should also be noted that our results

support theories of employee innovation that advocate the importance of considering the interaction of personal and situational characteristics (e.g., Woodman, Sawyer, & Griffin, 1993).

In the post-hoc analysis of our primary study we found that political skill moderated the relationship between innovation involvement and employee performance. The nature of the moderation effect was such that the relationship between innovation involvement and performance was stronger for those with relatively low levels of political skill than it was for those with relatively high levels of political skill. One way to interpret this result is that employees high in political skill are generally rated as higher performers compared to those low in political skill, but this advantage goes away the more those low in political skill contribute to innovation. This was a surprising result given recent research suggesting that politically skilled employees are able to effectively promote their prior achievements in order to attain positive evaluations from relevant stakeholders (e.g., Treadway et al., 2014). Indeed, considering that politically skilled employees are able to "put a gloss" on their previous achievements so as to receive higher performance ratings (Pfeffer, 2009: 68), it would have been logical to expect the relationship between innovation involvement and evaluations of job performance to be stronger for those high in political skill. We can begin, however, to understand our counter-intuitive finding by looking to the impression management literature. Impression management researchers (e.g., Gardner & Martinko, 1988; Tetlock & Manstead, 1985) have categorized impression management tactics as either being defensive (i.e., impression management aimed at defending against possible image degradation) or assertive (i.e., using impression management to enhance one's image through self-promotion). While prior research has suggested that politically skilled employees are adept at assertive impression management in that they are able to effectively leverage prior performance to promote themselves, our findings suggest that politically skilled employees might also be effective in defensive impression

management to guard against potentially negative reputational effects. That is, politically skilled individuals are possibly better at protecting themselves against the negative performance evaluations that come from little involvement in innovation than are employees with low levels of political skill. Thus, one avenue of future research might be to improve our understanding of the conditions under which politically skilled individuals use assertive versus defensive forms of impression management. Of course, we must be cautious in accepting this moderated relationship because it was not replicated in the smaller physician sample used in our replication study, and further testing and replication is warranted.

Limitations and Future Directions

The studies reported here are not without their limitations, one of which is that their cross-sectional nature raises endogeneity concerns. It is possible, for example, that a high level of innovation involvement leads to employees believing that they have a high level of political skill, which runs counter to our hypothesized causality. Similarly, we cannot definitively rule out the possibility that high performance leads to increased innovation, nor can we determine whether political skill is an antecedent to, or an outcome of, a network rich in structural holes. Despite this limitation, the theory-driven directionality we propose yields a plausible model. An additional limitation is the small sample size of our replication study. Although the response rate was high, the limited number of observations in our models restricted the statistical power available for detecting significant effects, which might explain why we did not detect the significant post-hoc moderation effect found in the primary study. Since small samples can only detect large effects, researchers should not interpret the effect sizes from small samples as being widely generalizable. Consequently, scholars should be cautious when interpreting the effect sizes in our replication study.

One potential direction for future research will be to examine political skill as a possible

consequence of social network structure. Although research has shown that politically skilled individuals are adept at building and using robust social networks (Fang et al., 2015; Wei et al., 2012), an equally promising area of research might be to determine the extent to which social networks affect the development of political skill. It is possible, for example, that bridging structural holes causes individuals to exercise and develop their political skill capabilities, such as their ability to assess social environments and effectively induce cooperation among others (Burt, 2010). It is possible that social network structure and political skill have a dynamic reciprocal influence on one another, and such interplay between individual characteristics and social networks represents a fertile ground for future exploration (Burt et al., 2013; Kilduff & Brass, 2010; Tasselli, Kilduff, & Menges, 2015).

Future research should also examine political skill in relation to other social network characteristics, such as core versus peripheral positions. Examining whether political skill and network coreness interact to drive innovation is one question that warrants investigation. On one hand, it could be argued that political skill will serve peripheral players to a greater extent as it will help them in their struggle to gain legitimacy for their innovations in the eyes of core players whose supported is crucial. On the other hand, a compelling counter argument could be made that political skill will endow core members with the ability to quickly recognize and appropriate innovations from their peripheral contacts, and will therefore be of more benefit to core players.

In conclusion, our studies bolster the notion that innovation is a sociopolitical process that requires dexterity in navigating political environments to successfully bring it about. It is also a critical process not only for organizations, which often need innovation in order to stay competitive within their industries, but also for their employees, whose performance is linked to innovation involvement. Our results also suggest that social network structure alone is not enough to foster employee innovation.

Rather, the innovation-facilitating benefits of structural holes are realized best by employees who are more politically skilled. We urge greater attention to the sociopolitical nature of innovation in future organizational research examining innovation at the individual level.

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TABLE 1: EXAMPLE INNOVATIONS -- PRIMARY STUDY

Examples of Division Innovations*
1. A new, data-driven tool and methodology for identifying and quantifying waste and bottlenecks in chip design work flows.
2. An innovation that reduces runtimes to seconds and results in improved cache hit-rates.
3. A dynamic gearshift mechanism that allows for the seamless swapping of models during virtual platform simulation.
4. A tool for the automated management of all chip tests, test configurations, test lists, and regressions.
5. A unified GUI framework for the activation, integration, automation, and control of common validation tools & flows, and for the effective management and analysis of validation data.
6. A new instrumentation interface for analyzing the performance, correctness, and vulnerabilities of system software.
7. New tool for forecasting disk needs for immediate use, greatly reducing new disc turnaround time.
8. Design migration (i.e., process shift) from 22 nanometer circuit blocks to 14 nanometer circuit blocks.
* Some minor wording changes have been made to limit technical jargon and maintain the anonymity of the organization.

TABLE 2: BIVARIATE CORRELATIONS – PRIMARY STUDY

	M	*SD*	1	2	3	4	5	6	7	8	9
1. Rank (1 = Manager)	0.27	-	-								
2. Gender (1 = Female)	0.18	-	-0.07	-							
3. Education (1 = PhD)	0.24	-	-0.01	-0.15	-						
4. Functional Role (1 = Technical Role)	0.73	-	-0.57**	-0.08	0.07	-					
5. Tenure (Years)	13.26	6.27	0.14	-0.07	-0.15	-0.27**	-				
6. Intrinsic Motivation	5.54	1.09	0.20*	0.01	0.08	-0.01	0.20*	-			
7. Ideation Network Structural Holes	0.38	0.23	0.12	-0.05	-0.11	-0.07	0.13	0.18	-		
8. Political Skill	5.13	0.86	0.37**	0.04	-0.09	-0.33**	0.23*	0.37**	0.22*	-	
9. Innovation Involvement	0.62	1.16	0.16	-0.21*	-0.02	-0.01	-0.04	0.02	-0.01	0.31**	-
10. Employee Performance	0.28	-	0.24*	-0.03	-0.03	-0.28**	-0.12	-0.01	0.03	0.23*	0.22*

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

TABLE 3: BINARY LOGISTIC REGRESSION ANALYSIS – PRIMARY STUDY

	Employee Performance									
Variable	**Model 1**		**Model 2**		**Model 3**		**Model 4**		**Model 5**	
Control Variables										
Rank (Manager)	0.42	(0.55)	0.12	(0.58)	0.29	(0.66)	0.09	(0.66)	-0.10	(0.70)
Gender (Female)	-0.64	(0.67)	-0.79	(0.66)	-0.28	(0.65)	-0.46	(0.66)	-0.58	(0.67)
Functional Role (Technical Role)	-1.48*	(0.59)	-1.22	(0.63)	-1.61*	(0.67)	-1.40*	(0.70)	-1.60*	(0.72)
Tenure	-0.67**	(0.26)	-0.75**	(0.28)	-0.65*	(0.29)	-0.73*	(0.30)	-0.77*	(0.32)
Education (PhD)	-0.44	(0.57)	-0.39	(0.61)	-0.56	(0.59)	-0.49	(0.60)	-0.96	(0.72)
Intrinsic Motivation	0.12	(0.25)	-0.08	(0.28)	0.05	(0.22)	-0.09	(0.24)	-0.04	(0.23)
Ideation Network Structural Holes	-0.04	(0.24)	-0.11	(0.25)	-0.11	(0.24)	-0.16	(0.25)	-0.11	(0.25)
Independent Variable										
Political Skill			0.66*	(0.31)			0.50	(0.31)	0.55	(0.35)
Mediator Variable										
Employee Innovation Involvement					0.98**	(0.30)	0.88*	(0.34)	1.26**	(0.37)
Post Hoc Analysis										
Political Skill X Innovation Involvement									-0.70*	(0.28)
Intercept	0.22	(0.57)	0.10	(0.61)	0.34	(0.67)	0.24	(0.69)	0.61	(0.73)
Log Likelihood	-57.09		-54.58		-52.55		-51.29		-49.28	

Note. Standard errors in parentheses, $n = 106$.

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

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

TABLE 4: NEGATIVE BINOMIAL REGRESSION ANALYSIS – PRIMARY STUDY

	Employee Innovation Involvement							
Variable	**Model 1**		**Model 2**		**Model 3**		**Model 4**	
Control Variables								
Rank (Manager)	0.32	(0.38)	0.13	(0.39)	0.08	(0.38)	-0.04	(0.41)
Gender (Female)	-1.47	(0.77)	-1.55*	(0.67)	-1.54*	(0.66)	-1.42*	(0.70)
Functional Role (Technical Role)	-0.16	(0.42)	0.21	(0.45)	0.17	(0.44)	0.28	(0.44)
Tenure	-0.27	(0.17)	-0.36*	(0.17)	-0.37*	(0.17)	-0.38*	(0.17)
Education (PhD)	-0.10	(0.32)	0.20	(0.32)	0.23	(0.31)	0.28	(0.29)
Intrinsic Motivation	0.19	(0.19)	-0.08	(0.22)	-0.10	(0.23)	-0.13	(0.21)
Independent Variable								
Political Skill			0.64**	(0.20)	0.62**	(0.20)	0.74**	(0.18)
Moderator Variable								
Ideation Network Structural Holes					0.12	(0.18)	0.15	(0.16)
Interaction								
Political Skill X Ideation NW Structural Holes							0.44**	(0.13)
Intercept	-0.43	(0.44)	-0.80	(0.47)	-0.79	(0.46)	-1.05*	(0.47)
Log Likelihood	-101.96		-97.90		-97.73		-94.46	

Note. Standard errors in parentheses, $n = 106$.

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

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

TABLE 5: RESULTS OF CONDITIONAL INDIRECT EFFECTS ANALYSES

	Primary Study		Replication Study	
	Employee Performance		Employee Performance	
Moderator Variable: Ideation Network Structural Holes	Indirect Effect	Confidence Interval (α =.05)	Indirect Effect	Confidence Interval (α =.05)
Low Value (-1 Std. Dev.)	0.04	[-.172, .313]	0.06	[-.109, .071]
High Value (+1 Std. Dev.)	0.52	[.041, 1.347]	0.42	[.061, .852]
Index of Moderated Mediation	0.25	[.011, .685]	0.18	[.009, .448]

Note. Table entries were computed using a bootstrapping procedure for the estimation of conditional indirect effects using 5000 resamples (cf. Hayes, 2013).

TABLE 6: BIVARIATE CORRELATIONS - REPLICATION STUDY

	1	2	3	4	5	6	7	8	9
1. Rank (1 = Director)	-								
2. Gender (1 = Female)	-0.22	-							
3. Vascular Surgery Functional Role	-0.08	0.35 *	-						
4. Cardiac Surgery Functional Role	0.02	-0.20	-0.14	-					
5. Tenure (Years)	0.33 *	-0.41 *	-0.17	0.21	-				
6. Ideation Network Structural Holes (centered)	-0.50 **	0.36 *	0.42 **	-0.26	-0.13	-			
7. Political Skill (centered)	0.30	-0.01	-0.35 *	-0.01	0.20	-0.49 **	-		
8. Employee Innovation (centered)	-0.33 **	-0.14	-0.21	0.04	0.29	0.42 *	0.05	-	
9. Employee Performance (centered)	-0.14	0.08	0.03	0.31	-0.13	-0.05	0.20	0.51 **	-

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

TABLE 7: RESULTS OF STRUCTURAL EQUATION MODEL - REPLICATION STUDY

	Employee Innovation	Employee Performance
Controls (Static)		
Rank (Director)	-0.64 (0.17)**	
Gender (Female)	0.06 (0.11)	
Vascular Surgery Functional Role	0.11 (0.14)	
Cardiac Surgery Functional Role	0.14 (0.11)	
Tenure	0.44 (0.21)*	
Ideation Network Structural Holes (centered)	0.11 (0.15)	
Independent Variable		
Political Skill (centered)	0.42 (0.11)*	0.14 (0.08)
Mediating Variable		
Employee Innovation (centered)		0.72 (0.21)**
Interaction		
Political Skill (centered) X Ideation Network Structural Holes (centered)	0.54 (0.21)**	
Fit Statistics		
N	33	
χ^2	9.413	
df	7	
SRMR	0.044	
RMSEA	0.083	
CFI	0.949	

Note. Standard errors in parentheses, $n = 33$.
** Significant at the 0.01 level (2-tailed).
* Significant at the 0.05 level (2-tailed).

TABLE 8: RESULTS OF ORDINARY LEAST SQUARES REGRESSION - REPLICATION STUDY

	Employee Performance
Controls (Static)	
Rank (Director)	0.32 (0.20)
Gender (Female)	-0.20 (0.11)
Vascular Surgery Functional Role	0.17 (0.14)
Cardiac Surgery Functional Role	0.24 (0.13)
Tenure	-0.04 (0.01)*
Political Skill (centered)	0.09 (0.05)
Mediating Variable	
Employee Innovation (centered)	0.60 (0.16)**
Interaction	
Employee Innovation (centered) X Political Skill (centered)	-0.09 (0.10)
Adjusted R-Squared	0.48
F	5.32**

Note. Standard errors in parentheses, $n = 33$.
** Significant at the 0.01 level (2-tailed).
* Significant at the 0.05 level (2-tailed).

FIGURE 1: CONCEPTUAL MODEL

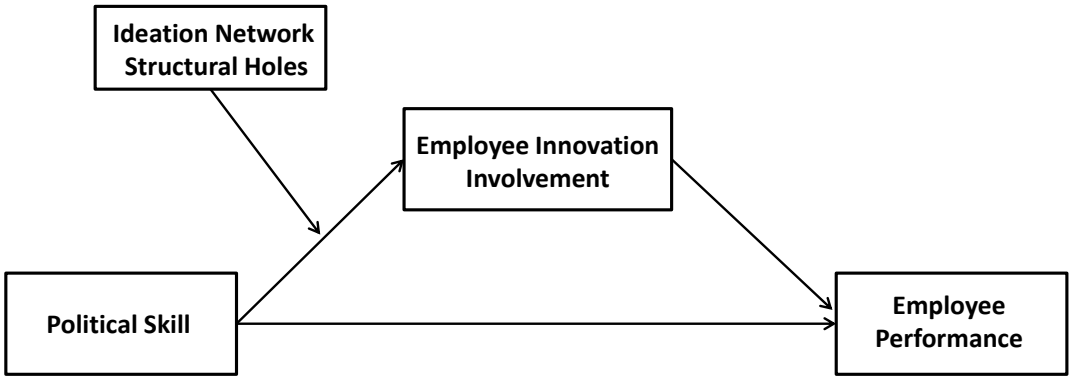


FIGURE 2: INTERACTION PLOT OF POLITICAL SKILL AND STRUCTURAL HOLES PREDICTING EMPLOYEE INNOVATION INVOLVEMENT – PRIMARY STUDY

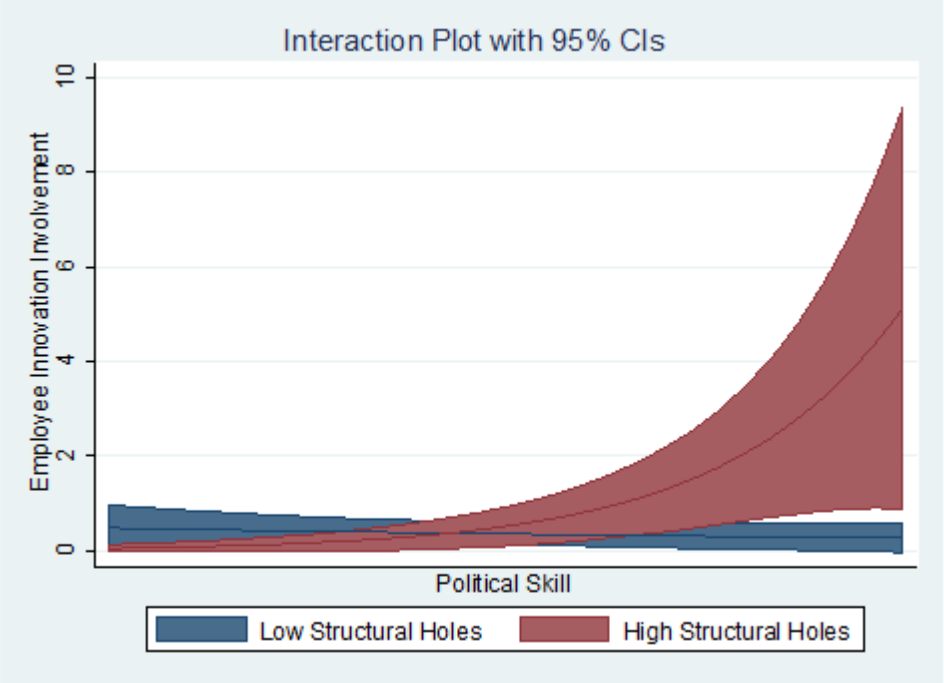


FIGURE 3: INTERACTION PLOT OF INNOVATION INVOLVEMENT AND POLITICAL SKILL PREDICTING EMPLOYEE PERFORMANCE – PRIMARY STUDY

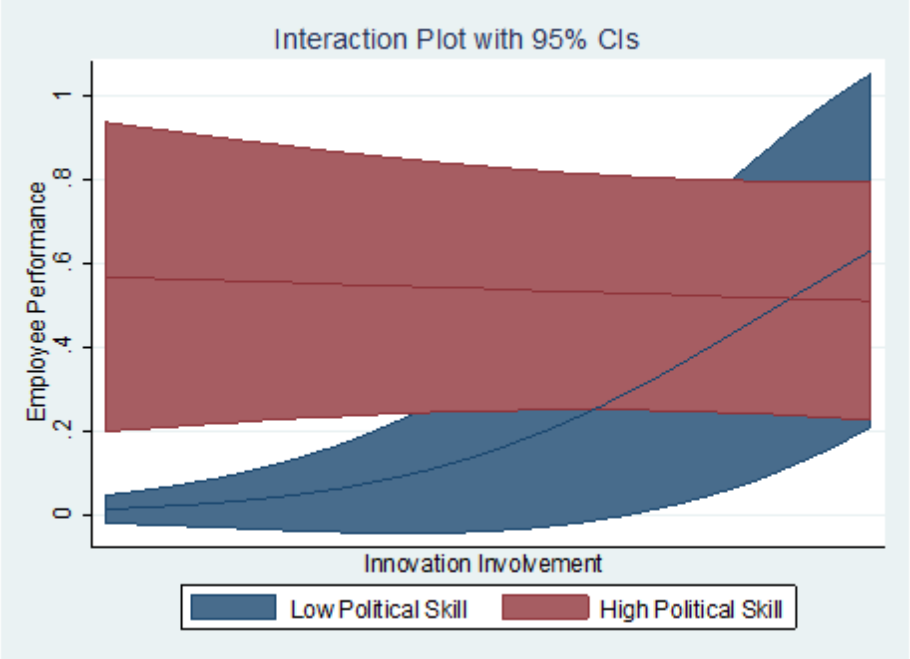
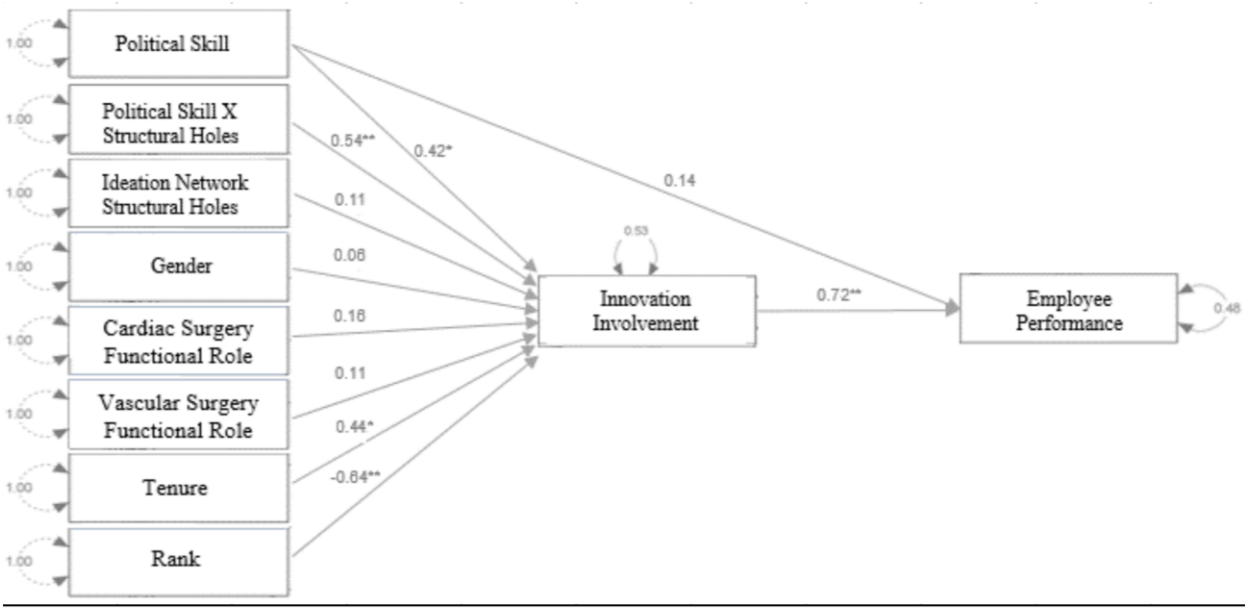


FIGURE 4: RESULTS OF STRUCTURAL EQUATION MODEL - REPLICATION STUDY



** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Parameter estimates are from the completely standardized solution

APPENDIX 1: SURVEY QUESTIONS USED TO ELICIT EGOCENTRIC NETWORKS – PRIMARY STUDY

Name generator questions used to elicit contacts[11]:

1. Advice: "Who do you regularly seek advice from about next steps and issues that arise in the course of working on a project?"
2. Buy-In: "Suppose you are advocating for a new project. Whose buy-in (e.g., for obtaining approval or resources) would you pursue?"
3. Brainstorming: "Who helps you to brainstorm and think creatively?"
4. Strategic Information: "Who are the people you approach regularly to get candid, "behind-the-scenes" insight regarding projects and innovations in the organization?"

Name interpreter questions asked about each contact elicited by the name generator questions:

1. "What is your relationship with this person?" (Respondents were asked to check all boxes that applied.)

    - □ A friend
    - □ Somebody to brainstorm or problem solve with
    - □ Critical to buy-in – Somebody who provides approval and/or resources for projects
    - □ Source of technical information
    - □ Source of behind-the-scenes insight about organizational happenings or points of view
    - □ Advocate for my ideas
    - □ Someone who presents roadblocks rather than solutions
    - □ A stronger relationship with this person could improve my innovation activity in the future

2. "How would you characterize your professional relationship with this person?" (4-point scale; 3 = especially close; 0 = distant)

Name interpreter question used to assess each respondent's social network structure:

1. "[In this section] we ask you to describe the nature of the ties between the different people in your network. Some people may have no relation at all, some may have a weak tie and some might be quite close or strong. Please describe the nature of these relationships."

Respondents were asked to characterize the relationships among each of their listed contacts by indicating the nature of each pairwise relationship on a 5-point scale (4 = especially close; 0 = unacquainted).

[11] The name generator questions were meant to elicit a complete set of network contacts. Although there is some degree of overlap between the name generator and name interpreter questions, we used data provided in the name interpreter section of the survey as the basis for network ties. Asking respondents to further characterize their relationships in the name interpreter section enabled respondents to report on the relationships they have with the full set of contacts that emerged from the name generator portion of the survey (Borgatti et al., 2013).