To work is to relate

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To work is to relate:

the influence of work relationships on individual work outcomes

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CHAPTER 1

General introduction

"No man is an island."
(Donne, 1975)

As relationships with others "form the social fabric and context of a job" (Wresniewski, Dutton, & Debebe, 2003, p. 94), they are essential determinants of behavior when employees must interact formally or informally in getting their work done, such as in work groups (Ferris et al., 2009). In contemporary organizations, designing work around autonomous or semi-autonomous teams has become a fact, as an increasing number of organizations have adopted flatter organizational and team-based structures (Morgeson, Reider, & Campion, 2005; Takeuchi, Yun, & Wong, 2011). In parallel, informal networks have become more important for employees in getting access to valuable resources and opportunities (Sparrowe & Liden, 2005). Examples of teams, or work groups, in which employees are involved include project teams, multidisciplinary work teams, top management teams, and autonomous work groups (Guzzo & Shea, 1992). Actually, the idea that work groups and group processes are important to organizations has long been recognized and dates back more than half a century (Guzzo & Shea, 1992; Stevens & Campion, 1999). Decades ago, the Hawthorne studies already called attention to the role of informal work groups and social relationships in organizations and their potential impact on work-related outcomes of individual workers (Guzzo & Shea, 1992; Sparrowe & Liden, 1997). In recent years, there is a considerable increase of interest in this subject, particularly regarding work relationships (Ferris et al., 2009). My dissertation fits in this trend.

Recently, researchers have begun to view teams as networks, where social network structures can be viewed as patterns of informal connections among employees (Balkundi & Harrison, 2006; Pearsall & Ellis, 2006). Such a system of interconnected relationships in which employees are embedded provide opportunities and can facilitate and constrain the flow of resources within teams, offering important implications for teams and its members (Balkundi & Harrison, 2006; Pearsall & Ellis, 2006). Within teams, the interconnected social system consists

of internal connections, or interpersonal relationships that involve the team members and their leader (Balkundi & Harrison, 2006; Tse, Dasborough, & Ashkanasy, 2008). Thus, in their work groups, instead of working in isolation, employees are a part of networks of work-related connections (Venkataramani & Tangirala, 2010). This is captured in the simple truism "to work is to relate" (Flum, 2001, p. 262). Also in this dissertation I focus on the interconnectedness of employees within their teams.

Research has provided evidence for the widespread effects of participating in social networks, varying from effects for individuals on their health, to their career success or to their very identities (Kilduff & Tsai, 2003). Particularly for individuals who establish positive and productive social relationships at work, effects should be beneficial given the social nature of work (Judge & Erez, 2007). It is of no surprise therefore that in the organizational literature, work relationships play an important role in many topics, such as differential access to resources, and citizenship behavior, amongst other outcomes (Ferris et al. 2009). However, as mentioned by Stevens and Campion (1999), there is still much we do not know about many vital issues related to the management of work teams, and more specifically, "the interface between work and interpersonal relationships remains a relatively unexplored frontier" (Blustein, 2001, pp. 179-180).

In many aspects, work relationships are similar to relationships outside work, but at the same time the organizational context of these relationships makes studying them unique (Ferris et al., 2009). For example, although there is a recent reappearance of interest in social network effects, according to Balkundi and Harrison (2006) there is no consensus about these effects in work groups or teams. Specifically, these authors mention that there are unanswered empirical questions and continuing theoretical debates about whether or not several features of social networks lead to improved task performance or longer survival in teams. More generally, and concerning social networks as well because resource flows are fundamentally realized at the dyadic level (Borgatti & Foster, 2003; Carpenter, Li, & Jiang, 2012), research studying dyadic work relationships is limited in scope (Ferris et al., 2009). With my dissertation I intend to expand this scope.

In this dissertation, I aim to advance our understanding of the influence of several dyadic and social network variables on individual work outcomes. In my choice of specific relational variables to study, I was guided by three resource-based theories: social capital theory, social network theory, and social exchange theory (see e.g., Sparrowe & Liden, 2005). These three theories are not mutually exclusive or incompatible. My relational perspective on individual work outcomes stems partly from the concept of social capital, which is constituted in relational networks and "refers to the sum of actual and potential resources available through relationships that individuals have established with others" (Mossholder, Settoon, & Henagan, 2005, p. 607). It is mentioned that social capital is the biggest growth area in organizational network research, and, in turn, social capital theory helped to enlarge interest in social networks (Borgatti & Foster, 2003). Furthermore, indicating the connection between social networks and social exchange, Sparrowe and Liden (1997) note that the ties linking employees in social networks are relationships in which valued resources are exchanged. Additionally, Yang, Gong, and Huo (2011) emphasize the connection between social exchange and social capital by suggesting that social capital is created and continued through exchange, as the norm of reciprocity that is central to social exchange theory sustains interpersonal relationships (Blau, 1964) and, in turn, social capital facilitates exchange. In the following, I introduce social capital theory, social network theory, and social exchange theory each in more detail.

THEORETICAL FOUNDATIONS

Social capital theory

Social capital is a concept comparable to the concepts of human capital, physical capital, and financial capital (Coleman, 1988). Like all other forms of capital, expecting a future return of benefits, social capital is a long-lived asset into which other resources can be invested (Adler & Kwon, 2002). However, because social capital is embodied in the interpersonal relations among actors, it contrasts with other forms of capital (Coleman, 1988). In the literature, there is a lack of consensus concerning a precise definition of social capital (Leana & Van Buren, 1999). I follow Nahapiet and Ghoshal (1998) in defining it as:

the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit. Social capital thus comprises both the network and the assets that may be mobilized through that network. (p. 243)

In short, social capital concerns the value of connections (Borgatti & Foster, 2003), and is considered valuable because the individual's social network connections bring along benefits that enable individuals to reach desirable outcomes in many facets of their social life (Kilduff & Tsai, 2003; Zhang, Zheng, & Wei, 2009). In that sense, social capital is fruitful, because it enables the achievement of certain ends that without it would not be possible (Coleman, 1988). Thus, social capital theory provides a perspective that is relevant in studying the effects of work relationships on individual outcomes, which is the focus of this dissertation.

Social capital can be seen in large part as a powerful renaming and collecting together of lots of network research that focus on different network properties as representations of social capital, ranging from the social support literature to social resource theory (Borgatti & Foster, 2003; Seibert, Kraimer, & Liden, 2001). In general, different network approaches to social capital overlap regarding the notion that social resources embedded in networks will provide benefits to actors, such as greater access to resources and greater visibility (Seibert et al., 2001). At the actor level, these structuralist variants of social capital studies focus on the benefits to actors who occupy *central* positions in the network (Borgatti & Foster, 2003). Network centrality therefore is often the operationalization of social capital (Goodwin, Bowler, & Whittington, 2009), and is relational by definition, as it refers to interpersonal ties (Mossholder et al. 2005). As a specific aspect of work relationships, network centrality is one of the variables that I incorporate in the studies of this dissertation.

Social network theory

Theories related to the concept of social capital have mainly been formalized and empirically tested by social network researchers (Seibert et al., 2001). Social network theory is concerned with the consequences of network variables, such as network centrality (Borgatti & Halgin, 2011). Social network analysis focuses "on relationships among social entities, and on

the patterns and implications of these relationships" (Wasserman & Faust, 1994, p. 3). I define a network as "a set of nodes and the set of ties representing some relationship, or lack of relationship, between the nodes" (Brass, Galaskiewicz, Greve, & Tsai, 2004, p. 795). The relation between a pair of actors can be dichotomous (present or absent) or valued (can take on a range of values, measured on a scale; Borgatti & Foster, 2003; Wasserman & Faust, 1994). Furthermore, network relationships between employees, that is, ties between nodes, can be classified on the basis of their content (Balkundi & Harrison, 2006; Tichy, Tushman, & Fombrun, 1979). The content of the ties determines the primary resource exchanged (Ibarra, 1993b). The different types of tie content include communication, friendship, advice, and workflow, amongst others (Brass et al., 2004).

Regardless of the specific work context, some individuals occupy more beneficial positions in social networks than others (Mehra, Kilduff, & Brass, 2001). For example, employees with high *social network centrality* in work groups are more connected with coworkers, and, consequently, are more involved in exchanges with coworkers, whether the purpose is work-related or more personal (Mossholder et al., 2005). Through these connections, central employees have greater access to, and potential control over, relevant resources (Brass & Burkhardt, 1993). The idea of social network centrality appeared in the small-group laboratory studies of the 1950s, and since then, several variants of network centrality measures emerged (Brass, 1984) which differed depending on the theoretical focus (Mossholder et al., 2005). In an attempt to clarify and resolve some of the conceptual problems of centrality, Freeman (1979) distinguishes three centrality measures: degree, betweenness and closeness centrality. Betweenness centrality refers to the extent to which an employee lies on the paths between nonadjacent actors, indicating the ability to control interactions between pairs of other actors in the network (Wasserman & Faust, 1994). Closeness centrality refers to the extent to which an employee can reach other actors through a minimum number of in-between positions (Brass, 1984), and focuses on how close an actor is to all the other actors in a network (Wasserman & Faust, 1994). Of the three centrality measures, the degree measure is perhaps the most well-known (Balkundi & Kilduff, 2006). While the other two centrality measures also take indirect connections into account, the degree measure of centrality refers

to the number of other points to which a given point is directly connected (Brass, 1984). Because the underlying framework of this dissertation lies on the interconnectedness between social capital theory, social network theory, and social exchange theory, I choose to focus on degree centrality. The degree measure of centrality most closely resembles social exchange as it is a measure of activity (Brass, 1984).

Some measures of centrality include both the number of outgoing ties as well as the number of incoming ties (Brass & Burkhardt, 1993). However, out-degree centrality includes only direct ties to other individuals, indicating the extent to which others are chosen by a focal individual, and provide the focal individual potential access to relevant resources (Agneessens & Wittek, 2012). Equally, direct ties from others to the individual, which is called in-degree centrality, referring to the extent to which others choose the focal individual, likely indicate the individual's possession of valued resources (Bunderson, 2003). Indeed, research on organizational social networks generally shows that central individuals in instrumental networks actually possess resources such as knowledge and information that causes them to have real expertise (Settoon & Mossholder, 2002). In-degree centrality therefore indicates individuals' ability to control relevant resources, thereby increasing others' dependence on them and strengthening their power position (Brass & Burkhardt, 1993). In this dissertation we also take the direction of ties into account. Where the social network constructs of incoming and outgoing ties refer to the exchanges that take place between two interacting individuals (Ferris et al., 2009), social exchange theory can explain employee motivation to actually exchange resources, or, social capital, via network ties.

Social exchange theory

To explain the motivation behind employee behaviors and the formation of positive employee attitudes, the concepts of social exchange (Blau, 1964) and the norm of reciprocity (Gouldner, 1960) have long been applied in organizational literature (Settoon, Bennett & Liden, 1996). While economic exchange specifies exchanges on a quid pro quo basis (Kamdar & Van Dyne, 2007), the social exchanges occurring between employees and others in a work group go beyond simple economic exchange (Cole, Schaninger, & Harris, 2002). Despite possible

instrumental purposes of exchanging benefits, social exchange (e.g., doing a favor) often is valuable because it expresses supportiveness and friendliness (Blau, 1964), symbolizing the quality of the relationships (Mossholder et al., 2005). According to social exchange theory and the norm of reciprocity, both exchange partners make contributions and receive benefits through an open-ended stream of transactions (Kamdar & Van Dyne, 2007). The exchange partners leave the expectation of reciprocity unspoken; they do not discuss the terms of the exchange, the nature and values of the resources exchanged, or the timing of reciprocation (Flynn, 2005). This rule of reciprocity, which is among many possible exchange rules in social relationships, such as competition, altruism, and group gain, received most attention from social exchange theorists and suggests that one party in the exchange will reciprocate positively to the other partner when that partner makes a move to improve the quality of the relationship (Ng & Feldman, in press). The future advantages that entering into social exchange relationships brings along are stimulating social interaction between employees, thus encouraging the development of a network of social relationships (Blau, 1964).

The exchange relationship between employee and coworkers and the exchange relationship between employee and supervisor are two of the most important exchange relationships in organizations (Kamdar & Van Dyne, 2007; Masterson, Lewis, Goldman, & Taylor, 2000), on which I therefore base this dissertation in explaining individual work outcomes in work groups.

In sum, the three highlighted underlying resource-based theories of this dissertation about the influence of work relationships on individual work outcomes can be seen as overlapping and complementing each other. Building this dissertation on these three theories therefore offers a more complete understanding of the benefits of work relationships than would either theory alone. While social network theory offers insights into structural positions that are potentially beneficial to employees, social capital theory explains *why* these structural positions are beneficial. Furthermore, whereas social network theory offers insights into the connections between employees through which resources are exchanged, social exchange

theory explains the motivation behind the exchange of resources between two actors sharing a connection, at the same time offering understanding of the value of social capital.

AIMS OF THE DISSERTATION

Work relationships and individual work outcomes – Research gaps

In examining the associations between different exchange relationships and important employee outcome variables, I focus on job satisfaction, turnover intention, and job performance as individual work outcomes, because these variables have been shown to be salient with respect to a variety of social exchange relationships (e.g., Harris, Kacmar, & Witt, 2005; Kamdar & Van Dyne, 2007; Ozer, 2008; Settoon et al., 1996; Sherony & Green, 2002). In this dissertation I aim to address several research gaps regarding these associations. The identified research gaps concern (1) contingency factors and the social context in which social exchange takes place, (2) the combination of structuralist and individualist approaches to social networks, (3) the combination of different types of exchanges, and (4) the specific tie content of ties among employees.

Contingency factors and social context

As I mentioned earlier, there are unanswered empirical questions and continuing theoretical debates about whether or not several features of social networks lead to improved task performance or longer survival of individuals in teams (Balkundi & Harrison, 2006). According to Burt (2000), understanding contingency factors, such as interpersonal differences, can resolve discussion over network mechanisms related to social capital. Similarly, Borgatti and Halgin (2011) point to the importance of including node attributes and contextual factors in social network research. Therefore, I address some of these unanswered questions in Chapter 2 by aiming to provide more understanding of two contingency factors, that is, communion-striving motivation and task dependence, influencing the effect of social capital on individual outcomes. Additionally, in Chapter 3, I respond to suggestions that personality is a potential moderator of network effects (e.g., Brass et al., 2004; Burt, 2000).

Other scholars note that new avenues are opened up for incorporating the 'social' context in which dyadic social exchange relationships are embedded (Takeuchi et al., 2011). Regarding the social exchange relationship of employees with their supervisor, so far, a few studies have been conducted on the role of social networks as antecedents of leader-member exchange (LMX) and as moderators of effects of LMX (e.g., Sparrowe & Liden, 2005, Venkataramani, Green, & Schleicher, 2010). In Chapter 4, I further build on these studies, and respond to several calls in recent literature to consider the importance of context in leadership research (e.g., Liden & Antonakis, 2009) by paying more attention to moderators (e.g., Graen & Uhl-Bien, 1995; Liden, Sparrowe, & Wayne, 1997; Uhl-Bien, Graen, & Scandura, 2000) and by incorporating the social context in which leader-member social exchange relationships are embedded.

Structuralist and individualist approaches to social networks

In prior research on the structure of networks, the attributes of actors have been largely neglected (Baer, 2010; Kilduff & Krackhardt, 1994; Kilduff & Tsai, 2003; Mehra et al., 2001). The emphasis has been more on understanding the connections among actors in social network analysis, thereby disregarding the role of attributes of actors and often presuming that the structure of social relationships explains more than personal factors (Balkundi & Kilduff, 2006; Morrison, 2002). However, other scholars recognize that ongoing social relationships provide constraints and opportunities that combine with characteristics of individuals in explaining outcomes (Brass, Butterfield, & Skaggs, 1998). A decade ago, it has been advocated to link individualist and structuralist perspectives (e.g., Kilduff & Tsai, 2003), and, earlier, to bring the individual back into structural analysis (Kilduff & Krackhardt, 1994). In response, some attempts have been made to incorporate individual attributes in research models involving network structure (e.g., Klein, Lim, Saltz, & Mayer, 2004; Mehra et al., 2001). Only recently, however, the two approaches have been combined by studying the interaction between individual and structural attributes (e.g., Anderson, 2008; Baer, 2010; Zhou, Shin, Brass, Choi, & Zhang, 2009). Building on these studies, in Chapter 2, I examine the contingent effect of an employee's motivation on the association between an employee's social exchange relationship with

coworkers, measured with a network approach, and employee work outcomes. Furthermore, in Chapter 3, I build on previous studies by examining the contingent effect of personality on the relationship between social network position and individual outcomes. Herewith, I combine individualist and structuralist perspectives.

Different social exchange relationships

Sherony and Green (2002) advised to examine in future research how an employee's social exchanges with the supervisor and an employee's social exchanges with coworkers play on one another and ultimately relate to employee work outcomes. Previous research has generated ideas about the relatedness among several employee exchange relationships that have yet to be tested. Cole et al. (2002) responded to calls for a more integrated approach and exploration of the diverse exchange relationships that exist within an organization (e.g., Seers, Petty, & Cashman, 1995) by making several propositions regarding the different exchanges that employees have with their supervisor, work team, and organization. Whereas Settoon et al. (1996) suggest that employees need multiple exchange relationships and exchange different forms of resources and support within each exchange relationship, Cole et al. (2002) proposed that the three social exchange domains relate in a compensatory manner in situations in which one or more of the individual's exchange relationships are poor or completely lacking. Therefore, one of the aims of the present dissertation is to assess how the combination of employee exchange relationships with leaders and with coworkers affects individual outcomes, which I address in Chapter 4.

Tie content

While in the literature on neighborhood and community ties considerable attention has been given to the idea that via social ties other content than material resources can be exchanged, network research within organizations mainly neglected the implications of different tie contents at work (Podolny & Baron, 1997). More recently however, several researchers have emphasized the need to distinguish between network types while investigating network structures within organizations because previous research has shown

that different types of networks are related to different individual work outcomes (e.g., Gibbons, 2004; Liden et al., 1997). In this dissertation I therefore focus on two primarily distinguished types of employee social ties in the peer-network: *expressive* ties (e.g., friendship ties) and *instrumental* ties (e.g., workflow ties, advice ties; Umphress, Labianca, Brass, Kass, & Scholten, 2003).

In general, ties with a specific content can be used for different purposes. In that sense, social capital is appropriable, as, for example, friendship ties can be used for instrumental purposes as well, such as giving advice (Adler & Kwon, 2002). Balkundi and Harrison (2006) address the relatedness between instrumental and expressive ties by stating:

> Instrumental and expressive ties are not mutually exclusive, and there tends to be an overlap in the two types of connections (Borgatti & Foster, 2003). One type of tie might even lead to the other (Krackhardt & Stern, 1988), as work contexts provide the physical proximity and opportunity for interaction that are vital to friendship formation (Festinger, Schachter, & Back, 1950). Still, the primary content of the two types of ties remains theoretically distinct; not all work colleagues are friends, and vice versa. (p. 51)

In a similar vein, Adler and Kwon (2002) acknowledge that there are limits to the appropriability of social capital, because different types of ties can have very different effects on employee outcomes. Therefore, in Chapter 3, I separately examine the effect of expressive network centrality and instrumental network centrality on individual work outcomes. Because the strength of relationships between constructs can be enhanced by matching them in specificity (Kamdar & Van Dyne, 2007), I propose that social ties that are more affect-based, such as expressive friendship ties, should primarily relate to affect-based individual outcomes, such as job satisfaction. In contrast, more work content related social ties (i.e., advice network ties) should be positively associated with job performance, the more work related individual outcome. However, because one type of tie may alter the effects of another type of tie (Ibarra, 1993b), in Chapter 4, I also examine the combined interactive effect of expressive network centrality and instrumental network centrality on individual job performance.

DATA COLLECTION

To empirically examine the identified research gaps and test the hypotheses which are developed in the following chapters, data was collected with surveys in five Dutch hospitals among nurses and their supervisors. The hospitals are top general clinical hospitals, located in different parts of the Netherlands and relatively similar in size. Of in total seven hospitals that worked together in several benchmark projects, these five hospitals agreed upon participating in this specific project. The nurses who participated in the project work in internal medicine and orthopedics units, including a dialysis ward, nursing wards, and outpatient departments. There was an average of 20 nurses in each unit. In general, nurses report to their supervisors (i.e., unit managers) who themselves report to cluster managers who in turn report to the Board of Directors. The participants were nearly all registered nurses. A few nurses were still in training and close to registration. The average number of working hours per week was 28 hours, ranging from 6 to 40 hours.

I acquired data on nurses' individual characteristics, social network position, social exchanges among nurses, and on nurses' social exchange relationships with their supervisor. In addition, data on several nurses' individual work outcomes were collected, that is, job satisfaction, turnover intention, and job performance, which enable examining the influence of work relationships on respectively an individual attitude, a behavioral intention, and individual behavior (Harris, Wheeler, & Kacmar, 2009).

I collected the data in a healthcare context to examine the proposed associations between the research variables. Relational variables can be expected to be especially salient in a healthcare context, because relational and emotional support from coworkers and other employees is important given the requirement of giving oneself emotionally in such a work environment (Mossholder et al., 2005; Parker, 2002). Furthermore, this specific organizational context, which is one in which nurses face chronic work overload and stressful interactions with patients, is also appropriate for conditionally examining the influence of dyadic exchanges between employees and supervisors on employee outcomes (Tangirala, Green, & Ramanujam, 2007). The specific team-based organizational setting of hospitals in which nurses complete

their jobs allowed us to examine the link between work relationships and individual work outcomes, using theory about social capital, social networks, and social exchange.

I measured several work relationships among nurses with a social network approach. In research applications of social networks, "the restriction to a finite set of actors is an analytic requirement" (Wasserman & Faust, 1994, p. 19), and "this necessitates drawing some boundaries or limits for inclusion" (Wasserman & Faust, 1994, p. 20). "In some instances it is quite plausible to argue that a set of actors is relatively bounded, as for example, when there is a fairly complete membership roster" (Wasserman & Faust, 1994, p. 31). Therefore, I have deliberately chosen to restrict the study of social networks to the nursing units. Generally, nurses only work within one unit and, therefore, for most nurses, their nursing unit forms a rather closed network. Consequently, a complete membership roster is available. Thus, although cross-unit ties might be a source of social capital, I have chosen to view each nursing unit as a separate social network.

This restriction to nursing units allowed employing the round-robin measurement method to collect valued data on the different types of relationships, that is, instrumental and expressive relationships, among nurses. Round-robin data collection requires respondents to rate and be rated by all other individuals in their network (Kenny, 1994). Without clear boundaries, this is effectively impossible. I preferred the roster method over, for example, free recall methods. The roster method is applied when each actor is presented with a complete list, or roster, of the other actors in the actor set (Wasserman & Faust, 1994). The predetermined group affiliation of nurses to nursing units allowed us to obtain complete membership rosters, enabling effective boundary specification (Carpenter et al., 2012). Rosters are the preferred method for collecting social network data because they have proven to be reliable in allowing individuals to report recurring social interactions (Marsden, 1990). Moreover, this method, involving listing all network members, is considered to have the lowest inherent measurement error (Holland & Leinhardt, 1973).

Below, I present additional information on the data collection. In the method sections of the following chapters I give further details on the data collection for each study.

Employing questionnaires, I have collected cross-sectional multi-source data for the three chapters of this dissertation in 2009 and in 2010. Ratings were provided by employees themselves, their coworkers, and their supervisors. In 2009, nurses working in 12 internal medicine units at two Dutch hospitals participated by completing the questionnaire on several variables. Chapter 2 is based on this data set (see Table 1.1).

In 2010, nurses working in 17 other internal medicine and orthopedics units at four Dutch hospitals participated in this research by completing a questionnaire on the same variables that were measured in 2009, and, in addition, on in-degree advice network centrality, emotional stability, and extraversion. I used this data set collected in 2010 for Chapter 3. Because Chapter 3 included in-degree advice network centrality, emotional stability, and extraversion, I could not use the data collected in 2009.

Chapter 4 was based on the data collected in 2009 and 2010, but I included only those units that were supervised by one supervisor to obtain a clear measure of leader-member exchange, resulting in a sample of nurses working in 20 internal medicine and orthopedics units at four Dutch hospitals. While instrumental network centrality was operationalized as in-degree advice network centrality in Chapter 3, which is a widely used operationalization of instrumental network centrality, (see e.g., Gibbons, 2004; Goodwin et al., 2009; Podolny & Baron, 1997), in Chapter 4, we operationalized instrumental network centrality as in-degree workflow network centrality. In-degree advice network centrality was solely measured in 2010. Applying in-degree advice network centrality, measured in 2010, while including only teams that were supervised by one supervisor would therefore result in a small sample size and a small number of teams. By operationalizing instrumental network centrality as in-degree workflow network centrality, I could use a large part of the data that were collected in 2009 and 2010 for Chapter 4.

In addition, supervisors of the participating nursing units completed questionnaires on each nurse's individual job performance. This variable was used in Chapter 3 and 4.

Table 1.1

Overview of variables and time of data collection for each study

Variables	Chapter 2 2009	Chapter 3 2010	Chapter 4 2009 and 2010
Interpersonal citizenship behavior *(self-rated)*	x		
Communion-striving motivation *(self-rated)*	x		
Task dependence *(peer-rated)*	x		
Leader-member exchange *(self-rated)*			x
Friendship network centrality *(self- and peer-rated)*		x	x
In-degree workflow network centrality *(peer-rated)*			x
In-degree advice network centrality *(peer-rated)*		x	
Emotional stability *(self-rated)*		x	
Extraversion *(self-rated)*		x	
Job satisfaction *(self-rated)*	x	x	
Turnover intention *(self-rated)*	x		
Job performance *(supervisor-rated)*		x	x

OVERVIEW OF THE DISSERTATION

Summarizing, in the present dissertation I aim to advance our understanding of the influence of several relational variables on individual work outcomes. Throughout chapters 2, 3, and 4, I therefore address four research gaps identified in the literature on social capital, social networks, and social exchange. First, I study the role of contingency factors and the social context potentially influencing these associations. Second, I interactively link individualist and structuralist approaches to social networks. Third, I conduct an integrated examination of the several exchange relationships that exist within organizations. And fourth, I examine the separate and simultaneous effect of different types of ties among employees on individual work outcomes. Below, I provide an overview of the three chapters, in which each a separate study is presented. The studies are written such that they can be read independently from one another, resulting in some overlap between the chapters regarding theory and method sections.

In Chapter 2, I take a relational approach in explaining employee turnover intention by empirically examining the influence of receipt of interpersonal citizenship behavior (ICB) from coworkers on turnover intention. ICB from coworkers indicates the quality of the exchange relationship between two actors and provides social capital in the form of voluntary helping and demonstrating courtesy (Scott, 2012). As organizations are moving towards being more flexible and adaptive to a dynamic and changing environment, interpersonal helping is increasingly important (King, George, & Hebl, 2005). The measurement of ICB with a social network approach enables us to capture specifically the receipt of ICB from coworkers (Bowler & Brass, 2006) and enlarges our understanding of helping processes (Anderson & Williams, 1996). I propose that the receipt of ICB from coworkers indirectly impacts turnover intention via job satisfaction. Furthermore, I argue that an employee's communion-striving motivation and an employee's task dependence conditionally influence this indirect relationship in such a way that the relationship will be stronger when an employee's communion striving motivation and/or an employee's task dependence are high rather than low. Thus, the hypotheses together suggest moderated mediation models (see Figure 1.1).
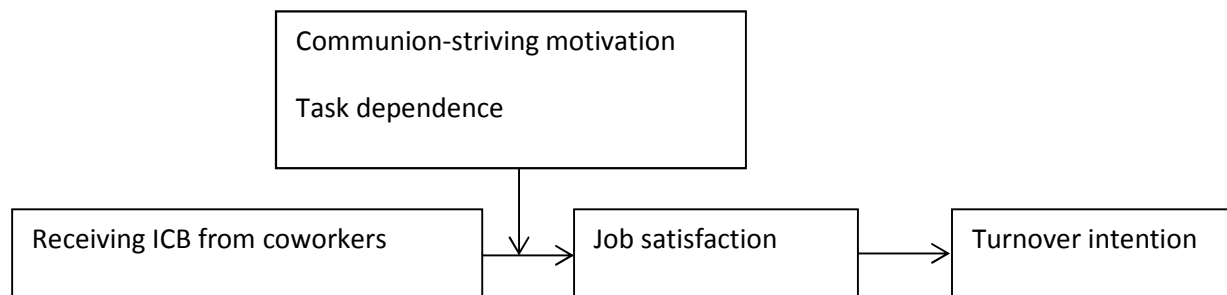
Figure 1.1 Theoretical model Chapter 2

In Chapter 3, the focus is again on the impact of employee relationships with coworkers, but involves other dependent variables, that is, job satisfaction and job performance. As I noted earlier, some individuals occupy beneficial positions in their social networks constituted by connections with coworkers, such as central positions. In general, I argue that an employee's expressive friendship network centrality is positively associated with job satisfaction, and that

an employee's in-degree instrumental advice network centrality is positively associated with individual job performance. However, individual differences might influence whether opportunities resulting from such a beneficial structural position are turned into beneficial outcomes (e.g., Anderson, 2008; Burt, Jannotta, & Mahoney, 1998). To investigate this possibility, I incorporate the combined effect (i.e., interactive effect) of the two Big Five personality traits emotional stability and extraversion into the research model as a contingency factor influencing the relationship between social network position and individual outcomes. I argue that especially emotional stable extraverts and emotional unstable introverts benefit fully from an advantageous network position. Emotional stable extraverts will likely benefit from network centrality because it can be expected that they are able to effectively and efficiently act upon network centrality. Emotional unstable introverts will likely benefit from network centrality because it can be expected that experiencing network centrality strengthens their self-confidence. So, I investigate two separate moderation models (see Figure 1.2).
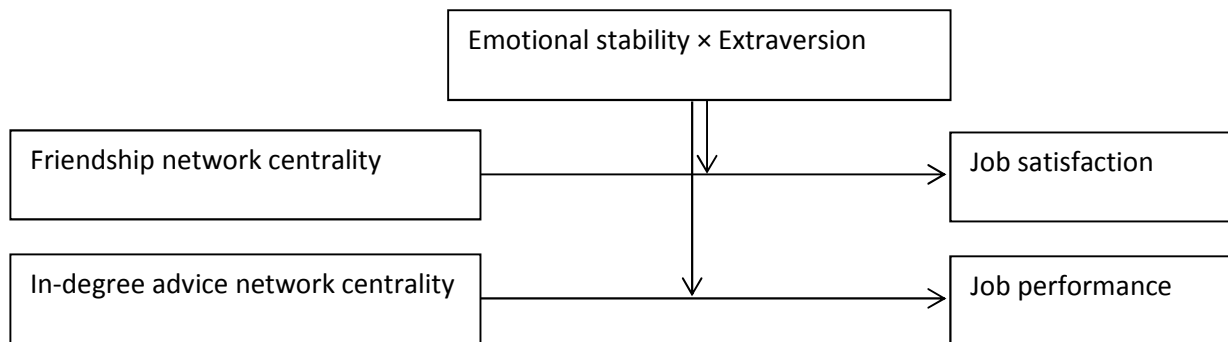
Figure 1.2 Theoretical model Chapter 3

Whereas in Chapter 2 and 3 the focus was solely on employees' relationships with coworkers, in Chapter 4, I also incorporate the relationship employees have with their supervisor into the research model, with individual job performance as the dependent variable. I expect a positive association between LMX and individual job performance, and investigate the contingent impact of employee relationships with coworkers on this association. Similar to the research I reported on in Chapter 3, I distinguish between instrumental and expressive ties among coworkers. As I mentioned before, it can be expected that expressive network centrality

is primarily related to affect-based outcomes, such as job satisfaction. I therefore examine the direct effect of expressive network centrality on job satisfaction in Chapter 3. However, Cross and Cummings (2004) call for more attention in social network research to expressive dimensions of relationships in models of performance. In Chapter 4, I therefore investigate the possibility that expressive network centrality indirectly influences job performance through a conditional effect on the link between LMX and individual job performance. Because friendship ties with coworkers bring along social resources and social embeddedness, I argue that friendship network centrality may motivate followers to do the best they can to perform better in response to high LMX quality. So, friendship network centrality can be expected to strengthen the relationship between LMX quality and follower job performance. Furthermore, in Chapter 4, I examine the simultaneous effect (i.e., the interactive effect) of an employee's expressive friendship network centrality and an employee's instrumental in-degree workflow network centrality on the association between LMX and individual job performance. This means that I examine a three-way interaction model (see Figure 1.3). To distinguish the instrumental network from the discretionary friendship network most fully, I focused on workflow network centrality instead of advice network centrality as "this network was anchored in the actual work processes of the organization rather than in the more discretionary task advice networks studied by others" (Mehra et al., 2001, p. 131).
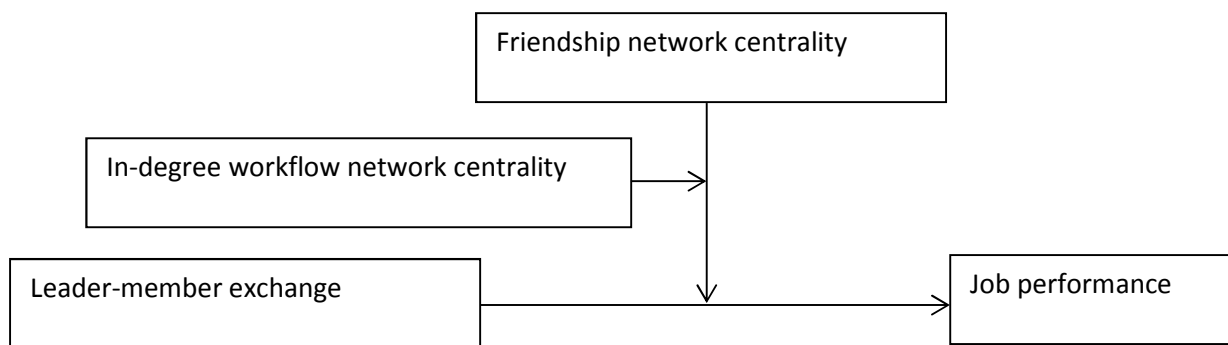
Figure 1.3 Theoretical model Chapter 4

Chapter 5 contains the general discussion of the current dissertation. I present the main findings from the empirical Chapters 2 to 4. Furthermore, I reflect on how the findings regarding the influence of employee work relationships on individual outcomes inform theory and practice by presenting several theoretical and practical implications. Finally, I discuss the strengths and limitations of this research and provide suggestions for future research opportunities.

CHAPTER 2

To leave or not to leave? When receiving interpersonal citizenship behavior influences an employee's turnover intention[1]

INTRODUCTION

For several decades, the problem of *voluntary* employee turnover has been of interest to both practitioners and scientists. It has been widely recognized that an employee's decision to leave an organization carries with it high costs for the organization (Wright & Bonett, 2007) such as replacement costs and the loss of firm-specific human capital (Siebert & Zubanov, 2009). In addition, voluntary employee turnover has been found to be detrimental to team interaction processes (Van der Vegt, Bunderson, & Kuipers, 2010). The potentially high costs that follow an employee's decision to leave an organization have led to much research on the *causes of voluntary employee turnover*. By voluntary employee turnover, we mean departure from an organization despite there being an opportunity to stay (Mossholder, Settoon, & Henagan, 2005). Research has consistently shown that turnover intention is the best predictor of actual turnover (e.g., Griffeth, Hom, & Gaertner, 2000; Hom, Caranikas-Walker, Prussia, & Griffeth, 1992; Van Breukelen, Van der Vlist, & Steensma, 2004). Therefore, in adding to the literature on the causes of turnover, we address the need to improve understanding of the social variables that affect turnover intention (Abrams, Ando, & Hinkle, 1998; Mobley, Griffeth, Hand, & Meglino, 1979).

Several perspectives have been prominent in previous research on the antecedents of voluntary employee turnover (Lee & Mitchell, 1994). Cognition-based research models have been tested that include aspects such as thinking of searching, thinking of quitting, and intention to search (e.g., Hom et al., 1992), while affect-based models have primarily focused on employee job satisfaction (Mitchell et al., 2001; Wright & Bonett, 2007). However, Lee and Mitchell (1994) added a new direction to turnover research, which they refer to as the unfolding model of turnover, and increased interest in the influence of less traditional variables

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[1] This chapter is based upon Regts, G. & Molleman, E. (2013). To leave or not to leave: When receiving interpersonal citizenship behavior influences an employee's turnover intention. *Human Relations,* 66: 193-218.

on voluntary turnover. For example, as Felps et al. (2009, p. 545) note, "there is surprisingly little work on how *social relationships* affect turnover". With a few exceptions, the impact of workplace relationships with one's immediate coworkers on job satisfaction and other outcomes has been largely ignored (Ducharme & Martin, 2000). It has been suggested that employees' relationships with and commitment to coworkers, an aspect that goes beyond global organizational commitment (Reichers, 1985), may influence employee attachment to an organization (Maertz & Campion, 1998). In line with this suggestion, Mitchell, Holtom, Lee, Sablynski, and Erez (2001) introduced 'job embeddedness' as a new organizational attachment construct that can be described as a web in which employees can become stuck, consequently binding employees to the job and to the organization. One dimension of job embeddedness is connections among employees, and this has been found to be correlated with both actual turnover and turnover intention. As a consequence, relational inducements to stay are becoming an important focus in turnover research (Ballinger, Lehman, & Schoorman, 2010; Maertz, Griffeth, Campbell, & Allen, 2007).

Our focus on turnover intention extends the study of Harris, Kacmar, and Witt (2005) which acknowledged the importance of studying the relational antecedents of turnover intention by investigating the impact of leader-member exchange on employee turnover intention. Another relational variable that has been identified as an antecedent of turnover is *interpersonal citizenship behavior* (ICB) (Mossholder et al., 2005). Whereas Mossholder et al. focused on the impact of *exhibiting* ICB on the *exhibitor's* turnover; in the current study we investigate the association between *receiving* ICB and the turnover intention of the *recipient*. This study as such can be framed as being informed by embeddedness theory (Mitchell et al., 2001), with the receipt of ICB as a possible indicator of the degree to which participants feel linked to others in the organization. Specifically, we focus on the following question: to what extent are the receipt of ICB and the recipient's turnover intention related?

In most turnover theories and research, *job satisfaction* has been identified as a key variable in predicting turnover intention (e.g., Mueller, Boyer, Price, & Iverson, 1994). Further, it has been shown that work environment factors, such as coworker behavior and workplace social relations, affect job satisfaction directly (e.g., Chiaburu & Harrison, 2008; Simon, Judge, &

Halvorsen-Ganepola, 2010; Wharton, Rotolo, & Bird, 2000). The study by Lambert, Hogan, and Barton (2001) showed that, in addition to the direct influence of work environment characteristics on job satisfaction and the direct impact of job satisfaction on turnover intention, job satisfaction was also a key mediating variable between the work environment characteristics and turnover intention. On this basis, we not only investigate the direct relationship between receiving ICB and the recipient's turnover intention, but also examine whether job satisfaction acts as a mediator in this relationship.

In their review of the turnover literature, Mobley et al. (1979) did not find a strong relationship between peer relations and turnover. They suggested that individual differences, such as in the strength of the need to feel a sense of belonging, together with other variables, such as required task interaction, could contribute to the difficulty in explaining these findings. Therefore, we investigate whether the recipient's *communion-striving motivation*, defined as striving "toward obtaining acceptance in personal relationships and getting along with others" (Barrick, Stewart, & Piotrowski, 2002, p. 44), and *task interdependence*, defined as "the degree to which the design of an individual team member's tasks and job requires that he or she coordinates activities and exchanges materials and information with other members of the team for being able to carry out the job" (Van der Vegt & Van de Vliert, 2005, p. 75), shape the impact of receiving ICB by testing their moderating effects on the relationships between receiving ICB and both job satisfaction and turnover intention.

Our study makes several important contributions to the literature on turnover intention and the individual-level consequences of ICB. First, we investigate the relationship between ICB and turnover intention, which is seen as an important relationship within organizational research (Mossholder et al., 2005). We contribute to the turnover intention literature by examining the impact of a relational variable (ICB) on turnover intention and by taking a social relational perspective (Baron & Pfeffer, 1994) on employee turnover intention. Second, we focus on the consequences for the recipient of receiving ICB, a thus far neglected area. Finally, we are able to investigate contextual variables that might influence the relationship between receiving ICB and the recipient's job satisfaction and turnover intention.

THEORY AND HYPOTHESES

Interpersonal citizenship behavior and recipients' job satisfaction and turnover intention

Organizational citizenship behavior (OCB) has been the focus of a wide range of studies. OCB was first introduced by Smith, Organ, and Near (1983), who argue that it goes beyond formal role requirements, is often subtle, and may contribute more to the performance of others than it does to one's own. Podsakoff, Whiting, Podsakoff, and Blume (2009) comment that there is a growing interest in the literature on the potential effects of OCB on both employee and organizational outcome variables.

The literature distinguishes several types of OCB, one of which is *interpersonal citizenship behavior* (ICB) (Settoon & Mossholder, 2002). ICB "involves behaviors directed at others in the organization that go beyond one's immediate role requirements" (Venkataramani & Dalal, 2007, p. 952). It captures citizenship behavior directed toward coworkers and immediate others "that is directly and intentionally aimed at helping specific people in face-to-face situations (e.g., orienting new employees or assisting someone with a heavy workload)" (Smith et al., 1983, p. 657). As Bowler and Brass (2006) argue, unlike in other forms of OCB, a specific recipient is a necessity for individually focused ICB.

In previous OCB research, the *receipt* of ICB has rarely been studied (Bowler & Brass, 2006). In comparison to exhibiting ICB, the role that receiving ICB plays in understanding turnover and turnover intention has still to be fully explained. Several studies within the past ten years have suggested that the receipt of ICB may lead directly to lower turnover intention. The research by Bertelli (2007) shows that employees who perceive that they work in a friendly workplace have lower turnover intention. It has also been shown that satisfaction with coworkers is negatively associated with turnover intention (Golden, 2007), indicating that positive connections with coworkers tie individuals to the organization. In a similar vein, Burt (2001) states that individuals who have stronger links with their coworkers generally feel more attached to and obligated to the organization. We argue that receiving ICB could lead as such to the perception of being in a friendly workplace, indicating the recipient's embeddedness through strengthened links to coworkers.

Furthermore, the exchange of ICB can be seen as social capital as it refers to individuals' connections that bring along benefits, enabling individuals to reach desirable outcomes (Kilduff & Tsai, 2003). ICB is also a social exchange variable, indicating that the motivation behind exchanging ICB is a gesture of the partner symbolizing the quality of the relationship (Mossholder et al., 2005). Since ICB is discretionary, it signifies that the performer has feelings for the recipient, and this may bring out positive emotions in the recipient (Mossholder et al., 2005).

Thus, we predict that the receipt of ICB will be negatively associated with the recipient's turnover intention because it is likely that ICB indicates the recipient's embeddedness, which will lower turnover intention.

Hypothesis 1: Receiving interpersonal citizenship behavior from peers is negatively related to turnover intention.

On the other hand, while a direct relationship between receiving ICB and turnover intention may exist, many turnover models suggest that job satisfaction mediates relationships involving turnover intention (Allen, Shore, & Griffeth, 2003). Research suggests that job satisfaction is linked to both receiving ICB and to turnover intention. With regard to the association between receiving ICB and job satisfaction, it has been demonstrated that social activity transmits feelings of energy, enthusiasm, and general positive affection (Watson, 1988). Moreover, Chiaburu and Harrison (2008) state that employees have a higher job satisfaction when coworkers create a pleasant social environment. Job satisfaction is typically viewed as a function of several situational factors including the social environment (Boswell, Shipp, Payne, & Culbertson, 2009). This evidence leads us to expect that receiving ICB, as a constructive social activity performed by coworkers, beneficially affects the recipients' work attitudes. More specifically, we expect that receiving ICB, when performed by coworkers with the aim of assisting the recipient in a face-to-face situation, will increase the recipient's job satisfaction.

Furthermore, in several studies, it has been found that work attitudes, such as job satisfaction, are associated with an employee's intention to leave (Mitchell et al., 2001). When employees have a low job satisfaction, they are more likely to think about leaving their job

(Hellman, 1997). In their meta-analysis of antecedents of turnover, Griffeth et al. (2000) found job satisfaction, as a closer precursor, to be among the best predictors of turnover, with several characteristics of the work environment being more distant determinants. Thus, receiving ICB may be a somewhat remote determinant of turnover intention, affecting turnover intention through job satisfaction. Based on these arguments, we expect a recipient's job satisfaction to serve as an underlying mechanism in the association between receiving ICB and turnover intention.

Hypothesis 2: Job satisfaction mediates the negative relationship between receiving interpersonal citizenship behavior from peers and the recipient's turnover intention.

The moderating role of employees' communion-striving motivation

People are motivated in a deep and often subconscious way to get along and to get ahead (Baumeister & Leary, 1995; Hogan & Shelton, 1998). Nevertheless, participating in interpersonal relationships is not equally important to all employees. Some people are more motivated than others to get along with others at work (Barrick et al., 2002). Consequently, receiving ICB from coworkers will have a varied effect on employees' work attitudes and behavior. Although we expect a positive relationship between receiving ICB from peers and the recipient's job satisfaction, we predict that the strength of this positive relationship will vary depending on an employee's communion-striving motivation.

Because ICB is discretionary, Marinova, Moon, and Van Dyne (2010) suggest that the motivational forces behind performing ICB may be personal and consistent with relationship motives. Being accepted by and getting along with others will be very important for employees who strive for communion and, therefore, we propose that these employees will be more inclined to view ICB from coworkers as indicating acceptance, and that this will strengthen their job satisfaction. Thus, we hypothesize that the positive relationship between receiving ICB from coworkers and the recipient's job satisfaction will be stronger for those employees with a strong communion-striving motivation.

Hypothesis 3a: An employee's communion-striving motivation moderates the positive relationship between receiving interpersonal citizenship behavior from peers and job

satisfaction such that the relationship is stronger for employees with high, rather than low, communion-striving motivation.

Having proposed that an employee's communion-striving motivation moderates the relationship between receiving ICB from peers and job satisfaction, we expect an employee's communion-striving motivation to also have a conditional influence on the indirect relationship between receiving ICB from peers and turnover intention (see Figure 2.1), in other words a moderated mediation (Preacher, Rucker, & Hayes, 2007). Given that we expect the relationship between receiving ICB and job satisfaction to be stronger for employees with a high communion-striving motivation, we also hypothesize that communion-striving motivation will moderate the negative and indirect effect of receiving ICB on turnover intention.

Hypothesis 3b: An employee's communion-striving motivation moderates (through job satisfaction) the negative and indirect effect of receiving ICB on turnover intention in such a way that the indirect relationship will be stronger for employees with high rather than low communion-striving motivation.
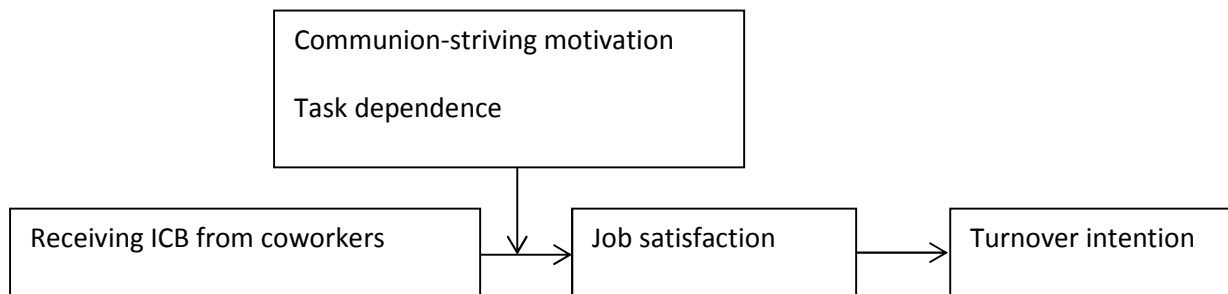
Figure 2.1 Theoretical model of the moderating effect of communion-striving motivation and task dependence

The moderating role of task dependence

In the current study, we focus on one side of the exchange between task-interdependent employees, that is, we specifically examine the moderating influence of an employee's need to *receive* materials and information in order to be able to carry out their job. Whereas ICB refers to the extent to which an employee receives help from coworkers beyond

what is required by the job (i.e., extra-role behavior), task dependence reflects the amount of help that is required from coworkers as inherent to the structure of the task (i.e., in-role behavior).

A recent study by Chiaburu and Harrison (2008) showed that coworkers influence employees' attitudes and withdrawal, especially in settings where tasks have specific interpersonal components that require employees to cooperate. Similarly, Baron and Pfeffer (1994) stressed the importance of the content and quality of one's social relations with coworkers in settings in which there is interdependence. In a similar vein, Labianca and Brass (2006) propose that the relationship between the quality of one's interpersonal relationships at work and socio-emotional outcomes (e.g., job satisfaction) will be affected by task interdependence. They argue that when there is little task interdependence between individuals at work, relationships may have little impact on socio-emotional outcomes. Conversely, when task interdependence is high, there will be great pressure to prevent negative relationships forming because of the potentially large disruption to one's task outcomes.

It has been argued that task interdependence has the potency to impact the contribution of the helping form of OCB (Bachrach, Powell, Collins, & Richey, 2006; Rico, Bachrach, Sánchez-Manzanares, & Collins, 2011). Task-dependent employees who receive ICB from their coworkers will potentially be more confident that they will also receive the necessary instrumental help to perform their jobs successfully from their coworkers because ICB (extra-role behavior) is a mechanism through which high quality relationships can be developed, thus securing the receipt of the necessary instrumental help. When relationships are important to an individual, such as when an individual is task dependent on others, then how others treat the individual becomes especially important (Kwong & Leung, 2002). Therefore, we argue that task-dependent employees will value the receipt of ICB from coworkers, more than task-independent employees will. In line with these arguments, the salience of ICB will likely be greater under conditions of high task dependence. We expect that the impact of receiving ICB on job satisfaction is amplified when one receives assistance from those upon whom one is dependent in order to perform one's tasks. In a similar vein, particularly in high

interdependence positions, the absence of receipt of ICB is likely to increase negative emotions due to a sense of isolation, limited self-efficacy and helplessness.

Thus, task dependence can be expected to moderate the relationship between ICB received from coworkers and job satisfaction. We hypothesize that task-dependent employees who receive high levels of ICB will have a higher job satisfaction than task-dependent employees who receive low levels of ICB from coworkers.

Hypothesis 4a: Employee task-dependence moderates the positive relationship between receiving interpersonal citizenship behavior from coworkers and job satisfaction in such a way that the relationship is stronger for employees with high as against low levels of task dependence.

Given that we propose an employee's task dependence to moderate the relationship between receiving ICB from peers and job satisfaction, we expect an employee's task dependence to also have a conditional influence on the indirect relationship between receiving ICB from peers and turnover intention. This expectation again reflects a moderated mediation model (see Figure 2.1). Given that we expect the relationship between receiving ICB and job satisfaction to be stronger for employees with high task dependence, we also hypothesize that task dependence will moderate the negative and indirect effect of receiving ICB on turnover intention.

Hypothesis 4b: Employee task-dependence moderates (through job satisfaction) the negative and indirect effect of receiving ICB from coworkers on turnover intention in such a way that the indirect relationship will be stronger for employees with high as against low levels of task dependence.

METHOD

Sample and procedure

Cross-sectional multi-source data were gathered through questionnaires from a sample of nurses working in internal medicine units at two Dutch hospitals. Both hospitals are top general clinical hospitals, relatively similar in size, and located in different parts of the

Netherlands. We collected our data from May to June 2009, with questionnaires that were administered to nurses in twelve units, including a dialysis ward, nursing wards, and outpatient departments. A total of 149 nurses (94 from one hospital and 55 from the other) entirely completed the questionnaire. The response rate was 63% (68% and 57% per hospital respectively). Besides, five nurses filled out only part of the questionnaire. There was an average of 20 nurses in each unit. Of the respondents, 94% were female and 6% were male. The mean age of the respondents was 41, with an age range of 20 to 62. The mean organizational tenure was 12 years.

The questionnaire used previously developed and psychometrically tested scales and social network items. Each of the twelve units was considered as a separate network containing nurses. Generally, nurses only work within one unit and, therefore, for most nurses, their nursing unit forms a rather closed network. The questionnaire was reviewed by an expert group consisting of the hospitals' managers and policy advisors. Before the questionnaire was administered at the 12 units, it was pilot tested by three nurses from the cardiology department at one of the hospitals. Participation in this study was voluntary and participants were assured that their responses would remain strictly confidential as their coworkers' names were included in the questionnaire. The questionnaires were pre-coded such that responses could be matched up.

Measures

Interpersonal citizenship behavior. A single social network question with a seven-point scale was used to measure *perceived receipt of ICB from coworkers*. Respondents were provided with a roster, which is a list containing the names of each coworker in their own unit. We applied the roster method to measure this variable because this has been shown to improve the reliability of network data (Marsden, 1990). With the roster method, each employee is asked to indicate, for each coworker on the list, the extent of help, beyond that required by the job, that that employee gives him or her (cf., Bowler & Brass, 2006). The scale ranged from 1 (*not at all*) to 7 (*very much*). As in other social network research (e.g., Umphress, Labianca, Brass, Kass, & Scholten, 2003; Venkataramani, Green, & Schleicher, 2010; Zagenczyk,

Scott, Gibney, Murrell, & Thatcher, 2010), we employed a single item to measure this variable. We averaged the self-ratings of the extent to which ICB was received from each of the other coworkers in the respondent's own unit to produce an aggregate score for the extent to which the respondent received ICB from his or her coworkers.

Job satisfaction. We measured job satisfaction with six items derived from Agho, Price, and Mueller (1992). A sample item is 'I find real enjoyment in my job.' The scale ranged from 1 (*completely disagree*) to 7 (*completely agree*). The Cronbach's alpha for the six items was .84.

Communion-striving motivation. To measure communion striving, we used the nine-item scale from Barrick et al. (2002). A sample item is 'I focus my attention on getting along with others at work.' Responses were again given on a seven-point scale ranging from 1 (*completely disagree*), to 7 (*completely agree*). The Cronbach's alpha for the nine items was .79.

Task dependence. Task interdependence relates to a structural feature of an employee's work and to the dependence of that employee on coworkers (Rusbult & Van Lange, 2008; Wageman, 1999). As such, we used coworker responses to measure task dependence, thus employing multi-source data. In exactly the same way as described above for the measurement of ICB received from peers, we used a single network item based on Van der Vegt, Emans, and Van de Vliert (2000) to determine an employee's task dependence. We asked each employee, for each coworker in their own unit: 'How dependent is X *on you* for materials, means, and information in order to carry out his/her work adequately?' The scale ranged from 1 (*totally independent*) to 7 (*fully dependent*). Then, for each employee, the scores they were given by each of their colleagues for task dependence were averaged.

Turnover intention. Employees' turnover intentions were measured with four items derived from the Questionnaire on the Experience and Evaluation of Work (VBBA; Van Veldhoven & Meijman, 1994), which is widely used in Dutch occupational health services (Van Veldhoven, Taris, De Jonge, & Broersen, 2005). A sample item is: 'I intend to search for another job outside this organization in the upcoming year.' Responses were given on a seven-point scale ranging from 1 (*completely disagree*) to 7 (*completely agree*). The Cronbach's alpha for these four items was .87.

Control variables. Organizational tenure and age were expected to influence turnover intention because both have been found elsewhere to correlate with turnover (Griffeth et al., 2000). Consequently, we controlled for age and years of organizational tenure. Further, in their paper on coworker exchange relationships (CWX), Sherony and Green (2002) addressed the issue of averaging scores and suggested also considering the variation in the scores. Following this reasoning, we also controlled for the standard deviation of receiving ICB.

Discriminant and convergent validity

We conducted a confirmatory factor analysis (CFA) to assess the discriminant and convergent validities of the self-reported 'non-network' job satisfaction, turnover intention, and communion-striving motivation constructs using the maximum likelihood method of the LISREL 8.80 computer package. First, we tested our hypothesized model (Model 1) in which job satisfaction, turnover intention, and communion-striving motivation items were loaded on to three corresponding latent constructs. We then compared this model to: (2) a model with a single underlying construct; (3) a model with two underlying constructs in which job satisfaction and turnover intention were grouped as one factor; (4) a model with two underlying constructs in which job satisfaction and communion-striving motivation were combined into one underlying construct.

The first model, the hypothesized model, fitted our data well: the Non-Normed Fit Index (NNFI) was .91, the comparative fit index (CFI) was .92, and Root Mean Square Error of Approximation (RMSEA) was .08. In addition, the factor loading of each item on to the corresponding latent construct was significant at the 0.01 level or better. The fit indices of the other models were significantly worse than that of the hypothesized measurement model. For the second model: $\Delta\chi^2$ (3) = 764.03, p < .0001, NNFI = .61, CFI = .65, RMSEA = .20; for the third model: $\Delta\chi^2$ (2) = 341.49, p < .0001, NNFI = .74, CFI = .77, RMSEA = .15; for the fourth model: $\Delta\chi^2$ (2) = 431.71, p < .0001, NNFI = .77, CFI = .80, RMSEA = .16. The poor fit of the second model, with a single underlying latent variable, indicates that common method bias, or single-source bias, is not a major concern with our data. Moreover, an explorative factor analysis, enabling us to investigate if one single factor accounts for the majority of the variance in the variables,

shows that the first unrotated factor accounts for 27 % of the variance. Thus, with no factor explaining the majority of the variance, the Harman's single-factor test also suggests that common method bias is not a major concern (Podsakoff & Organ, 1986).

Data analyses

Given that the individual-level data are nested within units, and the units are nested within hospitals, it is possible that the responses are not independent. To check this, we computed one-way analyses of the dependent variable's variance to test this possibility. The results based on the units (F [11, 149] = 1.71, ns) and on the hospitals (F [1, 149] = 0.26, ns) were not significant, indicating that the nested structure has not influenced the results. In addition, we also performed a random effects maximum likelihood regression analysis to estimate the variance components for our model. An empty model was fitted to calculate the intraclass correlation (ICC1). The ICC1 value of 0.03 indicates that a multilevel model is not necessary. Further, the limited number of hospitals (2) and units (12) mean that a multilevel analysis including random effects for hospitals and units would in any case be rather meaningless (Snijders & Bosker, 1999).

We tested the moderated mediation models in two steps. Hypotheses 1 and 2 were tested with a simple mediation model. Thereafter, we added the moderator variables to the basic model to test firstly Hypotheses 3a and 4a and then Hypotheses 3b and 4b, which refer to the overall moderated mediation effects.

Testing for mediation. Hypotheses 1 and 2 together propose a simple mediation model in which the relationship between receiving ICB from peers and turnover intention is mediated by employee job satisfaction. The stepwise procedure proposed by Baron and Kenny (1986) is frequently used to test such simple mediation models. However, according to MacKinnon, Lockwood, Hoffman, West, and Sheets (2002), this multistep approach has several limitations. For example, Kenny, Kashy and Bolger (1998) had observed that it is not essential for the direct effect of an independent variable X on the outcome variable Y to be significant to establish mediation. Further, the use of bootstrapped confidence intervals (CIs) is recommended to avoid

power problems caused by non-normal sampling distributions of an indirect effect (MacKinnon, Lockwood, & Williams, 2004). Field (2009) states that in bootstrapping:

the sample data are treated as a population from which smaller samples (called bootstrap samples) are taken (putting the data back before a new sample is drawn). The statistic of interest (e.g., the mean) is calculated in each sample, and by taking many samples the sampling distribution can be estimated (…). The standard error of the statistic is estimated from the standard deviation of this sampling distribution created from the bootstrap samples. From this standard error, confidence intervals and significance tests can be computed. (p. 163)

To test our mediation hypotheses (Hypotheses 1 and 2), we used an SPSS macro designed by Preacher and Hayes (2004). The macro simply runs a mediation analysis, including a Sobel test, while also estimating the indirect effect with a bootstrap approach to obtain bootstrapped confidence intervals. The macro also includes the multistep approach proposed by Baron and Kenny and tests whether the effect of X on Y is significantly reduced when adding a mediator to the model (Preacher & Hayes, 2004).

Tests of moderated mediation. We hypothesized that both communion-striving motivation and task dependence would moderate the positive relationship between receiving ICB and job satisfaction (Hypotheses 3a and 4a). If these hypotheses receive support, it is likely that the hypothesized indirect effect, through job satisfaction, of receiving ICB on turnover intention is conditional on the value of the moderators (Hypotheses 3b and 4b), a relationship known as moderated mediation (see for example, Edwards & Lambert, 2007; Preacher et al., 2007). To test Hypotheses 3a, 3b, 4a, and 4b, we conducted stepwise regression analyses and used another SPSS macro provided by Preacher and his colleagues (2007) which includes bootstrapping methods making it possible to investigate the significance of conditional indirect effects at different values of the moderator variables. Specifically, we were able to examine the possibility of a significant indirect effect along with any conditional influence of the proposed moderators on this indirect effect.

To test interactions, we conducted moderated regression analyses following the procedures recommended by Aiken and West (1991): (1) standardize the predictors to reduce

multicollinearity between these variables and their interaction term; (2) multiply together the two standardized predictor variables to calculate their interaction term; (3) include the main effects in the model to prevent a biased estimate of the interaction; and (4) rearrange the regression equations into simple regressions of job satisfaction on received ICB to depict any significant interaction effects using conditional values of communion-striving motivation and task dependence that lay ±1 SD from their respective means. Since the predictors were standardized, we report non-standardized regression coefficients. One-tailed tests were used for assessing directionally hypothesized effects.

RESULTS

Descriptive statistics

Means, standard deviations, and Pearson correlations between the variables are presented in Table 2.1. The correlations between ICB and turnover intention ($r = -.20$, $p < .05$) and between job satisfaction and turnover intention ($r = -.48$, $p < .01$) are, as expected, significant and negative. The relationships between task dependence and ICB ($r = .26$, $p < .01$) and between ICB and job satisfaction ($r = .29$, $p < .01$) are both significant and positive. The results, however, show no statistically significant relationship between age, organizational tenure, or the standard deviation of receiving ICB, as possible predictors, and the outcome variable, turnover intention. Given that the inclusion of redundant control variables reduces statistical power and may produce biased estimates (Becker, 2005), we excluded these control variables from later analyses[2].

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[2] The results of the analyses were essentially identical controlling for age, organizational tenure or the standard deviation of receiving ICB.

Table 2.1

Descriptive statistics and Pearson zero-order correlations among the study variables

#	Variables	*M*	*SD*	1	2	3	4	5	6	7
1	Age	41.11	10.68							
2	Organizational tenure	12.27	9.16	.60**						
3	*SD* receiving ICB	0.96	0.58	-.04	-.06					
4	Receiving ICB	5.20	0.98	-.05	.06	-.56**				
5	CSM	4.16	0.86	-.21*	-.10	-.06	.12			
6	Task dependence	3.31	0.55	-.13	-.16	-.15	.26**	-.03		
7	Job satisfaction	5.26	0.94	.07	.02	-.06	.29**	.06	.14	
8	Turnover intention	2.25	1.17	-.05	-.06	.10	-.20*	-.09	.02	-.48**

Note. SD = standard deviation; ICB = interpersonal citizenship behavior; CSM = communion-striving motivation.

* p < .05; ** p < .01.

Testing for mediation

Table 2.2 presents the results of the regression analyses related to Hypotheses 1 and 2. Specifically, it presents the results for receiving ICB as a predictor of turnover intention, with job satisfaction as a possible mediator of this association. In support of Hypothesis 1, receiving ICB from peers was negatively associated with turnover intention (*B* = -.23, *t* = -2.48, *p* < .01). Further, in support of Hypothesis 2, receiving ICB from peers was positively associated with job satisfaction (*B* = .29, *t* = 3.62, *p* < .001), and job satisfaction was negatively associated with turnover intention after controlling for ICB (*B* = -.54, *t* = -6.19, *p* < .001). The direct effect of receiving ICB on turnover intention, after controlling for job satisfaction, was not statistically different from zero, meaning that no relationship exists between ICB from peers and turnover intention after controlling for job satisfaction. The evidence indicates that job satisfaction fully mediates the effect of ICB from peers on turnover intention. ICB was found to have a negative indirect effect (-.15) on turnover intention. The Sobel test (using a normal distribution) shows that this indirect effect was significant (Sobel *z* = -3.09, *p* < .01) and this was supported by the

bootstrap results. The bootstrapped 99% confidence interval (-.31, -05) around the indirect effect does not contain zero, supporting the indirect effects model reflected in Hypothesis 2.

Table 2.2

Results of regression analysis for simple mediation [a]

Direct and total effects

Variable	B	SE	t	p
TURN-I regressed on ICB	-0.23	0.09	-2.48	.004
JS regressed on ICB	0.29	0.08	3.62	.001
TURN-I regressed on JS, controlling for ICB	-0.54	0.09	-6.19	.001
TURN-I regressed on ICB, controlling for JS	-0.08	0.09	-0.89	.375

Indirect effect and significance assuming normal distribution

	Value	SE	LL 95% CI	UL 95% CI	z	p
Sobel	-0.15	0.05	-.25	-.06	-3.09	.001

Bootstrap results for indirect effect

	M	SE	LL 99% CI	UL 99% CI	
Effect	-0.16	0.05	-.31	-.05	

Note. n=149 employees. Non-standardized regression coefficients are reported. Bootstrap sample size = 5,000. TURN-I = turnover intention; JS = job satisfaction; ICB = interpersonal citizenship behavior; LL = lower limit; UL = upper limit; CI = confidence interval.

[a] One-tailed tests are used for directionally hypothesized effects; two-tailed tests for other relationships.

Testing for moderated mediation

Table 2.3 presents the results related to Hypotheses 3a and 3b. We were looking for a moderating effect of communion-striving motivation on the relationship between ICB and job satisfaction (Hypothesis 3a). We hypothesized that the positive relationship between ICB from peers and job satisfaction would be stronger for employees with high communion-striving motivation than for employees with low communion-striving motivation. The interactive effect

of ICB and communion-striving motivation on job satisfaction was .14 (t = 1.89, p < .05). To test whether the form of this interaction corresponds with the hypothesized pattern, we followed the procedures suggested by Aiken and West (1991) to create Figure 2.2 which depicts the two-way interaction of ICB from peers and communion-striving motivation on job satisfaction. The slope of the relationship between ICB and job satisfaction for employees with high communion-striving motivation (simple slope = .41, t = 3.65, p < .001) shown in Figure 2.2 is indicative of a strong and positive relationship, whereas the shallower slope for employees with low communion-striving motivation (simple slope = .13, t = 1.13, p = ns) indicates a weaker relationship. This finding is in line with our expectations, supporting Hypothesis 3a.
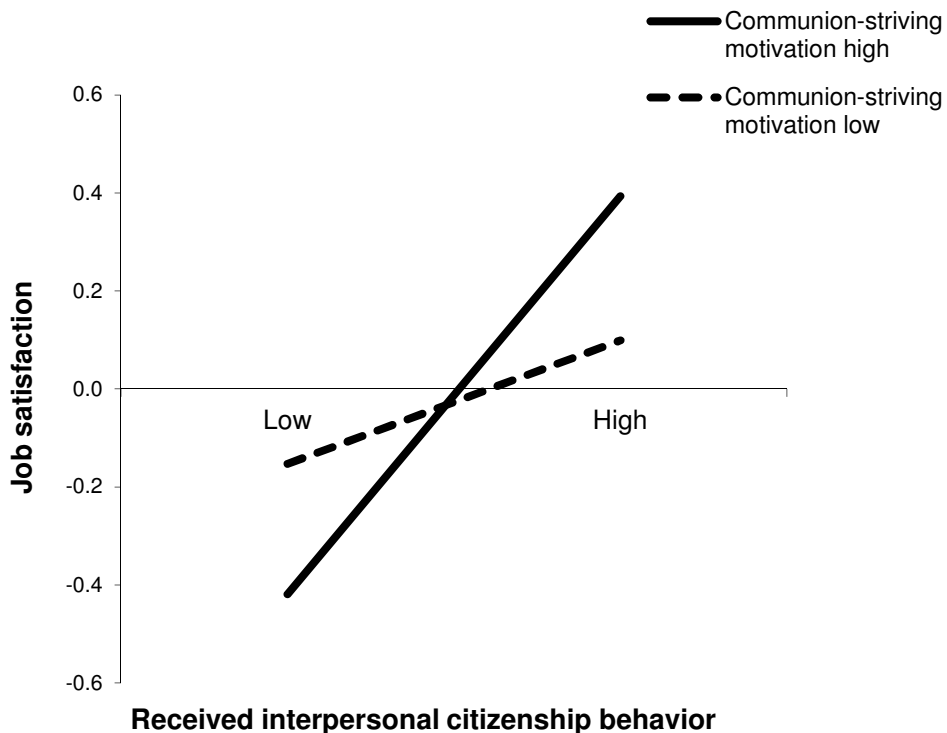
Figure 2.2 Effects of interaction between received interpersonal citizenship behavior and communion-striving motivation on job satisfaction

Table 2.3

Results of regression analysis for conditional indirect effect (communion-striving motivation) [a]

Predictor	*Job satisfaction*			*Turnover intention*			
	1	2	3	1	2	3	4
1. Task dependence	0.14	0.07	0.09	0.02	0.09	0.08	0.12
2. Receiving ICB from peers (ICB)		0.27**	0.27**		-0.25*	-0.25*	-0.10
3. Communion-striving (CSM)		0.03	0.01		-0.08	-0.06	-0.06
4. ICB x CSM			0.14*			-0.09	-0.01
5. Job satisfaction							-0.55***
R²	0.02	0.09	0.11	0.00	0.05	0.06	0.25
Δ*R²*	0.02	0.07**	0.02*	0.00	0.05*	0.01	0.20***

Conditional indirect effect at CSM = M ± 1 SD

Communion-striving motivation	Bootstrap indirect effect	Bootstrap SE	BCa LL 95% CI	BCa UL 95% CI
M -1 *SD* (-1.00)	-0.07	0.06	-0.19	0.03
M (0.00)	-0.15	0.05	-0.25	-0.06
M + 1 *SD* (1.00)	-0.23	0.08	-0.41	-0.08

Note. n=149 employees. Non-standardized regression coefficients are reported. Bootstrap sample size = 5,000. Bias corrected and accelerated (Bca) confidence intervals are reported. *LL* = lower limit; *UL* = upper limit; CI = confidence interval.

[a] One-tailed tests are used for directionally hypothesized effects; two-tailed tests for other relationships.

* p < .05; ** p < .01; *** p < .001.

The above-mentioned results demonstrate a significant interaction between communion-striving motivation and ICB from peers but do not fully address the moderated mediation model proposed in Hypothesis 3b. For this reason, the macro developed by Preacher et al. (2007) provides the conditional indirect effect of ICB on turnover intention (through job satisfaction) at three values of communion-striving motivation (see Table 2.3). These three values are the mean, one standard deviation above the mean, and one standard deviation

below the mean. Two of the three calculated conditional indirect effects (i.e., the moderator values at the mean and at +1 SD) were negative and significantly different from zero. Thus, in support of Hypothesis 3b, we have an indirect (through job satisfaction) and negative effect of ICB on turnover intention when levels of communion-striving motivation are moderate to high, but not when communion-striving motivation is low.

Table 2.4 presents the results linked to Hypotheses 4a and 4b. First, we examined the moderating effect of task dependence on the relationship between ICB and job satisfaction (Hypothesis 4a). We predicted that the positive relationship between ICB and job satisfaction would be stronger for employees with high task dependence than for employees with low task dependence. The interactive effect of ICB and task dependence on job satisfaction was .15 ($t =$ 1.89, $p < .05$). Similar to the method described above, to test whether the form of this interaction corresponded with the hypothesized pattern, the two-way interaction of received ICB and task dependence on job satisfaction is depicted in Figure 2.3. From the slopes in Figure 2.3, it appears that the relationship between ICB and job satisfaction is strong for employees with high task dependence (simple slope = .44, $t = 3.55$, $p < .001$), and relatively weak for employees with low task dependence (simple slope = .14, $t = 1.37$, $p = ns$). This finding was again in line with our expectations, supporting Hypothesis 4a.

To test Hypothesis 4b, we examined the conditional indirect effect, through job satisfaction, of ICB on turnover intention at three values of task dependence (the mean and ±1 SD from the mean). Two of the three conditional indirect effects thus found (with moderator values at the mean and at +1 SD) were negative and significantly different from zero. Given that an indirect and negative effect, through job satisfaction, of ICB on turnover intention was found when levels of task dependence were moderate to high, but not when task dependence was low, Hypothesis 4b was similarly supported.

Table 2.4

Results of regression analysis for conditional indirect effect (task dependence) [a]

Predictor	Job satisfaction			Turnover intention			
	1	2	3	1	2	3	4
1. Communion-striving motivation	0.07	0.03	0.05	-0.11	-0.08	-0.09	-0.07
2. Receiving ICB from peers (ICB)		0.27**	0.29**		-0.25*	-0.27**	-0.12
3. Task dependence (TD)		0.07	0.06		0.09	0.09	0.13
4. ICB x TD			0.15*			-0.16	-0.08
5. Job satisfaction							-0.53***
R^2	0.01	0.09	0.11	0.01	0.05	0.07	0.26
ΔR^2	0.01	0.08**	0.02*	0.01	0.04*	0.02	0.19***

Conditional indirect effect at TD = M ± 1 SD

Task dependence	Bootstrap indirect effect	Bootstrap SE	BCa LL 95% CI	BCa UL 95% CI
M -1 *SD* (-1.04)	-0.08	0.06	-0.23	0.02
M (-0.04)	-0.16	0.05	-0.27	-0.07
M + 1 *SD* (0.96)	-0.23	0.07	-0.39	-0.11

Note. n=149 employees. Non-standardized regression coefficients are reported. Bootstrap sample size = 5,000. Bias corrected and accelerated (Bca) confidence intervals are reported. *LL* = lower limit; *UL* = upper limit; CI = confidence interval.

[a] One-tailed tests are used for directionally hypothesized effects; two-tailed tests for other relationships.

* p < .05; ** p < .01; *** p < .001.
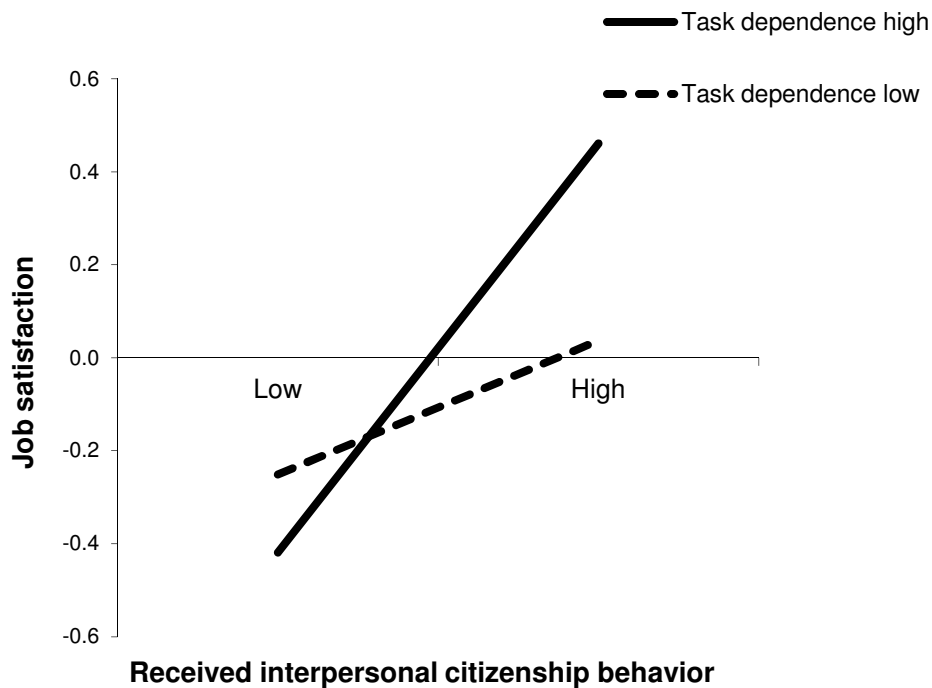
Figure 2.3 Effects of interaction between received interpersonal citizenship behavior and task dependence on job satisfaction

DISCUSSION

In this study, we have examined the influence of receiving ICB from coworkers on an employee's job satisfaction and turnover intention. Further, to develop our understanding of the factors that shape these associations, we incorporated employees' communion-striving motivation and task dependence as potential moderators in the conceptual model.

We hypothesized and indeed showed that receiving ICB from coworkers is negatively associated with turnover intention and that employee job satisfaction is a mediating mechanism between receiving ICB and turnover intention. Thus, receiving ICB from coworkers is associated with a reduced turnover intention through job satisfaction. Further, we predicted that high levels of communion-striving motivation and task dependence would both strengthen the indirect and negative relationship between receiving ICB and turnover intention. The hypothesized moderated mediation model was supported by the results, suggesting that the

strength of the indirect effect between receiving ICB from coworkers and turnover intention is influenced by employees' communion-striving motivation and task dependence. In terms of Hypothesis 3, on the moderating effect of an employee's communion-striving motivation, it was shown that receiving ICB is strongly and positively related to job satisfaction when communion-striving motivation was high, whereas receiving ICB was more weakly related to job satisfaction when communion-striving motivation was lower. Turning to Hypothesis 4, a similar pattern was found for task dependence as a moderator. Receiving ICB was strongly and positively related to job satisfaction when task dependence was high, whereas receiving ICB was more weakly related to job satisfaction when task dependence was lower. As such, we have demonstrated two, previously unrevealed, boundary conditions that influence the effect of receiving ICB from coworkers, through job satisfaction, on turnover intention. The conclusions that can be drawn from this study are presented below by first addressing the theoretical contributions and then its practical implications. Following this, some limitations are discussed, and we suggest directions for future research.

Theoretical contributions

The results of this study suggest that relationships and social exchange within organizations are important factors in an employee's turnover intention. To the best of our knowledge, research so far has ignored the potential association between receiving ICB from coworkers and turnover intention, and also factors that may influence this association. We believe that the theoretical contributions of our research are important from several perspectives. The contributions relate to theory on employee turnover intention, to theory on helping behavior and specifically ICB, and to the task dependence literature.

In line with previous research on the antecedents of employee turnover (e.g., Griffeth et al., 2000; Hom & Griffeth, 1991), job satisfaction was found to be a key predictor of turnover intention. In the present study, ICB from coworkers was identified as a somewhat distant determinant of turnover intention, through its effect on job satisfaction. Other studies have also shown indirect effects, through the mediating role of job satisfaction, of several factors on turnover intention (e.g., Lambert et al., 2001; Lum, Kervin, Clark, Reid, & Sirola, 1998). In

addition, the social relational perspective assumes that "social relations at work represent a major source of satisfaction and are an important reward and preoccupation for individuals in the workplace" (Baron & Pfeffer, 1994, p. 192). By showing that receiving ICB, a social exchange variable, has a significant impact on employee turnover intention, we have addressed the importance of investigating relational inducements to remain employed, providing support for the value of adopting a social relational perspective, and contributed to the literature on voluntary employee turnover. Identifying the receipt of ICB as a distant determinant of turnover intention also supports the theory of the unfolding model of voluntary turnover by showing the impact of a less recognized variable on turnover intention (Lee & Mitchell, 1994). Moreover, this study provides further evidence of a relationship between job embeddedness and turnover intention (Mitchell et al., 2001), as it is likely that employees feel stronger links to others in the organization to the degree that they are the recipients of ICB.

A study by Bowler and Brass (2006) presented evidence of several antecedents of receiving ICB, such as friendship and influence. To our knowledge, our study is the first to investigate and identify individual-level *consequences* of receiving ICB. The significant indirect effect of receiving ICB on turnover intention and its direct effect on job satisfaction indicate that ICB is not only beneficiary for the performer (Mossholder et al., 2005) but also for the recipient.

Additionally, by examining the moderating influence of both communion-striving motivation and task dependence on the indirect relationship between receiving ICB and turnover intention, we have begun to explore the extent to which individual differences in both the need for affiliation and required task interaction explain the link between peer relationships and turnover, as was suggested by Mobley et al. (1979). Our findings lead one to think that other aspects of peer relations might well impact on turnover intention.

Further, while previous research has shown that communion striving leads to both providing and seeking helping behaviors (Chiaburu, Marinova, & Lim, 2007), the current study extends this knowledge by showing the moderating effect of communion-striving motivation on the relationship between receiving help and individual outcomes. Thus, communion-striving motivation not only drives helping behaviors, it also determines the impact of receiving help on

individual outcomes. Examining the role of communion striving with regard to helping behavior contributes to the literature on communion striving and helping behavior. Moreover, we have responded to the suggestion (Shao, Resick, & Hargis, 2011) that one should incorporate communion striving in ICB research.

Additionally, with the present study, we are contributing to the literature on task interdependence. Most research on task interdependence and helping behavior has included task interdependence in the research model as a potential antecedent of helping behavior (De Jong, Van der Vegt, & Molleman, 2007; Pearce & Gregersen, 1991). As an example, Anderson and Williams (1996) found employee task interdependence to be associated with providing more help. Through the current research, we have expanded our understanding of the impact of task interdependence in association with helping behavior by showing that employee task dependence also serves as a moderator on the consequences of helping behavior.

Further, earlier research on helping behavior (e.g., Anderson & Williams, 1996; Choi, 2006; Settoon & Mossholder, 2002; Williams & Anderson, 1991) focused primarily on *antecedents* of performing helping behavior, whereas more recent research has begun to focus on the *consequences* of helping behavior, or on the consequences of OCB more generally (Podsakoff et al., 2009). Our research aimed to broaden the understanding of the consequences of helping behavior by focusing on the effect on employees' turnover intentions of receiving ICB from coworkers.

Practical implications

Aside from the theoretical contributions of this study, we also believe that this study offers a number of insights that will be valuable to management practitioners. The value of OCB to organizational success and to performance has been demonstrated in previous research (e.g., Podsakoff, MacKenzie, Paine, & Bachrach, 2000). Moreover, Chen, Hui, and Sego (1998), for example, found that OCB is negatively related to turnover. Given the influence of OCB on several organizational outcomes, any new information regarding ICB is potentially relevant for managerial practices (Bowler & Brass, 2006).

Management practitioners could benefit by utilizing the results of this study in redesigning work. It offers organizations additional insights into task situations where ICB among employees is required to improve job satisfaction and prevent employees from leaving, along with characteristics of individuals that determine the importance of receiving ICB from their coworkers. The present study suggests that for employees who have a strong communion-striving motivation, or who are highly task dependent on their coworkers, a work situation which facilitates the receiving of ICB from coworkers is beneficial. As such, this study pinpoints a need for organizations to find ways to facilitate coworkers to target their ICB at the right employees, that is, employees who have a strong communion-striving motivation and/or are highly task dependent on their coworkers. Podsakoff et al. (2000) note that several task variables, such as task feedback and intrinsically satisfying tasks, and transformational leadership behaviors appear to foster interpersonal types of OCB's. Nevertheless, organizations should also be aware of the possible 'downside' of helping for those who help. A person who gives help to others may have less time to perform their own tasks. Further, taking on this additional role could negatively impact one's own wellbeing or personal relationships (Bolino & Turnley, 2005; Mueller & Kamdar, 2011).

Limitations and future directions

Although a weakness of this study is that we used only one data collection method, it would be difficult to attribute the significant two-way interactions found to common method bias (Evans, 1985). A study by McClelland and Judd (1993) demonstrates that interaction effects between continuous variables are generally very hard to identify in field studies, and Siemsen, Roth, and Oliveira (2010) state that "finding significant interaction effects despite the influence of common method variance in the data set should be taken as strong evidence that an interaction effect exists" (p. 470). Furthermore, we applied a cross-sectional design, and this makes it impossible to draw strong conclusions about the direction of causality between constructs. The results are in line with our theoretical reasoning, but the actual causality might differ from that implied in our hypotheses. Therefore, we recommend further research with a stronger design. For example, conducting a field study with a longitudinal design using the same

constructs would enable more definitive conclusions on the direction of causality between the constructs to be drawn.

Another note of caution is that the ratings of the independent variables and the dependent variable were provided by a common source. Respondents rated the ICB they received, their communion-striving motivation, and their job satisfaction, along with the dependent variable of turnover intention. Observed relationships could therefore be influenced by common source variance. Nevertheless, in our case, both CFA and Harman's single-factor tests indicated that this was not a serious problem with our data. Also, applying self-reporting measures can increase covariation among variables through a process recognized as percept-percept inflation (Crampton & Wagner, 1994; Spector, 1987). Our network measures, however, particularly our measure of task dependence, amount to stronger measures than commonly used self-reported data. We tested the hypotheses that involved a recipient's task dependence by using a transposed dependence network and this precludes the possibility of common source bias. That is, respondents evaluated the task dependence of their peers, and this information, once transposed and averaged, formed the basis of the task dependence measure.

Additionally, we advise to be precautious in generalizing from this study because the sample is drawn only from hospitals and predominantly consists of female nurses. Future research needs to extend this line of research to other environments and involve more heterogeneous samples to widen the applicability of the results.

Another potential weakness of this study is our use of single-item measures for ICB and for task dependence. However, we framed the items for ICB and for task dependence as close as possible to the definition of the underlying theoretical construct. Additionally, employing a roster method, which amounts to multiple measurements because each employee rates and is rated by every other team member, has reduced the potential error (Denissen, Geenen, Selfhout, & Van Aken, 2008; Kenny, 1994). On this basis, we have some confidence in the validity and reliability of the measures for ICB and for task dependence, and we trust the legitimacy of the conclusions. Nevertheless, although we framed the item for ICB as close as possible to the definition of the underlying theoretical construct, and in line with previous research (Bowler & Brass, 2006), it could still be difficult for employees to distinguish between

receiving helping behavior from coworkers that is in line with the employment contract, and that which goes beyond the employment contract (i.e., ICB). In future research, one could more specifically define what amounts to help *beyond* what is required by the employment contract. In addition, because our respondents tended to rate others above the middle of the scale, the data range for perceived received ICB might be restricted (Ng & Van Dyne, 2005).

In the current study, we only investigated the impact of receiving help from coworkers on turnover intention. It could be useful to evaluate the effects of receiving ICB from peers on an employee's actual turnover behavior. That is, do the antecedents and mechanisms associated with an employee's turnover intention found in this study also apply to actual turnover behavior?

Further, in future research, it would be informative to include other possible mediators in a theoretical model to investigate other ways in which receiving ICB might lower turnover intention. For example, it could be that receiving ICB lowers turnover intention because receiving ICB makes performing the job easier and leads to better job performance, larger performance-based rewards, or enhanced career expectations.

Although this study has focused on the positive effect of receiving ICB, being based on research on reciprocity in helping relationships (Nahum-Shani & Bamberger, 2011; Nahum-Shani, Bamberger, & Bacharach, 2011), receiving ICB could, from an esteem-enhancement perspective, have a negative impact on recipients if they perceive that they are unable to reciprocate and restore the balance in an exchange relationship. This could possibly harm the recipient's sense of identity and belonging. With our data, we are unable to investigate the balance perceived in the exchange relationship by the recipient because we lack data on ICB performed, as against received. Thus, in future research, we think it would be valuable to include the recipient's perception of performed ICB alongside their perception of received ICB. From this, one could investigate the potential for a negative effect of receiving ICB.

Other relational antecedents of turnover intention should also be considered in future research. In the current study, we focused on the receipt of ICB from coworkers, which refers to the recipient's social capital because it indicates the value of connections with coworkers. Another operationalization of social capital is network centrality (Goodwin, Bowler, &

Whittington, 2003) which provides an employee with greater access to resources and greater visibility (Seibert, Kraimer, & Liden, 2001). Network centrality has been linked to, for example, job satisfaction (Brass, Galaskiewicz, Greve, & Tsai, 2004). This research could be extended by examining the impact of network centrality in different types of social networks (see Gibbons, 2004) on employee turnover intention and other individual work outcomes.

Conclusion

We suggest that an employee's decision as to whether to leave might crucially depend on interpersonal relationships and the pro-social behavior that follows from these relationships. Mossholder et al. (2005) suggested that using relational variables to manage turnover will require new approaches, such as developing links among individuals, and that greater attention is needed to behaviors that strengthen interpersonal ties. Our results show that receiving ICB from coworkers, or receiving pro-social behavior following from interpersonal relationships at work, might be a mechanism to strengthen links among employees and to tie individuals to the organization. Therefore, the results enable managers to take corrective actions before employees actually leave the organization. Consequently, we hope that the present study will encourage organizations and researchers to pay greater attention to social exchange relationships and to work arrangements that facilitate beneficial social exchanges between employees to reduce undesired employee turnover.

CHAPTER 3

The moderating influence of personality on individual outcomes of social networks[3]

INTRODUCTION

After decades of research into the effects of social networks in organizations, it has become an established finding that being embedded in social networks at work brings numerous advantages for employees. A structurally advantageous position in a particular workplace network provides employees with access to instrumental resources and expressive benefits that others lack (e.g., Burkhardt & Brass, 1990; Ibarra, 1993b; Klein, Lim, Saltz, & Mayer, 2004). *Network centrality*, defined by Sparrowe, Liden, Wayne, and Kraimer (2001, p. 316) as "the extent to which a given individual is connected to others in a network" is such an advantageous position offering expressive benefits and instrumental resources, consequently giving central employees a chance to set a good performance (Mehra, Kilduff, & Brass, 2001). Centrality in workplace networks has empirically been associated with, for example, power, influence, promotion, and innovation involvement (e.g., Brass, 1984; Burkhardt & Brass, 1990; Ibarra, 1993a; Sparrowe & Liden, 2005). Social networks therefore provide opportunities affecting *individual outcomes* (Brass, Galaskiewicz, Greve, & Tsai, 2004; Zhou, Shin, Brass, Choi, & Zhang, 2009).

However, as recognized by some scholars, whether opportunities resulting from an advantageous structural position are turned into achievement might be contingent upon individual differences (e.g., Anderson, 2008; Burt, Jannotta, & Mahoney, 1998). To determine which employees may experience benefits with respect to individual outcomes from an advantageous network position, we examine the interaction between social network position and the *attributes of actors*. In prior research on the structure of networks, the attributes of actors (including personality) have been largely ignored (Kilduff & Krackhardt, 1994; Kilduff & Tsai, 2003; Mehra et al., 2001), resulting in a lack of social network research including personal characteristics (Zhou et al., 2009).

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[3] This chapter is based on Regts & Molleman (submitted)

Recent research has made some attempt at examining the combined effects of network structure and individual attributes (e.g., Klein et al., 2004; Mehra et al., 2001; Zhou et al., 2009). Our study adopts an interactional perspective and builds on previous studies by examining the contingent effect of *personality* on the relationship between social network position and individual outcomes. We focus on two outcomes, job satisfaction and job performance, which are among the most frequently researched individual outcomes in organizational studies. With respect to the association between network centrality and *job satisfaction*, mixed field research results have been found, such as positive, indirect, and negative relationships (Brass et al., 2004). Further, there are few studies that examine the link between network centrality and job performance (e.g., Flap & Völker, 2004; Sparrowe et al., 2001); thus, there is a need for further empirical evidence.

Based on arguments and findings provided by Flap and Völker (2001), and Umphress, Labianca, Brass, Kass, and Scholten (2003), we propose that social ties that are more affect based and provide affect-based resources, such as expressive friendship ties, should primarily relate to affect-based individual outcomes, such as job satisfaction. In contrast, social ties that provide resources that are necessary to accomplish a task, such as obtaining advice, should mainly relate to individual job performance. Thus, we expect that different types of social ties will influence different individual outcomes depending on the more affective or more cognitive content of the individual outcome. More specifically, we will examine the link between expressive friendship network centrality and job satisfaction and the link between instrumental advice network centrality and job performance.

This investigation into the combined influence of network centrality and personality on job satisfaction and job performance provides an opportunity to increase our understanding of employee response to social structures in organizations (Kilduff & Tsai, 2003). Specifically, it enables us to answer the research question posed by Shalley, Zhou, and Oldham (2004): "Do individuals with different personalities (…) respond differently to network positions?" (p. 949). In answering this research question, we will examine the moderating role of personality on the relationship between network centrality and individual outcomes by considering a specific *combination of personality traits*, or methodologically, we will develop hypotheses involving

three-way interactions. As Hogan, Hogan, and Roberts (1996, p. 470) state, "It is an article of faith in traditional personality assessment that interpreting a single scale in the absence of other information is usually ill advised". Similarly, Witt, Burke, Barrick, and Mount (2002) advise that an interactive profile approach be used when analyzing the influence of personality traits on employee work outcomes. Multiple personality traits potentially operate together (King, George, & Hebl, 2005); including a combination of traits would therefore provide a more holistic view of an individual and a tighter conceptual meaning of personality (Jensen & Patel, 2011). Only a few recent studies examine the interactive effect of personality traits on employee work outcomes (e.g., Burke & Witt, 2004; Jensen & Patel, 2011; Judge & Erez, 2007; King et al., 2005; Witt, 2002; Witt et al., 2002), and these studies show that the interaction among personality traits accounts for significant incremental variance (Penney, David, & Witt, 2011). However, we are unaware of a study that examines the conjoined effect of network position and a particular combination of personality traits on employee work outcomes.

Arguing therefore that although network centrality provides the opportunity for higher job satisfaction and job performance it depends on the interactive blend of two specific personality traits to the extent that it is exploited by an employee, we contribute to theory in several ways. By examining the potential moderating effect of personality on the link between network centrality and job satisfaction, we intend to provide an explanation for the aforementioned mixed field results that have been found in prior research (e.g., Brass, 1981; Kilduff & Krackhardt, 1993; as cited in Krackhardt & Brass, 1994; Roberts & O'Reilly, 1979). Furthermore, we investigate the almost unexamined link between network centrality and job performance and aim to provide empirical evidence for personality as a contingent factor affecting this link (Burt, 2000). Third, we link individualist and structuralist perspectives recently advocated by scholars (e.g., Kilduff & Tsai, 2003). By studying an interactive combination of personality traits, we bring the individual back into structural research using a more holistic view. Finally, we contribute to social network literature by investigating the impact of network centrality in two different types of social networks, the expressive friendship network and the instrumental advice network.

THEORY AND HYPOTHESES

Social network centrality

Several researchers have emphasized the need to distinguish between network types while investigating network structures because previous research has shown that different types of networks are related to different individual work outcomes (e.g., Gibbons, 2004; Liden, Sparrowe, & Wayne, 1997). We therefore focus on two commonly distinguished types of employee social ties in the peer-network: *expressive* ties and *instrumental* ties (Umphress et al., 2003), also referred to as the more informal *friendship* network and the more formal *advice* network (Gibbons, 2004). The friendship network is derived "from mutual liking, similarity of attitudes, or personal choice" (Mehra et al., 2001, p. 130), whereas the advice network has been defined as being "comprised of relations through which individuals share resources, such as information, assistance, and guidance" (Sparrowe et al., 2001, p. 317). More specifically, in-degree advice centrality, which will be the focus in the current study, indicates that employees are sought after for their work-related input (Klein et al., 2004). Our focus on the impact of network centrality on individual outcomes means that we take a social capital perspective, because we examine the benefits that accrue to an individual as a result of occupying a central position in a particular social network (Borgatti & Foster, 2003).

Personality

The few existing studies that examine the relationship between personality and networks use a variety of perspectives, and the studies that adopt an interactionist approach (i.e., investigate the interaction effect between social networks and personality) mostly focus on the personality variable of self-monitoring (see Anderson, 2008 for an overview). Although some preliminary steps have been taken in linking personality and networks, there is a need for future theoretical and empirical development. For example, Anderson (2008) suggested that future research focus on other personality dimensions such as the Big Five personality traits because they represent behavioral forms of motivation.

The Big Five (also called the Five Factor Model-FFM) is accepted as a general model for classification of personality traits. It describes the most salient aspects of personality and is

widely used in organizational science literature (Judge, Bono, Ilies, & Gerhardt, 2002; Klein et al., 2004; Witt, 2002). This study focuses on the effect of two FFM traits, extraversion and emotional stability, and proposes that their interactive effect acts as a moderator of the link between network centrality, on the one hand, and job satisfaction and job performance, on the other. Extraversion refers to the extent to which a person is socially active, assertive, talkative, outgoing, and gregarious (McCrae & Costa, 1989; Mount & Barrick, 1995) and is seen as especially predictive in social situations, such as team interaction (Barry & Stewart, 1997; Neuman & Wright, 1999). Employees who score highly on emotional stability are typically well adjusted, calm, and confident (King et al., 2005). Neuroticism, the opposite of emotional stability, implies "negative emotionality, such as feeling anxious, nervous, sad, and tense" (John & Srivastava, 1999, p. 121) and thus represents a tendency to experience negative affect (Judge et al., 2002). Both extraversion and emotional stability have consistently been found to relate strongly to affect (see e.g., Watson & Clark, 1992), and affect has been shown by both psychologists and sociologists to correlate with social interaction (Casciaro, Carley, & Krackhardt, 1999). Consequently, these two traits have an important influence on one's social relationships (see e.g., Ozer & Benet-Martínez, 2006), and both have been shown to relate to, for example, perceived social support (Swickert, Hittner, & Foster, 2010). We will therefore argue in the following sub-sections that extraversion and emotional stability may explain why individuals differ in their response to particular social network positions.

FFM traits co-exist within individuals (Penney et al., 2011), and therefore, the generality of the FFM traits provides the opportunity to examine trait *combinations* that may be more precisely mapped with respect to specific situations (Judge & Erez, 2007). Existing studies on the interactive effect of FFM traits focus on various outcomes such as dysfunctional worker behavior (Burke & Witt, 2004), interpersonal helping (King et al., 2005), job performance (Judge & Erez, 2007; Witt, 2002; Witt et al., 2002), and counterproductive work behavior (Jensen & Patel, 2011). These studies provide empirical evidence that the interaction among personality traits explains significant additional variance in work outcomes (Penney et al., 2011). The advantage of investigating the interactive effect of a combination of two specific traits is that a more holistic view of personality is obtained than when a single trait is examined because the

effect of one variable depends on the other (e.g., Judge & Erez, 2007; Witt et al., 2002). Several studies have found evidence of the interactive effect of extraversion and emotional stability in predicting subjective well-being (e.g., Hotard, McFatter, McWhirter, & Stegall, 1989; Pavot, Diener & Fujita, 1990) and job performance (Judge & Erez, 2007). The effect of emotional stability seems to modify the impact of extraversion and vice versa (Penney et al., 2011), and therefore, the interaction between extraversion and emotional stability likely explains why individuals respond differently to a specific social network position. For example, a highly neurotic person who is also high on extraversion could be described as restless (Eysenck & Eysenck, 1985) and will repeatedly consume resources such as attention and energy to cope with negative feelings (Penney et al., 2011). An emotionally stable person who is extravert will be more confident and uninhibited (Hofstee, De Raad, & Goldberg, 1992). These two individuals likely will respond completely differently to their position in the social network, likely affecting individual outcomes such as job satisfaction and performance differently. Therefore, we expect the interaction between these two traits, extraversion and emotional stability, to be a moderator between an individual's network position and individual work outcomes.

Friendship network centrality and job satisfaction

Important determinants of job satisfaction are social relationships that employees maintain with coworkers (Baron & Pfeffer, 1994). Laboratory network studies dating back to the 1950s found that central actors were more satisfied than peripheral actors (Shaw, 1964). Furthermore, Watson (1988) demonstrated that social activity leads to feelings of energy, enthusiasm, and general positive affection. Chiaburu and Harrison (2008) proposed and found that what coworkers provide or do, such as creating a pleasant social environment, influences employee job satisfaction. We argue that being central in a friendship network is an example of a situation in which coworkers create a pleasant social environment because the friendship network involves ties that provide interpersonal affect and that are important sources of social support and values (Balkundi & Harrison, 2006; Lamertz & Aquino, 2004; Umphress et al., 2003). Moreover, as mentioned by Brass (1981), holding a central position in a social network provides an employee with a strong sense of inclusion in the organization that leads to a

positive relationship between friendship network centrality and job satisfaction. Only a few social network studies focusing on job satisfaction have been conducted in the field, and the outcomes have been mixed (Brass et al., 2004). It has been found that actors with many links have higher job satisfaction than peripheral actors (Roberts & O'Reilly, 1979) or that the relationship between network centrality and job satisfaction is not a direct but an indirect relationship through job characteristics (Brass, 1981). Other results indicate that network centrality is negatively related to job satisfaction (Kilduff & Krackhardt, 1993, as cited in Krackhardt & Brass, 1994).

As a possible explanation for the mixed results concerning the effect of individual centrality in a network on job satisfaction, Brass et al. (2004) suggested that social interaction at work is not always positive. For example, it is not equally important to all employees whether they participate in interpersonal relationships (see e.g., Barrick, Stewart, & Piotrowski, 2002), and personality traits have been associated in different ways with several relationship variables (White, Hendrick, & Hendrick, 2004). This study examines whether personality influences the network effects on job satisfaction and causes variation in results. More specifically, although we expect a direct and positive relationship between friendship network centrality and job satisfaction based on the abovementioned arguments, we will investigate whether the interactive effect of extraversion and emotional stability predicts variation in this relationship.

The combined moderating role of extraversion and emotional stability in the relationship between friendship network centrality and job satisfaction

Because extraverts are sociable, their preference will be for significant interaction with colleagues during which they can express their own thoughts and feelings (Chiaburu, Stoverink, Li, & Zhang, 2013; Panaccio & Vandenberghe, 2012). When extraverts are central in the friendship network, they will have the opportunity to interact through friendship ties with coworkers, which facilitate social exchange and interaction, likely meeting their needs for social interaction. *Highly extraverted, stable* individuals tend to be hearty, buoyant, carefree, and easygoing (Eysenck & Eysenck, 1985; Hofstee et al., 1992). We therefore expect that especially highly extraverted, stable individuals will be able to benefit from and exploit a central position

in the friendship network, likely strengthening the link between friendship network centrality and job satisfaction. However, when extraverts are highly neurotic (i.e., moody, anxious, depressed, insecure, hostile, and/or irritable; Klein, Lim, Saltz, & Mayer, 2004), they are likely to lack important interpersonal skills. Indeed, *highly extraverted, highly neurotic* individuals have been described as volatile, impulsive, changeable, meddlesome, and restless (Eysenck & Eysenck, 1985; Hofstee et al., 1992). These characteristics likely inhibit these individuals' ability to exploit positive social relationships at work because appeals to colleagues may be intrusive, impulsive and chaotically move in all directions, prohibiting the chance to entirely meet their bottomless need for social interaction. We therefore expect that for extraverts who are also highly neurotic, the positive relationship between being central in the friendship network and job satisfaction will be weaker than for extraverts who are more emotionally stable.

Furthermore, n*eurotic introverts* have been described as shy, weak, self-critical, insecure, self-pitying, fearful, and envious (Hofstee et al., 1992). Whereas peers perceive extraverts' behaviors such as assertiveness and talkativeness favorably, being introvert inherently forms the threat of social disapproval, a situation that neurotics desire to avoid (Bendersky & Shah, 2013). A more central position in the friendship network could therefore strengthen neurotic introvert's confidence and self-esteem and could provide them with relevant social resources that lead to higher job satisfaction. *Emotionally stable introverts*, however, have been described as unexcitable and placid (Hofstee et al., 1992), suggesting that emotionally stable introverts need their friendship relations less to experience a higher level of job satisfaction. Thus, for introverts who are emotionally stable, we expect that the positive relationship between centrality in the friendship network and job satisfaction will be weaker than for introverts who are less emotionally stable.

> *Hypothesis 1: When extraversion is high, the positive relationship between friendship network centrality and job satisfaction will be stronger among employees who are high in emotional stability than among employees who are low in emotional stability. When extraversion is low, the positive relationship between friendship network centrality and job satisfaction will be stronger among employees who are low in emotional stability than among employees who are high in emotional stability.*

Advice network centrality and job performance

So far, evidence from prior studies suggests that a positive relationship exists between in-degree advice network centrality and individual job performance (e.g., Sparrowe et al., 2001). In-degree advice network centrality "refers to the extent to which others seek help or advice about work-related matters from a focal person" (Kilduff & Krackhardt, 1994, p. 95). According to Zagenczyk, Gibney, Murrell, and Boss (2008), when an employee is asked for his or her advice through advice ties it is an indication that coworkers believe that the employee has the competence to provide guidance. We therefore suggest that advice ties increase the visibility of employee competence levels and coworker dependence (Brass & Burkhardt, 1993) and lead to higher supervisor ratings of individual job performance. In addition, from a social capital perspective, based on social exchange theory (Cook & Emerson, 1978), Agneessens and Wittek (2012) mention that being asked for advice (and giving advice) provides the advice giver entitlements to future benefits through the indebtedness of coworkers, which assumes a positive association between in-degree advice network centrality and individual job performance. Similarly, Sparrowe et al. (2001) argue that the dependence of coworkers on the knowledge of an employee who is central in the advice network serves as an advantage that can be used in future exchanges for valued resources, necessary to achieve higher levels of individual job performance. Also in a similar vein, Balkundi and Harrison (2006) mention that, because of their highly sought expertise, central individuals have greater access to information from the social network. Furthermore, when a central individual in the advice network assists other group members, group performance is likely to improve (Sparrowe et al., 2001). Supervisors recognize and reward individuals who develop a reputation for assisting group members for the benefit of group performance (Chiaburu et al., 2013); therefore, in-degree advice centrality will likely lead to higher supervisory ratings for the central individual's job performance (see e.g., Sparrowe et al., 2001). Responding to suggestions that personality is a potential moderator of network effects (e.g., Brass et al., 2004; Burt, 2000), we develop the hypothesis that the relationship between in-degree advice network centrality and individual job performance is contingent upon the interaction between the two personality traits, extraversion and emotional stability.

The combined moderating role of extraversion and emotional stability in the relationship between in-degree advice network centrality and job performance

Although in-degree advice centrality, (i.e., the extent to which others seek advice from the central individual) indicates whether coworkers believe the employee has the competence and the resources to help and thus possesses relevant resources for high job performance, the combination of an individual's emotional stability and extraversion could determine whether possessing competence and resources translates into higher supervisor ratings of individual job performance. Extravert employees are motivated to allocate their resources toward behaviors that will provide them with opportunities for recognition, positive feedback, and rewards and strive for status (Barrick et al., 2002; Panaccio & Vandenberghe, 2012; Penney et al., 2011). Giving advice to coworkers provides these opportunities (Wittek, 1999, as cited in Agneessens & Wittek, 2012) and it is very likely that enhancing one's recognition and status contributes to a positive performance evaluation (Chiaburu et al., 2013). *Highly extraverted, highly stable* individuals have the tendency to be carefree, easygoing, indefatigable, uninhibited, and vigorous (Eysenck & Eysenck, 1985; Hofstee et al., 1992). We therefore expect highly extraverted, highly stable individuals, when asked for advice, to be especially able and motivated to effectively and efficiently give advice and utilize their resources to increase their job performance. Because actually giving advice to coworkers and utilizing resources for higher individual job performance provide opportunities for status, rewards, recognition, and positive feedback, there is a greater likelihood that central emotionally stable extraverts in the advice network will engage in these behaviors, strengthening the link between in-degree advice network centrality and supervisor ratings of individual job performance for emotionally stable extraverts.

The ability of *extraverts* to effectively act upon in-degree advice network centrality, however, may be compromised to a certain extent when they are *low in emotional stability*. Due to low emotional stability, there are fewer resources available to direct toward performance, because attention, energy, and other resources are partly consumed by worry and fear of failure (Penney et al., 2011). In addition, individuals who are high in neuroticism have the tendency to view the world through a negative lens and tend to interpret events, such

as being asked for advice, negatively (Bono & Judge, 2004; Duffy, Shaw, Scott, & Tepper, 2006). They may therefore openly respond to requests for advice with disrespect, annoyance, or insecurity when they are extravert (Klein et al., 2004). This reaction of neurotic extraverts likely diminishes higher supervisor ratings of individual job performance with respect to contributions to group performance. Furthermore, highly extraverted, highly neurotic individuals have been described as talkative, wordy, flirtatious, explosive, volatile, and meddlesome (Hofstee et al., 1992). These individuals may therefore be easily distracted from their work and may be distracted for a longer time when asked for advice, thus weakening the positive link between in-degree advice centrality and supervisory ratings of individual job performance (Smillie, Yeo, Furnham, & Jackson, 2006). Thus, we expect that supervisors will notice in-degree advice centrality together with its possible positive contribution to group performance in a more positive way in highly stable extraverts than in highly neurotic extraverts.

In contrast, with respect to introverts, we argue that being neurotic leads to a stronger positive effect of in-degree advice network centrality on job performance. Although *neurotic introverts* can be described as insecure, inhibited, and shy (Hofstee et al., 1992), and neurotics therefore tend to interpret being asked for advice negatively, as introverts they do not openly communicate about this negativism towards being asked for advice, but in a more thoughtful and modest way. This likely increases the chance that they still will be able to adequately give help upon request, increasing their self-reliance and self-confidence because they contribute to group performance, which will also motivate them to perform well. In addition, it is likely that neurotic introverts will engage in group-task-oriented behaviors such as giving advice upon request, because it provides an opportunity to avoid the threat of appearing incompetent relative to others (Bendersky & Shah, 2013), also likely leading to higher supervisor ratings of individual job performance for contributing to group performance. We therefore expect that for neurotic introverts, the link between in-degree advice network centrality and supervisor ratings of job performance will be strengthened. *Emotionally stable introverts* are unassuming, tranquil, and quiet (Hofstee et al., 1992) and, therefore, the contribution to group performance due to their centrality in the advice network may not be noticeable for supervisors. Moreover, it is reasonable to believe that being central in a network creates less work motivation for the

unexcitable emotionally stable introverts compared to neurotic introverts, because they are likely to move on regardless of their structural position. We therefore hypothesize the following:

> *Hypothesis 2: When extraversion is high, the positive relationship between in-degree advice network centrality and supervisor ratings of individual job performance will be stronger among employees who are high in emotional stability than among employees who are low in emotional stability. When extraversion is low, the positive relationship between in-degree advice network centrality and individual supervisor ratings of job performance will be stronger among employees who are low in emotional stability than among employees who are high in emotional stability.*

METHOD

Sample and procedure

The study population consisted of 421 nurses working in 17 units (11 internal medicine and 6 orthopedics units) at four Dutch hospitals. Of this population, at least 316 nurses partly completed questionnaires (response rate = 75%), and 293 nurses entirely completed questionnaires (response rate = 70%). A total of 18 units had initially decided to participate in this research; however, one unit decided to withdraw because of internal problems. Data from the few completed questionnaires from that unit were therefore excluded from the analyses. There was an average of 25 nurses in each unit, ranging from 12 to 40 nurses per unit. The nurses were mostly women (93%), and the average age was 39 years (*SD* = 10.90). Their average organizational tenure was 13 years (*SD* = 10.80), and the nurses had held their current positions for an average of 11 years (*SD* = 9.95).

Before the questionnaires were administered at the hospitals, an expert group consisting of hospital managers and policy advisors reviewed the questionnaires. Furthermore, three nurses from the cardiology department of one of the hospitals piloted the questionnaires. Because nurses could participate in this study on a voluntarily basis and because the questionnaires included coworker names, we assured participants of the strict confidentiality of their responses. We pre-coded the questionnaires so that we could match responses.

Measures

We asked supervisors to rate the job performance of their followers. We informed supervisors that the ratings would be confidential and that they would only be used for research purposes before we asked them to rate their followers on job performance. Furthermore, friendship network centrality and in-degree advice network centrality were measured with a round-robin design (Warner, Kenny, & Stoto, 1979). To acquire multisource data, coworker ratings were used for in-degree advice network centrality. Applying in-degree centrality is common in organizational research when measuring direct, asymmetric ties such as instrumental advice ties (Kilduff & Krackhardt, 1994). We used a combination of coworker and self-ratings to capture friendship network centrality, or, mutual liking. The concept of centrality has been operationalized and measured in several ways (Wasserman & Faust, 1994). In this study, we limit our research to *direct* connections among employees by examining the impact of *degree centrality* on job satisfaction and job performance. Resembling social exchange, the degree measure of centrality is a measure of activity and refers to the average connection of the employee with all other coworkers in the work team (Brass, 1984; Wasserman & Faust, 1994). Following Wasserman and Faust (1994), we generalized the notion of degree to valued directed graphs by averaging the values over all ties incident to an employee for advice network centrality and averaging the values over all ties incident to and from an employee for friendship network centrality. Such a measure reflects the average value of the ties to and from the employee (Wasserman & Faust, 1994, p. 142). The use of single-item measures for network centrality is acceptable and usual in network studies because answering multiple questions per measure about all other coworkers in the workgroup would be extremely demanding (e.g., Marsden, 1990; Venkataramani, Green, & Schleicher, 2010). We applied the roster method to measure network centrality because this has been shown to improve the reliability of network data (Marsden, 1990). Respondents were therefore provided with a roster, which is a list containing the names of each coworker in their own unit. As a third source, employees provided self-reports of extraversion, emotional stability, and job satisfaction. Thus, data were provided from three carefully selected sources (i.e., supervisors, coworkers, and individuals themselves), reducing common source concerns.

Friendship network centrality. Because the friendship network involves mutual liking among employees (Mehra et al., 2001), we measured friendship network centrality with a social network question that captures the degree of liking. Based on the measure of expressive ties of Umphress et al. (2003), we asked the participants to rate each of their coworkers on the item "How do you generally feel about this coworker?" The scale ranged from 1 (*dislike a lot*) to 7 (*like a lot*). To calculate mutual liking, for each dyad in which the employee was involved, we first averaged the employee's score indicating the extent to which he or she liked his or her coworker, and the coworker's score indicating the extent to which that coworker liked that particular employee. Next, we aggregated these dyadic scores to the individual level by averaging the mutual liking scores of the dyads in which an employee was involved to indicate the employee's friendship network centrality.

In-degree advice network centrality. Based on the measure of the advice network of Ibarra (1993a), respondents were asked to rate each of their coworkers on the item "To what extent is *X* an important source of professional advice, whom do you approach if you have a work-related problem, or when you want advice on a decision you have to make?" The scale ranged from 1 (*not at all*) to 7 (*to a great extent*). To calculate in-degree advice network centrality, for each employee, scores were averaged from coworkers regarding the extent to which they approach the employee for professional advice.

Extraversion. We used all six items from the extraversion subscale of the shortened version of the Five-Factor Personality Inventory (FFPI; Hendriks, Hofstee, & De Raad, 1999), for which each subscale contains the six highest loading items from its corresponding FFPI factor. The subscale for extraversion includes items such as 'loves to chat' on the positive pole and 'keeps apart from others' on the negative pole. The scale ranged from 1 (*not at all applicable*) to 5 (*entirely applicable*). Cronbach's alpha for this subscale was .65, which was in line with earlier studies (e.g., Bakker, Van Oudenhoven, & Van der Zee, 2004).

Emotional stability. We measured emotional stability with all six items of the emotional stability subscale of the shortened version of the FFPI. This subscale contains items such as 'is always in the same mood' on the positive pole and 'gets overwhelmed by emotions' on the

negative pole. The scale ranged from 1 (*not at all applicable*) to 5 (*entirely applicable*). Cronbach's alpha for these six items was .79.

Job satisfaction. Job satisfaction was measured with the six items derived from Agho, Price, and Mueller's (1992) global measure of job satisfaction. A sample item is "I find real enjoyment in my job." Responses were given on a seven-point scale ranging from 1 (*completely disagree*) to 7 (*completely agree*). Cronbach's alpha for these six items was .88.

Job performance. Molleman and Van der Vegt (2007) developed a scale to measure nurses' overall performance. They distinguished six criteria that define a high-standard of nursing performance, which are 'dedication', 'communication', 'self-reliance', 'demonstrating accountability', 'administrative work', and 'planning of work'. In close cooperation and after extensive discussion with the expert group, based on these six criteria, 10 items were carefully chosen to measure job performance. Appendix A provides the items for this construct. For every follower, we then asked the supervisor to indicate how satisfied he or she was with the follower's performance with respect to the 10 items on a five-point scale ranging from 1 (*very dissatisfied*) to 5 (*very satisfied*). Cronbach's alpha for the 10 items was .83.

Control variables. Following Becker's (2005) recommendations with respect to whether demographics should be controlled for, we assessed the correlation between demographics (i.e., age, gender, and organizational tenure) and the dependent variables, job satisfaction and job performance. Demographics were not significantly correlated with job satisfaction. We therefore did not include them in the analyses that predicted job satisfaction. Age (in years) and organizational tenure (in years) correlated significantly with job performance, and we therefore included these variables as covariates in our analyses predicting job performance to rule out alternative explanations for the relationship between personality and in-degree advice centrality, on the one hand, and job performance, on the other. Furthermore, because researchers have suggested that both advice and friendship networks be included in analyses (Zagenczyk & Murrell, 2009), we also assessed the correlation between in-degree advice network centrality and job satisfaction and between friendship network centrality and job performance. As these correlations were not significant, in-degree advice network centrality

was not included in analyses predicting job satisfaction, and friendship network centrality was not included in analyses predicting job performance.

Data analyses

Given that the individual-level data are nested within units, it is possible that the responses are not independent. To verify this, we computed a one-way analysis of the dependent variables' variance with unit as the independent variable to test this possibility. For job satisfaction, the results of a one-way analysis based on the units ($F[16, 297] = 3.09$, $p < .001$) were significant, indicating that the nested structure might influence the results. In addition, an empty model was fitted to calculate the intraclass correlation (ICC1). The ICC1 value of .09 informs us a significant proportion of the total variance was accounted for by the units. For job performance, the results based on the units ($F[16, 390] = 8.19$, $p < .001$; ICC1 = .21) were also significant. Consequently, we tested all interaction models using multilevel analyses. The number of hospitals (four) is so low that multilevel analyses including random effects for hospitals would be rather meaningless (Raudenbush & Bryk, 2002; Snijders & Bosker, 1999).

RESULTS

Descriptive statistics

Means, standard deviations, and correlations between the variables are presented in Table 3.1. The correlations between friendship network centrality and job satisfaction ($r = .31$, $p < .001$) and between in-degree advice network centrality and job performance ($r = .30$, $p < .001$) are, as expected, significant and positive. The correlations between friendship network centrality and job performance and between in-degree advice network centrality and job satisfaction, however, are not significant. Furthermore, both personality traits are significantly and positively related to friendship network centrality (emotional stability $r = .15$, $p < .01$; extraversion $r = .23$, $p < .001$), however, only emotional stability correlates significantly with in-degree advice network centrality ($r = .13$, $p < .05$). Additionally, both traits are significantly and positively correlated with job satisfaction (emotional stability $r = .19$, $p < .01$; extraversion $r = .19$, $p < .01$); however, they do not correlate significantly with job performance.

Table 3.1

Descriptive statistics and Pearson zero-order correlations among the study variables

| Variables	*M*	*SD*	1	2	3	4	5	6	7	8
1 Age	38.58	10.90								
2 Gender (1 = female; 0 = male)	0.93	0.26	-.07							
3 Organizational tenure	13.23	10.80	.72***	-.01						
4 Friendship network centrality	5.46	0.50	-.08	.04	-.03					
5 In-degree advice network centrality	4.28	0.78	.15**	.03	.22***	.33***				
6 Emotional stability	3.66	0.66	.10	-.08	.06	.15**	.13*			
7 Extraversion	3.92	0.51	-.18**	.16**	-.18**	.23***	.05	.30***		
8 Job satisfaction	5.07	1.14	.10	.00	.03	.31***	.08	.19**	.19**	
9 Job performance	3.72	0.45	.15**	-.01	.12*	.11	.30***	.09	-.02	.13*

* p < .05; ** p < .01; *** p < .001.

Job satisfaction

To test Hypothesis 1, we regressed job satisfaction on the independent variables in three steps. In the first model, we included the main effects of friendship network centrality, emotional stability, and extraversion (see Table 3.2, model 1). In the second model, we added the two-way interactions of friendship network centrality by emotional stability, friendship network centrality by extraversion, and emotional stability by extraversion. In the third model, we added the three-way interaction between friendship network centrality, emotional stability, and extraversion.

The results show a significant three-way interaction between friendship network centrality, emotional stability, and extraversion on individual job satisfaction (B = .12, p < .05). To test whether the form of this three-way interaction corresponds with the hypothesized pattern, we plotted the interaction in Figure 3.1. We hypothesized that extraversion and emotional stability would act as a moderator of the relationship between friendship network centrality and individual job satisfaction in such a way that, when employees score high on extraversion, this relationship would be stronger among employees high in emotional stability than among those low in emotional stability, while for employees scoring low on extraversion, this relationship would be stronger among employees low in emotional stability than among those high in emotional stability. Figure 3.1a shows a significant positive relationship between friendship network centrality and job satisfaction for employees scoring low on emotional stability and low on extraversion (simple slope: B = .43, p < .001), whereas there was no significant relationship between friendship network centrality and job satisfaction for employees scoring high on emotional stability and low on extraversion (simple slope: B = .17, p = ns). Furthermore, Figure 3.1b shows a significant positive relationship between friendship network centrality and job satisfaction for employees scoring high on emotional stability and high on extraversion (simple slope: B = .34, p < .01), whereas there is no significant relationship between friendship network centrality and job satisfaction for employees scoring low on emotional stability and high on extraversion (simple slope: B = .12, p = ns). These findings are in line with our expectations, supporting Hypothesis 1.

3.1a Extraversion low
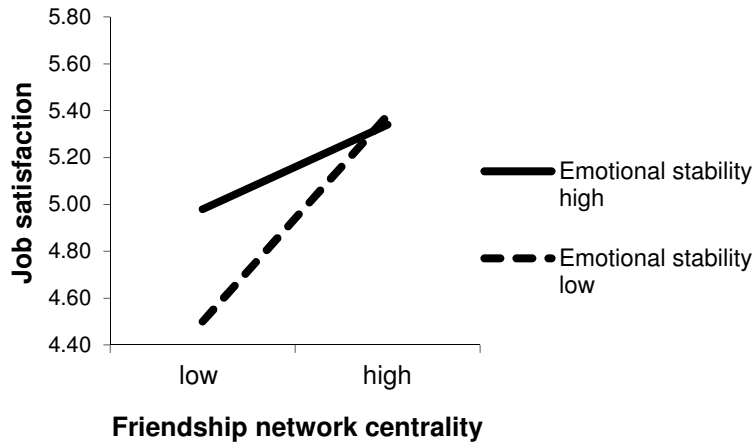
3.1b Extraversion high

Figure 3.1 Three-way interaction friendship network centrality, emotional stability, and
extraversion on job satisfaction

Table 3.2

Results of multilevel analyses for job satisfaction (Hypothesis 1) [a]

Variables	Job Satisfaction					
	Model 1		Model 2		Model 3	
	B	SE	B	SE	B	SE
Intercept	5.11	(0.10)	5.14	(0.10)	5.12	(0.10)
Friendship network centrality (FNC)	0.30***	(0.07)	0.30***	(0.07)	0.27***	(0.07)
Emotional stability (ES)	0.14*	(0.06)	0.13*	(0.06)	0.10	(0.06)
Extraversion (EX)	0.10	(0.06)	0.09	(0.07)	0.07	(0.07)
FNC × ES			-0.03	(0.06)	-0.01	(0.06)
FNC × EX			-0.02	(0.06)	-0.04	(0.05)
ES × EX			-0.06	(0.05)	-0.01	(0.06)
FNC × ES × EX					0.12*	(0.05)
Deviance statistic (-2 log likelihood)	872.98		870.57		864.54	
Change in deviance statistic			2.41	df=3	6.03*	df=1

[a] n = 299 employees. Non-standardized regression coefficients are reported. FNC = friendship network centrality; ES = emotional stability; EX = extraversion.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Job performance

To test Hypothesis 2, we regressed job performance on the independent variables in four steps. In the first model, we included the control variables age and organizational tenure (see Table 3.3, model 1). In the second step, we included the main effects of in-degree advice network centrality, emotional stability, and extraversion. In the third model, we added the two-way interactions of in-degree advice network centrality by emotional stability, in-degree advice network centrality by extraversion, and emotional stability by extraversion. In the fourth model, we added the three-way interaction between in-degree advice network centrality, emotional stability, and extraversion.

The results show a significant three-way interaction between in-degree advice network centrality, emotional stability, and extraversion on individual job performance ($B = .04$, p < .05). To test whether the form of this three-way interaction corresponds with the hypothesized pattern, we plotted the interaction in Figure 3.2. We hypothesized that emotional stability and extraversion would act as a moderator of the relationship between in-degree advice network centrality and individual job performance in such a way that, when employees score low on extraversion, this relationship would be stronger among employees low in emotional stability than among those high in emotional stability, whereas for employees scoring high on extraversion, this relationship would be stronger among employees high in emotional stability than among those low in emotional stability. Figure 3.2a shows a significant positive relationship between in-degree advice network centrality and job performance for employees scoring low on emotional stability and low on extraversion (simple slope: $B = .20$, $p < .001$), whereas there was a weaker significant positive relationship between in-degree advice network centrality and job performance for employees scoring high on emotional stability and low on extraversion (simple slope: $B = .11$, $p < .05$). The slope for high emotional stability and low extraversion is still significant because there is a strong positive main effect of in-degree advice network centrality. Furthermore, Figure 3.2b shows a significant positive relationship between in-degree advice network centrality and job performance for employees scoring high on extraversion and high on emotional stability (simple slope: $B = .17$, $p < .001$), whereas there is no significant relationship between in-degree advice network centrality and job performance

for employees scoring low on emotional stability and high on extraversion (simple slope: *B* = .09, *p* = ns). These findings are in line with our expectations, supporting Hypothesis 2.
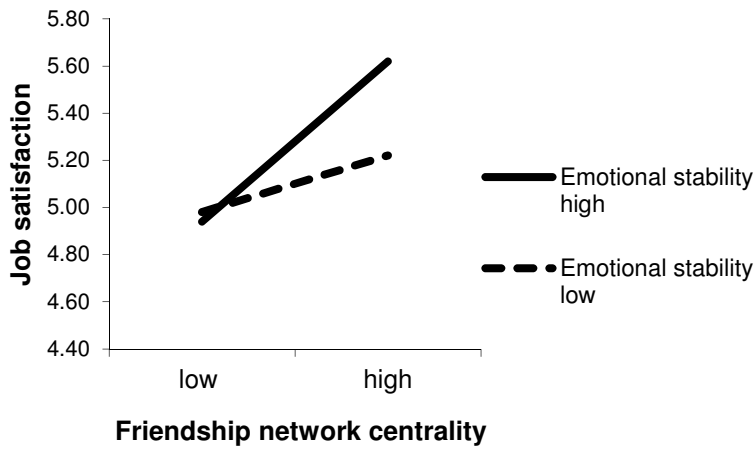
3.2a Extraversion low

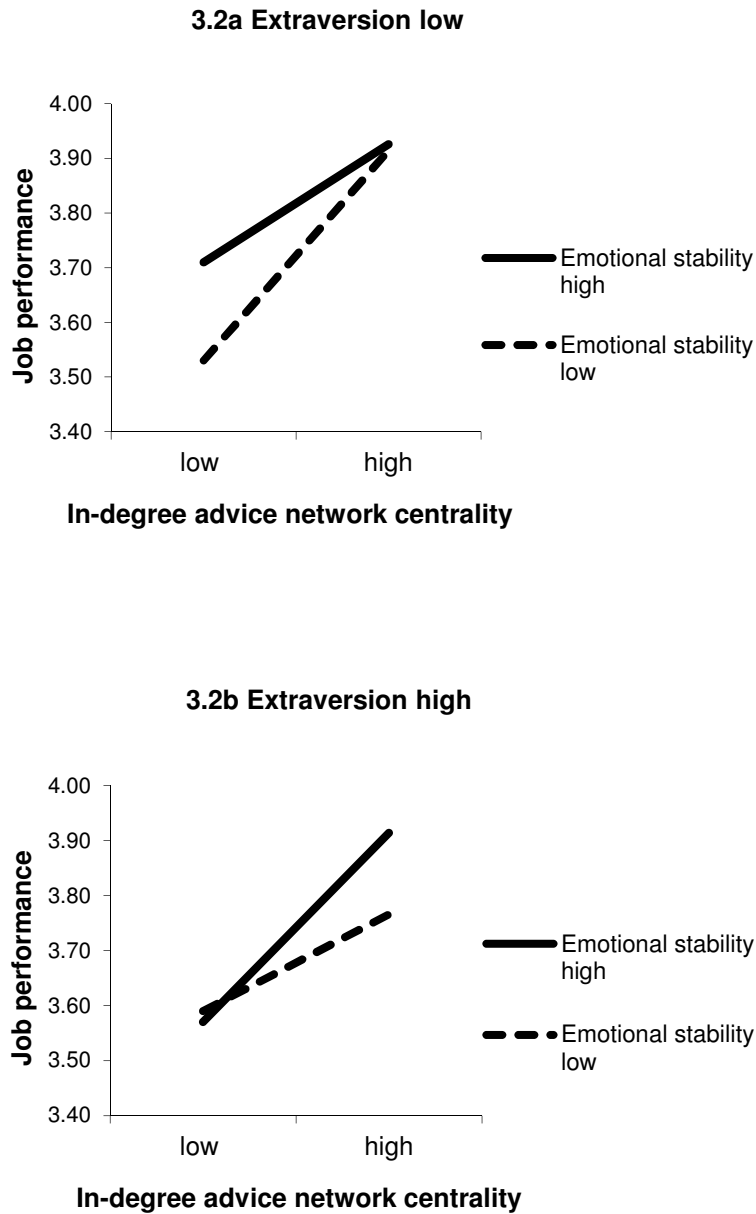**3.2b Extraversion high**

Figure 3.2 Three-way interaction in-degree advice network centrality, emotional stability, and extraversion on job performance

Table 3.3

Results of multilevel analyses for job performance (Hypothesis 2) [a]

	Job performance							
	Model 1		**Model 2**		**Model 3**		**Model 4**	
Variables	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	3.77	(0.05)	3.74	(0.05)	3.74	(0.05)	3.74	(0.05)
Age	0.07*	(0.03)	0.08*	(0.03)	0.08*	(0.03)	0.08*	(0.03)
Organizational tenure	0.01	(0.03)	-0.03	(0.03)	-0.03	(0.03)	-0.04	(0.03)
In-degree advice network centrality (ANC)			0.15***	(0.03)	0.15***	(0.03)	0.14***	(0.03)
Emotional stability (ES)			0.04	(0.02)	0.04	(0.02)	0.04	(0.02)
Extraversion (EX)			-0.02	(0.02)	-0.02	(0.02)	-0.03	(0.02)
ANC × ES					-0.01	(0.03)	0.00	(0.03)
ANC × EX					-0.02	(0.02)	-0.01	(0.02)
ES × EX					0.00	(0.02)	-0.01	(0.02)
ANC × ES × EX							0.04*	(0.02)
Deviance statistic (-2 log likelihood)	321.86		283.12		282.03		277.85	
Change in deviance statistic			38.75***	df=3	1.09	df=3	4.18*	df=1

[a] *n* = 293 employees. Non-standardized regression coefficients are reported. ANC = in-degree advice network centrality; ES = emotional stability; EX = extraversion.

* p < .05; ** p < .01; *** p < .001.

DISCUSSION

To our knowledge, this is the first study that examines the conditional effect of interactions among personality traits on the relationship between network structure and individual outcomes. We aimed to broaden our understanding of the combined effects of network structure and individual attributes, and regarding the latter, more specifically, of the effect of specific personality trait combinations. We have built on previous research and extended the literature by examining the moderating influence of a particular personality traits combination on the association between network centrality, on the one hand, and job satisfaction and job performance, on the other. Furthermore, we distinguished between employees' centrality in the expressive friendship network and the instrumental advice network, because these two different types of ties were expected to influence different individual outcomes depending on the more affective or cognitive content of the individual outcome.

Our results showed that although degree centrality in the friendship network and in-degree centrality in the advice network provided the structural opportunity for, respectively, higher job satisfaction and higher supervisor ratings of job performance, the particular combination of an employee's level of emotional stability and extraversion affected the extent to which the employee benefitted from network centrality. The effect of the interactions between network centrality and the personality traits combination on the two individual outcomes of job satisfaction and job performance indicated a similar pattern. In principle, employees may not fully benefit from network centrality when they are high on extraversion but low on emotional stability or when they are low on extraversion but high on emotional stability.

Consistent with our expectations for Hypothesis 1, for hearty, buoyant, carefree, and easygoing highly emotionally stable extraverts, friendship network centrality was associated with higher job satisfaction. However, for volatile, impulsive, changeable, meddlesome, and restless low emotionally stable extraverts, friendship network centrality was not significantly associated with job satisfaction. On the other hand, for shy, weak, self-critical, insecure, self-pitying, fearful, and envious low emotionally stable introverts, friendship network centrality

was associated with higher job satisfaction, whereas for unexcitable and placid highly emotionally stable introverts, friendship network centrality was not significantly associated with job satisfaction. Apparently, the boosting effect of extraversion on the positive relationship between friendship network centrality and job satisfaction is cancelled out by the diminishing effect of low emotional stability. On the other hand, introverts benefit more from being central in the friendship network when they are low on emotional stability because the social support derived from centrality in the friendship network may strengthen their low self-esteem.

Similarly, and consistent with our expectations for Hypothesis 2, for carefree, easygoing, indefatigable, uninhibited, and vigorous highly emotionally stable extraverts, in-degree advice network centrality was associated with higher supervisor ratings of job performance. However, for talkative, wordy, flirtatious, explosive, volatile, and meddlesome low emotionally stable extraverts, in-degree advice network centrality was not significantly associated with higher supervisor ratings of job performance. On the other hand, for fidgety, inhibited, shy, and guarded low emotionally stable introverts, in-degree advice network centrality was significantly associated with higher supervisor ratings of job performance, while for calm, peaceful, unassuming, tranquil, and quiet highly emotionally stable introverts, in-degree advice network centrality was less significantly associated with higher supervisor ratings of job performance. The boosting effect of extraversion on the positive association between in-degree advice network centrality and supervisor ratings of job performance, caused by the tendency of extraverts to strive for status, seems to be cancelled out by the diminishing effect of low emotional stability. On the other hand, being an introvert has the advantage of facilitating efficient delivery of advice that contributes to group performance without distracting from work tasks. However, the results show that low emotionally stable introverts especially, when compared to highly emotionally stable introverts, benefit from high in-degree advice network centrality by receiving higher job performance ratings. This is most likely because the unassuming and quiet emotionally stable introverts' in-degree advice centrality is almost unnoticeable for supervisors.

These interaction effects suggest that an employee's position in the social network and an employee's personality traits combine interactively in predicting employee job satisfaction and supervisor ratings of job performance.

Theoretical contributions

Our findings make several important contributions that relate to theory about social networks, job satisfaction, job performance, and personality. First, we were able to provide an explanation for the mixed field results that have been found in prior research regarding the relationship between network centrality and job satisfaction (Brass et al. 2004) by including personality as a potential moderator in the research model. Depending on the specific combination of extraversion and emotional stability, we found a significant positive relationship between friendship network centrality and job satisfaction or no significant relationship at all. More specifically, there was only a significant positive relationship for highly emotionally stable extraverts and low emotionally stable introverts. For low emotionally stable extraverts and highly emotionally stable introverts, friendship network centrality does not seem to affect job satisfaction. Variations in results regarding the relationship between network centrality and job satisfaction might therefore be explained by an employee's personality.

Second, we have provided further empirical evidence for the almost unexamined link between network centrality and job performance. Similar to earlier findings (e.g., Sparrowe et al., 2001), this study showed that in-degree advice network centrality has a significant positive effect on job performance. However, this only applied to highly emotionally stable extraverts and low emotionally stable introverts and, to a lesser extent, highly emotionally stable introverts. We found no significant relationship for low emotionally stable extraverts. In sum, our findings provide evidence that personality serves as a moderator of network effects (e.g., Brass et al., 2004; Burt, 2000).

Additionally, this study linked individualist and structuralist perspectives (e.g., Kilduff & Tsai, 2003) and has contributed to the still limited evidence for the interactional effect between individual characteristics and social network position (e.g., Zhou et al., 2009). Investigating the contingent value of personality provides one approach to incorporating individual attributes

into social network studies and has delivered an answer to the research question "Do individuals with different personalities respond differently to network positions?" (Shalley et al., 2004, p. 949). Explicitly, the results show that the interactive blend of extraversion and emotional stability determines to what extent an advantageous network position is exploited by an employee. Moreover, while a number of studies already have provided empirical evidence that the interaction among personality traits accounts for significant incremental variance in important individual work outcomes (Penney et al., 2011), this study indicates that the interaction among personality traits also conditionally influences the link between social network position and individual work outcomes.

Finally, our results confirm the importance of distinguishing network types based on tie content (e.g., Gibbons, 2004) when linking them with different network consequences (e.g., Umphress et al., 2003). The results indicate that affect-based social ties (i.e., friendship network ties) are positively associated with job satisfaction, the more affect-based individual outcome, and that cognitive-based social ties (i.e., advice network ties) are positively associated with job performance, the more cognitive-based individual outcome, albeit only for highly emotionally stable extraverts and low emotionally stable introverts, and to a lesser extent, incoming advice ties are also positively associated with job performance for highly emotionally stable introverts[4].

Practical implications

Aside from the theoretical contributions of this study, we also believe that this study provides insights that will be valuable to management practitioners, especially in work settings where employee personality traits are assessed. The results of this study can be used as input for selection processes because they suggest that organizations may be better able to predict an employee's capability to benefit from degree centrality in social networks when personality is considered as an interaction of traits. Selection processes could help to trace and reject job applicants who are extraverted but also low in emotional stability or introverted but also high in

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[4] We also explored the three-way interactions between the two personality traits and friendship network centrality with performance being the dependent variable and between the two personality traits and in-degree advice network centrality with job satisfaction being the dependent variable. Both were not significant.

emotional stability to ensure that selected employees will be able to fully benefit from centrality in social networks, resulting in higher job satisfaction and job performance. However, it is important to determine whether the job actually requires social interaction to ensure a match between job requirements and the applicant's qualifications, that is, person-job fit (Sekiguchi & Huber, 2011). For jobs in which social interaction is less of a requirement such as mailman, dentist, or gardener, there seems to be no objection to selecting emotionally stable introverts.

The results indicate that emotionally stable extraverts and emotionally unstable introverts benefit the most from being central in a network. Thus, if network centrality is an important issue, it seems preferable to select candidates with such a profile and to reject, for example, job applicants who are extraverted but also low in emotional stability. However, past research has shown that the functioning of those low in emotional stability is problematic because neuroticism has, for example, been found to strongly negatively correlate with work motivation (Judge & Ilies, 2002) and with greater amounts of perceived stress (Judge, Klinger, Simon, & Yang, 2008). With respect to jobs in which social interaction is required such as consultant, supervisor, or politician, organizations should therefore preferably select emotionally stable extraverts rather than low emotionally stable introverts.

Additionally, because the results of this study indicate that friendship network centrality and in-degree advice network centrality are associated with important individual work outcomes, managers should pay attention to the influence of informal networks in organizations (Zagenczyk & Murrell, 2009). Similar to the suggestions offered by Feeley, Hwang, and Barnett (2008), managers can become more active in observing the friendship and advice network and pay special attention to socially isolated individuals. Increasing friendship network and in-degree advice network centrality is especially desirable for socially isolated individuals who are emotionally stable extraverts or emotionally unstable introverts, because these employees benefit most from more central positions in the social network. Employees themselves can try to become more central in social networks by intentionally accepting responsibility, because that brings them into contact with many others, including individuals in positions of authority (Goodwin et al., 2009). Managers can play a central role in giving the right

employees interaction opportunities by organizing events that relate to interactions such as meetings, employee roundtables, and social events (Uhl-Bien, Graen, & Scandura, 2000). However, it is likely that emotionally stable extraverts are more sensitive to this type of 'social' intervention because extraverts enjoy developing relationships (Morrison, 2002), like attention (Klein et al., 2004), they thrive by interacting with others (Chiaburu et al., 2013), and enjoy being around others (Swickert et al., 2010). Strengthening the structural network position for emotionally unstable introverts is likely to be more difficult and therefore costly. Hence, and once more, an organization might prefer to select emotionally stable extraverts rather than emotionally unstable introverts.

Strengths, limitations and future directions

Caution is advised in drawing generalizations from this study because the sample is possibly only representative for hospitals and, specifically, for nurses. Future research should expand this line of research to other task environments and more heterogeneous samples to broaden the applicability of the findings.

The ratings of the personality traits and one of the dependent variables were provided by the same source. Specifically, each participant rated his or her own extraversion and emotional stability in addition to the dependent variable of job satisfaction. Although another individual's perception of employee attitudes is most likely not as good a measure as the employee's own perception (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), there is the possibility with this type of data that the observed effects are influenced by common source variance. The use of self-reporting can increase covariation among the variables by a process known as percept-percept inflation (Crampton & Wagner, 1994; Spector, 1987). However, our network measures and our measure of job performance constitute a stronger measure than self-reported data, which may suffer from single-source bias. All hypotheses involved employee network centrality and were tested using coworker ratings or a combination of coworker and self-ratings, precluding the possibility of common source bias.

A weakness of this study is that we used a cross-sectional design, which restricts our ability to draw firm conclusions concerning the direction of causality between the constructs.

Although the findings are consistent with our theoretical reasoning and the impact of network centrality on individual job performance is established in earlier research, the actual causality might deviate from our hypotheses. For future research, we recommend a stronger design, such as a longitudinal design. Conducting a field study with a longitudinal design, such as a cross-lagged panel design using the same constructs, would enable more definitive conclusions on causality to be drawn.

Another possible limitation of this study is our use of a single-item measure for friendship network centrality and advice network centrality. However, we employed a round-robin design that results in multiple measurements because every team member rates and is rated by every other team member, thus reducing error (Denissen, Geenen, Selfhout, & Van Aken, 2008; Kenny, 1994). Furthermore, we framed the items for friendship network centrality and advice network centrality as close as possible to the definition of the underlying theoretical construct. We therefore have confidence in the validity and reliability of the measures for network centrality, and we believe that our conclusions are not invalidated by our use of a single-item measure. Nevertheless, we recommend that future research use a multi-item measure for network centrality, if feasible.

This study examined the impact of degree centrality on job satisfaction and job performance, representing one of the ways in which the concept of centrality has been operationalized and measured. Degree centrality is based solely on direct connections. It would be interesting for future research to study the role of other measures of centrality such as closeness or betweenness measures of centrality, which also account for indirect and mediating connections (see e.g., Brass & Burkhardt, 1992). However, our use of in-degree centrality for the instrumental advice network has the advantage of preserving the distinction between outgoing and incoming ties, whereas this is not possible for other centrality measures. Preserving the distinction between outgoing and incoming ties is especially important for relations that might be asymmetrical, such as the instrumental advice network compared to the expressive friendship network (Ibarra & Andrews, 1993).

Following the suggestion of Penney et al. (2011), there is potential value in considering a third personality trait in examining the impact of trait interactions, because it will even more

precisely predict how employees respond to advantageous network positions. Furthermore, the conditional influence of other personality trait combinations on the effect of network position could be investigated, examining other individual work outcomes as well, such as organizational commitment.

In the current study, we applied a social capital perspective by examining the impact of employee network centrality on individual outcomes. Hereby, we matched specific types of network ties with different individual outcomes, that is, we examined the link between expressive network centrality and job satisfaction and the link between instrumental network centrality and job performance. We suggest that future research should also investigate the possibility that these two types of ties intertwine in influencing individual outcomes, because one type of tie may alter the effects of another type of tie (Ibarra, 1993b). Furthermore, although the results of the current study show that expressive network centrality is primarily related to job satisfaction but not directly to job performance, it could be interesting to examine its indirect effect on job performance in future research, such as a conditional effect. This is in line with the call to pay more attention in social network research to expressive dimensions of relationships in models of performance (Cross & Cummings, 2004). For example, the conditional effect of expressive network centrality on the link between exchange relationships and job performance could be worthwhile to investigate.

Conclusion

We suggest that individuals differ in the extent to which they benefit from advantageous social network positions depending on their specific personality. The magnitude and existence of the positive effect of friendship network centrality on job satisfaction and in-degree advice network centrality on supervisor ratings of job performance may crucially depend on an employee's personality and, more precisely, on the specific interactional combination between emotional stability and extraversion. Consequently, we hope that this study will encourage organizations and researchers to pay greater attention to the way that social network position and interactions between personality traits combine in influencing employee work outcomes.

CHAPTER 4

The impact of leader-member exchange on follower performance in light of the larger social network

INTRODUCTION

Based on social exchange theory, leader-member exchange (LMX) theory originally focused solely on the dyadic exchange relationship between the leader and follower (i.e., the vertical dyad linkage, Dansereau, Graen, & Haga, 1975). The central premise of LMX theory is that leaders form relationships of varying quality with their various followers (e.g., Graen & Uhl-Bien, 1995). Although LMX explains the association between leadership processes and outcomes (Gerstner & Day, 1997; Ilies, Nahrgang, & Morgeson, 2007), prior research found inconsistent results, such as heterogeneous effect sizes, with regard to the relationship between LMX and individual level outcomes (e.g., Gerstner & Day, 1997). Therefore, there have been recent calls in the literature to adequately examine contextual moderators to gain an understanding of the mechanisms that cause the variation in results (Tangirala, Green, & Ramanujam, 2007).

The purpose of this research is to study contextual factors beyond the dyadic LMX relationship to obtain better understanding of the variation in and inconsistency of results regarding the relationship between LMX and these outcomes. We respond to several calls in recent literature to consider the importance of context in leadership research (e.g., Liden & Antonakis, 2009) by paying more attention to moderators (e.g., Graen & Uhl-Bien, 1995; Liden, Sparrowe, & Wayne, 1997; Uhl-Bien, Graen, & Scandura, 2000) and examining LMX and its outcomes in the perspective of the larger social networks in which followers are embedded, as recent research implicates that new avenues are opened up for incorporating the 'social' context in which social exchange relationships are embedded (Takeuchi, Yun, & Wong, 2011). Herewith, we acknowledge the fact that the leader-member dyad exists together with other formal and informal organizational relationships in which followers are involved and that LMX should not be studied in isolation (Liden et al., 1997; Venkataramani, Green, & Schleicher, 2010). This is also in line with the notion that social networks may affect leadership

effectiveness (Brass, Galaskiewicz, Greve, & Tsai, 2004). The few studies combining LMX and social networks that have been conducted have focused on the moderating role of the supervisor's network (e.g., Sparrowe & Liden, 2005), the moderating role of the follower's network in the relationship between antecedents and LMX (e.g., Venkataramani et al., 2010), or the social network as an antecedent of LMX (Goodwin, Bowler, & Whittington, 2009). In the current study, we focus on the moderating influence of the follower's network on the relationship between LMX and an individual outcome, job performance, for two specific reasons. First, we aim to expand the model framework of Goodwin et al. (2009), and respond to their call for future research to provide an understanding of how network centrality relates to individual outcomes associated with LMX quality in previous studies, such as job performance. Because network research and LMX theory both consider the dyadic relationship as the basic unit of analysis (Ferris et al., 2009; Venkataramani et al., 2010) and are both partly based on exchange- or resource-based theories (Sparrowe & Liden, 1997, 2005), it follows that network research is a relevant approach to study how various dyads may be interrelated. Second, according to Graen (1976), the relationship employees have with supervisors and with coworkers are two key social relationships at work. There is evidence that employees exchange different types of resources with supervisors and coworkers (Morrison, 1993). However, there are some untested ideas in the literature about whether exchange relationships with supervisors and peers compensate each other or not (see e.g., Cole, Schaninger, & Harris, 2002; Settoon, Bennett, & Liden, 1996), suggesting the need to provide empirical evidence on the interaction between exchange relationships with supervisors and with peers.

When applying network research, Liden et al. (1997) proposed to investigate several *types* of exchange in network analyses to better capture the nature of exchange relationships. Consequently, we focus on two commonly distinguished types of employee social ties in the peers-network: *instrumental* ties and *expressive* ties (Umphress, Labianca, Brass, Kass, & Scholten, 2003), also referred to as the more formal *workflow* network and the more informal *friendship* network (Mehra, Kilduff, & Brass, 2001). The workflow network encompasses formally specified interdependencies between employees who must interact to complete their task (Ibarra, 1993b; Mehra et al., 2001) whereas the friendship network derives "from mutual

liking, similarity of attitudes, or personal choice" (Mehra et al., 2001, p. 130). We investigate the moderating role of friendship network centrality and workflow network centrality on the relationship between LMX and job performance, a frequently studied outcome of LMX (Cogliser, Schriesheim, Scandura, & Gardner, 2009) for which the effect sizes of the relationship with LMX quality have been heterogeneous (e.g., Gerstner & Day, 1997; Ozer, 2008).

By investigating the moderating role of workflow network centrality and friendship network centrality on the relationship between LMX and job performance, this study contributes to the existing literature in four ways. First, studying the collective impact of the two types of exchange relationships, that is, LMX and exchanges within the peers-network, enhances our understanding of the intertwinement of several types of social exchange in the organization that influence individual work outcomes. Second, this study aims to add to the small number of LMX studies investigating the impact of context, and more specifically the impact of broader social networks in which followers are involved. To our knowledge, no study has been conducted on the moderating role of followers' network centrality on the relationship between LMX and follower outcomes. Third, by focusing on followers' job performance as a consequence of LMX quality together with potential moderating variables, we are able to shed more light on the causes of the variation in results that has been found in earlier research on the association between LMX and follower job performance. Finally, the current study contributes to the literature on social networks by investigating the moderating impact of two distinct network ties and showing their combined impact on the association between LMX and follower job performance.

THEORY AND HYPOTHESES

Leader-member exchange and social networks

In their study about the evolutionary stages of LMX theory development, Graen and Uhl-Bien (1995) identified the most recent stage as one in which LMX is viewed as systems of interdependent dyadic relationships that together form network assemblies. An example of a study incorporating the network context in LMX research is the study by Sparrowe and Liden (2005) that showed the moderating impact of the supervisors' network centrality on the

relationship between LMX and followers' influence. Followers who had high-quality exchange relationships with leaders who are central in the advice-network gained more influence. Furthermore, Venkataramani and colleagues (2010) found evidence for the moderating role of followers' centrality on the relationship between leaders' status and LMX. For followers who were less central in their own peer networks, the relationship between leaders' perceived status and LMX was stronger. Additionally, Goodwin et al. (2009) investigated supervisor and follower network centrality as an antecedent of LMX and as a moderator of the relationship between several antecedents and LMX-quality. They found that supervisor advice centrality moderated the relationship between interaction frequency and follower-rated LMX in such a way that at high levels of supervisor advice centrality the relationship became more negative, while at low levels of supervisor advice centrality the relationship became more positive. Thus, LMX has been studied in the larger social network, but we do not know of a study on the moderating role of followers' network centrality on the relationship between LMX and follower outcomes.

Focusing more generally on social exchange, Cook and Whitmeyer (1992) suggest that exchange theory and network analysis are two compatible approaches, and that combining them has the potential to be broader in scope and more powerful in explanatory terms than either approach alone. Previous research has generated ideas about the relatedness among several employee exchange relationships that have yet to be tested. By combining past research on social exchange with the results of their study, Settoon et al. (1996) suggest that employees need multiple exchange relationships and exchange different forms of resources and support within each exchange relationship. Cole et al. (2002) responded to calls for a more integrated approach and exploration of the diverse exchange relationships that exist within an organization by proposing several implications of integrating the different exchanges that employees have with their supervisor, work team, and organization. They expected these three social exchange domains to relate in a compensatory manner in situations in which one or more of the individual's exchange relationships are poor or completely lacking. Therefore, one of our key goals is to empirically assess how the combination of exchange relationships with leaders and with peers affects follower job performance, or, in other words, whether the impact of

LMX quality on follower job performance differs for employees depending on their exchange relationships within the peers-network. Cole et al. (2002) noted that it has not been explored whether the nature of the interactions between peers moderates the quality of exchange relationships, such as LMX, and follower outcomes. Thus, empirical research in which follower exchanges with coworkers moderate the relationship between LMX and follower outcomes is needed to provide insights into the combined effect of these different exchange relationships.

In recent LMX research, there is emergent interest in the context in which the leader-member dyad is embedded (Liden et al., 1997). For example, Takeuchi, Yun, and Wong (2011) examined coworker exchange ideology (i.e., the strength of a coworker's belief that work effort should depend on treatment by the organization) as a moderator of the LMX-task performance link. The results of their study show that strong coworker exchange ideology weakened the positive relationship between leader-member exchange and task performance. Furthermore, work group integration (i.e., the quality of relationships that an individual has with his or her peers considered as a whole), a construct akin to network centrality, has been found to have a moderating influence on the link between LMX and psychological health (see Rousseau, Aubé, Chiocchio, Boudrias, & Morin, 2008). The effect of LMX on psychological health was stronger when work group integration was high. Another seemingly related construct to network centrality, that touches upon resource availability, is job embeddedness (i.e., an organizational attachment construct that can be described as a web in which employees can become stuck, consequently binding employees to the job and to the organization; Mitchell, Holtom, Lee, Sablynski, & Erez, 2001). Arguing that on-the-job embeddedness implies the provision of additional resources, Sekiguchi, Burton, and Sablynski (2008) hypothesized that on-the-job embeddedness would moderate the positive relationship between LMX and task performance in such a way that the relationship would be stronger for higher than lower job embeddedness. However, they found a non-significant moderating effect of on-the-job embeddedness. The authors mention that the measure for on-the-job embeddedness is still preliminary and evolving, and is a composite measure of three subdimensions: links, fit, and sacrifice. Sekiguchi et al. (2008) therefore suggest that separating job embeddedness based on these dimensions might lead to meaningful research results. Closely resembling the subdimension 'links' of on-

the-job embeddedness, we focus on the centrality of followers in the peers-network, and the availability of resources inherent to a central position in the peers-network. Notwithstanding the important theoretical contribution of the abovementioned studies, as we will argue in more detail below, we suggest that the main motivation for LMX leading to performance is reciprocation, but that this motivation will only result in higher job performance if followers have access to or control over relevant resources in their social network with coworkers. Focusing on another individual outcome of LMX quality than Rousseau et al. (2008), and on network centrality which is closely related to a specific aspect of on-the-job embeddedness, we examine the moderating role of network centrality in the relationship between LMX quality and individual job performance.

Workflow network centrality and friendship network centrality

A number of researchers have recognized the need to distinguish several network types, and similarly, different types of exchanges while investigating network structure to enable theorizing about the effects of those characteristics on processes (e.g., Gibbons, 2004; Liden et al., 1997). Network relationships between employees can be classified on the basis of their content (Balkundi & Harrison, 2006; Tichy, Tushman, & Fombrun, 1979). The content of the ties determines the primary resource exchanged (Ibarra, 1993b). Social network theory often distinguishes between two common types of ties: instrumental and expressive ties (e.g., Balkundi & Harrison, 2006; Ibarra, 1992; Ibarra & Andrews, 1993; Lamertz & Aquino, 2004; Umphress et al., 2003). Instrumental networks are also referred to as workflow networks, and expressive networks have also been labeled primary ties, and informal or friendship networks (Lincoln & Miller, 1979; Mehra et al., 2001). Regarding the relatedness between instrumental and expressive ties, Balkundi and Harrison (2006) state:

> Instrumental and expressive ties are not mutually exclusive, and there tends to be an overlap in the two types of connections (Borgatti & Foster, 2003). One type of tie might even lead to the other (Krackhardt & Stern, 1988), as work contexts provide the physical proximity and opportunity for interaction that are vital to friendship formation

(Festinger, Schachter, & Back, 1950). Still, the primary content of the two types of ties remains theoretically distinct; not all work colleagues are friends, and vice versa. (p. 51)

Thus, within work teams, we distinguish between two types of ties between employees, that is, instrumental and expressive ties. In this study, we will refer to these two types of ties as the workflow network and the friendship network.

The workflow network represents a highly restricted interaction network with ties arising among employees based on an employee's formal role and in the course of performing appointed work roles (Brass & Burkhardt, 1992; Lincoln & Miller, 1979; Podolny & Baron, 1997). Via workflow ties, job-related resources are exchanged, including information, material resources, expertise, or knowledge (Balkundi & Harrison, 2006; Ibarra, 1993b; Umphress et al., 2003). On the other hand, the friendship network involves ties that provide interpersonal affect and that are important sources of social support and values (Balkundi & Harrison, 2006; Lamertz & Aquino, 2004; Umphress et al., 2003). In contrast with the workflow network, the friendship network is less restricted to formal structures and work roles, because employees have more freedom in choosing their friends among their coworkers, and consequently represents more individual choice and initiative, reflecting interpersonal attraction and trust (Ibarra, 1993b; Mehra et al., 2001; Podolny & Baron, 1997). Friendship ties with coworkers serve social-emotional rather than instrumental goals, but may serve instrumental purposes as well (Boyd & Taylor, 1998). Friendship ties with coworkers may be instrumental in obtaining other relevant resources, such as information or rewards (Brass, 1984) and as such, friendship networks are also systems for making decisions, mobilizing resources, and concealing or transmitting information (Lincoln & Miller, 1979). For example, because in complex decision making the selection of alternatives is one of the most difficult steps, the friendship network may help simplify complex decision making for employees by selecting alternatives based on the information of the selections made by friends (Kilduff, 1992). Furthermore, following from beliefs about mutual altruism, friendship with coworkers creates a safe environment for sharing ideas, and stability for exploring unproven thoughts (Gibbons, 2004).

Another important difference between workflow and friendship ties is that friendship ties are, in general, reciprocal (see e.g., Bowler & Brass, 2006; Kenny & La Voie, 1982; Kilduff,

1992), while this is not necessarily the case for workflow ties (Ibarra & Andrews, 1993). Being central in the workflow network implies high task interdependence between the central follower and his or her coworkers, because the workflow network involves formally established interdependencies between followers who must interact to complete their task (Mehra et al., 2001). Referring to the possible asymmetry of workflow ties, two types of interdependence have been distinguished in the literature, that is, initiated task interdependence and received task interdependence. In the current study, we focus specifically on initiated task interdependence which refers to "the extent to which work flows from one particular job to one or more other jobs such that the successful performance of the latter depends on the initiating job" (Kiggundu, 1983, p. 147). Initiated task interdependence demonstrates coworkers' dependence on the follower. It therefore indicates the follower's workflow network centrality because the central follower in the workflow network is able to control relevant resources that coworkers need to do their work properly (Brass & Burkhardt, 1993; Settoon & Mossholder, 2002), and evidently have such an abundance of instrumental resources that they can afford to offer it to their coworkers. In fact, the idea that those in central positions actually possess knowledge and information has been generally supported in the literature (Settoon & Mossholder, 2002). A relevant resource is "one that is in demand or in which others have a high motivational investment" (Brass, 1984, p. 520). This type of centrality which indicates that coworkers need resources from a particular follower and that the follower is the object of interactions initiated by coworkers, is referred to as in-degree centrality (Brass & Burkhardt, 1993; Bunderson, 2003). The more coworkers are dependent on the follower for resources the higher the in-degree workflow network centrality of the follower. On the other hand, because received task interdependence refers to the dependence of a follower on coworkers in successful performing a job (Kiggundu, 1983), it indicates that the follower needs instrumental resources from coworkers just in order to perform well and does not have a wealth of relevant resources that would enable performing even better. In the current study, we therefore do not take received task interdependence, or, out-degree workflow network centrality into account.

Following from the conceptualizations of the workflow and friendship network, there is an important distinction between the two types of networks, because the content of the

relationship indicates the extent to which the relationship is based on task interdependence and formal work roles or on individual discretion, and determines which resource is primarily exchanged and for what reason. Considering that friendship ties with coworkers bring along more freedom than workflow ties and might serve social-emotional goals together with instrumental purposes, we argue that especially being central in the friendship network brings along benefits for followers that might strengthen the relationship between LMX quality and follower outcomes. Furthermore, because one type of network may alter the effects of another network type, we will not only examine the moderating effect of friendship network centrality on the relationship between LMX quality and follower job performance, but also study the combined interactive effect of friendship and workflow network centrality on this relationship (Ibarra, 1993b).

LMX and job performance

The basic premise of LMX theory is that leaders form relationships of varying quality with their followers (Erdogan & Enders, 2007). High quality LMX relationships can be characterized as those in which there is mutual trust, respect, and obligation, and in which followers grow beyond the formal employment contract (Graen & Uhl-Bien, 1995), while low quality LMX relationships are limited to role-defined relationships (Liden, Wayne, & Stilwell, 1993). The different exchanges that occur in high and low quality LMX relationships can be explained by social exchange theory. This theory suggests that mutual exchanges in social exchange relationships take place between two parties, and that giving benefits to the other party develops the expectation of receiving a return of equivalent value in the future (Blau, 1964). In an LMX relationship, when one party receives something of value from the other party, according to the norm of reciprocity, the receiving party feels obliged to reciprocate and wants to help the exchange partner that has helped him or her (Gouldner, 1960). Numerous studies show that in exchange for receiving tangible and intangible resources, such as challenging task assignments, training opportunities, resources, information, and support from their supervisor (Liden, Wayne, & Sparrowe, 2000) followers appear to reciprocate through behaviors that may benefit the leader (Erdogan & Enders, 2007), such as higher levels of

performance (Masterson, Lewis, Goldman, & Taylor, 2000; Wang, Law, Hackett, Wang, & Chen, 2005) to maintain a balanced social exchange (Ilies et al., 2007). Thus, social exchange theory explains why followers are willing to exert extra effort in high LMX quality relationships (Walumbwa, Cropanzano, & Goldman, 2011). Based on earlier findings on the relationship between LMX and job performance, and to confirm a positive association between LMX and job performance in a health care setting, we hypothesize the following:

Hypothesis 1: Leader-member exchange will be positively related to individual job performance.

Although social exchange theory and the norm of reciprocity can explain high LMX followers' motivation to exert extra effort, such as high performance, it does not guarantee that high LMX followers actually have the resources to set a higher job performance. In general, earlier research consistently shows that follower LMX and job performance are positively related (e.g., Janssen & Van Yperen, 2004; Wang et al., 2005). However, there are also a few studies that demonstrate other results, such as a non-significant relationship between LMX and performance (Liden et al., 1993). The most recent studies, in which a contingency-based examination of the relationship between LMX and performance has been conducted, suggest that there are several relevant moderating variables that influence this relationship (Cogliser et al., 2009). In the current study, we extend this line of research by investigating the potentially moderating influence of followers' centrality in the peers-network. Because central followers in the peers-network have greater links to peers, and these links create opportunities for social capital transactions (Adler & Kwon, 2002), centrality indicates the extent to which followers can exchange resources such as task-specific knowledge and information concerning work-related matters (Lee & Kim, 2011; Sparrowe, Liden, Wayne, & Kraimer, 2001). If followers are induced to reciprocate their high quality LMX by performing better, they need additional resources and the freedom to use them in order to accomplish that. Central followers, who have control over relevant resources and can draw from greater relationships in exchanging such resources, are in a better position to seek out additional benefits from others than less central followers, and are therefore in a structurally advantageous position in the peers-network.

As we outlined earlier, the content of the ties indicates the extent to which the relationship is based on task interdependence and formal work roles or on individual discretion, and determines which resource is exchanged and for what reason. Thus, centrality in the workflow and friendship network brings along different exchanges of resources. In case of high in-degree workflow network centrality, followers have control over resources that are needed to the regular job. The friendship network, however, is based on mutual liking (Mehra et al., 2001), and relationships within this type of social network are more stable and likely driven by affect or similarity rather than dependence (Zagenczyk, Scott, Gibney, Murrell, & Thatcher, 2010). Being central in the friendship network is therefore an advantageous position to acquire extra resources from peers above the regular ones. Central followers in the friendship network can employ these additional affective and instrumental resources for reciprocating their LMX relationship with higher job performance. Moreover, friendship network ties derive more from individual choice and initiative (Mehra et al., 2001), and this will restrain the central follower's freedom to a much lesser extent than workflow network ties. These arguments, which stress the availability of extra resources and the freedom to use them, lead us to predict that being central in the friendship network enables and motivates followers to translate high quality LMX into higher job performance.

> *Hypothesis 2: Friendship network centrality will moderate the relationship between LMX and job performance in such a way that the positive relationship will be stronger when friendship network centrality is high rather than low.*

It is likely that friendship centrality and the extra resources the friendship network can provide play a substantial different role, dependent on the position of the follower in the workflow network depicted above. We therefore further develop a hypothesis about the interactive relationship of LMX quality and friendship network centrality for the level of in-degree workflow network centrality. The workflow network involves the exchange of critical job-related resources, including information, expertise, professional advice, political access, and material resources (Ibarra, 1993b). In-degree workflow network centrality implies the ability to control valued resources, indicating others' dependence on the central follower (Brass &

Burkhardt, 1993; Goodwin et al., 2009; Sparrowe et al., 2001). It seems quite likely that team members with relevant resources, such as expertise, will be regularly consulted for their help regarding work-related matters, and are therefore more central in their team's workflow network (Balkundi & Harrison, 2006; Bunderson, 2003). In the case of high coworker dependence on the follower, the follower can be expected to have more work-related resources at his or her disposal due to his or her central position in the workflow network. Based on the content of workflow ties, it seems reasonable to expect that high in-degree centrality in the workflow network indicates that the central follower can employ the job-related resources he or she has at his or her disposal for reciprocating a high LMX quality relationship with higher job performance. Moreover, in line with Kiggundu (1983), we argue that high in-degree workflow network centrality, that is, high coworker dependence on the follower, increases the follower's internal work motivation. Thus, we predict that when in-degree workflow network centrality is high, the follower will be less dependent on friendship ties for acquiring the necessary resources and motivation to reciprocate high LMX quality with higher job performance.

On the other hand, in the situation of low in-degree workflow network centrality, coworker task dependence on the follower is low. The follower therefore can be expected to have little valued job-related resources at his or her disposal. Moreover, low coworker dependence on the follower can be expected to decrease internal work motivation (Kiggundu, 1983). Only in this situation of low in-degree workflow network centrality, we expect friendship network centrality to strengthen the positive relationship between LMX quality and job performance. When a follower has less job-related resources at his or her disposal and internal work motivation is low owing to the less central position in the workflow network, centrality in the friendship network likely provides access to the necessary extra resources and the motivation to still be able to reciprocate the LMX relationship with higher job performance. Therefore, we hypothesize the following:

> *Hypothesis 3: A follower's in-degree workflow network centrality will moderate the*
> *interactive effect of LMX quality and that follower's friendship network centrality on job*

performance in such a way that the interaction is stronger for lower than higher follower's workflow network centrality.

METHOD

Sample and procedure

The research population consisted of 384 nurses and their supervisors working in 20 units (17 internal medicine and 3 orthopedics units) at four Dutch hospitals. Of this population, 240 nurses (response rate = 63%) and 20 supervisors (response rate = 100%) entirely completed questionnaires. Besides, 15 nurses filled out only part of the questionnaire. The average size of the units, excluding supervisors, was 19 followers. The supervisors were mostly women (80%). The followers were also mostly women (93%) and had an average age of 40 years, with a minimum age of 20 years and a maximum age of 62 years. Their average organizational tenure was 14 years and they averaged 11 years in their current positions.

An expert group encompassing the hospitals' managers and policy advisors reviewed the questionnaires, and three nurses from the cardiology department of one of the hospitals pilot tested the questionnaires before they were administered at the hospitals. Considering nurses' voluntary participation in this study and because nurses needed to rate their coworkers and were rated themselves by their coworkers on several items, we guaranteed participants strict confidentiality of their responses. Pre-coding the questionnaires enabled us to match responses of supervisors, followers and coworkers (see next subsection).

Measures

To diminish concerns regarding common source, the data of this study were provided by three carefully chosen sources (i.e., supervisors, coworkers, and the followers). Supervisors rated their followers' job performance. In addition, followers' in-degree workflow network centrality and followers' friendship network centrality were measured with a round-robin design (Warner, Kenny, & Stoto, 1979). To acquire multisource data, coworkers' ratings were used for follower in-degree workflow network centrality. In addition, we combined follower and coworkers' ratings for friendship ties to capture follower friendship network centrality, that

is, mutual liking. While there are several operationalizations of network centrality, we used the *degree* measure of centrality, which is a measure of activity, resembling social exchange, and refers to the average connection of the follower with all other coworkers in the work team (Brass, 1984; Wasserman & Faust, 1994). Because we collected valued directed data, we generalized the idea of degree centrality to valued directed data by averaging the values over all follower incoming ties for follower in-degree workflow network centrality, and averaging the values over all follower incoming and outgoing ties for follower friendship network centrality (Wasserman & Faust, 1994). Such a measure reflects the average value of the ties to and from the follower (Wasserman & Faust, 1994, p. 142). In measuring network centrality, we applied the roster method instead of free recall because this has been shown to improve the reliability of network data (Marsden, 1990). The roster method entails that respondents were provided with a roster, which is a list encompassing the names of each coworker in their own unit. We used single-item measures for the two types of network centrality, which is acceptable and usual in network studies because asking several questions per measure about all other coworkers in the workgroup would require great effort from participants (e.g., Marsden, 1990; Venkataramani et al., 2010). Followers themselves were a third source, as they provided self-reports of the LMX quality of the relationship with their supervisor.

LMX quality. To measure LMX quality we used 11 items of the 12-item scale derived from Liden and Maslyn (1998). Sample items are "I like my supervisor very much as a person", "My supervisor would come to my defense if I were 'attacked' by others", and "I do work for my supervisor that goes beyond what is specified". Responses were provided on a seven-point scale ranging from 1 (*completely disagree*) to 7 (*completely agree*). Based on the reasoning of the expert group, we excluded the item "My supervisor is the kind of person one would like to have as a friend", because the experts indicated that nurses in general do not regard or think of their supervisor as a (potential) friend and would thus see this item as irrelevant. The Cronbach's alpha for the 11 items was .91.

In-degree workflow network centrality. Instrumental relationships among employees are likely to be asymmetrical ties (Ibarra & Andrews, 1993). Therefore, in capturing workflow network centrality, we followed common practice by calculating the in-degree measure of

centrality, which is based on incoming nominations by coworkers (Venkataramani & Tangirala, 2010). The definition of the workflow network stresses the interdependence between employees established by the division of labor in the organization. To measure in-degree workflow network centrality, based on De Jong, Van der Vegt, and Molleman (2007), we therefore asked participants to rate each of his or her coworkers on the item: "How dependent are you *on X* for materials, means, and information in order to carry out your work adequately?" The scale ranged from 1 (*totally not dependent*) to 7 (*totally dependent*). For each follower, scores from coworkers about coworker's dependence on the follower were averaged.

Friendship network centrality. Expressive relationships tend to be reciprocated ties (Ibarra & Andrews, 1993). Specifically, the friendship network involves mutual liking among employees (Mehra et al., 2001). We therefore measured friendship network centrality with a social network question about the degree of liking. Participants rated each of their coworkers on the item "How do you generally feel about this coworker?", which is based on the measure of expressive ties of Umphress et al. (2003). Responses were provided on a seven-point scale ranging from 1 (*dislike a lot*) to 7 (*like a lot*). Subsequently, for each dyad in which the follower was involved we averaged the follower's score indicating the extent to which the follower liked his or her coworker and the coworker's score indicating the extent to which the coworker liked the follower to calculate mutual liking. Then, for each follower, we calculated the averaged dyadic scores by averaging the mutual liking scores of the dyads in which he or she was involved. Thereafter, we averaged these dyadic scores to the individual level to indicate the follower's friendship network centrality.

Job performance. To measure nurses' overall performance, Molleman and Van der Vegt (2007) developed a scale that contained six criteria that define high-standard nurse performance, which are 'dedication', 'communication', 'self-reliance', 'demonstrating accountability', 'administrative work' and 'planning of work'. Based on these six criteria and in close cooperation with the expert group, 10 items were carefully chosen to measure job performance. The items are provided in Appendix A. Before we asked supervisors to rate their followers on job performance, we informed them that the ratings would be confidential, and would only be used for research purposes. Subsequently, for every follower, supervisors were

asked to indicate how satisfied they were with the follower's performance regarding these 10 items. Responses were provided on a five-point scale ranging from 1 (*very dissatisfied*) to 5 (*very satisfied*). The Cronbach's alpha for the 10 items was .87.

Control variables. To determine whether demographics, (i.e., age, gender, and organizational tenure) should be controlled for, we followed Becker's (2005) recommendations. These included to beware of control variables that are uncorrelated with the dependent variable, because including controls that are uncorrelated with the dependent variable in analyses reduces power. Becker recommends to run the analyses both with and without the controls and, if the results do not differ, to only report the analyses without controls. Age and organizational tenure were measured in years. Gender (1 = female, 0 = male) has a possible effect on performance evaluation (Nieva & Gutek, 1980). Initially, we included age, gender, and organizational tenure as control variables in our analyses, but the results did not differ with and without these controls. Furthermore, the controls were uncorrelated to the dependent variable job performance (see Table 4.1), thus, following the recommendations of Becker, we excluded them from further analyses.

Data analyses

The individual-level data are nested within units. We performed random effects maximum likelihood regression analyses to estimate the variance components for our models. We fitted an empty model for job performance to calculate the intraclass correlation (ICC1). The ICC1 for performance (ICC1 = .35, $p < .001$) informs us that multilevel models are needed. We therefore applied multilevel analyses in testing all models. However, we did not include random effects in the multilevel analyses for hospitals, because the number of hospitals (four) is so low that it would be rather pointless (Raudenbush & Bryk, 2002; Snijders & Bosker, 1999).

<div align="center">

RESULTS

</div>

Descriptive statistics

We present the means, standard deviations and Pearson correlations between the variables in Table 4.1. The correlation between LMX and job performance ($r = .25$, $p < .001$) is,

as expected, significant and positive. Furthermore, the correlation between LMX and in-degree workflow network centrality, that is, coworkers' dependence on the follower, is not significant (respectively r = -.04), while the correlation between LMX and friendship network centrality is significant and positive (r = .26, p < .001). In addition, in-degree workflow network centrality is significantly correlated with job performance (r = .20, p < .01), and friendship network centrality is also significantly and positively correlated with job performance (r = .26, p < .001).

Table 4.1

Descriptive statistics and Pearson zero-order correlations among the study variables

Variables	*M*	*SD*	1	2	3	4	5	6
1 Age	40.23	10.72						
2 Gender (1 = female; 0 = male)	0.93	0.26	-.08					
3 Organizational tenure	13.62	10.32	.66***	-.07				
4 Leader-member exchange	4.65	1.01	-.14*	-.04	-.11			
5 Friendship network centrality	5.57	0.53	-.02	.09	-.02	.26***		
6 In-degree workflow network centrality	3.54	0.56	.08	-.18**	.14*	-.04	.10	
7 Job performance	3.73	0.47	.05	-.03	.01	.25***	.26***	.20**

* p < .05; ** p < .01; *** p < .001.

Hypotheses testing

Hypothesis 1 suggested that LMX quality would be positively associated with follower job performance. A correlation analysis showed that LMX quality is positively and significantly related to job performance (r = .25, p < .001), supporting Hypothesis 1.

For testing Hypotheses 2 and 3, after regressing job performance on the independent variables, we added the interaction terms in the model. Next, we evaluated the statistical significance of the parameter estimates and the change in deviance. We hypothesized that the LMX-job performance relationship would be moderated by follower friendship network centrality such that it would be stronger when follower friendship network centrality is high (H2). We first regressed job performance on both LMX quality and follower friendship network centrality (see Table 4.2, model 1). The results showed that both LMX quality (*B* = 0.09, p < .01)

and follower friendship network centrality (B = 0.07, p < .05) are positively and significantly related to job performance. Further, the interactive effect of LMX quality and followers' friendship network centrality on job performance was .05 (t = 2.55, p < .05, see Table 4.2, model 2). The change in deviance was also significant. To test whether the form of this interaction corresponds with the hypothesized pattern, we followed the procedures suggested by Aiken and West (1991) to create Figure 4.1, which depicts the two-way interaction of LMX quality and followers' friendship network centrality on job performance. From Figure 4.1, it appears that the slope of the relationship between LMX quality and job performance was positive for employees with high friendship network centrality (simple slope = .15, t = 3.90, p < .001), whereas the slope was not significant for employees with low friendship network centrality (simple slope = .05, t = 1.45, ns). This finding is in line with what we expected, supporting Hypothesis 2.

Table 4.2

Results of multilevel analyses (Hypothesis 2) [a]

	Job performance			
	Model 1		Model 2	
Variables	**B**	**SE**	**B**	**SE**
Intercept	3.73***	(0.06)	3.71***	(0.06)
Leader-member exchange	0.09**	(0.03)	0.10**	(0.03)
Friendship network centrality	0.07*	(0.03)	0.08**	(0.03)
Leader-member exchange × Friendship network centrality			0.05*	(0.02)
Deviance statistic (-2 log likelihood)	239.05		232.63	
Change in deviance statistic (df=1)			6.42*	

[a] n = 240 followers. Non-standardized regression coefficients are reported.
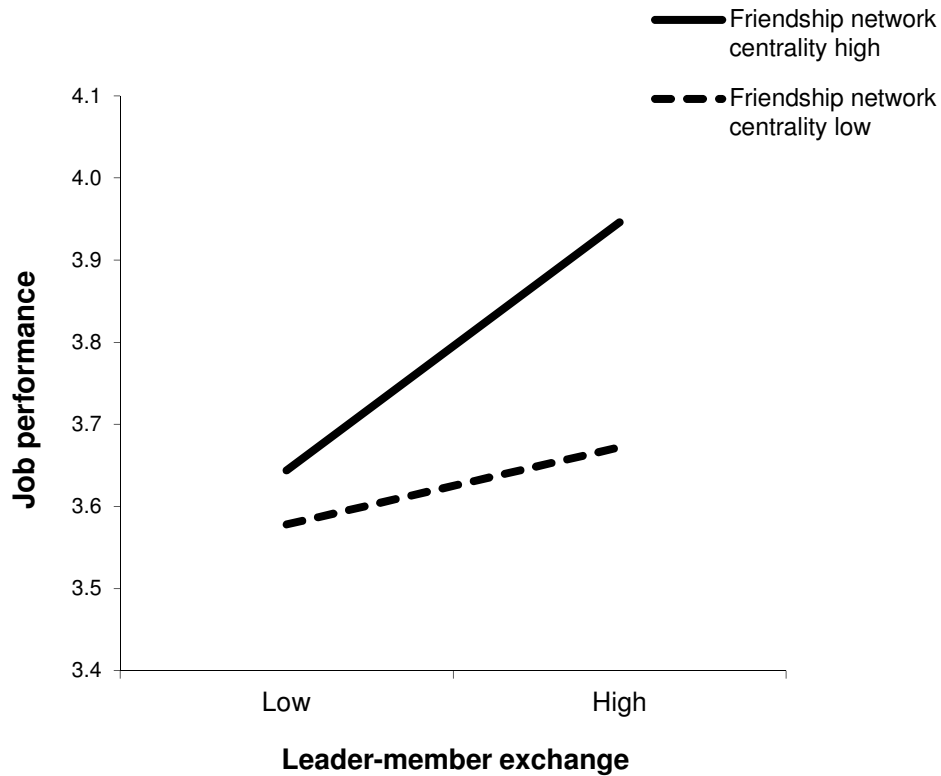
* p < .05; ** p < .01; *** p < .001.

Figure 4.1 Effects of interaction between leader-member exchange and follower friendship network centrality on follower job performance

Furthermore, to test Hypothesis 3, we regressed job performance on the independent variables in three steps. In the first step, we included the main effects of LMX quality, friendship network centrality and in-degree workflow network centrality (see Table 4.3, model 1). In the second model, we added the two-way interactions of LMX quality by friendship network centrality, LMX quality by in-degree workflow network centrality, and friendship network centrality by in-degree workflow network centrality. In the third model, we added the three-way interaction between LMX quality, friendship network centrality, and in-degree workflow network centrality.

Table 4.3

Results of multilevel analyses (Hypothesis 3) [a]

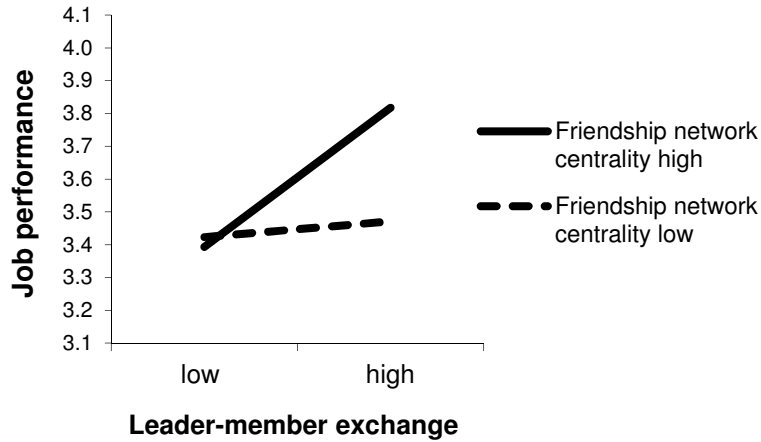| | Job performance | | | | | |
| | Model 1 | | Model 2 | | Model 3 | |
Variables	B	SE	B	SE	B	SE
Intercept	3.72***	(0.07)	3.71***	(0.07)	3.72***	(0.07)
Leader-member exchange (LMX)	0.10**	(0.03)	0.11***	(0.03)	0.12***	(0.03)
Friendship network centrality (FNC)	0.04	(0.03)	0.05	(0.03)	0.04	(0.03)
In-degree workflow network centrality (WNC)	0.17***	(0.03)	0.16***	(0.03)	0.19***	(0.03)
LMX × FNC			0.05*	(0.02)	0.04	(0.02)
LMX × WNC			0.03	(0.03)	0.01	(0.03)
FNC × WNC			-0.03	(0.02)	-0.04	(0.02)
LMX × FNC × WNC					-0.06**	(0.02)
Deviance statistic (-2 log likelihood)	215.11		207.08		196.33	
Change in deviance statistic			8.03*	df=3	10.75**	df=1

[a] n = 240 followers. Non-standardized regression coefficients are reported. LMX = leader-member exchange; FNC = friendship network centrality; WNC = in-degree workflow network centrality.

* p < .05; ** p < .01; *** p < .001.

The results show a three-way interaction between LMX quality, friendship network centrality and in-degree workflow network centrality on follower job performance (B = -0.06, p < .01). To test whether the form of this three-way interaction corresponds with the hypothesized pattern we plotted the interaction in Figure 4.2. We hypothesized that in-degree workflow network centrality would moderate the interactive effect of LMX quality and friendship network centrality on followers' job performance in such a way that the interaction is stronger for lower than higher follower's workflow network centrality. There was a significant positive relationship between LMX quality and job performance for followers with low in-degree workflow network centrality and who are central in the friendship network (simple slope = 0.21, p < .001; Figure 4.2a). However, there was no significant relationship between

LMX quality and job performance for followers with low in-degree workflow network centrality and who are less central in the friendship network (simple slope = 0.02, *ns*; Figure 4.2a).

4.2a In-degree workflow network centrality low

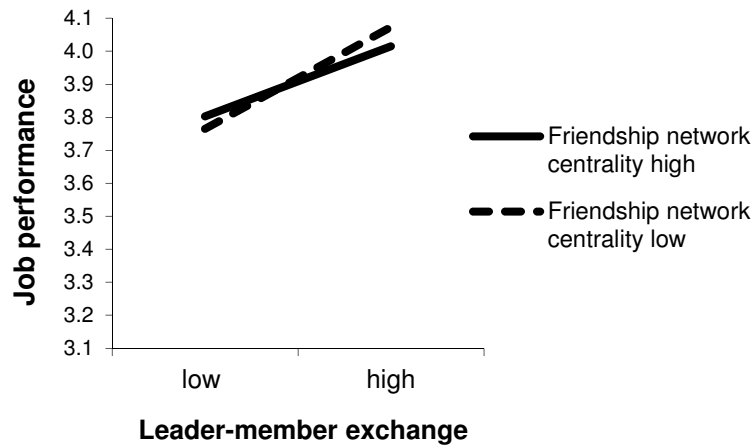**4.2b In-degree workflow network centrality high**

Figure 4.2 Three-way interaction leader-member exchange, friendship network centrality, and in-degree workflow network centrality on follower job performance

Furthermore, Figure 4.2b shows a significant positive relationship between LMX quality and job performance for followers with high in-degree workflow network centrality. This is true

for those followers who are central in the friendship network (simple slope = .11, p < .05) as well as for those followers who are less central in the friendship network (simple slope = .15, p < .01). A slope difference test (Dawson & Richter, 2006) indicates that for followers with high in-degree workflow network centrality the slopes of high versus low friendship network centrality do not differ significantly (t = -0.844, p = ns), while they differ significantly for followers with low in-degree workflow network centrality (t = 3.89, p < .001). These findings are in line with our expectations, supporting Hypothesis 3.

DISCUSSION

In this study, we tested the moderating influence of followers' exchanges within the peers-network on the relationship between LMX quality and follower job performance. We aimed to provide better understanding of the variation in and inconsistency of results regarding the relationship between LMX quality and follower job performance. Therefore, to develop our understanding of the factors that influence this association, we incorporated both followers' centrality in the friendship network and followers' in-degree centrality in the workflow network into our conceptual model as potential moderators. We distinguished between followers' centrality in the friendship network and the workflow network, because these two types of networks bring along different exchanges of resources, and consequently, different moderating effects on the relationship between LMX quality and job performance could be expected.

As hypothesized, and in line with most prior studies, LMX quality was positively related to individual job performance (H1). Furthermore, follower friendship network centrality strengthened the positive relationship between LMX quality and follower job performance (H2). This finding suggests that the resource benefits of being central in the friendship network, such as the exchange of interpersonal affect together with the potential instrumental possibilities, and the freedom associated with the friendship network, are employed by central followers to reciprocate their high LMX relationship with higher job performance.

However, when examining the combined interactive effect of follower friendship network centrality and follower workflow network centrality, it appeared that this moderating effect of friendship network centrality only occurs in the situation of low in-degree workflow

network centrality. Consistent with our expectations, when coworker dependence on a follower was high – indicating high in-degree workflow network centrality and control over valued job-related resources – friendship network centrality did not significantly moderate the relationship between LMX quality and job performance. On the other hand, when coworker dependence on a follower was low – indicating low in-degree workflow network centrality and less control over valued job-related resources – friendship network centrality significantly strengthened the positive association between LMX quality and job performance (H3). Apparently, when followers have job-related resources at their disposal, indicated by their in-degree centrality in the workflow network, being central in the friendship network and the benefits this brings along, does not additionally amplify the positive relationship between LMX quality and follower job performance. Apparently, friends are willing to provide extra resources, but the follower doesn't need these resources because he or she already possesses these extra resources him- or herself. On the other hand, when followers have less job-related resources at their disposal, indicated by their less-central position in the workflow network, centrality in the friendship network still enables and motivates followers to translate high quality LMX into higher job performance. These interaction effects suggest that the different exchanges employees have with their supervisor and work team combine interactively in predicting follower job performance. Moreover, they show that different types of networks combine interactively in predicting follower job performance, and that in-degree workflow network centrality alters the moderating effect of friendship network centrality.

Theoretical contributions

Our findings make several important contributions which relate to theory about LMX quality and social networks. First, by including the moderating influence of followers' network centrality in the research model, we have added to the few studies that have examined moderators for the relationship between LMX and follower consequences (see e.g., Dunegan, Uhl-Bien, & Duchon, 2002; Erdogan & Enders, 2007; Takeuchi et al., 2011; Tangirala et al., 2007). We considered the context in leadership research, and examined LMX and its outcomes in the perspective of the larger social networks in which followers are embedded, addressing an

important theoretical gap in the literature (e.g., Liden & Antonakis, 2009; Liden et al., 1997). Our results show that follower social networks have a moderating influence on the relationship between LMX and follower job performance, and that, consequently, the other formal and informal relationships in which followers are involved should not be neglected when studying follower consequences of LMX quality. Whether LMX quality is related to follower job performance or not depends on the moderating influence of follower centrality in the peers-network. Although LMX quality brings about the motivation in followers to reciprocate with higher job performance, centrality in the peers-network provides followers the ability to actually act upon high LMX quality through the resource availability inherent to the central position in the peers-network.

Second, in our study, we also have been able to use a more integrated approach regarding the diverse exchange relationships that exist within an organization. Regarding the different exchange relationships that employees have with their supervisor and work team, the findings provide support for the suggestion by Settoon et al. (1996) that employees need multiple exchange relationships and derive different forms of resources and support from each exchange relationship. The results demonstrate that LMX and follower friendship network centrality are not only interactively, but also directly and simultaneously related to job performance. Moreover, when both friendship network centrality and workflow network centrality are low, there is no significant relationship between LMX and follower job performance. Apparently, next to the resources and support that are obtained in the high quality LMX relationship, followers need the different forms of resources and support that are exchanged in their relationship with coworkers to enhance their job performance.

Third, the results shed more light on the causes of the variation in results that have been found in earlier research on the association between LMX and follower outcomes (e.g., Gerstner & Day, 1997; Liden et al., 1997). This study showed that the positive LMX-job performance relationship is influenced by followers' network centrality. When both follower friendship network centrality and follower in-degree workflow network centrality are low, LMX quality does not seem to impact follower job performance, probably because the follower simply isn't able to acquire enough resources to do so. On the other hand, when follower

centrality in the friendship network or workflow network is high, LMX quality and job performance are positively related. Thus, variation in results regarding LMX and follower outcomes might be explained by the social networks in which followers are involved.

These results also contribute to the social network literature. In line with the reasoning of Ibarra and Andrews (1993), we found different interaction effects for the combination of the two types of ties studied, because of the different characteristics of the relationships. Therefore, our results confirm the importance of distinguishing several network types and studying several types of exchanges to enable theorizing about the effects of those characteristics on processes (e.g., Gibbons, 2004; Liden et al., 1997). Furthermore, we have responded to calls for paying more attention in social network research to expressive dimensions of relationships in models of performance (Cross & Cummings, 2004). Explicitly, we find that when followers are not central in the workflow network and thus control less job-related resources, being central in the friendship network still provides these followers with the additional resources and motivation to reciprocate high LMX quality with higher job performance. Moreover, the results suggest that when followers are central in the workflow network and thus control job-related resources to a greater extent, they are able to reciprocate high LMX quality with higher job performance, regardless their centrality in the friendship network. Thus, although we expected a prominent strengthening role of friendship network centrality in the association between LMX quality and job performance, the extent of workflow network centrality seems to be more influential. Only when a follower is not central in the workflow network, centrality in the friendship network seems to influence this association in a positive way.

Practical implications

Although it has been recommended to ensure that supervisors form high quality LMX relationships with their followers, our results indicate that this does not necessarily lead to higher follower job performance. Our results show the importance of followers' relationships with coworkers in determining the impact of LMX quality. Supervisors should be aware that, unless a follower is central in the friendship or workflow network, building a high-quality LMX

relationship with that follower will not enhance follower job performance. Because it seems to be an established finding that high- and low-quality exchanges coexist within the same work group (Erdogan & Bauer, 2010), having insights into the social networks of followers could help supervisors prioritize with which followers they will build a high-quality LMX relationship. In addition, supervisors should be aware that performance behavior of followers is not only directly affected by their LMX relationship, but that it is also influenced by the broader social context in which the follower is embedded.

Furthermore, followers should not only develop high quality exchange relationships with their supervisors, but also with their coworkers to ensure positive performance outcomes from that LMX relationship. As suggested by Goodwin et al. (2009), followers may become central in their organizational networks by intentionally accepting responsibility that brings them into contact with many functions and individuals in positions of authority. The Human Resource department can become more actively involved in giving followers the opportunity to interact by organizing events that relate to interaction, such as colocation, meetings, conferences, social events, employee roundtables, internal electronic communication networks, company sponsored mentoring programs, orientation sessions, socialization, and job rotation, which followers can use to create strong network linkages (Uhl-Bien et al., 2000).

Strengths, limitations and future directions

We have chosen to measure LMX using follower ratings, and recognize that our findings may not generalize to LMX measured from a supervisor's perspective, because supervisors and followers may have a different perception of exchange quality (Erdogan & Enders, 2007; Gerstner & Day, 1997). In line with the arguments of Erdogan and Enders (2007), who examined the moderating impact of perceived organizational support on the relationship between LMX quality and follower outcomes, we were especially interested in the follower's perspective, because followers should reciprocate with performance when they themselves perceive their LMX is of high quality.

In addition, we caution against generalizing from this study because the sample contains predominantly female nurses. To expand the applicability of our results, in future research, this

line of research should be extended to other task environments, and more heterogeneous samples should be used.

As in most social network studies (Umphress et al., 2003), we used a cross-sectional design. We are therefore limited in drawing strong conclusions regarding the direction of causality between the variables. The results of this study are compliant with our theoretical arguments, and the impact of LMX quality on follower job performance is well established in earlier research, but the actual causality might be different than we hypothesized. We therefore recommend a stronger design for future research, such as a longitudinal design. For example, a cross-lagged panel design, using the same constructs, enables drawing more ultimate conclusions on causality.

Another potential weakness of our study is that we applied a single-item measure for followers' friendship network centrality and followers' in-degree workflow network centrality. Nevertheless, we used a round-robin design. As in this design every follower rates and is rated by every other team member, it brings about multiple measurements and consequently reduces error (Denissen, Geenen, Selfhout, & Van Aken, 2008; Kenny, 1994). Additionally, we have confidence in the validity and reliability of the measures for network centrality, and we believe that our conclusions are not invalidated by our use of a single-item measure, because we framed the items for friendship network centrality and in-degree workflow network centrality as close as possible to the definition of the underlying theoretical construct. Nonetheless, if feasible, we advise to use multi-item measures for network centrality.

A strength of this study is that the data were provided by three sources (i.e., supervisors, coworkers, and the followers), reducing common source concerns. Data on follower job performance was provided by supervisors, and data on LMX quality was provided by the follower. Moreover, our network measures are stronger measures than data that are self-reported. Coworkers rated followers' workflow network centrality, and a combination of followers' and coworkers' ratings were employed to measure mutual liking, and this information established the basis for respectively the measure of followers' in-degree workflow network centrality and friendship network centrality.

In this study, we have examined the role of degree centrality in the relationship between LMX and follower job performance, as this type of centrality measure closely resembles social exchange. Of the three types of network centrality measures distinguished by Freeman (1979), degree centrality is based solely on direct connections. For future research, it might be interesting to study the role of the other two measures of centrality as well, that is, betweenness and closeness measures of centrality. These two types of network centrality measures also take the indirect and mediating connections between individuals into account (see e.g., Brass & Burkhardt, 1992).

Our research could be extended by including other LMX outcomes as dependent variables in the research model. We suggest, for example, to investigate the moderating role of follower workflow and friendship network centrality on the relationship between LMX and affective organizational commitment, which is also a frequently studied outcome of LMX (Cogliser et al., 2009) for which the effect size of the relationship with LMX quality has been heterogeneous (e.g., Gerstner & Day, 1997). Liden et al. (1997) note that findings have also been inconsistent for the relationship between LMX and actual turnover, warranting future research that examines the role of moderators, such as followers' centrality in the peers-network.

Conclusion

We propose that the degree and presence of the positive effect of building high-quality LMX relationships on followers' job performance may be significantly dependent on other follower interpersonal relationships at work, and on the specific type of these interpersonal relationships and combination thereof. Therefore, we hope that the present study will inspire organizations and researchers to take more notice of how social exchange relationships intertwine in impacting employee outcomes.

CHAPTER 5

General discussion

Employees' work lives are to a large extent influenced by their informal relationships (Scott, 2012). Their coworkers, for example, are partners in social and task interactions (Chiaburu & Harrison, 2008). Despite the fact that almost all employees must interact with others to get their work accomplished, studies of dyadic work relationships are limited in scope (Ferris et al., 2009). Moreover, while the impact of relationships and connections of individuals within social networks in general has been largely studied, there are still unanswered questions regarding the effects of employee interconnectedness on several work outcomes (Balkundi & Harrison, 2006). Given that relationships are fundamental to individuals' identities (Kilduff & Tsai, 2003) I was encouraged to add insights into the influence of work relationships on individual work outcomes in this dissertation. The four research gaps that I identified in the literature on social capital theory, social network theory, and social exchange theory have been addressed in the empirical Chapters 2 to 4.

In this final chapter, after providing a summary of the main findings of the preceding empirical chapters, I will reflect on these findings by discussing theoretical implications for the literature on social capital, social networks, and social exchange. Subsequently, the implications for practice regarding the effects of work relationships on individual work outcomes will be discussed. Finally, I will discuss the strengths and limitations of this dissertation and elaborate on directions for future research.

SUMMARY OF THE MAIN FINDINGS

Given that few studies have examined relational bases for voluntary employee turnover, the purpose of the study described in Chapter 2 was to examine whether work relationships are associated with employee turnover intention. Adopting a relational perspective on employee turnover, I investigated the effect of receiving interpersonal citizenship behavior (ICB) from coworkers, which symbolizes the quality of the relationship (Mossholder, Settoon, & Henagan, 2005), on the recipient's turnover intention. Because several studies suggest that positive

connections with coworkers might tie employees to an organization (e.g., Burt, 2001; Golden, 2007), I expected a positive association between receiving ICB from coworkers and the recipient's turnover intention. In addition, I hypothesized that the association between receiving ICB from coworkers and the recipient's turnover intention would be mediated by job satisfaction, because I could lend support from theory (Boswell, Shipp, Payne, & Culbertson, 2009; Chiaburu & Harrison, 2008; Watson, 1988) to argue that receiving ICB would lead to higher job satisfaction, and because Griffeth, Hom, and Gaertner (2000) found that job satisfaction is among the best predictors of turnover intention and that several characteristics of the work environment are more distant determinants. The results indeed showed that receiving ICB from coworkers indirectly (through job satisfaction) led to lower turnover intention of the recipient. Furthermore, I hypothesized that the indirect relationship between receiving ICB from coworkers and the recipient's turnover intention would be moderated by recipients' communion-striving motivation and task dependence. I expected a stronger indirect relationship for recipients with a high communion-striving motivation and/or high task dependence, because it is likely that high quality relationships with coworkers are especially important for these employees. The results supported this prediction, as the indirect relationship was significant, provided the recipient's communion-striving motivation and/or the recipient's task dependence were high, but not when these were low. These findings are in line with the suggestion of Mobley, Griffeth, Hand, and Meglino (1979) that the strength of the need to feel a sense of belonging and required task interaction contribute to the explanation of the association between peer relations and turnover.

In Chapter 2, I examined the influence of a specific employee social exchange relationship with coworkers on employee turnover intention. In Chapter 3, I further studied the influence of employee relationships with coworkers on employee work outcomes, but focused on the position of employees in two types of social networks they form with their coworkers. Moreover, I investigated its impact on two other employee work outcomes than turnover intention, that is, job satisfaction and job performance. Of the two commonly distinguished types of networks, that is, the expressive friendship network and the instrumental advice network (e.g., Gibbons, 2004), I predicted that, in general, an employee's central position in the

friendship network would be positively associated with job satisfaction and that an employee's in-degree advice network centrality would be positively associated with job performance given the opportunities provided by an advantageous position in a social network. However, although advantageous structural positions in a social network provide structural opportunities for employees (Mehra, Kilduff, & Brass, 2001), in this chapter, I examined whether the interaction between the personality traits emotional stability and extraversion affects the extent to which employees benefit from network centrality. In earlier studies, the interaction between personality traits has been found to account for significant incremental variance in important individual work outcomes (Penney, David, & Witt, 2011). The data revealed that friendship network centrality was associated with higher job satisfaction and that in-degree advice network centrality was associated with higher ratings by supervisors with respect to job performance, but only for emotionally stable extraverts and neurotic introverts. Emotionally stable extraverts are likely not inhibited by a lack of social skills to exploit positive social relationships at work, in contrast to emotionally unstable extraverts who tend to be moody, anxious, depressed, insecure, hostile, and/or irritable (Klein, Lim, Saltz, & Mayer, 2004). Furthermore, it is likely that neurotic introverts' low self-reliance and self-confidence are boosted by a central position in a social network at work, leading to more positive individual work outcomes, while emotionally stable introverts' unexcitableness and placidness suggest that a central position in a social network leads to less elevated individual work outcomes than for neurotic introverts. The results showed that the magnitude and existence of the positive effect of friendship network centrality on job satisfaction and in-degree advice network centrality on supervisor ratings of job performance may crucially depend on the specific interactional combination between personality traits. These findings provide an explanation for the variation in results regarding the network centrality-job satisfaction link (Brass, Galaskiewicz, Greve, & Tsai, 2004) and extend empirical evidence for the sparsely examined network centrality-job performance link (Sparrowe, Liden, Wayne, & Kraimer, 2001).

In Chapter 2 and 3, I examined the influence of employee relationships with coworkers on employee turnover intention, job satisfaction, and job performance. I separately studied the influence of expressive and instrumental ties with coworkers, which are two commonly

distinguished types of ties (e.g., Gibbons, 2004). In Chapter 4, I primarily focused on employee relationships with their leader in explaining individual job performance, but also examined the intertwined influence of employees' relationships with their coworkers and their relationships with their leader on employee job performance. Prior research found inconsistent results with regard to the relationship between LMX and individual level outcomes (e.g., Gerstner & Day, 1997) and, therefore, I responded to several calls in recent literature to consider the importance of context in leadership research by examining LMX and follower job performance in light of the larger social networks in which followers are embedded (e.g., Liden & Antonakis, 2009; Venkataramani, Green, & Schleicher, 2010). I hypothesized that follower friendship network centrality would moderate the positive link between LMX and follower job performance in such a way that the relationship would be stronger when follower network centrality was high, as friendship network centrality brings along resources and the freedom to use them to reciprocate high LMX quality with high performance. The results indeed showed the moderating effect of friendship network centrality, but the effect only occurred when follower in-degree workflow network centrality was low. Thus, high follower in-degree workflow network centrality likely indicates that the follower already controls relevant resources to reciprocate high LMX quality (Bunderson, 2003), diminishing the effect of friendship network centrality on the link between LMX quality and job performance.

THEORETICAL IMPLICATIONS

In the literature on the three related theories social capital theory, social network theory, and social exchange theory, I identified four research gaps that were presented in Chapter 1. The findings of this dissertation provide several theoretical contributions that can be organized around these four research gaps, which concern contingency factors and social context, structuralist and individualist approaches to social networks, different social exchange relationships, and tie content.

Contingency factors and social context

The findings of the empirical studies that I report on in Chapter 2 and 3 show the importance of including contingency factors in research on the relationship between social capital and social networks on the one hand and individual work outcomes on the other. In Chapter 2, the results reveal communion-striving motivation and task dependence as two contingency factors that influence the existence of the indirect association between receiving ICB from coworkers and the recipient's turnover intention. Moreover, the results reported on in Chapter 3 show that personality traits moderate the impact of employee network centrality on job satisfaction and job performance.

These findings provide answers to existing empirical questions, and insights that can be employed as input in theoretical debates, for example concerning whether or not social network centrality leads to improved task performance (Balkundi & Harrison, 2006). Furthermore, these studies underline that understanding contingency factors can resolve discussion over network mechanisms (Burt, 2000), because leaving contingency factors, such as individual differences, out of research models potentially leads to wrong conclusions or inconsistent results concerning the existence or magnitude of an association between network mechanisms and individual work outcomes. In addition, we advance social network and social capital theory by providing evidence for motivation as a contingency factor affecting social network benefits, which was stated as a high priority for future research (Anderson, 2008).

In addition, the findings of the empirical study that I elaborated on in Chapter 4 show the importance of including the social context as a contingency factor in research on the connection between a social exchange relationship on the one hand and an individual work outcome on the other. Recent research on social exchange relationships, such as perceived organizational support (POS) and LMX, already provided evidence for the important influence that contingency factors, such as the social context, have on the relationship between social exchange relationships and individual outcomes. Examples are the contingent effect of individual-level cultural values on the relationship between POS and work outcomes (Farh, Hackett, & Liang, 2007), and the contingent effect of work group integration on the relationship between LMX and psychological health (Rousseau, Aubé, Chicchio, Boudrias, & Morin, 2008).

Furthermore, Sparrowe and Liden (2005) showed the contingent effect of supervisor's network centrality on the relationship between LMX and follower's influence. Building on these studies, with the present dissertation I provided insight in the contingent role of the social context in which dyadic social exchange relationships are embedded on the association between leader-member social exchange and follower job performance. Operationalizing the social context as follower's centrality in the expressive and instrumental social network with immediate coworkers, I found that the coworker context in which followers are embedded influences the strength of the association between LMX and follower job performance. Therefore, by including the social context in which leader-member exchange relationships are embedded into the research model, I integrated context in leadership research (Liden & Antonakis, 2009). Moreover, I contributed to social exchange theory by demonstrating the contingent role of a social exchange variable in the relationship between another social exchange variable and an individual work outcome.

Structuralist and individualist approaches to social networks

The second research gap that I identified, which concerns the combination of structuralist and individualist approaches to social networks, was addressed in Chapter 2 and 3. More generally, scholars have highlighted the importance of examining the interactive effect between social cues and individual characteristics on behavior and intentions (Tett & Burnett, 2003; Tett & Guterman, 2000). I aimed to add to the few studies that have brought the individual back into structural analysis (Kilduff & Krackhardt, 1994). Some earlier studies addressed this gap by, for example, incorporating personality into research models next to social network structure variables and mainly investigating how personality correlates with network properties or examining whether personality or social network variables explain more variance in predicting outcomes such as accuracy in social network perception (see Anderson, 2008 for an overview). However, there is still limited evidence for an interactionist approach in which the interactional effect between individual characteristics and social network position is investigated (e.g., Zhou, Shin, Brass, Choi, & Zhang, 2009). In the present dissertation therefore, we took an interactionist approach that allowed us to examine how characteristics of

individuals affect the realization of social capital benefits. In previous research combining structuralist and individualist approaches in which personality variables are incorporated, self-monitoring has been applied most often (e.g., Kilduff, 1992; Mehra et al., 2001; Oh & Kilduff, 2008). Next to the also identified contingent effect of, for example, an employee's openness to experience (Baer, 2010), self-monitoring (Kilduff, 1992), need for cognition (Anderson, 2008), or conformity value (Zhou et al., 2009), the results of this dissertation imply that an employee's communion-striving motivation (Chapter 2) and an employee's combination of personality traits (i.e., the interaction between emotional stability and extraversion; Chapter 3) contingently influence the association between relational values, measured with a social network approach, and individual work outcomes. Thus, our findings confirm that although relationships at work might bring along several potential benefits, these specific individuals' attributes might determine whether *potential* opportunities, arising from an individual's social network position, can become more or less *realized* opportunities (Adler & Kwon, 2002).

Different social exchange relationships

The third contribution of this dissertation concerns the integration of different social exchange relationships into one research model to advance social exchange theory. Research that examined interconnections among exchanges is rather sparse, while this has been suggested as an important direction for future research (e.g., Erdogan & Enders, 2007; Seers, Petty, & Cashman, 1995; Sparrowe & Liden, 1997). Sherony and Green (2002) have investigated the effect of the interaction between two coworkers' LMX scores on coworker exchange for the coworker dyad, thus how the relationship between employee A and the supervisor, and the relationship between employee B and the supervisor together influence the relationship between employee A and B. Furthermore, trickle down effects of social exchange have been examined, such as the effect of supervisors' POS on subordinates' POS through subordinates' perceived supervisor support (PSS; Shanock & Eisenberger, 2006), and the moderating effect of supervisors' perceived organizational support on the relationship between LMX and follower job satisfaction and job performance (Erdogan & Enders, 2007). However, it remained unknown whether exchange relationships with supervisors and coworkers compensate each other or not

in affecting outcomes (see e.g., Cole, Schaninger, & Harris, 2002; Settoon, Bennett & Liden, 1996). An exception is a study that examined the simultaneous influence of leader-member exchange and team-member exchange on employee creativity (Liao, Liu, & Loi, 2010). Disregarding social network studies, earlier research on exchanges with coworkers focused merely on an employee's exchanges with the team as a whole (e.g., team-member exchange and work group exchange; Sherony & Green, 2002). In this dissertation, I focused on dyadic employee exchanges with coworkers by employing a social network approach to measure employee exchanges with coworkers, as this is in line with recent research incorporating the social context in which the dyadic LMX relationship is embedded (e.g., Sparrowe & Liden, 2005). In Chapter 4, I showed that employee exchange relationships with supervisors and employee exchange relationships with coworkers interact in influencing job performance. The results advance social exchange theory because they indicate that the employee exchange relationship with the supervisor and employee exchange relationships with coworkers intertwine in influencing an individual work outcome.

Tie content

In organizational research, the potentially different effect of expressive and instrumental ties has mainly been ignored (Podolny & Baron, 1997). However, in recent research, some scholars distinguished between expressive and instrumental ties and showed that there are different mechanisms involved in their effects on other constructs because of the different type of resources exchanged via expressive and instrumental ties. Examples hereof can be found in justice research (e.g., Roberson & Williamson, 2012; Umphress, Labianca, Brass, Kass, & Scholten, 2003). With the present dissertation, I aimed to add insights into the possibly different direct and indirect effect of instrumental and expressive ties on individual work outcomes. In the empirical study that I reported on in Chapter 3, I extend extant research by revealing the relatively underinvestigated or ambiguous direct association between network centrality and individual outcomes, distinguishing between expressive and instrumental ties and providing theoretical arguments for the different mechanisms that are involved in their effects on individual work outcomes. Furthermore, in examining the direct effect of centrality in

different types of social networks on individual work outcomes, the findings of Chapter 3 indicate that there are indeed limits to the appropriability of social capital ("social capital is appropriable in the sense that an actor's network (…) can be used for other purposes"; Adler & Kwon, 2002, p. 21), as suggested by Adler and Kwon (2002). That is, while for example friendship ties could be used for other purposes, such as exchange of instrumental resources, empirically, there are limits to this appropriability, because different effects on outcomes of different types of ties have been found. Taking into account the contingent effect of personality, I found a direct effect of affect-based social ties (i.e., expressive ties) on job satisfaction, the more affect-based individual outcome, and a direct effect of cognitive-based social ties (i.e., instrumental ties) on job performance, the more cognitive-based individual outcome. To the contrary, taking into account the contingent effect of personality, there was no significant association between expressive ties and job performance or between instrumental ties and job satisfaction. This also means that the strength of relationships between specific network ties and other constructs not only can be enhanced by matching them in specificity (Kamdar & Van Dyne, 2007), but could even determine the mere existence of relationships between them. Rather than aggregating across the different types of network ties (Podolny & Baron, 1997), the findings emphasize and confirm the theoretically distinctiveness of instrumental and expressive ties (Balkundi & Harrison, 2006) and the importance of distinguishing between them in empirical studies.

Furthermore, besides examining the distinct direct effect of expressive and instrumental ties on individual work outcomes, I also examined their *indirect* effect on an individual work outcome. To my knowledge, this is the first study that investigated and showed the combined interactive effect of expressive and instrumental network centrality on an individual work outcome, responding to Gibbons (2004) call to identify the principles relating network types to processes. The findings indicate that the strengthening effect of follower expressive network centrality on the association between LMX and individual job performance only occurred when follower instrumental network centrality was low. Thus, one type of network indeed might alter the effects of another type of network, as was suggested by Ibarra (1993b).

Summarizing, in Chapter 2 and 3 I showed the importance of including contingency factors in research on the relationship between social capital and social networks on the one hand and individual work outcomes on the other. In Chapter 4, I demonstrated the importance of including the social context as a contingency factor in research on the connection between a social exchange relationship on the one hand and an individual work outcome on the other. Furthermore, in Chapter 2 and 3, I aimed to add to the few studies that have brought the individual back into structural analysis by examining individual characteristics that contingently influence the impact of social network variables on individual work outcomes. In Chapter 4, I aimed to advance social exchange theory by the integration of different social exchange relationships into one research model and studying their combined impact on an individual work outcome. And finally, in Chapter 3 and 4, I contributed to social network research by theorizing about and empirically examining the distinct direct and indirect effect of different types of network ties on individual work outcomes.

PRACTICAL IMPLICATIONS

In addition to the theoretical implications, the present dissertation offers organizations, HR-managers, supervisors, and employees insights into the effects of work relationships on individual work outcomes. Specifically, the results indicate that employee relationships with coworkers and with their supervisor provide potential individual benefits, but that the realization or importance of these opportunities depends on an employee's individual characteristics, task dependence, and the co-existence of workplace exchange relationships.

First, this dissertation points out that having high-quality exchange relationships with coworkers, expressed by receiving voluntary help from coworkers, differently impacts employee turnover intention, suggesting that having high-quality relationships with coworkers is not equally important for all employees. Only for employees who are to a high extent dependent on their coworkers in accomplishing their tasks and for employees who have a high communion-striving motivation, receiving interpersonal citizenship behavior from coworkers leads to lower turnover intentions, through job satisfaction. It is therefore essential for organizations to facilitate the performance of interpersonal citizenship behavior among

coworkers such that the right employees receive this type of voluntary help from their coworkers. Based on the findings, managers should analyze the practical design of jobs to find out who is dependent on whom in accomplishing tasks and find out which employees have high community-striving motivation. Thus, managers should encourage employees to demonstrate ICB in particular towards coworkers who are highly task dependent on others and who score high on community-striving motivation. As suggested in earlier research, fostering ICB among employees could be accomplished by supervisors, for example, by engaging in transformational leadership behaviors, such as providing individualized support and having high performance expectations (Podsakoff, MacKenzie, & Bommer, 1996). Besides, managers might also redesign tasks to foster ICB, because employees who find their tasks intrinsically satisfying, who receive more task feedback, or perform less routine tasks, engage more in interpersonally orientated citizenship behaviors (e.g., Podsakoff, MacKenzie, Payne, & Bachrach, 2000).

Second, in general, an advantageous structural position in a social network brings along several potential benefits for employees. For example, the findings of this dissertation provide evidence that especially when a follower is central in an expressive and/or instrumental network with coworkers, a high-quality exchange relationship with a supervisor is associated with increased individual job performance. Thus, as leaders must decide whether they differentiate among their members in building quality exchange relationships (Sparrowe & Liden, 1997), the present dissertation can inform leaders in their choice with whom to build a high-quality exchange relationship in particular. That is, the highest benefits from building high-quality exchange relationships in terms of individual job performance can be obtained by choosing followers who are central in the expressive and/or the instrumental network with coworkers. However, although LMX differentiation may be acceptable and even be expected (Erdogan & Bauer, 2010), may contribute to group performance (Liden, Erdogan, Wayne, & Sparrowe, 2006), and could be unavoidable as leaders may sometimes experience situations in which it is impossible to form high-quality exchanges with all followers (Erdogan & Bauer, 2010), leaders should be aware that its effects on individual work outcomes is dependent on the fairness perceptions of employees (Erdogan & Bauer, 2010) and that severe differentiation may lead to the exclusion of some employees (Sparrowe & Liden, 1997).

Besides the indirect positive effect of employee network centrality, the results also demonstrate that employee network centrality may directly lead to higher individual job performance and job satisfaction. The findings point out that emotionally stable extraverts and emotionally unstable introverts are best able to fully use the potential benefits of network centrality in this regard. When we combine the findings concerning the potential positive direct and indirect effect of employee network centrality on job satisfaction and individual job performance, an important implication for employees stands out. While the findings highlight that employees should not only develop high quality exchange relationships with their supervisors, but also with their coworkers to ensure positive performance outcomes, the findings at the same time indicate that emotional stable extraverts and emotional unstable introverts are best able to also *directly* translate network centrality into higher job satisfaction or job performance. Thus, whereas employees in general may benefit indirectly from a central position in the social network with their coworkers when they have a high-quality exchange relationship with their leader, emotional stable extraverts and emotional unstable introverts are more able than emotional unstable extraverts and emotional stable introverts to benefit also directly from a central position in the social network with their coworkers. Therefore, actions aimed at strengthening social networks at the workplace should especially be directed towards these groups of employees.

Employees might be encouraged to build ties to coworkers simply by drawing their attention to the results of social network research (Kilduff & Brass, 2010). Employees who try to build a social network of contacts to become more central can do so "by deliberately accepting responsibility that brings them into contact with many functions and individuals in positions of authority" (Goodwin, Bowler, & Whittington, 2009, p. 959), such as by accepting a position in which they are influential on behalf of others in the organization (Goodwin et al., 2009) or by participating in project work such as change projects. While managers cannot easily suggest to employees to build a greater social network, they can structure formal task assignments such that it exposes employees to others (Kilduff & Brass, 2010). Furthermore, as suggested by Uhl-Bien, Graen, and Scandura (2000), the Human Resource department could also facilitate employees in becoming central in social networks by giving them the opportunity to interact

with coworkers. Examples of interaction-related events that could be supported by the Human Resource department and that can be used by employees to create stronger network linkages are company sponsored mentoring programs, orientation sessions, conferences, employee roundtables, and job rotation. While emotional stable extraverts and emotional unstable introverts benefit most from a central position in a social network with their coworkers with respect to individual job performance and job satisfaction, and would therefore especially be interested in obtaining such a central position, extraverts are likely more sensitive to this type of social activities as they like developing relationships and interacting with others (Chiaburu, Stoverink, Li, & Zhang, 2013; Klein et al., 2004; Morrison, 2002; Swickert, Hittner, & Foster, 2010).

STRENGHTS, LIMITATIONS, AND FUTURE RESEARCH DIRECTIONS

From a methodological perspective, I believe this dissertation has several strengths. First, in the separate studies, I tested the hypotheses using appropriate analytical methods in correspondence with the nested data and the complexity of the research models. For example, I tested mediation and moderation simultaneously in Chapter 2, and used multilevel analyses to account for the nested nature of the data in Chapter 3 and 4. Furthermore, I applied a multisource approach to measurement. Specifically, in Chapter 2, I used two different sources – employees and their coworkers –, and in Chapter 3 and Chapter 4, I used three different sources to obtain the measures, that is, employees, their coworkers, and their supervisors. Nearly all significant results reported in the empirical studies were based on analyses including measures obtained from multiple sources. The multisource approach aided in diminishing potential common source biases, and makes the findings of this dissertation more reliable and credible. Another strength of this dissertation is that I measured employee relationships with their coworkers by collecting *directed* social network data, maintaining the distinction between the source and the object of a relation (Ibarra, 1993a). This type of data makes it possible to study an employee's in-degree centrality (e.g., Zagenczyk & Murrell, 2009), such as in-degree advice network centrality (Chapter 3) and in-degree workflow network centrality (Chapter 4). This form of degree centrality only takes coworkers' ratings into account on the relationship

with a focal employee, avoiding the limitation of self-reports, in contrast to out-degree centrality (Sparrowe, Liden, Wayne & Kraimer, 2001). Furthermore, distinguishing in-degree centrality from out-degree centrality better resembles the asymmetrical nature of instrumental ties (Ibarra & Andrews, 1993).

Notwithstanding the strengths of the present dissertation, I must mention some potential limitations, which offer valuable opportunities for future research. First, for several reasons outlined in Chapter 1, I operationalized in-degree instrumental network centrality as in-degree advice network centrality in Chapter 3, whereas it was operationalized as in-degree workflow network centrality in Chapter 4. Although I argued that this different operationalization was most optimal for the separate studies, the distinct operationalization of instrumental network centrality hampers to a certain extent the integration of conclusions from the separate studies reported on in Chapter 3 and 4 regarding instrumental network centrality. Both types of ties are primarily employed by employees to exchange instrumental resources, and can be clearly theoretically distinguished from expressive ties, such as friendship ties (Balkundi & Harrison, 2006). Nevertheless, in future research examining both the direct and indirect effect of instrumental network centrality on individual work outcomes, such as job performance, only advice or workflow ties could be studied, so that integrating the findings regarding the direct and indirect effect of instrumental ties is more appropriate.

Secondly, as I outlined in Chapter 1, the separate studies of this dissertation are based on one large dataset, collected in 2009 and 2010. When multiple papers are based on a single dataset, the unique contribution of each paper might be limited (Kirkman & Chen, 2011). Table 1.1 shows that there is some overlap in variables used in this dissertation, but that it is restricted to the variables friendship network centrality, job satisfaction, and job performance and that also a substantial amount of unique variables were included in the separate studies. The first study (Chapter 2) examined how the receipt of ICB is indirectly associated with turnover intention, through job satisfaction, taking into account the contingent influence of communion-striving motivation and task dependence on this association. Whereas job satisfaction in Chapter 2 was included in the research model as a *mediating* variable, in the

second study (Chapter 3), I examined the direct relationship between network centrality on the one hand, and job performance and job satisfaction as *dependent* variables on the other hand, taking into account the combined influence of emotional stability and extraversion. In the third study (Chapter 4), I did not examine the *direct* effect of network centrality, but its *indirect* effect on the association between LMX quality and job performance. In addition, whereas job performance was the dependent variable in both Chapter 3 and Chapter 4, in Chapter 3 I primarily focused on the effect of *employee relationships with coworkers* on job performance, while in Chapter 4 I mainly focused on the effect of *employee relationship quality with the supervisor* and the *intertwinement of employee relationships with coworkers and with their supervisor* on job performance. Thus, different research questions are addressed in the separate studies, suggesting that some level of variable overlap is less problematic (Kirkman & Chen, 2011), and have led to different sets of implications. Yet, original data for separate studies are preferred (Lee & Mitchell, 2011). In addition, the use of a single study design in testing the hypotheses limits the external validity of the findings which warrants replication of this research to see whether the findings hold in other sectors. The health care sector has several distinguishing features compared to other sectors, which might make social exchange relationships more salient for employees working in this sector, such as the frequent contact with patients that causes high levels of stress in employees, and the relatively high degree of teamwork and coordination (Biron & Boon, 2013). Therefore, although replications amongst studies using social network measures are particularly rare, employing a multi-study design in future research is preferred, especially when samples can be drawn from other sectors (see e.g., Zagenczyk, Scott, Gibney, Murrell, & Thatcher, 2010).

Third, the three studies of this dissertation were all based on cross-sectional data captured on a particular point in time. In social network research, this is an acknowledged limitation, "especially where network variables are used for independent variables and non-network variables are used for dependent ones" (Lee & Kim, 2011, p. 217), such as in Chapter 2 and Chapter 3 of this dissertation. Therefore, I cannot establish causality in the various connections between work relationships and individual work outcomes tested. I initially hoped to separate the ratings of the independent and dependent variables in time, but the hospitals

did not permit more than one wave. Nonetheless, in most network research, the perspective is held that "interaction leads to changes in attitudes, beliefs, or behaviors" (Zagenczyk et al., 2010, p. 137), and not the other way around, lending credibility to the hypothesized direction between the constructs in this dissertation, that is, that employee relationships lead to individual work outcomes. A longitudinal design would allow for further assessing how work relationships influence individual work outcomes over time, providing more definitive evidence regarding the causality of the hypothesized relationships.

In this dissertation, I investigated the influence of work relationships on individual work outcomes, addressing four particular gaps in the literature. Hereby, I had to limit the scope of my research, giving way to opportunities for future research to examine other work relationships and other individual work outcomes than the ones studied in the three empirical chapters. Specifically, I suggest broadening the research model in which I simultaneously examined the effect of LMX and employee social exchanges with coworkers by simultaneously including the effect of POS – referring to organization-member exchange – as well. The three constructs are all based on social exchange theory and, to my knowledge, have not been simultaneously examined, while they together might give an even clearer picture of the effect of social exchange relationships on individual work outcomes as they represent relationships at multiple levels in an organization (Cole et al., 2002). Based on the propositions by Cole et al. (2002), the research question regarding the relatedness of the social exchange constructs and their complementarity could be answered further by also taking into account POS. Because the present dissertation showed the importance of distinguishing between instrumental and expressive dimensions of employee relationships with coworkers, it might be interesting to separately consider the instrumental and expressive dimensions of LMX and POS as well in answering this research question. The LMX construct, for example, contains four dimensions (see Liden, Sparrowe, & Wayne, 1997), or exchange currencies, of which affect is a more expressive dimension, while contribution is a more instrumental dimension. Different effects on individual work outcomes might be expected for the more expressive and instrumental

exchange currencies of the three different social exchange constructs on individual work outcomes.

Additionally, my effort to further bring the individual back into structural analysis could be taken on to examine the contingent influence of specific combinations of Big Five personality constructs on the effect of employee network centrality on other individual work outcomes than job satisfaction and job performance. For example, the effect of expressive and instrumental network centrality on organizational commitment could be examined, theorizing about their different effects on the three different dimensions of organizational commitment (Meyer, Allen, & Smith, 1993), taking into account the moderating influence of specific Big Five personality combinations.

CONCLUDING REMARKS

Employees are connected with others at work through work relationships, which consequently means that "to work is to relate" (Flum, 2001, p. 262). Although employees are nearly all confronted with work relationships, this dissertation showed that the impact of work relationships on individual work outcomes is not the same for all employees. I examined the influence of employee relationships with coworkers and employee relationships with supervisors on individual work outcomes, but also focused on when and why the strength or existence of these associations differed. I hope that the findings of this research especially inspire the right employees to find ways to develop high-quality exchange relationships with their coworkers and supervisors because this may lead to more positive individual work outcomes, and that the findings encourage organizations to facilitate the forming of high-quality exchange relationships for the right employees to reap the highest benefits from social exchanges in the workplace in terms of individual work outcomes.

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SAMENVATTING
(Summary in Dutch)

Bijna iedereen heeft op het werk te maken met anderen. Daardoor is werk een activiteit die mensen met elkaar verbindt. Werkgroepen en teams bijvoorbeeld worden steeds meer beschouwd als netwerken bestaande uit werkgerelateerde connecties tussen werknemers. Deze connecties bieden mogelijke voordelen aan deze werknemers. Relaties op het werk bepalen daarmee in grote mate de tevredenheid en het gedrag van werknemers. Tegenwoordig werken werknemers steeds meer samen in werkgroepen en teams, en zijn informele sociale netwerken belangrijker geworden om toegang te krijgen tot waardevolle middelen en mogelijkheden. Recentelijk is er daarom een groeiende interesse in het verkrijgen van inzicht in de rol die informele werkgroepen en sociale relaties in organisaties spelen bij het beïnvloeden van individuele werkgerelateerde uitkomstvariabelen.

Gezien de sociale aard van werk zouden werknemers ervan kunnen profiteren wanneer ze positieve werkrelaties ontwikkelen met anderen op het werk. Er is echter relatief weinig bekend over het raakvlak tussen werk en interpersoonlijke relaties. Zo bestaan er vragen en theoretische discussies over de invloed van verschillende sociale netwerkkenmerken op individuele werkuitkomsten, zoals individuele prestaties. Met dit proefschrift beoog ik bij te dragen aan het vergroten van inzicht in de invloed van verschillende dyadische en sociale netwerkrelaties op individuele werkuitkomsten.

In **Hoofdstuk 1** belicht ik drie op-middelen-gebaseerde relationele theorieën: a) sociaal kapitaaltheorie, b) sociale netwerktheorie en c) sociale uitwisselingstheorie. De keuze in dit proefschrift voor specifieke (relationele) variabelen is gefundeerd op deze drie theorieën die onderling met elkaar samenhangen, elkaar overlappen en elkaar aanvullen. De drie theorieën samen bieden daarom een completer beeld van de invloed van werkrelaties dan dat ze apart doen. Waar sociale netwerktheorie bijvoorbeeld inzicht geeft in structurele posities in een netwerk die mogelijk voordelen bieden aan werknemers, is aan de hand van sociaal kapitaaltheorie te verklaren *waarom* deze structurele posities voordelen opleveren. Bovendien, waar sociale netwerktheorie inzicht geeft in de connecties tussen werknemers, kan sociale

uitwisselingstheorie verklaren waarom werknemers daadwerkelijk middelen met elkaar uitwisselen. Bij het bestuderen van de invloed van werkrelaties op individuele werkuitkomsten baseer ik mij daarom op deze drie theorieën samen. Verder beperk ik mij tot drie individuele uitkomstvariabelen die in de literatuur over uitwisselingsrelaties veel aandacht krijgen, namelijk werktevredenheid, verloop(intentie) en individuele prestatie.

Met mijn proefschrift richt ik mij op vier lacunes in de literatuur over sociaal kapitaal, sociale netwerken en sociale uitwisselingsrelaties die ik in Hoofdstuk 1 heb geïdentificeerd. Het eerste hiaat betreft *conditionele factoren* en de *sociale context* waarin sociale uitwisselingsrelaties plaatsvinden. Het doorgronden van conditionele factoren, zoals interpersoonlijke verschillen en contextuele factoren, kan bijdragen aan het oplossen van discussies over netwerkmechanismen en sociaal kapitaal. Ook wordt in de literatuur genoemd dat tot dusverre weinig bekend is over de sociale context waarin dyadische sociale uitwisselingsrelaties zijn ingebed, maar dat er nieuwe openingen zijn om de sociale context mee te nemen in onderzoek naar dyadische sociale uitwisselingsrelaties. Een mogelijkheid is om te onderzoeken of de sociale context invloed heeft op de associatie tussen de leidinggevende-ondergeschikte uitwisselingsrelatie aan de ene kant en individuele uitkomstvariabelen aan de andere kant.

Een tweede hiaat in de literatuur betreft het combineren van *structuralistische* en *individualistische* benaderingen van sociale netwerken. In onderzoek naar de structuur van netwerken zijn kenmerken van individuen grotendeels genegeerd. Het is echter aannemelijk dat verschillen tussen individuen bepalen in welke mate de mogelijkheden die sociale netwerkrelaties bieden daadwerkelijk hun uitwerking hebben op individuele werkuitkomsten. Zeer recent worden structuralistische en individualistische benaderingen van sociale netwerken daarom gecombineerd door combinaties tussen individuele en structurele kenmerken te onderzoeken.

Een derde hiaat betreft het samenspel tussen verschillende soorten uitwisselingsrelaties in het beïnvloeden van individuele werkuitkomsten. In eerder onderzoek zijn hierover ideeën geopperd die nog onderzocht dienen te worden aangaande de kwaliteit van uitwisselingsrelaties die werknemers tegelijkertijd hebben met hun leidinggevende, hun

werkgroep of team, en de organisatie. Zo is het bijvoorbeeld de vraag of deze elkaar kunnen compenseren en/of elkaar aanvullen. In dit proefschrift onderzoek ik hoe de uitwisselingsrelatie van een werknemer met de *leidinggevende* samen met de uitwisselingsrelatie van die werknemer met *collega's* invloed heeft op individuele werkprestatie.

Een vierde lacune betreft de verschillende *typen* sociale netwerkconnecties tussen werknemers. Er is veel aandacht besteed aan verschillende soorten uitwisselingen die kunnen voorkomen binnen netwerkconnecties tussen mensen in buurten en gemeenschappen, naast de uitwisseling van materiële middelen. Netwerkonderzoek binnen organisaties is echter vrijwel voorbijgegaan aan de implicaties hiervan. Daarom onderzoek ik in dit proefschrift de invloed van twee vaak onderscheiden typen netwerkconnecties op individuele werkuitkomsten, namelijk expressieve (voornamelijk gebaseerd op affectie) en instrumentele (voornamelijk gebaseerd op het vergaren van informatie en middelen om een taak te kunnen uitvoeren) connecties.

Om de geïdentificeerde lacunes empirisch te onderzoeken heb ik data verzameld met behulp van vragenlijsten onder verpleegkundigen en hun leidinggevenden in vijf Nederlandse ziekenhuizen. In drie verschillende studies, elk belicht in een apart hoofdstuk, heb ik hypotheses opgesteld en getoetst om de genoemde hiaten voor een deel te vullen en bij te dragen aan de inzichten over de invloed van werkrelaties op individuele werkuitkomsten.

Aan de hand van een relationele benadering doe ik in **Hoofdstuk 2** empirisch onderzoek naar de invloed van het ontvangen van interpersoonlijk helpgedrag van collega's op individuele verloopintentie. Interpersoonlijk helpgedrag, een sociale uitwisselingsvariabele, biedt sociaal kapitaal in de vorm van vrijwillig helpgedrag en ondersteuning zoals het vrijwillig op weg helpen van een nieuwe medewerker. Ik heb interpersoonlijk helpgedrag gemeten met een sociale netwerkbenadering waarbij werknemers van iedere collega konden aangeven in welke mate van die collega hulp of steun is ontvangen. Deze meetmethode maakt het mogelijk om heel specifiek te kijken naar het *ontvangen* van dit gedrag. Terwijl in eerder onderzoek is gevonden dat het *vertonen* van interpersoonlijk helpgedrag leidt tot lagere verloopintentie bij de *vertoner*, is niet eerder onderzocht of het *ontvangen* van dit gedrag ook samenhangt met een

lagere verloopintentie bij de *ontvanger*. Interpersoonlijk helpgedrag wordt alleen vrijwillig getoond en kan om die reden een indicatie geven van de kwaliteit van de uitwisselingsrelatie tussen twee personen. In het algemeen binden positieve relaties werknemers aan de organisatie en voelen werknemers die sterkere connecties hebben met collega's zich over het algemeen meer gehecht aan de organisatie. Op basis daarvan veronderstel ik dat het ontvangen van interpersoonlijk helpgedrag samen zal hangen met een lagere verloopintentie van de ontvanger.

Voorgaande studies wekken tevens de verwachting dat het ontvangen van hulp en steun zal leiden tot een hogere werktevredenheid. Bovendien is eerder gevonden dat werktevredenheid een van de belangrijkste voorspellers is van verloopintentie. Daarom veronderstel ik dat de relatie tussen het ontvangen van hulp en ondersteuning en verloopintentie wordt gemedieerd door werktevredenheid. Het is daarnaast aannemelijk dat het ontvangen van hulp niet voor alle werknemers in gelijke mate zal leiden tot lagere verloopintentie (via hogere werktevredenheid). Als een eerste aanzet tot het vergroten van inzicht met betrekking tot conditionele factoren en het combineren van structuralistische en individualistische benaderingen heb ik daarom onderzocht of de veronderstelde indirecte relatie sterker zal zijn voor werknemers met een sterkere gemeenschapszin en/of een hogere taakafhankelijkheid van collega's. Het hebben van positieve werkrelaties met collega's zal waarschijnlijk belangrijker zijn voor deze werknemers. Met een dataset bestaande uit 149 verpleegkundigen uit 2 Nederlandse ziekenhuizen toon ik aan dat ontvangen hulp inderdaad samenhangt met lagere verloopintentie, via hogere werktevredenheid. Bovendien vind ik dat deze indirecte associatie sterk positief is voor werknemers met een sterke gemeenschapszin en/of een hogere taakafhankelijkheid van collega's, terwijl deze relatief zwak is voor werknemers met een zwakke gemeenschapszin en/of lagere taakafhankelijkheid van collega's.

In **Hoofdstuk 3** doe ik een aanzet tot het vergroten van inzicht in de samenhang tussen de twee vaak onderscheiden expressieve en instrumentele netwerkconnecties en individuele uitkomstvariabelen. Sommige werknemers nemen in sociale netwerken posities in (zoals een centrale positie, oftewel, meer en/of sterkere connecties) die hen mogelijke voordelen bieden

die doorwerken in werktevredenheid of individuele werkprestatie. Meer specifiek verwacht ik dat een centrale positie in een expressief vriendschapsnetwerk vooral positief samenhangt met werktevredenheid, terwijl een centrale positie in het instrumenteel adviesnetwerk vooral positief samenhangt met de individuele werkprestatie.

In dit hoofdstuk doe ik bovendien een verdere aanzet tot het vullen van de lacune betreffende het combineren van een structuralistische en individualistische benadering van sociale netwerken door niet alleen te kijken naar de impact van netwerkcentraliteit op werktevredenheid en werkprestatie, maar ook naar de invloed van individuele verschillen. Meer specifiek verwacht ik dat de combinatie van iemands emotionele stabiliteit en extraversie invloed heeft op de mate waarin diegene de voordelen van netwerkcentraliteit zodanig kan benutten dat netwerkcentraliteit daadwerkelijk positief samenhangt met werktevredenheid en werkprestatie. Met gegevens van 299 verpleegkundigen en hun leidinggevenden uit vier Nederlandse ziekenhuizen toon ik aan dat de positieve samenhang tussen centraliteit in een vriendschapsnetwerk en werktevredenheid, evenals de positieve samenhang tussen centraliteit in een adviesnetwerk en individuele werkprestatie, sterker is voor emotioneel stabiele extraverte en voor emotioneel onstabiele introverte werknemers dan voor emotioneel onstabiele extraverte en emotioneel stabiele introverte werknemers. Emotioneel stabiele extraverte werknemers hebben blijkbaar meer mogelijkheden om van een centrale positie in een sociaal netwerk op het werk te profiteren dan emotioneel onstabiele extraverte werknemers, aangezien de eerstgenoemden hier effectiever en efficiënter mee om zullen kunnen springen. Verder hebben emotioneel onstabiele introverte werknemers vermoedelijk meer mogelijkheden om van een centrale positie in een sociaal netwerk op het werk te profiteren dan emotioneel stabiele introverte werknemers, aangezien het aannemelijk is dat netwerkcentraliteit de eerstgenoemden meer zelfvertrouwen geeft, terwijl de laatstgenoemden zich hierdoor amper geraakt zullen voelen.

In Hoofdstuk 2 en 3 heb ik mij exclusief gericht op relaties die werknemers hebben met collega's. In **Hoofdstuk 4** betrek ik ook de uitwisselingsrelatie die werknemers hebben met de leidinggevende in het onderzoeksmodel, met individuele werkprestatie als uitkomstvariabele.

In eerder onderzoek zijn er inconsistente resultaten gevonden met betrekking tot de associatie tussen de leidinggevende-ondergeschikte uitwisselingsrelatie en individuele werkuitkomsten. Deze resultaten zijn mogelijk te verklaren door verschillen in de sociale context waarin de leidinggevende-ondergeschikte relatie is ingebed. De sociale context wordt bijvoorbeeld gevormd door de relaties die de ondergeschikten hebben met hun collega's.

Op basis van verschillende eerdere onderzoeken verwacht ik dat een kwalitatief hoge leidinggevende-ondergeschikte uitwisselingsrelatie samenhangt met een hogere individuele werkprestatie. Daarnaast onderzoek ik of de uitwisselingsrelatie die ondergeschikten hebben met collega's invloed heeft op deze samenhang. Hiermee doe ik een aanzet tot het vergroten van inzicht in het samenspel van verschillende uitwisselingsrelaties in het beïnvloeden van werkuitkomsten. Daarbij onderscheid ik, net als in Hoofdstuk 3, de expressieve en instrumentele netwerkconnecties tussen werknemers bij het bestuderen van de uitwisselingsrelatie van werknemers. Aangezien expressieve vriendschapsconnecties met collega's sociale middelen en sociale inbedding teweegbrengen, veronderstel ik dat deze relaties een motiverende en eventueel faciliterende werking hebben die ondergeschikten motiveert om optimaal te presteren als reactie op een hoge kwaliteit van de leidinggevende-ondergeschikte uitwisselingsrelatie.

Daarnaast onderzoek ik welke invloed de *combinatie* van expressieve vriendschapsconnecties en instrumentele connecties heeft op het verband tussen de leidinggevende-ondergeschikte uitwisselingsrelatie en individuele werkprestatie. Hiervoor maak ik gebruik van gegevens van 240 verpleegkundigen en hun leidinggevenden uit vier Nederlandse ziekenhuizen. Ik verwacht en vind in de resultaten dat centraliteit in het vriendschapsnetwerk met collega's alleen een versterkende werking heeft op de positieve associatie tussen de leidinggevende-ondergeschikte uitwisselingsrelatie aan de ene kant en individuele werkprestatie aan de andere kant wanneer de ondergeschikte tegelijkertijd minder centraal is in het instrumentele netwerk. Dus blijkbaar geeft een hoge instrumentele netwerk-centraliteit aan dat de ondergeschikte al voldoende beschikt over relevante middelen om iets terug te kunnen doen voor de leidinggevende in reactie op de goede uitwisselingsrelatie tussen de leidinggevende en ondergeschikte. Verder is uit de resultaten op te maken dat werknemers

zowel uit de relatie met de leidinggevende als met collega's motivatie en/of middelen halen waardoor ze hoger scoren op werkprestatie.

In **Hoofdstuk 5** vat ik de bevindingen uit de drie voorgaande empirische hoofdstukken samen en integreer en bediscussieer ik deze. De theoretische implicaties komen naar voren door aan te geven hoe de resultaten bijdragen aan het vullen van de vier lacunes die ik in Hoofdstuk 1 heb geïdentificeerd. Ten eerste heb ik met de uitkomsten het belang laten zien van het meenemen van conditionele factoren (zoals sociale context en taakafhankelijkheid) in onderzoek naar de associatie tussen sociaal kapitaal, sociale netwerkposities en sociale uitwisselingsrelaties aan de ene kant en individuele werkuitkomsten aan de andere kant. Ten tweede hebben de studies empirische ondersteuning toegevoegd aan de weinige studies die tot nu toe kenmerken van het individu hebben meegenomen in structurele analyses binnen organisaties. Kenmerken van werknemers, zoals gemeenschapszin, emotionele stabiliteit en extraversie, blijken de associatie tussen sociale netwerkvariabelen en individuele werkuitkomsten te beïnvloeden. Ten derde verrijken de bevindingen de sociale uitwisselingstheorie doordat ze aantonen dat de *combinatie* tussen de uitwisselingsrelatie die werknemers met hun leidinggevende hebben en de uitwisselingsrelatie die ze met hun collega's hebben samenhangt met individuele werkprestaties. Een betere uitwisselingsrelatie met de leidinggevende lijkt alleen samen te hangen met hogere werkprestatie wanneer uitwisselingsrelaties met collega's ook beter zijn. Ten slotte hebben de studies bijgedragen aan sociaal netwerkonderzoek door uitbreidingen te leveren aan theorie over en empirische ondersteuning voor de verschillende (directe en indirecte) invloed van expressieve en instrumentele netwerkconnecties met collega's op individuele werkuitkomsten. Dit onderstreept het belang om ook in sociaal netwerkonderzoek in organisaties verschillende typen sociale netwerkconnecties te onderscheiden.

Ondanks de veelal positieve invloed van sociaal kapitaal, sociale netwerkconnecties en sociale uitwisselingsrelaties op individuele werkuitkomsten, laten de uitkomsten van de empirische studies ook zien dat deze voor sommige werknemers sterker samenhangen met lagere verloopintentie, hogere werktevredenheid en/of hogere werkprestatie dan voor andere

werknemers, wat enkele belangrijke implicaties oplevert voor de praktijk. Dit betreft bijvoorbeeld de keuze van managers om wel of niet een uitwisselingsrelatie van hoge kwaliteit op te bouwen met individuele werknemers. Een ander voorbeeld van een praktische implicatie is dat HR-managers en leidinggevenden bij bepaalde werknemers, zoals emotioneel extraverte werknemers, extra kunnen proberen te stimuleren dat ze meer centraal in het netwerk met hun collega's komen te staan. Dit kan bijvoorbeeld bereikt worden door voor deze werknemers sociale activiteiten te organiseren zoals conferenties en mentorprogramma's.

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Gerdien Regts

Groningen, oktober 2013

APPENDIX A

Questionnaire Items Regarding Job Performance

1. Nursing skills

2. Knowledge concerning nursing skills

3. Communication with the patient/family of the patient

4. Communication about the patient

5. Collaboration

6. Administration

7. Planning of tasks

8. Improving care and coordination

9. Job involvement

10. Improving the image/performance of the unit