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RESEARCH ARTICLE

Communicate or not: Exploring the different effects of instrumental and expressive networks on thriving at work

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Abstract
Thriving at work is closely related to the way employees are embedded in their social contexts, such as the structure of their communication relations with coworkers. In previous research, communication relations have been found to negatively relate to thriving at work. However, social network theory suggests that communication relations are beneficial in obtaining resources in the workplace, which might increase thriving at work. To reconcile the seemingly conflicting mechanisms, we draw on social network theory to unpack the mechanisms underlying communication relations by considering the instrumental and expressive roles. Using a structural equation model, we investigate the indirect effects of communication networks on thriving at work via advice-seeking networks (instrumental) and friendship networks (expressive). Our findings indicate communication relations are negatively related to thriving at work via advice-seeking relations, but are positively related to thriving at work via friendship relations.

Keywords: thriving at work; social network analysis; advice network; friendship network; communication network

Introduction

Thriving at work is a positive psychological state in which individuals experience a sense of vitality and learning at work (Spreitzer, Sutcliffe, Dutton, Sonenshein, & Grant, 2005). When employees are thriving, they feel energetic and that they are continuously improving themselves at work, which has been found to be associated with positive work outcomes, such as improved performance and innovation (e.g., Jiang, Jiang, & Nielsen, 2021; Wallace, Butts, Johnson, Stevens, & Smith, 2016). To enhance employees' thriving at work, researchers have explored the drivers of thriving at work in previous studies. For instance, researchers have found that individuals' characteristics, such as proactivity and psychological traits, are related to their thriving at work (e.g., Babalola, Ren, Ogbonnaya, Riisla, Soetan, & Gok, 2022; Niessen, Sonnentag, & Sach, 2012). In addition to the individual-level perspective, the socially embedded model (Spreitzer et al., 2005) provides another very important lens through which thriving at work can be understood. According to the socially embedded model of thriving at work, since employees are embedded in social systems, individuals' thriving at work is affected by their social network relations with others (Bush & Frohman, 1991; Soltis, Brass, & Lepak, 2018). Thus, social network analysis offers a unique perspective on the ways in which

employees' social network relations play a vital role in affecting thriving at work (Cullen, Gerbasi, & Chrobot-Mason, 2018; Spreitzer et al., 2005).

Despite the importance of applying the socially embedded model and social network analysis to the task of investigating thriving at work, related empirical studies have been rather limited, and the research findings of previous studies remain far from complete. For instance, in one existing study (Cullen, Gerbasi, & Chrobot-Mason, 2018), researchers explored the ways in which communication networks, one of the most important types of intraorganizational social networks, were related to employees' thriving at work. They found that employees who hold central positions in the communication network are more likely to experience role conflict and role overload, leading to low thriving at work. However, previous studies on social networks have indicated that a central position in social networks has potentially positive effects on thriving at work. Employees who hold central positions in communication networks can access and control more organizational resources such as knowledge and social support (Argote, Aven, & Kush, 2018; Leavitt, 1951; Mehra, Kilduff, & Brass, 2001; Sparrowe, Liden, Wayne, & Kraimer, 2001). Support from colleagues has been found to be positively related to thriving at work (Niessen, Sonnentag, & Sach, 2012). To reconcile these seemingly conflicting findings, we propose that the relations between communication networks and thriving at work require further exploration and that the various roles played by communication networks must be considered in further detail.

As suggested by Ibarra (1993, 1995), communication networks can play two different types of roles – instrumental and expressive roles – thus forming two different types of social relations. In an instrumental network, work-related resources (Ibarra, 1993), such as information, knowledge, and expertise, are transmitted. Thus, a central position in an instrumental network has been found to be related to unfavorable work stress, such as role overload and information overload (Cullen, Gerbasi, & Chrobot-Mason, 2018; Zandt, 2004), which may decrease thriving at work (Spreitzer et al., 2005). In comparison, an expressive network transmits personal emotional resources, such as friendship and trust (Ibarra, 1993). Thus, individuals who occupy central positions in an expressive network have been claimed to have greater access to social support (Baumeister & Leary, 1995; Zhang, Sun, Shaffer, & Lin, 2022), which could increase thriving at work (Spreitzer et al., 2005). Therefore, in this study, we distinguish between the instrumental and expressive roles of the communication network, providing a novel perspective to explore and reconcile the potential dual effects of communication relations on thriving at work.

To empirically explore the different effects of the instrumental and expressive relations enabled by the communication network, we collected survey data from 178 employees working in the human resources (HR) department of a global company and used structural equation modeling (SEM) to conduct data analysis. This study has both theoretical and practical implications regarding employees' thriving at work. Theoretically, we explore the different effects of the instrumental and expressive relations enabled by the communication relation. Thus, we explicate the complex mechanisms of how communication relations influence thriving at work. Additionally, by adopting a social network perspective, this study elaborates on the distinct effects of different social relations within the organization on employees' thriving at work. In practical terms, this study offers a unique perspective on the different social networks, for example, advice-seeking networks and friendship networks, in which employees participate to enhance their thriving at work.

Theoretical background and hypothesis development

Thriving at work

Thriving at work refers to the combined feeling of vitality and learning at work, and it refers to the affective and cognitive aspects of one's self-development (Spreitzer, Porath, & Gibson, 2012; Spreitzer et al., 2005). Vitality refers to the positive experience of having energy and feeling alive (Nix, Ryan, Manly, & Deci, 1999; Spreitzer, Porath, & Gibson, 2012), while learning refers to the sense of being

able to acquire and apply knowledge and skills (Dweck, 1986; Elliott & Dweck, 1988). Thriving at work has been found to be associated with many valuable outcomes for employees and organizations, such as higher job performance (Jiang, Jiang, & Nielsen, 2021; Sheng & Zhou, 2022; Wallace et al., 2016), individual innovation (Christensen-Salem et al., 2021; Wallace et al., 2016), and life satisfaction (Zhai, Wang, & Weadon, 2020) on the part of employees as well as improved organizational sustainability (Spreitzer, Porath, & Gibson, 2012).

To improve our understanding of thriving at work, many studies have focused on individual-level attributes that can increase or decrease employees' thriving at work. For example, employees' particular personality characteristics, such as their proactivity (Jiang, 2017; Niessen, Sonnentag, & Sach, 2012), positive psychological capital (Paterson, Luthans, & Jeung, 2014), trait competitiveness (Babalola et al., 2022), and core self-evaluations (Porath, Spreitzer, Gibson & Garnett, 2012; Walumbwa, Muchiri, Misati, Wu, & Meiliani, 2018), have been found to positively relate to personal thriving at work. Moreover, various types of resources possessed by individuals have been found to facilitate thriving at work. For instance, employees who receive more support from their leaders (Paterson, Luthans, & Jeung, 2014; Walumbwa et al., 2018; Zhai, Wang, & Weadon, 2020) and those who perceive more crafting opportunities (Mansour & Tremblay, 2020) have been reported to experience higher thriving at work. In addition, some individual psychological characteristics have also been found to impact thriving at work. For example, an individual's meaningfulness at work is positively related to their thriving at work (Guan & Frenkel, 2021), while an individual's perceived stress has been reported to be negatively associated with their thriving at work (Cullen, Gerbasi, & Chrobot-Mason, 2018; Flinchbaugh, Luth, & Li, 2015).

The socially embedded model of thriving at work

Although thriving at work is a personal psychological state, scholars went beyond the individual level and proposed the socially embedded model to indicate how thriving at work is rooted in the social context surrounding employees (Spreitzer et al., 2005). As suggested by the socially embedded model of thriving at work (Spreitzer et al., 2005), social systems are the origins of employees' experience of learning and vitality. Since useful resources, such as information and knowledge, are embedded in social systems (Emerson, 1962), individuals rely on social interactions to obtain these resources and, in turn, to gain experience with work practices (Brown & Duguid, 1991; Gherardi, Nicolini, & Odella, 1998; Ryan & Deci, 2000; Spreitzer et al., 2005). Furthermore, social interactions with others can satisfy employees' psychological needs, for example, a sense of belongingness and relatedness (Lee & Robbins, 1995; Ryan & Deci, 2000), which can enhance their psychological energy.

Researchers have begun to use the socially embedded model to empirically explore interpersonal features as antecedents of thriving at work. For instance, better relationships between individuals and their supervisors (Guan & Frenkel, 2021; Russo, Buonocore, Carmeli, & Guo, 2018; Wallace et al., 2016; Walumbwa, Christensen-Salem, Perrmann-Graham, & Kasimu, 2020; Xu, Loi, & Chow, 2019) and organizations (Riaz, Xu, & Hussain, 2018) have been reported to be positively related to thriving at work. Researchers have also studied employees' social contexts outside the workplace and found that high-quality family relationships on the part of employees are positively related to their thriving at work (Ren et al., 2022; Russo et al., 2018). These study results have suggested that a supportive social context can enhance employees' thriving at work.

Social networks and thriving at work

Although researchers have been made aware of the importance of social context and have begun to explore the impact of social-related factors on thriving at work, very few studies have considered social context in fine detail and modeled it in terms of social networks. One such study was conducted by Cullen, Gerbasi, and Chrobot-Mason (2018), who explored the relationship between

communication networks and thriving at work. In an earlier study, Gerbasi, Porath, Parker, Spreitzer, and Cross (2015) did not examine the direct relationship between social networks and thriving at work but rather studied the moderating effect of thriving at work on the relationship between de-energizing social relations and job performance. In general, these two studies revealed that thriving at work is associated with social networks. Social networks are constructed by modeling individuals in the form of nodes and modeling the social relationships of individuals as the ties connecting nodes (Wasserman & Faust, 1994). As suggested by social network theory (Borgatti, Mehra, Brass, & Labianca, 2009), individuals' positions within a social network influence their opportunities and constrain the other personnel whom they encounter; thus, these positions may affect individual outcomes. For example, individuals who occupy central positions in social networks are viewed to possess the power to control and influence the valuable resources (e.g., information, ego support, wealth) embedded in the social networks (Emerson, 1962), which may in turn influence individuals' psychological states (Burkhardt & Brass, 2010; Zagenczyk, Powell, & Scott, 2020). To facilitate a more in-depth study of the connections between social context and thriving at work and to enrich the limited number of studies that have focused on social network theory, we model the social context where individuals participate in social networks and explore how individuals' positions in these social networks are associated with their thriving at work.

By adopting the perspective of social network analysis, we build on the initial attempt by Cullen, Gerbasi, and Chrobot-Mason (2018) with the aim of continuing to explore the connections between individuals' communication relations and their thriving at work. A communication network is a social network consisting of communication contacts within an organization (Eisenberg, Monge, & Miller, 1983). Based on role theory, Cullen, Gerbasi, and Chrobot-Mason (2018) found that employees who are central in communication networks, that is, those on whom more coworkers rely as sources of information, are less likely to experience thriving at work. Furthermore, this negative relationship is mediated by role ambiguity and role overload. As suggested by these findings, the central position in the communication network decreases thriving at work by increasing employees' role stressors, which is consistent with the assumption that individuals who occupy central positions in communication networks are needed to process excessively many information requests, thus leading to negative outcomes (Lechner, Frankenberger, & Floyd, 2010; Uzzi, 1997). However, many social network studies have supported the opposite claim, namely, that occupying a central position in a communication network has positive effects on individual well-being. According to social network theory, individuals who occupy central positions in communication networks are considered to have access to key information, expertise, and other resources (e.g., Leavitt, 1951; Rice & Aydin, 1991). Furthermore, such central positions are positively related to a positive feeling of being supported by and supporting others (George & Bettenhausen, 1990). Therefore, empirical studies from different theoretical perspectives, role theory and social network theory, have indicated the supposedly different effects of communication networks on individuals' thriving at work.

To reconcile these seemingly conflicting arguments, we seek to explore the functions of communication relations by considering the different effects of the instrumental and expressive aspects of communication (Ibarra, 1993). As the basic type of interpersonal network within the organization, the communication network is used to exchange a variety of resources and emotions and to develop various forms of other social relationships. We distinguish between the two major types of social relations, which are developed by communication interactions to share different types of resources. Instrumental relationships are used by employees to exchange work-related resources, such as information and advice, to accomplish work tasks and facilitate work-related development (Krackhardt, 1990; Lincoln & Miller, 1979). In comparison, expressive relationships are used to convey emotional resources, such as trust and friendship, allowing employees to develop themselves (Ibarra, 1993; Lincoln & Miller, 1979).

By analyzing the information and resources that are transferred via communication relations into different components and considering the different roles played by instrumental and expressive relations, we hope to use social-related theoretical mechanisms to explain the seemingly conflicting

effects of communication networks on thriving at work. We first discuss the instrumental network, which by definition transmits work-related resources, such as advice and information (Ibarra, 1993). In this study, we operationalize the instrumental network in the form of the advice network, which is a social network that is composed of organizational relationships based on seeking or providing work-related advice (Sykes & Venkatesh, 2017). As the advice network is established via the communication network, we adopt the perspective of social network coevolution (Lee & Monge, 2011) and discuss the relationship between these two types of networks. Due to the multiplex nature of social networks, members of an organization who frequently communicate with each other are more likely to be aware of each other's capabilities as sources of work-related information and advice and are thus more likely to form advice relations with each other (Brewer, Carley, Benham-Hutchins, Effken, & Reminga, 2020; Lee & Monge, 2011; Nebus, 2006). Furthermore, employees who engage in communication interactions with more people are more likely to be aware of 'who knows what' within the organization and to seek advice from others (Borgatti & Cross, 2003; Wegner, 1987). Thus, we propose the existence of a positive relationship between a central position in a communication network and a central position in an advice-seeking network.

Hypothesis 1a: Employees' communication centrality positively relates to their advice-seeking centrality.

We further consider the relationship between the individual's position in an advice-seeking network and their thriving at work by drawing on the transactive memory system (TMS) theory (Wegner, 1987). TMS refers to a set of individual memory systems in combination with communication among individuals (Wegner, 1987; Wegner, Giuliano, & Hertel, 1985). Scholars have used TMS theory to explain the process of knowledge management in organizational contexts. In an efficient TMS, specialized knowledge is believed to be distributed among individuals within the system, and every system member can turn to specific experts to obtain information (Hollingshead, 2001; Lee, Bachrach, & Lewis, 2014; Wegner, 1995). However, based on the TMS theory, we propose that high advice-seeking centrality may indicate that the person blindly seeks advice from many coworkers, and those employees with high advice-seeking centrality could not take advantage of TMS and thus be negatively impacted by the inefficient TMS. On the one hand, if individuals depend excessively on other members of the organization, they lack the motivation needed to develop themselves, thus resulting in a lack of learning. Simultaneously, individuals who frequently seek others' help may encounter information overload and experience uncertainty when making decisions (Oldroyd & Morris, 2012), which could also lead to a decrease in learning. On the other hand, individuals who rely on others to obtain ideas and knowledge are more likely to experience losses of reputation and to generate an impression of inability, which may lead to lower vitality (Brooks, Gino, & Schweitzer, 2015; Lee, 1997; Porath, Gerbasi, & Schorch, 2015). In addition, when individuals blindly seek advice from other members of the organization who have little relevant information, the advice seekers tend to engage in low-efficiency conversations and have tiresome experiences (Wegner, Giuliano, & Hertel, 1985). Thus, we propose the existence of a negative relationship between a central position in an advice-seeking network and thriving at work.

Hypothesis 1b: Employees' advice-seeking centrality negatively relates to their thriving at work.

In addition to Hypotheses 1a and 1b, we also explore the mediating effect of advice-seeking relations on the connection between communication networks and thriving at work. Given that advice-seeking relations are established in communication relations, one potential way for the communication network to impact thriving at work is through the impact of individuals' advice-seeking network. Thus, we propose the following hypothesis concerning this mediating effect to complete this first line of investigation.

Hypothesis 1c: Employees' advice-seeking centrality mediates the relationship between their communication centrality and thriving at work, and there is an indirect negative relationship between communication centrality and thriving at work via advice-seeking centrality.

Subsequently, we investigate the other aspect of the communication network, that is, the expressive network. The expressive network is a social network that transmits emotional resources, such as friendship and social support (Ibarra, 1993). In this study, we operationalize the expressive network in the form of a friendship network, which is composed of personal friendships among individuals and relies on frequent communication interactions (Krackhardt, 1992; Yamamoto, 2018). Regarding the relationship between the communication network and the friendship network, previous studies have found that individuals who frequently interact with other organizational members improve their social attractiveness more easily, leave better impressions (Zajonc, 1968) and are more popular among their coworkers (Scott & Judge, 2009). It has also been reported that employees who actively communicate with more coworkers are more likely to develop friendship relationships than those who communicate with fewer coworkers (Krackhardt, 1992; Pilny & Atouba, 2018; Welles, Vashevko, Bennett, & Contractor, 2014; Zajonc, 1968). Therefore, we propose the existence of a positive relationship between a central position in a communication network and a central position in a friendship network.

Hypothesis 2a: Employees' communication centrality positively relates to their friendship centrality.

To understand the connection between individuals' positions in the friendship network and their thriving at work, we draw on social capital theory. According to social capital theory, valued resources, such as information and power, are embedded in social networks (Lin, 1999). A friendship network is a social network that provides important resources, such as moral and material support (Adler & Kwon, 2002). From the perspective of social capital theory, the social support provided by friendship is positively related to individual affective and physiological energy (Brown, Nesse, Vinokur, & Smith, 2003; Carlson, Charlin, & Miller, 1988) and thus positively related to the vitality subdimension of thriving. Hence, in this study, we hypothesize the existence of a positive relationship between a central position in a friendship network and thriving at work.

Hypothesis 2b: Employees' friendship centrality positively relates to their thriving at work.

Furthermore, based on Hypotheses 2a and 2b, we propose a hypothesis concerning the mediating effect of friendship networks as follows:

Hypothesis 2c: Employees' friendship centrality mediates the relationship between their communication centrality and thriving at work, and there is an indirect positive relationship between communication centrality and thriving at work via friendship centrality.

Given the opposing indirect effects of the communication network on thriving via the advice-seeking network and friendship network, our research question focuses on the direct effect and the total effect of the communication network on thriving at work.

RQ: What are the direct effect and the total effect of communication centrality on thriving at work?

Our research model is summarized in Fig. 1, which accounts for the contradictory effects of the communication network on thriving at work via advice-seeking relations and friendship relations. By developing this integrated model to explain the effects of communication networks on thriving at
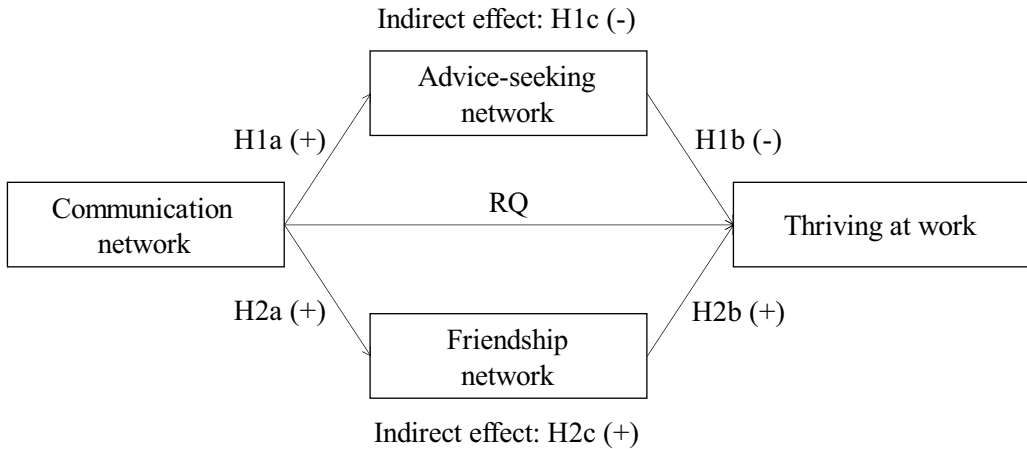
Figure 1. Research model.

work via both instrumental and expressive networks, we hope to reconcile the seemingly conflicting findings that have been reported concerning the effects of the communication network on thriving at work.

Method

Data collection and sample

In this study, we employed an online survey to collect data from employees working in an HR department (200 employees) of a global manufacturing corporation located in China. The HR department was geographically distributed across 16 Chinese cities, and 96 employees were located at the corporation's headquarters in Beijing. Prior to completing the online survey, all participants received an online consent form explaining the study procedure and emphasizing the confidentiality of individual responses; they were also informed that they could choose to quit the study at any time. We used a roster-based approach to collect social network data. Participants made nominations from the roster of all the employees working in the HR department to report their social relationships with other employees working in the same department. We collected the survey results from December 2019 to January 2020, and 185 employees drawn from 19 teams completed the survey. In addition to the survey, we collected demographic data directly from the records of the HR department.

The descriptive statistics of the final sample ($N = 178$) are summarized in Table 1. In the final sample, 86.0% of participants were female, and 14.0% were male. The majority of respondents (54.5%) were between 30 and 39 years old, followed by 25.3% between 40 and 49 years old, 14% between 25 and 29 years old, and 6.2% between 50 and 55 years old. Most respondents had a bachelor's degree (62.4%) or a master's degree (30.3%), and the remaining respondents (7.3%) had a high school degree or diploma. In terms of their positions within the organization, 9.6% of the respondents were team leaders (heads), while most respondents were employees (90.4%). The 178 participants had an average organizational tenure of 7.67 years, with 29.8% of respondents working at the company for three years or fewer, 39.3% working at the company for between four and nine years, and 30.9% working at the company for 10 or more years. A total of 47.8% of the respondents were located at the company's headquarters in Beijing, and others were located at offices in 15 other Chinese cities. Regarding nationality, the majority (98.3%) of respondents were Chinese.

Table 1. Basic statistics of the final sample ($N = 178$)

Variable	Levels	Frequency	Percentage (%)
Gender	Male	25	14.0
	Female	153	86.0
Age (in years)	25–29	25	14.0
	30–39	97	54.5
	40–49	45	25.3
	50–55	11	6.2
Education	High school or diploma	13	7.3
	Bachelor's degree	111	62.4
	Master's degree	54	30.3
Position	Employee	161	90.4
	Head	17	9.6
Tenure (in years)	0–3	53	29.8
	4–9	70	39.3
	10 or above	55	30.9
Nationality	Chinese	175	98.3
	Other	3	1.7

Measures

Thriving at work

To measure thriving at work, we used a 10-item questionnaire that was scored on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree) as proposed by Porath et al. (2012). In this scale, thriving at work is composed of two first-order factors (learning and vitality) and five items are included to measure each subscale. Example items include 'At work, I often find myself learning' and 'At work, I feel alive and vital.' Construct reliability was established by examining the Cronbach's α coefficient (Cronbach's $\alpha > .8$), the composite reliability (CR $> .7$), and the average extracted variance (AVE $> .5$), as suggested by Fornell and Larcker (1981) and Nunnally (1978). The confirmatory factor analysis results (Cronbach's $\alpha = .88$, CR $= .93$, AVE $= .63$) indicated acceptable construct reliability for thriving at work. The second-order factor model fit the data satisfactorily ($\chi^2 = 43.30$, $df = 19$, $p < .01$, RMSEA $= .085$, CFI $= .97$, TLI $= .96$, SRMR $= .04$).

Social network-related measures

Using the social network data collected, we constructed directed social networks regarding communication, advice, and friendship. These networks were constructed in such a way that a nomination from individual i to j did not necessarily imply a nomination from individual j to i. For example, one individual seeking advice from another individual does not imply a mutual advice-seeking relationship. We considered only ties among employees in the final sample ($N = 178$) and excluded social ties between these employees and others who were not included in the final sample. To measure an individual's network position, we employed a measure of out-degree centrality, that is, the number of other individuals who were mentioned by the focal individual (known as the ego; Freeman, 1978). These calculations were performed using the *igraph* package for R (Csardi & Nepusz, 2006). We used out-degree centrality because it measures the network resources that are directly available to the ego or that are considered by the ego to be their own social resources (Wasserman & Faust, 1994).

Communication centrality. We measured communication centrality in terms of the number of other individuals with whom the ego mentioned interacting for more than 3 hours per week, that is, the number of outgoing communication ties. Communication ties were captured by asking respondents the following question: 'How many hours do you spend interacting with the following individuals during a typical work week?' The response scale was as follows: (1) less than 1 hour, (2) from 1 to 3 hours, (3) from 3 to 6 hours, (4) from 6 to 9 hours, (5) from 9 to 12 hours, (6) from 12 to 15 hours, and (7) more than 15 hours. For individuals with whom the respondent had no interactions, the respondent was asked not to report a frequency. We used '3 = from 3 to 6 hours' as the cutoff to identify the focal regular communication interaction ties.

Advice-seeking centrality. We measured advice-seeking centrality in terms of the number of other individuals who were nominated by the ego as advice givers, that is, the number of outgoing advice-seeking ties. Advice-seeking ties were captured by asking respondents to identify the individuals to whom 'you go for help or advice at work.' With regard to advice-seeking networks, the number of nominees by a respondent was not limited to improve the reliability of sociometric data (Terry & Coie, 1991).

Friendship centrality. We measured friendship centrality in terms of the number of other coworkers who were reported by the ego as friends, that is, the number of outgoing friendship ties. Friendship relationships were captured by asking respondents to identify those whom 'you consider a close personal friend.' Similar to the procedure used to investigate the advice-seeking network, the number of friendship ties that could be nominated was not limited.

Control variables

We included two demographic variables, gender and tenure, to control for the individual characteristics of the employees included in the study. For gender, male was coded as 1, while female was coded as 2. Tenure was measured in terms of the number of years the individual had worked for the organization. Demographic differences in gender and tenure were controlled for with respect to the measures of advice-seeking centrality, friendship centrality, and thriving at work.

Results

Correlation analysis

The communication, advice-seeking, and friendship networks included in the final sample are shown in Fig. 2. We performed quadratic assignment procedure (QAP) tests using the *sna* package for R (Butts, 2020) to examine the correlations among networks, the results of which are shown in Table 2. The QAP correlation is similar to Pearson's coefficient, which reflects the correlation between two networks (Krackhardt, 1987). QAP correlation measures the probability of one ego node having a tie to an alter node when the two are connected in one other network. The QAP results indicated that there were few overlapping social ties across the three networks. The descriptive statistics of and correlations among variables are presented in Table 3.

Common method variance

Since all the data were collected through self-report questionnaires, the possibility of common method variance cannot be ruled out (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). We mitigated this concern in two ways. On the one hand, to mitigate the effects of respondents' personal tendencies to answer items in a similar format in similar ways, we designed our survey questionnaire incfuding scales featuring diverse formats (Lindell & Whitney, 2001). We only measured thriving at work by using a multi-item seven-point Likert scale. In contrast, we operationalized social network variables in a roster-based network approach, which created methodological separation from thriving
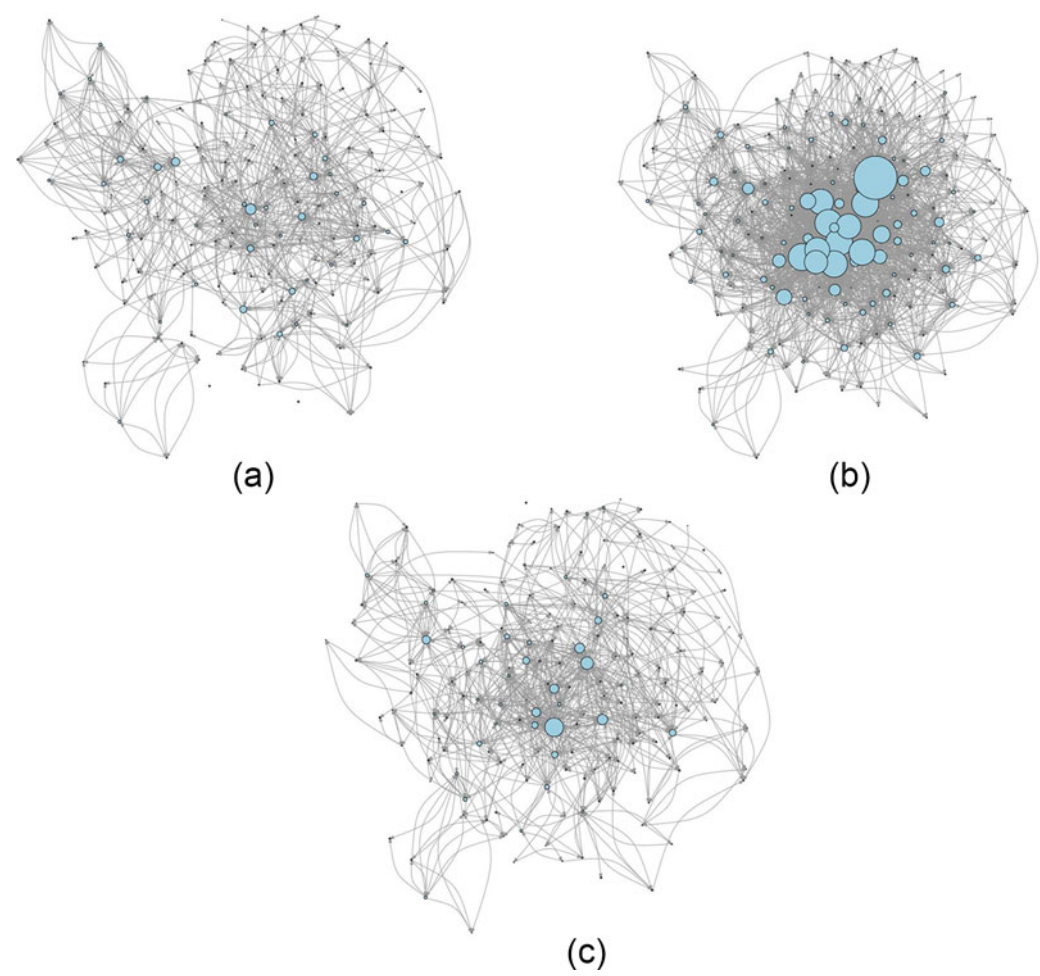
Figure 2. (a) Communication, (b) advice-seeking, and (c) friendship networks.
Note: Node size is related to the node's out-degree centrality. Nodes pertaining to the same individual are located in the same places across the three networks.

Table 2. QAP correlations among networks

	1	2
1. Communication network		
2. Advice-seeking network	.30***	
3. Friendship network	.33***	.33***

Note: ***p < .001.

at work. Furthermore, we used different ways to capture social network ties. To capture communication ties, we asked the respondents to report the frequencies of their communication with other colleagues, while to capture advice and friendship ties, we asked the respondents to nominate their advice providers and private friendships.

On the other hand, during the process of data analysis, we conducted Harman's single-factor test (Harman, 1976) to investigate common method variance regarding all the items associated with the study variables using SPSS statistical software. Harman's single-factor test indicates common method

Table 3. Means, standard deviations, and correlations

Variables	Mean	SD	1	2	3	4	5
1. Gender	1.86	.35	–				
2. Tenure	7.67	5.95	.01	–			
3. Communication centrality	3.67	4.25	−.06	.06	–		
4. Advice-seeking centrality	11.57	16.85	−.16*	.25**	.23**	–	
5. Friendship centrality	3.84	5.77	−.08	.30**	.26**	.42**	–
6. Thriving at work	3.98	.51	.10	.02	.02	−.05	.19*

Note: Gender is coded as 1 for male and 2 for female. Tenure is measured in years.
*$p < .05$; **$p < .01$.
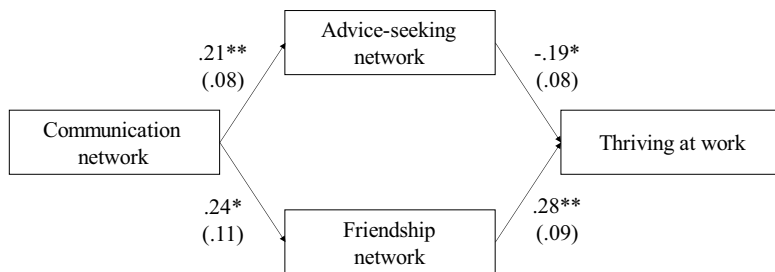
Figure 3. Results of SEM.
Note: Standard errors (SE) are in included in parentheses. *$p < .05$; **$p < .01$.

bias if a major percentage of the variance is explained by a single factor. Our results indicated that multiple factors emerged instead of a single factor and that the first factor explained only 39.7% of the total variance, which is below the recommended threshold of 50%. Therefore, the results of Harman's single-factor test suggested that common method bias may not be an issue for this study.

Model test

To test Hypotheses 1 and 2, we conducted SEM using Mplus 8.3 software. The results of SEM ($\chi^2 = 93.84$, $df = 55$, $p < .001$, RMSEA $= .063$, CFI $= .96$, TLI $= .94$, SRMR $= .06$) are shown in Fig. 3 and Table 4. The effects of the control variables, that is, gender ($\beta = .10$, $p > .05$, 95% CI [−.05, .24]) and tenure ($\beta = .01$, $p > .05$, 95% CI [−.16, .18]), on thriving at work were nonsignificant. The positive effect of communication centrality on advice-seeking centrality was significant ($\beta = .21$, $p < .01$, 95% CI [.05, .36]). Thus, Hypothesis 1a was supported. The negative effect of advice-seeking centrality on thriving at work was significant ($\beta = −.19$, $p < .05$, 95% CI [−.34, − .04]). Thus, Hypothesis 1b was supported. The negative indirect effect of communication centrality on thriving at work via advice-seeking centrality was significant ($\beta = − .04$, $p < .05$, 95% CI [−.07, − .004]). Thus, Hypothesis 1c was supported. The positive effect of communication centrality on friendship centrality was significant ($\beta = .24$, $p < .05$, 95% CI [.03, .45]). Thus, Hypothesis 2a was supported. The positive effect of friendship centrality on thriving at work was significant ($\beta = .28$, $p < .01$, 95% CI [.10, .45]). Thus, Hypothesis 2b was supported. The positive indirect effect of communication centrality on thriving at work via friendship centrality was significant ($\beta = .07$, $p < .05$, 95% CI [.003, .13]). Thus, Hypothesis 2c was supported. These results answered our research question, indicating that neither the direct effect nor the total effect of communication centrality on thriving at work was significant.

To test the robustness of the model, we explored different cutoff points for communication ties. The distribution of communication frequency is shown in Fig. 4 and exhibits a median of 2. When

Table 4. Standardized effects of communication centrality on thriving at work

Effect	β	SE	95% confidence interval
Total effect	.02	.08	[−.14, .17]
Direct effect	−.01	.09	[−.19, .16]
Indirect effect			
Via advice-seeking centrality	−.04*	.02	[−.07, −.004]
Via friendship centrality	.07*	.03	[.003, .13]

Note: Bootstrapping: 10,000 samples; *$p < .05$.
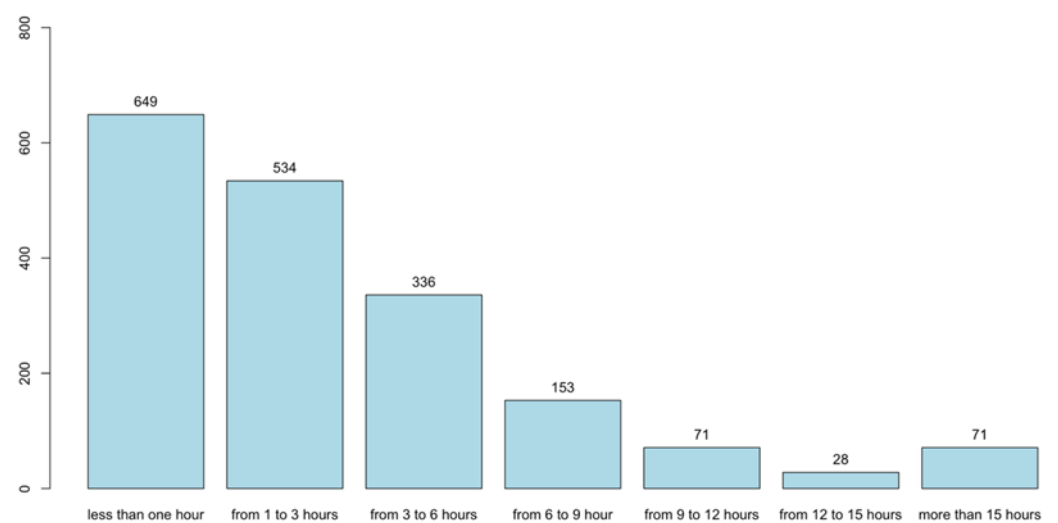
Figure 4. Distribution of communication frequency.
Note: For each other person in the HR department, respondents were separately asked the following question: 'How many hours do you spend interacting with the following individuals during a typical work week?' The response scale included the following options: (1) less than 1 hour, (2) from 1 to 3 hours, (3) from 3 to 6 hours, (4) from 6 to 9 hours, (5) from 9 to 12 hours, (6) from 12 to 15 hours, and (7) more than 15 hours.

we set the cutoff at 2 (i.e., the maintenance of a communication tie for more than 1 hour per week), the results (see Supplementary Material) were consistent with the results found when the cutoff was set at 3 (i.e., when the communication tie was maintained for more than 3 hours per week). When we set the cutoff at 4 or above, all paths were nonsignificant. This difference is probably because the communication network was too sparse to reflect the actual intraorganizational communication structure.

Discussion

Summary of results

By drawing on social network theory, we explicated the mechanism underlying the effects of employees' communication relations on their thriving at work. We collected data from the HR department of a large international company located in China and conducted SEM to test the research model. The results confirmed all of our hypotheses. First, the results revealed that individuals who occupy central positions in the communication network are more likely to occupy central positions in the advice-seeking network and the friendship network. Second, advice-seeking relations negatively relate to thriving at work, and friendship relations positively relate to thriving at work. Third, the results supported the mediation hypotheses, as communication relations can decrease thriving

at work by increasing advice-seeking relations and can promote thriving at work by enhancing friendship relations. An interesting finding was that the two indirect effects counter each other. Hence, there was no significant direct effect or total effect of communication relations on thriving at work.

Theoretical implications

The current study contributes to the literature concerning thriving at work both theoretically and methodologically. In theoretical terms, we explicated the complex effects of an individual's communication relations on their thriving at work by exploring the distinct effects of the instrumental and expressive relations established on the communication network. This research was built on previous work by Cullen, Gerbasi, and Chrobot-Mason (2018) concerning the ways in which communication relations were related to thriving at work. Cullen, Gerbasi, and Chrobot-Mason (2018) found that communication relations were negatively related to thriving at work. However, their hypothesis out of role theory was inconsistent with the conclusions of many social network theory studies, which have generally claimed that employees' central positions in communication networks are beneficial to their psychological states (e.g., Burkhardt & Brass, 2010; Porter, Woo, Allen, & Keith, 2019). In light of these previous studies concerning communication relations, we posited that this contradictory evidence may be the result of the different dimensions of communication relations within organizations, that is, the instrumental and expressive dimensions of such relations (Ibarra, 1993). Therefore, we distinguished between instrumental and expressive relations to explore the mechanism by which communication relations influence thriving at work. The results indicated two opposing indirect effects of an individual's communication relations on their thriving at work, that is, a negative effect via instrumental relations and a positive effect via expressive relations. Thus, these two mediating effects serve to explain the complex effects of employees' communication on their thriving at work. Regarding the reasons underlying the negative effect reported by Cullen, Gerbasi, and Chrobot-Mason (2018), we proposed the influence of bias in this context because the respondents tended to assume that the term communication referred to work-related communication interactions.

In methodological terms, this study employed social network analysis to explore the effects of social relations on thriving at work. According to the socially embedded model (Spreitzer et al., 2005), social context is an important factor that affects personal thriving at work. However, only a limited number of studies concerning thriving have relied on social network theory and statistically modeled social contexts in terms of social networks (Cullen, Gerbasi, & Chrobot-Mason, 2018; Gerbasi et al., 2015). In our study, we employed social network analysis to measure individuals' different social relations, that is, communication, advice-seeking, and friendship relations, concretely in terms of their network positions. Instead of exploring the effects of different social contexts separately, as previous studies have done, we compared the roles played by different social contexts simultaneously. Thus, using the social network approach, we were able to test the research hypotheses associated with different social contexts in a systematic manner.

Practical implications

Our research has important practical implications. First, our study highlights the need for organizations to identify the different relational antecedents that are associated with employees' thriving at work, which are not limited to employees' communication interactions. More specifically, instrumental and expressive relations have important impacts on thriving at work as well. The results indicated that a central position in an instrumental network has a negative effect on thriving at work, while a central position in an expressive network has a positive effect. Therefore, it is advisable for organizations to be aware of the significant roles played by both instrumental and expressive relations with respect to promoting employees' thriving at work.

Given the fundamental role played by advice-seeking relations in the workflow process, we propose that organizations should construct an efficient system for seeking and providing advice. An efficient advice network should enable advice seekers to understand 'who knows what' within the organization as well as how to access such expertise at a low cost. This approach can allow employees to benefit from information diffusion both cognitively and affectively. Organizations should also encourage workplace friendships because active friend-makers were identified to be more likely to experience thriving at work.

In terms of expressive relations, our study highlights the positive outcomes of friendship relations with respect to thriving at work. We propose to develop a more balanced communication system within the organization, a system that not only considers work-related instrumental relations but also includes emotional functions such as friendship. Although some studies have proposed that workplace friendships can lead to negative outcomes (Pillemer & Rothbard, 2018), we suggest that organizations should encourage friendships among employees to enhance those individuals' thriving at work.

Limitations and directions for future research

This study faces certain limitations. First, regarding the social network method, we used out-degree centrality to measure an individual's network positions. Out-degree centrality reflects the size of the ego's outgoing network, that is, the number of other individuals who are nominated by the ego. Future research can explore other measures of network position, such as eigenvector centrality and structural holes (Burt, 2004; Mohr, 1998), to investigate the effects of the direct and indirect tie structures of the ego. Likewise, the strength of the communication tie, such as the frequency of communication, is another important characteristic of the network. Future research featuring social network analysis could also take tie strength into consideration.

Second, since we used SEM to interpret the correlations among variables, we could not confirm the causality associated with the relationship between social relations and thriving at work based on cross-sectional data. We tried to construct the paths from thriving at work to social network relations to investigate the possibility of reverse causality, but no significant results were found in this context. Hence, future research could use a longitudinal approach to explore the evolution of social relations and the dynamics underlying the interactions between social relations and thriving at work to verify the causal relationships that exist in this context.

Third, as the data were obtained from the HR department of an international company located in China, the current study did not identify similar results in other contexts, in which communication interactions and social relationship patterns may differ. Future research could test the proposed model in the context of other organizations, that is, in companies in which employees work from home and in other cultures that exhibit different intraorganizational and interpersonal structures. In addition, as described, the sample was geographically dispersed across 16 cities and featured a flexible organizational structure. We expect our results to be generalizable to organizations in other industries and organizations with different organizational structures.

Conflicts of interest. The authors declare none.

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