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Mentoring Network and Self-Monitoring Personality[**]

Combining mentoring theory with social network theory, this study investigates the formation of mentoring networks. In a sample of 127 military officers, we test hypotheses regarding the relationship between self-monitoring personality and mentoring network characteristics. Protégé's self-monitoring orientation predicted the tie strength in his or her mentoring network. Results support the statement that personality variables predict the structure of social networks. In addition, results of the social network analysis confirm that individuals receive mentoring assistance from multiple mentors and that the mentoring network characteristics a protégé possesses differ depending on his/her self-monitoring orientation.

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Introduction

Recently, the concept of social capital has gained importance as a powerful factor explaining the relative success of actors in a number of areas which are of central concern to organizational researchers (Adler/Kwon 2002). Due to increasing interest in leveraging social capital within organizations, informal and formal mentoring has attracted the attention of academics and practitioners as a potentially critical developmental tool (Wanberg/Welsh/Hezlett 2003). Academics and practitioners have recognized that mentoring relationships are valuable because of their impact upon employee socialization, learning, career development, expatriate adjustment, and the preparation of employees for managerial positions (Dockery/Saal 1998; Laabs 1998; Noe 2002).

In the past twenty years, the benefits that protégés receive from traditional one-to-one mentoring relationships have been the focus of much of the research on mentoring. However, scholars have begun to pay attention to relationships of protégés with multiple mentors including senior colleagues, peers, and even subordinates (Higgins/Kram 2001). Changes in the current career environment caused by the flattening of organizational structures and the diversification of organizational membership suggest that people need to strive to a broader group of individuals in order to receive sufficient mentoring support. Yet despite the theoretical readiness to reconsider mentoring from the social network perspective (Podolny/Baron 1997; Higgins/Kram 2001; Higgins/Thomas 2001; De Janasz, Sullivan/Whiting 2003), there is not much understanding about the concept of mentoring networks so far.

In a large part of existing literature on the topic, mentoring has been conceptualized as an intense interpersonal exchange between a more senior employee (i.e. the mentor) who provides advice, counselling, feedback, and support related to career and personal development, and a less experienced employee (i.e. the protégés) (Hunt/ Michael 1983; Kram 1985). In this respect, individuals beyond one single mentor seldom have been considered. Further, the emphasis on the consequences of social network rather than its origins has resulted in neglecting the importance of the antecedents of mentoring networks. Especially the social network researchers, focusing on social structure, have omitted the importance of individual personalities in network analysis. Scholars studying the structure of networks tend to ignore the attributes of actors such as personality, because outcomes are assumed to derive from embeddedness in relational systems. In recent years, however, these long-ignored interrelations of individual personalities with social networks have gained increased notice from network researchers (Burt/Jannotta/Mahoney 1998; Kilduff 1992; Mehra, Kilduff/Brass 2001; Klein/Lim/Saltz/Mayer 2004). For example, in a recent critique of social network research, Salancik (1995) called for specific network theory to explain why certain characteristics exist.

The current research question linking personality and the structure of social networks has its roots in early organizational research. A number of very diverse strands have shaped the development of present-day social network analysis (for more detailed history of the development of social network theory, see Scott 2000: 7-37). In the lineage for the mainstream of social network analysis, there are three main traditions:

the sociometric analysts, who worked on small groups and produced many technical advances with the methods of graph theory; the Harvard researchers of the 1930s, who explored patterns of interpersonal relations; and the Manchester anthropologists, who built on both of these strands to investigate the structure of community relations (Scott 2000). These traditions were eventually brought together in the 1960s and 1970s when contemporary social network analysis was forged. In particular, in 1930s, the Hawthorne study contributed to the development of social network analysis with their use of sociograms to illustrate the structure of informal relations within the workgroup as opposed to the formal organization that was depicted in the managerial organization chart. The ideas that emerged in the Hawthorne and those of the socio-metric tradition of small group research first have intersected with each other in the work of Homans during the late 1940s. His theoretical synthesis centered around the idea that human activities bring people into interaction with one another, that these interactions vary in their 'frequency', 'duration' and 'direction' (Homans 1951). Earlier work by social network pioneers included personality trait measures (e.g., Newcomb 1961) and interpersonal orientation (e.g., Breiger/Ennis 1979). On the basis of this previous work, we seek to understand how the network characteristics are shaped by individuals' personality.

Combining the extant mentoring theory with social network theory, the main purpose of this study is to examine the effects of protégé's self-monitoring orientation on his or her mentoring network characteristics. We provide micro-macro links by bringing individual actors back into structural analysis through an empirical test of how actors' personality influences network characteristics. To begin with, we provide a refined definition of mentoring network. Then we empirically test whether people actually receive mentoring assistance from multiple mentors.

Theory and Hypotheses

Mentoring network

Scholars have recognized the limitations of focusing research and practice on a single mentor and, instead, have begun to revisit Kram's (1985) original proposition that individuals rely upon not just one but multiple individuals for developmental support in their careers – a phenomenon she calls "relationship constellations" (Higgins/Kram 2001). Not surprisingly, theoretical works are published in order to examine relationships with multiple mentors under a variety of captions including peer mentoring (Kram/Isabella 1985; Allen/Russell/Maetzke 1997), lateral relationships (Eby 1997), and developmental networks (Higgins/Kram 2001). Higgins and Kram (2001) noted that individuals still need career and psychosocial support, yet it is more likely to be provided from a broad range of persons in the developmental network. However, despite this theoretical readiness to reconsider mentoring relationships from the social network perspective, the concept of mentoring network needs to be defined more distinctly and investigated empirically.

In social network research, organizations are viewed as clusters of people related to one another by a variety of links. Such research focuses on patterns of relationships between people rather than on people in isolation from one another (Brass 1995). One assumption behind network research is that structured social relationships are

more powerful sources of explanation than are the personal attributes of members of a social system (Brass 1995). In this study, we have applied this conception to mentoring relationships and propose that individuals seek mentoring supports from multiple mentors and that the mentoring network characteristics a protégé possesses can be differentiated by his/her personality orientation.

Based on the previous literature on mentoring relationships, we define a mentoring network as the set of people taking an active interest in a protégé as well as action aiming at advancing the protégé's career by providing career-related and psychosocial functions. A mentoring network is one of the specific types of networks reflecting relationships in human life. More precisely, we focus on a mentoring network while others have mainly focused on various networks such as "friendship networks" (Morrison 2002; Mehra/Kilduff/Brass 2001), "task advice networks" (Sparrowe/Liden/ Kraimer 2001), "trust networks" (Krackhardt/Hanson 1993) or "communication networks" (Reagans/Zuckerman 2001). What are the differences between the mentoring networks and helping relations? Mentoring networks provide *both* career functions which are characterized by providing challenging assignments, coaching, exposure, protection, and sponsorship as well as psychosocial functions which are characterized by providing, counseling, friendship, and serving as role models. Helping relations provide, in general, only a part of those functions such as a friendship, an acceptance and a confirmation. Podolny and Baron (1997) have empirically shown that mentoring networks were *not* identical with helping relations. They have notified the differences between them that the contents conveyed by the mentoring network are both resources and organizational identity, while the contents conveyed by helping relations do not include resources but only organizational identity. In addition, the type of tie in the mentoring network is based both on job interdependency and interpersonal attraction, while helping relations are based uniquely on interpersonal attraction. The differences between a mentoring network and other networks are discussed by Podolny and Baron (1997) who argue that a mentoring network can be characterized as a comprehensive relationship network based both on trust and job interdependencies and through which both resources and identity flow.

Among network characteristics, we focus on tie strength, network range, and size, because these network characteristics are consistent with core concepts in social network theory (Brass 1995; Ibarra 1993, Higgins/Kram 2001). In addition, as dependent variables which are apt to be influenced by individual personality, there is abundant research, both theoretical and empirical, that supports significant relationships between these network variables and individual as well as organizational outcomes derived from interpersonal networks (e.g., Granovetter 1985; Burt 1992; Reagans/ Zuckerman 2001). Finally, these characteristics are consistent with dyadic relationship properties examined in traditional mentoring research such as tie strength (Fagenson-Eland/Marks/Amendola 1997), similarity between mentors and protégés (Ensher/ Murphy 1997), and the number of mentors (Baugh/Scandura 1999).

Self-monitoring personality and mentoring network

Research on structural position has emphasized the importance of being in the right place (Brass 1984) but has neglected the possibility that the network position occupied

by individuals might be influenced by their personality (Mehra/Kilduff/Brass 2001). We argue that understanding the effects of protégé personality on mentoring network characteristics offers us some insight about the developmental process of the mentoring network. Thus, we suggest self-monitoring personality orientation might play a major role in the formation of mentoring networks, as an antecedent of mentoring network characteristics. Among several important personality constructs, self-monitoring seems most relevant to the development of mentoring networks for the following reasons: Self-monitoring has an influence on the perceptions of and reactions to an individual's environment (Mehra et al. 2001), permitting us to make clear predictions concerning the effects of personality on how individuals shape their mentoring worlds (Snyder 1987). An underlying assumption of self-monitoring construct is that people differ in the extent that they monitor (observe, regulate, and control) the public appearance of self they display in social settings and in creating and managing their interpersonal relationships (Snyder 1974, 1987; Day/Kilduff 2003). Interesting and somewhat unique aspects of self-monitoring as a personality construct that may affect the mentoring network characteristics are the emphases on the conceptualization and representation of self in social situations. Additionally, self-monitoring has an impact on the initiation of mentoring (Turban/Dougherty 1994; Aryee/Lo/Kang 1999). For example, Turban and Dougherty (1994) examined traditional one-to-one mentoring and reported that high self-monitors initiated more mentoring relationships.

The self-monitoring trait refers to an individual's ability to adjust his or her behavior to external, situational factors. The self-monitoring construct (Snyder 1974, 1979; Snyder/Gangestad 1986) distinguishes between those who are especially attuned to the role expectations of other people (high self-monitors) and those who insist on being themselves despite social expectations (low self-monitors). Previous studies have shown that high self-monitors (as measured by high scores on the self-monitoring scale) appear to be social chameleons. These individuals are highly sensitive to external cues and can change their attitudes, perspectives, and behaviors so as to fit into the social situation at hand (Snyder 1987).

Self-monitoring and tie strength

Tie strength refers to a combination of the amount of time, the emotional intensity, the closeness, the intimacy, and the reciprocal services which characterize the tie (Granovetter 1973). In mentoring networks, strong ties are those relationships a protégé maintains with his or her mentors that are close, frequent, long-lasting and affect-laden (Krackhardt 1992), whereas weak ties are infrequent and distant (Hansen 1999).

In general, high self-monitors strive to maintain flexibility and make little emotional investment in relationships such as mentoring, while low self-monitors, by contrast, tend to invest emotionally in particular relationships so that they can be themselves (Snyder 1987; Krackhardt/Stern 1988). Further, the low self-monitor prefers to belong to a clique which means extremely strong ties and within which the individual can express a characteristic disposition (Snyder 1987). High self-monitors have been characterized as pragmatic and utilitarian in their approach to relationships, whereas low self-monitors have been described as committed and principled. The first

hypothesis is concerned with how self-monitoring personality affects the tie strength of a mentoring network.

Hypothesis 1:   Protégé's self-monitoring will be negatively related to tie strength in a mentoring network he or she develops.

Self-monitoring and network range

By network range, we mean network diversity, the number of different social systems the relationships stem from (Burt 1983; Marsden 1990). In dyadic mentoring research, diversity is generally defined in terms of differences between the protégé and his or her mentor's race, gender, and/or age (Noe et al. 2002). Instead, we define network diversity in terms of different social systems the ties originate from.

High self-monitors prefer various relationships from different social systems in order to benefit from diverse information and resources. Social worlds of high self-monitors are more compartmentalized and segmented while low self-monitors have more uniform and homogenous social worlds (Snyder/Gangestad/Simpson 1983). Mehra et al. (2001) found that high self-monitors tend to occupy positions of high-betweenness centrality. Betweenness centrality is a network characteristic based on the diversity of a network. It implies that high self-monitors prefer relationships from different social systems in order to benefit from diverse information and resources. For example, high self-monitors typically choose specific friends only for the activities for which they will serve well as partners, and are likely to have different partners for different activities. On the other hand, low self-monitors have more uniform and homogeneous social worlds relative to high self-monitors: low self-monitors are more likely to retain the same friends for most of their activities (Snyder/Gangestad/Simpson, 1983). Further, in organizations, high self-monitors excel in boundary-spanning positions in which employees act as go-betweens for groups that may not be able to communicate with each other effectively. Conversely, low self-monitors function well when they work in relatively homogeneous groups (Caldwell/O'Reilly 1982). Thus, we hypothesize that high self-monitors, compared to low self-monitors, are more likely to attempt to develop more diverse mentoring networks.

Hypothesis 2:   Protégé's self-monitoring will be positively related to range in a mentoring network he or she develops.

Self-monitoring and network size

The size of a mentoring network refers to the number of mentors listed by a protégé (Marsden 1990). Individuals with high self-monitoring are more likely to initiate a mentoring network (Turban/Dougherty 1994). While being able to tailor his or her behavior to a range of different social situations, the high self-monitor tends to belong to a number of distinct social groups. The low self-monitor, by contrast, prefers belonging to a clique within which the individual can express a characteristic disposition (Snyder 1987). In this respect, high self-monitors tend to date relatively large numbers of different partners for short periods of time whereas low self-monitors tend to have committed orientations in their dating relationships (Snyder/Simpson 1984). Especially, high self-monitors are more active in conversations (Ickes/Barnes 1977) and better than low-self-monitors at pacing conversations (Dabbs et al. 1980). This tendency of-

fers high self-monitors the opportunity of creating networks with various people who are potential mentors. Thus, we can predict a positive relationship between protégé self-monitoring and his or her mentoring network size.

Hypothesis 3: Protégé's self-monitoring will be positively related to size in a mentoring network he or she develops.

Methods

Samples and procedures

Both qualitative and quantitative methods were used to investigate the research objectives: the former to induce theoretical arguments about the mentoring network construct, and the latter to test the relationships between the variables. A questionnaire survey formed the primary source of data collection. The questionnaire was designed to identify protégés' egocentric networks of informal mentoring relationships and to obtain attribute data. The survey was conducted by sending questionnaires to 213 military officers in a single organization, and in total, 59 % or 127 members in the target sample returned questionnaires among which a total of 113 have been used for our analysis. Respondents consist of majors, captains, and lieutenants from Korean army, navy, air forces and other military institutes who were sent to this academic organization for two years aiming at promoting their career development.

To identify the protégé's informal mentoring network, we gave respondents an alphabetical name list of all of the 382 members of the organization. In contrast to other egocentric network studies that limit the number of alters to fewer than 5 people (Burt 1992; Podolny/Baron 1997), this study permits to record 20 mentors at its maximum. Confidentiality was preserved during the survey.

Chi-square tests revealed no significant differences between respondents (53.1%) and non-respondents (46.9%) with respect to either gender (p=.401), job tenure (p=.226) or military unit membership (p=.084).

Table 1 shows basic demographic data of the 113 respondents of the survey.

Table 1: Demographic description of respondents (N = 113)

Variable	Feature	Frequency	Percent (%)
1. Gender	Male	109	96.5
	Female	4	3.5
2. Age	25 – 30	32	28.3
	30 – 35	63	55.8
	35 - 40	18	15.9
3. Job tenure	3 – 5	26	23.0
	5 – 10	57	50.4
	10 - 15	30	26.5
4. Membership	Army	68	60.2
	Navy	20	17.7
	Air force	24	21.2
	Military Institute	1	0.9
5. Rank	Lieutenant	2	1.8
	Captain	85	75.2
	Major	25	22.1
	Public officer	1	0.9

Measures

In this paper, we use the egocentric network data. An egocentric network refers to the focal individual's self-reported connections to others. Studies on egocentric networks are useful for understanding how a person's unique web of contacts (his or her ego-centered universe) relates to variables at the individual level of analysis (Wasserman/Faust 1994). Since this is a group of people the ego identifies, a mentoring network is an egocentric network. We collected data on mentoring relationships using the name-generator method. Respondents were instructed to take a look at a list of members and to write the names of mentors who take an active interest in and action to advance the protégé's career by providing career-related and psychosocial functions and support. Data for each relation were arranged in 113 x 382 binary matrices.

Strength was computed by averaging responses to the question about a protégé's degree of closeness to each mentor, which was rated on a three-point scale in which 1 was "not very close", 2 was "reasonably close", and 3 was "very close" (Ibarra 1995; Morrison 2002). We used Blau's (1977) index of diversity to measure the *range* of a mentoring network. Range was computed as follows:

Range = $(1 - \sum p_i^2)$, where p is the proportion of mentors in a social system and i is the number of social systems in the organization. In this study, mentors belong to one of four social systems in Korea: army, navy, air force and military organization. This index varies from 0 (if a protégé has mentors from only one other social system) to a theoretical maximum of 1 (if a protégé has equal proportions of mentors in all of the social systems). *Size* is defined as the number of mentors listed (Podolny/Baron 1997). We measured size as the protégé's outdegree centrality (number of mentors) calculated by UCINET 6, a social network analysis program.

We used the full 25-item self-monitoring scale (Snyder, 1974) instead of the reduced 18-item version (Snyder/Gangestad, 1986) because of the possibility that the 25-item version more fully represents the self-monitoring construct (John/Cheek/Klohne 1996). Self-monitoring scores could range from zero to twenty-five. A high score on the self-monitoring scale implied the respondent was a high self-monitor. The alpha coefficient was .703 for self-monitoring.

We controlled for demographic variables that may influence the hypothesized relationships. Protégés' age, job tenure, rank, and sex were included in the study as control variables.

Results

Results of the social network analysis: Mentoring network characteristics

To test the proposed hypotheses, social network analyses using UCINET 6 as well as hierarchical regression analyses were performed. The results of the qualitative study and social network analysis (SNA) are summarized in the following.

The results of qualitative research confirm that the mentoring network actually exists and that the protégés perceive their mentoring relationship as a network-typed one with multiple mentors. Furthermore, the three dimensions of relationship strength, network range, and network size, form the basis of mentoring network characteristics. The results suggest that the average number of mentors listed by protégés was 4.65

(s.d. = 3.905). Size of the mentoring networks ranged from 1 (protégé A in Figure 1) to 20 (protégé B in Figure 1). Hence, the results of social network analysis provide a basis for concluding that mentoring is not limited to a single mentor relationship anymore and that individuals have different types of mentoring networks in their careers. The descriptive statistics of network characteristics are presented in Table 2.

Figure 1: Mentoring network drawn by social network analysis program
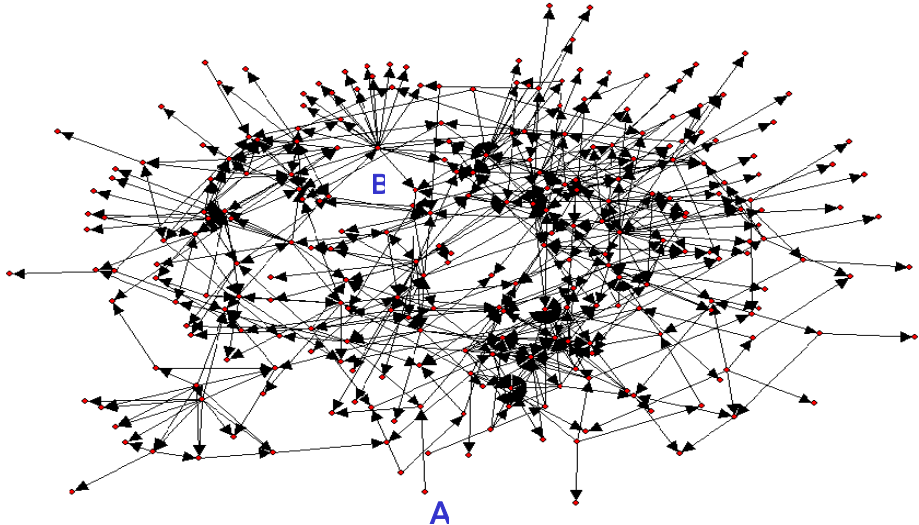
A: protégé with minimum network size (with 1 mentor)
B: protégé with maximum network size (with 20 mentors)

Means, standard deviations, and correlations for all variables are depicted in Table 3. To test Hypotheses 1-3, we regressed the network variables on the self-monitoring personality variable.

Table 2: Descriptive statistics of network characteristics

Network Indices	Minimum	Maximum	Mean	s.d.
Strength	1	3	2.32	.42418
Range (Blau Index)	0.00	0.70	0.27	.25872
Size	1	20	4.65	3.905

Table 3: Correlations among variables

Variables	mean	s.d.	1	2	3	4	5	6	7	8
1. self-monitoring	12.56	4.147	1							
2. strength	2.32	.424	-.224*	1						
3. range	.27	.269	-.108	.063	1					
4. size	4.65	3.905	-.068	.106	.371**	1				
5. age	31.10	3.162	-.064	-.057	.101	-.046	1			
6. tenure	99.99	37.210	-.071	-.016	.063	-.003	.906**	1		
7. rank	2.22	.477	.063	-.087	.082	-.001	.714**	.617**	1	
8. sex	.96	.186	-.055	.058	.034	.081	.128	.221*	.089	1

* p < .05, ** p < .01, two-tailed tests

Test of hypotheses

To answer the question of whether and how personality predicts network characteristics, we conducted multiple regression analysis. Hypothesis 1 predicts that self-monitoring should be negatively related to tie strength in a mentoring network. As shown in Table 4, tie strength prediction has been supported (β=-.221, p < .05). The higher the protégé's self-monitoring score, the weaker the tie strength of the mentoring network he or she develops. These results are consistent with previous self-monitoring studies that have compared high and low self-monitors (e.g., Snyder/Gangestad 1986).

Hypothesis 2 is concerned with the relationship between self-monitoring and network range. Hypothesis 2 proposes that the higher the protégé's self-monitoring score, the more diverse the mentoring network he or she develops. Our results did not support Hypothesis 2.

Table 4:   Results of regression analyses predicting mentoring network characteristics

Variables		Strength	Range	Size
Control Variables	Age	-.193	.228	-.298
	Tenure	.156	-.180	.189
	Rank	-.035	.034	.095
	Sex	.039	.035	.065
Independent Variable	Self-monitoring	-.221*	-.107	-.076
R-square		.063	.027	.024
F		1.445	.597	.517

* p < .05

Recall our prediction that protégé's self-monitoring score would be positively related to mentoring network size. However, the results in Table 4 did not support the hypothesized relationship between self-monitoring and network size.

The results suggest that the self-monitoring measure was an appropriate predictor of the tie strength of a mentoring network. To sum up, protégé personality predicts mentoring network structure. Regarding the relationship between personality and network characteristics, the results showed that high self-monitors, compared to low self-monitors, tend to establish weaker mentoring ties. However, the hypotheses referring to size and range were not supported.

Discussion

This study clearly operationalized the 'mentoring network' construct. The results of our social network analyses empirically show that mentoring networks actually exist. Individuals perceive and report receiving career-related and psychosocial supports from multiple mentors. We have extended the traditional dyadic mentoring research to the area of social network research.

Further, we found that the relationship between self-monitoring orientation and tie strength of mentoring networks remained significant in spite of controlling for several demographic variables. It has been confirmed that high and low self-monitors pursue different network strategies and therefore, individuals appear to be active agents in the structuring of distinctive mentoring networks for their career development. High self-

monitors tend to approach to mentoring relationship as pragmatic and utilitarian, whereas low self-monitors tend to invest important emotional efforts. These results are consistent with previous ones (e.g., Snyder 1987; Krackhardt/Stern 1988).

However, the expected relationships concerning network range as well as size with respect to self-monitoring were not found. First, this implies that self-monitoring seemed to have greater impact on tie strength rather than on the size or on the range of the network. Second, it is plausible that the environmental factors including job characteristics or industry characteristics would be the better predictors of network size and of range in mentoring networks. Third, the sample of this study is relatively homogeneous which may affect the relationships between self-monitoring and network range and size. Our results suggest that the effects of personal dispositions play a significant role in determining the network characteristics in mentoring networks. Especially, personality seems to have greater impact on the emotional intimacy and closeness with mentors rather than the size or the range of entire network.

Implications and suggestions for future research

This study provides both theoretical and practical implications. The study could contribute to the theoretical examination of key characteristics of mentoring and social networks. This study is one of only a few having investigated the relationship between network structure and individuals' personality traits. Although research on social networks has focused on a range of economic outcome variables, there has been relatively little research relating network structure to variables traditionally investigated in organizational behavior research.

Furthermore, this study offers some practical implications. For individuals, understanding the opportunities and constraints involved in developing different mentoring networks will lend insight into future career development opportunities. The results of this study imply that high self-monitors, for example, need to make efforts to strengthen the relationships with their mentors, knowing that their personality tends to provoke themselves into little emotional investment for their mentors. Also, organizations could gain insight into their networking strategies, especially for developing or encouraging mentoring programs. They can expedite the construction of mentoring networks reflecting their employees' personality orientation. For instance, our results imply that the organizations composed of high self-monitors need team building efforts in order to provide employees with the opportunities of building strong ties with their mentors.

We used a cross-sectional setting for our examination. In exploring the antecedents of mentoring networks, a longitudinal approach may be better suited for understanding the relationship with network characteristics. Therefore, future research could examine the real causal relationship by collecting data over time. Another possible limitation concerns the generalizability of the results. It should be possible to apply the theoretical arguments and the empirical findings of this paper to various social networks other than mentoring networks in business and organizational settings. In addition, our sample is homogenous in some part, for example in gender and in profession, which may affect the results of the study. Subsequent research should explore the same issue under the diverse organizations. We hope that our findings will encourage further research in the

field of mentoring networks, such as the antecedents of mentoring networks not included in this study or their consequences for individuals or organizations.

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