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Building networks into discovery: The link between entrepreneur network capability and entrepreneurial opportunity discovery☆

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ABSTRACT

Social networking is increasingly important to entrepreneurs because it can help them to recognize valuable opportunities. A model of entrepreneur network capability concerning the agent role of nascent entrepreneurs in developing and managing social networks, which is further related to entrepreneurial opportunity discovery, is proposed in this study. Drawing on the tie generation and network management literature, we propose entrepreneur network capability as a four-dimensional construct, including network orientation, network building, network maintenance, and network coordination. A sample of 212 nascent Chinese entrepreneurs collected at two time points supported the positive relationship between network capability and opportunity discovery after controlling for entrepreneurs' prior knowledge, cognitive bias, and political skills. Further, the relationship was found to be mediated by enhanced network configuration (i.e., network centrality) and moderated by entrepreneurs' power distance orientations. Entrepreneurs' network capability exerted a stronger effect on opportunity discovery for those of low power distance. The implications of our findings are discussed.

Market imperfections provide potential for entrepreneurs to create economic returns by introducing new goods and services, ways of organizing, markets, processes, and raw materials through organizing efforts that previously had not existed (Kirzner, 1979; Shane, 2003). When someone makes a "conjecture that a set of resources is not put to best use", entrepreneurial opportunity can be discovered (Shane & Venkataraman, 2000, p. 220). As the crucial initial step in the entrepreneurial process (Ozgen & Baron, 2007; Shane & Venkataraman, 2000), opportunity discovery has been acknowledged as a central construct and outcome of the agenda of entrepreneurship research because it may result in the formation of new firms (Foss & Foss, 2008; Foss, Lyngsie, & Zahra, 2013; Shane, 2003; Shane, 2012). Opportunity discovery consists of actions initiated by individuals directed at identifying a neglected opportunity (Foss et al., 2013). Despite their objective existence (e.g., unexplored technologies, processes, and markets), entrepreneurial opportunities are not open to everyone. Thus, scholars have been enthusiastic about exploring why some are able to discover new business ideas while others are not (Baron, 2004; Shane & Venkataraman, 2000).

The current literature generally provides two perspectives for understanding the discovery of entrepreneurial opportunities (Arenius & De Clercq, 2005; Suddaby, Bruton, & Si, 2015). The first one explores how the internal knowledge of entrepreneurs influences their recognition of opportunities, such as prior knowledge or experience (Baron & Ensley, 2006; Dimov, 2010; Ucbasaran, Westhead, & Wright, 2009), creativity (Gielnik, Frese, Graf, & Kampschulte, 2012; Shane & Nicolaou, 2015), and cognitive processes (De Carolis, Litzky, & Eddleston, 2009; De Carolis & Saparito, 2006). The second perspective focuses on how entrepreneurs search for and acquire information from external sources, and social networks have been dominant in this perspective (Arenius & De Clercq, 2005; Bhagavatula, Elfring, van Tilburg, & van de Bunt, 2010; Davidsson & Honig, 2003; Ma, Huang, & Shenkar, 2011; Ozgen & Baron, 2007).

The network-based entrepreneurial research has accumulated rich knowledge about the role of social networks in the discovery of opportunities. Since information is distributed according to the unique life circumstances of each person (Venkataraman, 1997), social networks help entrepreneurs to establish information corridors across populations, close knowledge gaps and reduce the uncertainties facing them. Considerable evidence has shown that high-quality network relationships or superior network positions facilitate the discovery of entrepreneurial opportunities (Arenius & De Clercq, 2005; Davidsson &

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Honig, 2003; Hoang & Antoncic, 2003; Jack, 2010; Ma et al., 2011; Street & Cameron, 2007).

However, network ties are not born naturally. Research has so far exclusively addressed network characteristics as exogenous variables and has discussed how different network configurations are linked to entrepreneurial success (Semrau & Sigmund, 2012; Stuart & Sorenson, 2007), but only a few studies have investigated how entrepreneurs proactively construct their networks in the first place (e.g., Baron & Tang, 2009; Maurer & Ebers, 2006). Previous research has indicated that people generally differ in their abilities to proactively and dynamically develop and manage entrepreneurial networks in which they can benefit from certain types of network ties (Stuart & Sorenson, 2007). For example, Maurer and Ebers (2006) compared six biotechnology start-ups, the founders of which were initially similar in their network embeddedness (essentially consisting of scientific professionals). They found that only some of these start-ups survived and became successful. The founders of the more successful firms *developed* and *managed* their network ties intentionally, helping new ventures to connect with various communities, such as lawyers and politicians. The founders of the less successful firms, in contrast, experienced both relational and cognitive locks in their scientific communities, which impeded their ability to acquire necessary information regarding the market and industry. Unfortunately, this agentic role of entrepreneurs in the entrepreneurial network has not been well conceptualized in the research on entrepreneurial opportunity.

In the current study, we developed a framework to capture individual differences in the abilities to develop and manage network ties, defined as *entrepreneur network capability* (*ENC*). We propose entrepreneur network capability as a four-dimensional construct that explains how entrepreneurs motivate, build, maintain and coordinate network ties to facilitate the discovery of opportunities. First, we discuss the theoretical domain of the construct and develop the measurement scales. Then, hypotheses concerning the possible effects of entrepreneur network capability on opportunity discovery are proposed. In particular, entrepreneur network capability is expected to have a positive influence on opportunity discovery through two paths: a) an enhanced entrepreneurial structure configuration (i.e., network centrality); and b) improved relational quality (i.e., tie strength). Finally, we examine the potential boundary conditions of network capability on outcomes regarding entrepreneurs' cultural value by examining the role of power distance orientation.

Our research intends to contribute to the entrepreneurship literature by conceptualizing the variations in entrepreneurs' ability to acquire external support from social networks and establishing the linkages among entrepreneur network capability, entrepreneurial network configurations and opportunity discovery. Research on opportunity discovery has focused on certain individual characteristics that facilitate new venture creation, mainly from the cognitive perspective, such as creativity and propensity for risk (cf. George, Parida, Lahti, & Wincent, 2016). Although some research has noted the role of traits related to social relationships (i.e., social competence, Baron & Tang, 2009), such explorations reflect only part of the full picture in one's ability to develop and manage entrepreneurial networks. Further, rather than discussing the effects of existing network configurations on opportunity discovery, we focus on the *agentic* role of entrepreneurs in the opportunity discovery process, thus extending our understanding of how superior entrepreneurial networks can be achieved and proactively changed. Finally, our research examines the interesting question of the circumstances under which the role of network capability will be amplified or inhibited by discussing the internalized cultural values of entrepreneurs. Since individual culture value exerts significant influence that directs entrepreneurs' behavior, examining the personal ability-value interaction could better reveal the complicated mechanism underlying the process of opportunity discovery.

1. Theories and hypotheses

1.1. Entrepreneur network capability

Since no existing theories of network development adequately capture the unique context and challenges faced by nascent entrepreneurs, we derive our model by integrating and drawing lessons from existing theories of tie generation processes (e.g., Nebus, 2006), corporation network management (e.g., Möller & Halinen, 1999) and social competence (e.g., Baron & Markman, 2003). Theories of tie generation focus on the dyadic tie formation process, and these theories have posited that a tie is formed as a result of personal preference (Farh, Bartol, Shapiro, & Shin, 2010; Nebus, 2006). Motivation is the primary factor that influences one's intention to engage in a particular behavior (Vroom, 1964). A person will use social networks to seek information when he/she holds a positive belief or valence toward the role of the network in entrepreneurial activities (i.e., network orientation).

Another important perspective in understanding the ENC is grounded in the network management theory of the firm (i.e., Möller & Halinen, 1999). Möller and Halinen (1999) proposed that firms were facing a fundamental change from traditional markets to networks of interrelated firms under the increasing competitiveness of business environments. To cope with the challenges in managing different levels of business relationships, firms must develop corresponding capabilities. For example, firms must create a valid strategic view of the networks from which opportunities can be perceived. In addition, firms must evaluate the value of each relationship so that they can develop an optimal customer/supplier portfolio. Based on their theoretical frameworks, some of the following studies have also been proposed to address similar questions. For example, Walter, Auer, and Ritter (2006) proposed and defined a spin-off firm's abilities to initiate, maintain, and utilize relationships with various external partners. This research had important implications for network capability from a process perspective.

The final perspective emphasizes interpersonal communication skills during networking (Baron & Markman, 2003). Social competence is considered to be one's overall effectiveness in interacting with others. Scholars have proposed that entrepreneurs should be able to perceive accurately, to make good first impressions, or to change their attitudes when interacting with contacts (e.g., venture capitalists, potential customers) (Baron & Markman, 2003). Considering that ENC is an individual characteristic of social interaction, social competence is inevitable when building and maintaining relationships with others.

Combining the above perspectives, we developed the construct of ENC to describe the individual's motivation and behaviors in sensing, building, maintaining, and coordinating their network relationships as methods to attain access to entrepreneurial information and resources. Essentially, entrepreneurs with high ENC positively believe in the importance of social networking and are prepared to proactively expand their networks, maintain and strengthen their network ties, and appropriately utilize and coordinate various relationships. We treat ENC as a composite construct with four dimensions: network orientation, network building, network maintenance, and network coordination (See Fig. 1).

Network orientation is the extent to which a person is willing to depend on social networks in his/her daily socialization. We argue that people with high levels of network orientation would like to maintain the norms of dependence, cooperation, and reciprocation because they tend to believe that friends or social connections can secure their survival in an uncertain society. Research has shown that people with high network orientation capitalize more on interpersonal relationships to bridge resource or information gaps between unlinked or outside stakeholders (Su, Yang, Zhuang, Zhou, & Dou, 2009). Once they derive benefits from their connections, they are expected to return the favor a few times over.

Network building refers to relational efforts to expand social

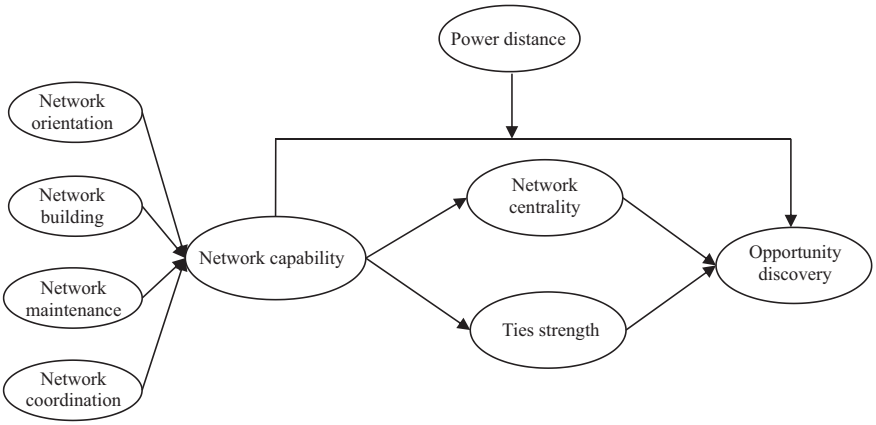

Fig. 1. Conceptual framework.

networks. We suggest that network building includes two key activities: monitoring surroundings and affective investments. Entrepreneurs with high abilities in network building tend to actively seek information about new partners. For example, Maurer and Ebers (2006) found that successful entrepreneurs were more likely to sustain their existing relationships and to develop substantial new external relationships at the same time, such as lawyers and tax consultants in administration, political contacts with local authorities, ties with the finance industry, and large customers. In addition, building a valid social network requires people to develop mutual dependence among network actors by sharing inner feelings and demonstrating personal care through verbal greetings or gift giving.

While network building focuses on expansion, network maintenance entails the capability to ensure stable and long-term exchange relationships with others. People with high network maintenance tend to be considerate and generous. They can understand their friends' feelings and would like to listen to and help them. In the dyadic interaction, they are able to behave and express themselves in manners that are consistent with their friends' values and expectations. Research has shown that people appreciate those who understand their values and identities and make them feel included (Casciaro, Gino, & Kouchaki, 2016). In addition, people with high network maintenance imply high emotional stability in repeated interactions to maintain interpersonal harmony. Even when there are disagreements with partners, they are likely to be flexible and accommodating to reach a mutually satisfactory compromise.

Network coordination focuses on managing multiple relationships. The primary issue is the mapping of existing network ties (Uzzi & Dunlap, 2005). Since network ties are intricate and pervasive (Yang, 1993), entrepreneurs must have clear mental knowledge about resources regarding network members. An effective combination of different knowledge and information from multiple actors often forms a new valuable resource for entrepreneurs. In addition, in a given network, the quality of connections changes over time (Chen & Chen, 2004). The dynamic nature of networks requires entrepreneurs to develop the ability of reconfiguration to adjust to their evolution (Zahra, Sapienza, & Davidsson, 2006).

1.2. Entrepreneur network capability and network configuration

The core argument behind the notion of social capital theories is that social capital signifies an asset that is available to people that draws on their *position* in a social network and/or the *content* of these actors' social relations (Maurer & Ebers, 2006). Although there are a number of definitions of social capital, the commonality is that social capital holds potential values and provides opportunities for participants to access novel information and scarce resources (Ardichvili, Cardozo, & Ray, 2003; Ma et al., 2011). Network content reflects the nature of the exchange relationship between actors (Hoang & Antoncic, 2003). Interpersonal relationships are viewed as a medium through which actors gain access to a variety of resources held by others. Thus, the quality of exchange between actors determines the information, advice, and emotional support that one can derive from his/her network. The position of an actor in a network reflects the other defining characteristic of the network in terms of the dynamic nature of the social structures in which actors are embedded. A general assumption is that actors' varying positioning within a network structure has an important impact on resource flows (Hoang & Antoncic, 2003). Similarly, dimensional social capital theory has also identified structural and relational embeddedness as the most prominent perspectives (Arenius & De Clercq, 2005; Moran, 2005; Nahapiet & Ghoshal, 1998). The structural perspective involves the discussion of network patterns by which actors are mutually connected, while the relational perspective focuses on the strength or quality of network ties. Accordingly, in this study, we employed exchange quality between actors, namely *ties strength*, to evaluate the content of nascent entrepreneurs' social networks and *network centrality*, i.e., the extent to which entrepreneurs occupy central positions in their networks, to measure positional embeddedness.

Social capital and its effects can be examined through different levels of analysis (Payne, Moore, Griffis, & Autry, 2011). The firm's and individual's social capital cannot be completely separated, especially in small start-ups, because their social capital importantly builds on and often derives from that of the founders. Past research has demonstrated that the level of individual social capital can entail externalities for the firm as a whole. In particular, new entrepreneurs often utilize their individual social capital as an asset when starting businesses. Therefore, in this study, we expect that ENC exerts positive influences on both the ties strength and network centrality of an entrepreneur's network.

According to Granovetter (1973), the strength of ties is a combination of allotted time, emotional intensity, intimacy (mutual confiding), and the reciprocal services that characterize the tie. Time and energy are the basic elements required to maintain a high level of tie strength (Walter, Levin, & Murnighan, 2015). If one is unable to manage the existing ties, it is easy for the ties to be neglected and dormant for several reasons (e.g., limited time or interpersonal conflict). A high level of network capability provides the possibility of continuously investing in the relationships and entails the frequency and duration of interactions, which increase the intimacy between the parties involved. In addition, due to a lack of legitimacy and credibility, nascent entrepreneurs must rely more extensively on a subtle and convincing communication style to gain initial trust from information providers. As we discussed, entrepreneurs with high network capability excel at using strategies and tactics of social influence because they are able to read and understand needs, and they can provide flexible accommodations during interactions for others (Ferris, Blickle, Schneider, Kramer, Zettler, Solga, et al., 2008). Compared with their counterparts, they are more likely to receive a favorable assessment from their partners. Research has found that appropriate personal treatment and

compromises render relationships more stable and lasting by building reciprocation and trust throughout, leading to a common social identity and interests (Fu, Tsui, & Dess, 2006).

Similarly, superior network positions also require one's continuous effort to manage his/her network. A central position in the network provides the apparent benefits of influence and access to information (Klein, Lim, Saltz, & Mayer, 2004; Sparrowe, Liden, Wayne, & Kraimer, 2001). However, only a few individuals can achieve high centrality in their networks. Individuals were most likely to seek information and help from individuals who they believed could offer benefits or value and who they believed would not make them feel uncomfortable or excessively indebted as a result of their requests for help (Borgatti & Cross, 2003). We expect that individuals with high network capability have a greater likelihood of being identified by their partners as the targets of information exchange. First, because they are alert to their surroundings and proactively expand their acquaintances, the increases in network size and diversity provide the basis for becoming an information hub. Second, the appropriate interactional skills and long-term reciprocate orientation presented by high network capability individuals during interaction reduce the concerns from others of suffering humiliation or embarrassment when seeking information or cooperation. In entrepreneurial networks, the most valuable information is often possessed by a small number of people who have high social status and reputation (Tsai, 2001). Entrepreneurs who lack traceable records depend on their network capability to access unevenly distributed information. Once they are treated as “in-group” members, others also begin to move toward them. The repeated hierarchical movement eventually centers their positions in the network over time. Combining the above, we propose the following hypotheses.

H1a. Entrepreneur network capability is positively related to tie strength.

H1b. Entrepreneur network capability is positively related to network centrality.

1.3. Network capability, social network and opportunity discovery

During opportunity discovery, potential entrepreneurs seek, recognize and evaluate information to improve products or services to take advantage of a particular market. Information searching becomes the premier task for entrepreneurs (Alvarez & Busenitz, 2001; Shane, 2000) because it helps to reduce the asymmetry of information distribution and uncertainty facing entrepreneurs (McMullen & Shepherd, 2006; Shane & Venkataraman, 2000). The benefit of network tie strength in entrepreneurship has been well established in the social capital literature (Adler & Kwon, 2002). In general, a high level of tie strength provides advantages in transferring complex or specialized information and knowledge (Levin & Cross, 2004; Uzzi, 1997). Social exchange not only influences what an entrepreneur can receive but also the information to be interpreted. For instance, young and inexperienced entrepreneurs often need various aspects of assistance from more experienced individuals (Ozgen & Baron, 2007). According to social exchange theory, once an entrepreneur establishes a high-quality relationship with an experienced partner, the other party is likely to reciprocate the relationship by providing favors with the genuine concern of entrepreneur's welfare, that is, to help entrepreneurs make sense of the market and to develop a cognitive framework for screening and further developing opportunities. As a support, the intense mentor-protégé relationship was found to be conducive to opportunity discovery (Ozgen & Baron, 2007). In addition, entrepreneurs in close relationships receive encouragements, positive feedback, affirmation and other forms of “spiritual” support, increasing their confidence in confronting difficulties in opportunity seeking processes (Sequeira, Mueller, & Mcgee, 2007).

Regarding network centrality, network researchers have acknowledged that different positions in networks represent different chances for novel information access (Ibarra and Andrews, 1993). Opportunity discoveries are generally modeled to be the results of an extensive search targeted in the direction in which the discovery is to be made. By occupying a central position, an entrepreneur is more likely to receive sufficient information to make better sense of a vague situation. In particular, a hub position in a network enables one to validate information by assembling and comparing information pieces from different sources. In fact, the previous literature has provided evidence that the centrality of informal networks plays an important role in novel idea generation, knowledge sharing, and innovation processes (Ibarra and Andrews, 1993; Reinholt, Pedersen, & Foss, 2011). Thus, we proposed the following hypotheses.

H2a. The strength of network ties is positively related to opportunity discovery.

H2b. Network centrality is positively related to opportunity discovery.

Taken together, H1a and H1b suggest a link between network capability and two network characteristics. H2a and H2b suggest that opportunity discovery is a consequence of high-quality networks. The mediation of network variables is implicit. Therefore, we further propose that network capability influences opportunity discovery by affecting either the strength of network ties or centrality in the network of an entrepreneur.

H3a. Network capabilities are positively related to opportunity discovery and are mediated by the strength of network ties.

H3b. Network capabilities are positively related to opportunity discovery and are mediated by the network centrality.

1.4. The moderating effect of power distance orientation

As discussed above, network capability helps entrepreneurs to construct their networks and to gain access to high-quality information proactively, providing them with the instrumental motivation to engage in entrepreneurial opportunity searching. We further discuss how entrepreneur network capability interacts with internalized culture values to predict opportunity discovery.

Values and norms are powerful forces that control and direct human behavior (Erez & Earley, 1993). Since values are formed early in life, they are “programmed” into individuals and exert an implicit influence on behavior patterns consistent with socially desired manners (Hofstede, 1980). Entrepreneurial activity has been found to be one of the behaviors that varies across different values and behavioral norms (Hayton, George, & Zahra, 2002; Mueller & Thomas, 2001). Since culture values direct and even bias individual behavioral tendencies due to a series of prescribed social norms (Hofstede et al., 2004; Shane, 1992), the influence of one's personal traits or abilities in entrepreneurship can be amplified or inhibited. Among cultural systems, we expect that power distance orientation is closely related to entrepreneurial information searching processes, especially when examining the relationship between network capability and opportunity discovery. Entrepreneurs in *guanxi*-based societies often place more weight on social networks to overcome obstacles and to secure favors in business activities, indicating the importance of entrepreneur network capability (Batjargal & Liu, 2004). At the same time, however, research has found that high power distant people often hesitate to interact with actors in higher social classes (Tyler, Lind, & Huo, 2000).

Power distance is one of Hofstede's (2001) five cultural dimensions, and it measures a person's attitude toward varying hierarchy levels, reflecting internalized acceptance of the prescribed social role and endorsement of the inequalities between different social classes (Clugston, Howell, & Dorfman, 2000; Hofstede, 2001). Power distance is initially defined at the societal level (Hofstede, 1980; Triandis, 1989). However, the operationalization of cultural values at the individual level is not

without precedent. Researchers have recognized that cultural value orientations can be used to reflect the characteristics of individuals (e.g., Triandis, 1995). In fact, there is broad consensus that culture values at the individual level have significant impacts on the behaviors of particular people (e.g., Kirkman, Chen, Farh, Chen, & Lowe, 2009).

Power distance orientation inhibits informal communication between people on different hierarchical levels (Hofstede, 1980). Entrepreneurs with high levels of power distance orientation have greater tolerance for uneven information distribution. They are more hesitant, fearful and uncomfortable when they interact with people of higher status. If one holds a strong belief in power distance, his/her networking behaviors are more likely to be constrained within his/her own hierarchy. Such a communication pattern is unfavorable for identifying entrepreneurial opportunities because information and resources are unevenly distributed across different social groups. The pyramid-shaped structure is inevitable in many societies and groups in which few people possess the majority of the most valuable information and resources (Magee & Galinsky, 2008). Therefore, reluctance to communicate and share information with actors in different social hierarchies will prevent high power distant entrepreneurs from obtaining valuable and heterogeneous information, thus reducing the influence of network capability on opportunity discovery. In contrast, when entrepreneurs believe that social and power gaps between exchange partners can be eliminated (i.e., low power distance orientation), that is, when they are not willing to accept inferior social position, their entrepreneurial networks are more likely to incorporate ties from different social hierarchies, thus increasing the value of their networks. In support of our argument, past research has found that power distance influences communication patterns and in turn exerts an impact on innovation (Shane, 1992). Individuals in high power distant countries are more likely to communicate their original or creative ideas in a lateral manner, rather than across different social classes. We thus propose the following hypothesis.

H4. Entrepreneurs' power distance orientation moderates the relationship between network capability and opportunity discovery such that the relationship will be stronger when the power distance orientation is low.

Integrating the previous hypotheses, we propose a moderated mediation model in which the mediation of network capability and opportunity discovery via network centrality and tie strength is moderated by power distance orientation in the second stage of the process. Although network capability facilitates their move to the central position in the network and helps to enhance relationship quality, it does not necessarily lead to opportunity discovery, depending on how much they can benefit from the superior network configuration. When entrepreneurs' social activities are constrained in their own social hierarchies, the ways in which they think and observe are likely to be convergent and increase the possibility of cognitive rigidity. Instead, networks incorporating ties from different social groups and hierarchies are more likely to provide entrepreneurs with non-redundant information. Since people at different social levels interpret and do things quite differently, it also facilitates the cultivation of divergent thinking and sensitive observation of market cues. Accordingly, we propose the following hypotheses.

H5a. Entrepreneurs' power distance orientation moderates the indirect relationship between network capability and opportunity discovery via tie strength such that the indirect relationship will be stronger when the power distance orientation is low.

H5b. Entrepreneurs' power distance orientation moderates the indirect relationship between network capability and opportunity discovery via network centrality such that the indirect relationship will be stronger when the power distance orientation is low.

1.5. Pilot study

The procedures used by Collins and Smith (2006) and by Hinkin (1995) were employed in the theoretical development of our measurements of entrepreneur network capability from a set of orientations or behaviors focused on network orientation, network building, network maintenance, and network coordination. We created our initial item pool and adapted items based on current research settings based on the existing literature. For example, we adapted items from Vaux (1985), who theorized on the norm of help-seeking, reflecting an important aspect of network orientation. Similarly, we adapted items from Su et al. (2009), Shou, Guo, Zhang, and Su (2011), Baron and Markman (2003), Baron and Tang (2009), Thornton, Henneberg, and Naudé (2015), and Bonner, Kim, and Cavusgil (2005). Items derived from the prior research were crafted to be consistent with the domain of our definition.

To assess the adequacy of item generation, we conducted contextual interviews with 110 MBA students at a large comprehensive university in China as the complementary source of network capability inventory. The positions that these MBA students hold include executives, managers, engineers, or marketing professionals, and they have experience in entrepreneurship-related activities within the past three years. We interviewed 35 informants face to face immediately after MBA classes. The rest of the informants were reached by telephone calls. During the interviews, we provided a description regarding ENC. We then asked the interviewees to describe an entrepreneur whom they regarded as having a high network capability.

Informants discussed a variety of aspects of network capability reflecting network orientation (e.g., the belief that social networking is critical in business), network building (e.g., alertness to surroundings), network maintenance (e.g., skill at reading others), and network coordination (e.g., ability to handle multiple relationships smoothly and tactfully). We cleaned the interview content and categorized the descriptions into research-induced themes, which were further distilled into overarching theoretical dimensions. After the categorizing process, we found that it closely matched our four-dimensional structure of network capability, and no new dimensions were identified, providing some evidence for the adequacy of our preliminary pool of items. In addition, we added some items that were often referred to by the participants as a complement to the initial pool.

Based on the above approaches, we developed an initial pool of 26 items and distributed surveys to 206 entrepreneurs. Each item was followed by a 7-point Likert-type response format (1-strongly disagree to 7-strongly agree). We conducted an exploratory factor analysis using principal component analysis with varimax rotation. The results supported the 4-factor solution. Items with heavy cross-loading were removed. Eighteen items remained in the final pool, and 60% of the variance was explained by the four factors. The items and factor loadings are listed in Table 1. The 18 items reflected four dimensions of entrepreneur network capability, and we found that the scale showed overall good reliability ($\alpha = 0.91$). (See Fig. 2)

2. Main study

2.1. Data collection and sample

The participants in the study were individuals who conducted entrepreneurial activities in the past three years within China. Potential entrepreneurs were selected based on three rounds of screening procedures. First, we identified 630 entrepreneurs from a large database with the help of a consulting company. Most of the entrepreneurs were conducting business on the Southeastern Coast (e.g., Shanghai and Fujian) and the Central South region (e.g., Hunan and Guangdong) of China. The entrepreneurial activities in these regions are prevailing due to supportive policies of the Chinese government in recent years. To ensure that all potential participants were active in entrepreneurial

Table 1
Measurement items and validity assessment.

Constructs and scale items	Factor loading
Network orientation	
I can't figure out most problems without friends	0.57
Network is as important as business itself	0.72
Business dealings entail reciprocity	0.69
To pay back favor is more urgent than repaying debts	0.62
Network building	
I am alert to market developments that create potential partnership opportunities	0.68
I always encourage my friends to introduce their friends to me	0.66
I have no problems introducing myself to strangers	0.63
I present souvenirs to new friends to express good wishes when there is a marriage, promotion, birthday, and so forth	0.58
I always look for opportunities to have lunches or dinners with new friends	0.66
I send greeting messages to new friends during festivals.	0.68
I often invite new friends to participate in various social activities	0.76
Network maintenance	
I can read others well and know how they are feeling in a given situation	0.67
I know well about what others need and try to do what I can for them	0.74
When I have disagreements with my partners, I usually strive to be flexible accommodate to reach a mutually satisfactory compromise	0.55
Network coordination	
I always analyzes what I would like to achieve with others	0.56
In my friends, I know well whom I can trust and whom I can't	0.66
I can well match my energy and resources to my different friends	0.74
I have a clear mind about the interdependence among my friends	0.61

activities, we posed a screening question that further identified respondents for the second round of screening. Following Foss et al. (2013), we asked them to indicate whether or not they had discovered one or more of the following entrepreneurial activities within the past three years: (1) new products and/or services; (2) new production technologies; or (3) new markets. The respondents who gave "no" answers to these questions were excluded from the final sample, but they were still participants in a raffle to win a prize after completing the questionnaire. Finally, we manually screened the cases using an open-ended question. Participants who passed the second round of screening were further asked to describe the specific activities in which they had engaged. If one had multiple experiences, he/she was asked to write down the most recent one. Those who left blanks in the open-ended question or who provided descriptions considered to be non-entrepreneurial activities were excluded from the final sample. In the end, 437 qualified entrepreneurs were identified.

Time-lagged data collection was designed to reduce the influence of common method bias. The first round of the survey was conducted through the Web. Participants could complete the questionnaires online or via cellphone. The electronic survey provided convenience for participants and also increased the efficiency of data collection. The respondents were asked to rate items regarding independent variables, mediating and moderating variables, and control variables. At the end of the questionnaire, we encouraged them to write down their e-mail addresses to participate in our second round of surveys, and we promised that we would share the research findings with them through e-mail. One week after we collected the first round of data, the second-round questionnaires regarding questions of dependent variables were sent to the respondents who provided their e-mail addresses. The final sample had a total of 212 usable responses. The sample mainly consisted of younger people; specifically, 89.2% were aged between 18 and 39 years old. Of the total, 77.3% had bachelors' degrees or higher degrees of education.

2.2. Measures

All of the measurements are grounded in the literature and in relevant studies validated by researchers (except for network capability), using seven-point multi-item scales. We conducted a standardized questionnaire translated from English into Chinese. The English version was translated into Chinese by a Ph.D. student. Another Ph.D. student back translated the Chinese version to ensure the validity in cross-cultural settings. According to the feedback, we made some modifications to the questions and wording to ensure accuracy.

2.2.1. Dependent variable

Opportunity discovery was measured by the *number of opportunities discovered in the past three years* with a count variable, following Foss et al. (2013); Foss, Lyngsie, and Zahra (2015). Three sub-categories in terms of the different types of opportunities were provided for the respondents: (1) new products and/or services; (2) production technology; and (3) markets. These sub-categories reduced the bias by which respondents implicitly equate opportunities solely with new products (Foss et al., 2015). For each type of opportunity, we also provided an example for the respondents to make better sense of it. After obtaining the counts for each type of opportunity, we then created the overall measures as the sum of the opportunities discovered. This approach has been used to measure opportunity discovery in considerable prior research (Gielnik, Krämer, Kappel, & Frese, 2014; Pérez-Luño, Wiklund, and Cabrera, 2011; Shepherd & DeTienne, 2005).

2.2.2. Independent variables

Eighteen items developed in the pilot study across four dimensions were used to assess participants' network capability. We used confirmatory factor analysis (CFA) to further confirm the measurement structure of network capability. The results indicated that the hypothesized network capability as a second-order factor with four first order factors' model fit the data well (χ^2 = 208.99, d.f. = 131, RMSEA = 0.05, CFI = 0.90). Consistent with the pilot study, we found that the coefficient alpha value of network capability was 0.91. We then pooled all of the items to create the overall index of entrepreneur network capability for the following regression analysis.

2.2.3. Mediating variables

We used three self-reported items to measure network centrality, instead of using a name-generated approach considering the sensitive nature of the social network (Peng & Luo, 2000). Forcing participants to list partners generates defensive bias and increases the reluctance to respond. The participants were asked to indicate their attitudes based on entrepreneurial experience over the past three years. A sample item was "I often act as a go-between to help my partners develop their social networks". The reliability of network centrality was 0.77. We measured tie strength using two items from Semrau and Sigmund (2012). One item captures the frequency of interactions between participants and their partners ("How frequently you interact with network partners"), and the other items captures the quality of the relationships ("The extent to which there is a close, personal relationship between you and your network partners"). Cronbach's alpha for this scale was 0.72.

2.2.4. Moderating variable

Power distance orientation was measured with 5 items developed by Dorfman and Howell (1988). The respondents were asked to indicate the extent to which they agreed with statements such as "High-status persons should make most decisions without consulting lower status persons". Cronbach's alpha for this scale was 0.82.

2.2.5. Control variables

We included several additional control variables. For the demographic information, we controlled for the participants' gender, age,

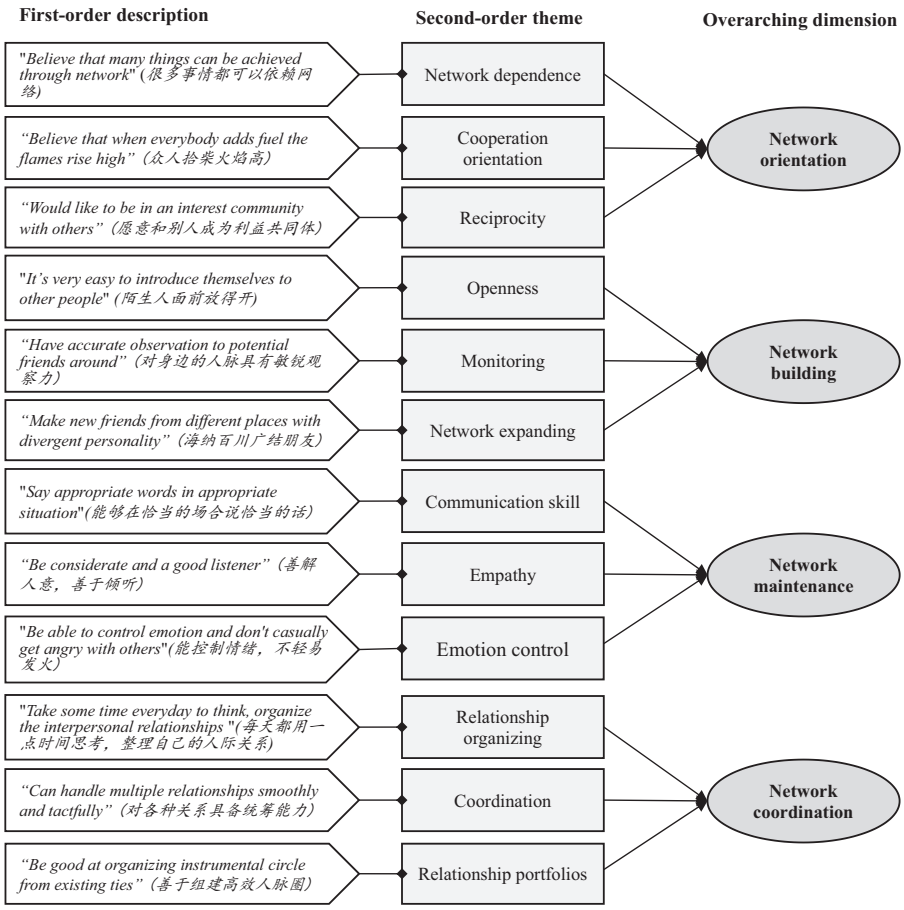

Fig. 2. Categorizing process of network capability.

education, and industry. In most countries, gender has been a significant factor affecting the establishment of a business (Arenius & De Clercq, 2005). Gender was a binary variable; male respondents were assigned a value of "1" and female respondents a value of "0". Age was a category variable ("1" younger than 18; "2" ranging between 18 and 29; "3" ranging between 30 and 39; "4" ranging between 40 and 49; "5" ranging between 50 and 59; "6" 60 or older). We also controlled for industry sectors, including agriculture, traditional manufacturing, high-tech, and service.

Shane and Venkataraman (2000) noted that some people were able to discover opportunities because they possessed prior information and had the cognitive capacity to value it. Thus, we controlled for entrepreneurs' prior knowledge of technology and markets. Following Grégoire and Shepherd (2012), we asked the participants to report their prior knowledge of: (1) the technology presented or the scientific and engineering principles underpinning the technology; and (2) the market of interest or the problems affecting this market and current solutions to this problem. The participants answered each question on a range from 1 ("minimal knowledge") to 7 ("considerable knowledge").

The propensity to assume risk is another important factor accounting for opportunity discovery (De Carolis & Saparito, 2006). We thus controlled for the illusion of control as an individual's estimation of the extent to which his or her skills, abilities, and knowledge were suited for a particular situation. We used three items to measure the illusion of control developed by De Carolis, Litzky, and Eddleston (2009). A sample item was "I believe I can accurately predict total market demand for my business". Cronbach's alpha for this scale was 0.72.

Finally, past research has shown that individuals differing in their abilities to interact effectively with others have differences in venture creation. This effect has typically been captured using social skill or political skill measures (Baron & Markman, 2003; Baron & Tang, 2009; Sigmund, Semrau, & Wegner, 2015). Although entrepreneur network capability and political skill share some commonalities, the domain of network capability is much broader than political skill. We thus controlled for political skill with 3 top loading items from the Political Skill Inventory (PSI; Ferris et al., 2005). A sample item was "I am good at building relationships with influential people at work". Cronbach's alpha for this scale was 0.70.

2.3. Common method bias

We conducted two statistical remedies recommended by Podsakoff, MacKenzie, Lee, and Podsakoff (2003) to evaluate the magnitude of common method bias. First, we conducted Harman's single-factor test, subjecting all of the scale items for variables to factor analysis. The results showed that no general factor occupied the unrotated factor structure, and the first factor only accounted for only 28% of the total variance. Second, following Podsakoff et al. (2003), we controlled for the effects of an unmeasured latent method factor; that is, we allowed all of the items to load on their theoretical constructs, as well as on a latent common method variance factor. The results showed that the measurement model with the latent common method variance factor did not significantly improve the goodness of fit of the baseline model ($\Delta\chi^2 = 38.3$, d.f. = 28).

2.4. Analytical strategy

Regression analysis was used to test our hypotheses. The Mplus 7 software package was employed so that we were able to conduct further testing for indirect effects and moderated mediation with a bootstrapping approach. We used two approaches to test our mediation

Table 2
Means, standard deviations, and correlations.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Opportunity discovery	8.21	3.22	–											
2. Network capability	5.45	0.44	0.30**	(0.91)										
3. Network centrality	5.20	0.72	0.38**	0.45**	(0.77)									
4. Ties strength	3.97	0.48	0.29**	0.46**	0.43**	(0.72)								
5. Power distance	2.55	0.80	0.24**	0.00	0.14*	− 0.02	(0.82)							
6. Gender	1.51	0.50	− 0.03	0.03	− 0.01	− 0.04	− 0.02	–						
7. Age	2.74	0.83	− 0.03	− 0.09	− 0.06	− 0.04	− 0.06	− 0.24**	–					
8. Edu	3.82	0.60	0.18**	0.14*	0.17*	0.01	0.05	0.09	− 0.14*	–				
9. Industry	2.95	0.83	− 0.10	0.03	0.00	− 0.01	− 0.07	0.15*	− 0.15*	0.00	–			
10. Illusion of control	3.78	0.54	0.36**	0.40**	0.52**	0.34**	0.04	− 0.01	0.01	0.15*	0.03	(0.72)		
11. Political skill	4.01	0.50	0.19**	0.41**	0.41**	0.38**	− 0.05	0.08	− 0.07	0.03	− 0.02	0.47**	(0.70)	
12. Prior knowledge	5.58	0.64	0.26**	0.39**	0.44**	0.44**	0.06	− 0.13	0.12	0.01	− 0.05	0.51**	0.42**	–

Note: $N = 212$; two-tailed tests.
* $p < 0.05$.
** $p < 0.01$.

hypotheses. First, we followed the conventional method to test for the presence of mediators (Baron & Kenny, 1986): (1) the independent variable significantly affected the dependent variable in the absence of a mediator; (2) the mediator significantly affected the dependent variable; (3) the independent variable significantly affected the mediator; and (4) the significant effect of the independent variable on the dependent variable diminished when the mediator was added to the model. In addition, we tested the indirect effect using a more rigorous bootstrapping approach (Preacher & Hayes, 2008). Independent variables and moderating variables were grand mean centered before generating the interaction term.

3. Results

Table 2 shows the means, standard deviations, correlations and reliabilities for all of the measured variables. Table 3 provides the results of hierarchical regression analyses of mediators. Table 4 shows the results of hierarchical regression analyses conducted to estimate the effects of network capabilities, mediators, and moderation on opportunity discovery.

Hypothesis H1a and H1b proposed the influence of network capability on tie strength and network centrality. As shown in Table 3, after controlling for demographic variables, prior knowledge, the illusion of control and political skill, network capability was positively related to both tie strength ($\beta = 0.32, p < 0.01$, Model 2) and network centrality ($\beta = 0.35, p < 0.01$, Model 2). Thus, both Hypotheses H1a and H1b were supported.

Table 3
Results of hierarchical regression analysis on network centrality and tie strength.* **

Variables	Tie strength		Network centrality	
	Model 1	Model 2	Model 3	Model 4
Control variables				
Gender	− 0.02	− 0.03	− 0.02	− 0.03
Age	− 0.06	− 0.05	− 0.06	− 0.05
Edu	0.14	0.11	0.14	0.11
Industry	− 0.00	− 0.01	− 0.00	− 0.01
Illusion of control	0.42**	0.38**	0.42**	0.38**
Political skill	0.24*	0.16	0.24*	0.16
Prior knowledge	0.24**	0.19*	0.24**	0.19*
Independent variable				
Network capability		0.32**		0.35**
R^2	0.25	0.31	0.35	0.38
Adjusted-R^2	0.22	0.28	0.33	0.36

Note: N = 212.
* $p < 0.05$.
** $p < 0.01$.

Hypothesis H2a and H2b proposed a relationship between mediating variables and opportunity discovery. As shown in Table 4, in the presence of control variables, both network centrality ($\beta = 1.11$, $p < 0.01$, Model 5) and tie strength ($\beta = 1.22$, $p < 0.01$, Model 6) were positively related to opportunity discovery. Thus, both Hypotheses H2a and H2b were also supported.

Hypotheses H3a and H3b posited that tie strength and network centrality mediated the relationship between network capability and opportunity discovery. First, we established a direct relationship between network capability and two mediating variables. Second, there was a significant, positive relationship between network capability and opportunity discovery ($\beta = 1.21, p < 0.05$, Model 7). Third, as shown in Table 4, after controlling for network capability, network centrality was positively related to opportunity discovery ($\beta = 0.82$, $p < 0.05$, Model 3), but tie strength was not significant for opportunity discovery ($\beta = 0.72$, *n.s.*), while the significant effect of network capability on opportunity discovery dramatically diminished (0.67, n.s., 0.54, n.s., respectively). Indirect effect testing with 2000 bootstraps indicated that the indirect path from network capability to opportunity discovery via network centrality was significant ($\beta = 0.66$, $p < 0.05$, 95% CI = [0.03, 0.72], not containing zero), but the indirect path via tie strength was not significant ($\beta = 0.39$, *n.s.*). We thus found support for Hypothesis H3b. The estimation of indirect effects is presented in Table 5.

Hypothesis H4 argued that power distance orientation moderated the relationship between network capability and opportunity discovery. The interaction between network capability and power distance orientation was negatively related to opportunity discovery ($\beta = -1.21$, $p < 0.05$, Model 9). To visualize the moderating effect on opportunity discovery, the interaction between network capability and power distance orientation is plotted in Fig. 3. It suggests that network capability was more strongly associated with opportunity discovery for entrepreneurs who were low in power distance orientation. Specifically, the simple slope test showed that, when power distance was high (+1 *SD*), the association between network capability and opportunity discovery was not significant ($\beta = 0.18$, *n.s.*), whereas this association was positive ($\beta = 2.13$, $p < 0.01$) when power distance was low (− 1 *SD*). The difference between high and low power distance conditions was significant ($\beta = 1.94$, $p < 0.05$). Taken together, Hypothesis H4 was supported.

We conducted moderated mediation analysis following Edwards and Lambert (2007) to test H5a and H5b. Using the parameter-based bootstrapping approach, we found support for the second-stage moderated mediation from network capability to opportunity discovery via network centrality: when power distance orientation was high (+1 *SD*), the indirect effect was not significant ($\beta = 0.10$, *n.s.*). When power distance orientation was low (− 1 *SD*), there was a significant indirect effect of network capability on opportunity discovery via network

Table 4
Results of regression analysis on opportunity discovery (unstandardized).

Variables	Opportunity discovery				
	Model 5	Model 6	Model 7	Model 8	Model 9
Intercept	− 2.96(2.69)	− 3.98(2.82)	− 5.57(3.16)	− 6.12(3.11)	− 7.56(3.12)
Control variables					
Gender	− 0.12(0.41)	− 0.10(0.42)	− 0.15(0.42)	− 0.10(0.41)	0.06(0.41)
Age	− 0.15(0.24)	− 0.16(0.25)	− 0.16(0.25)	− 0.10(0.24)	− 0.08(0.24)
Edu	0.55(0.34)	0.71*(0.34)	0.61*(0.34)	0.54(0.34)	0.50(0.33)
Industry	− 0.45(0.24)	− 0.45(0.24)	− 0.47(0.24)	− 0.46(0.24)	− 0.44(0.24)
Illusion of control	1.25**(0.47)	1.62**(0.46)	1.56**(0.46)	1.20*(0.47)	1.43*(0.45)
Political skill	− 0.27(0.55)	− 0.25(0.48)	− 0.26(0.48)	− 0.50(0.48)	− 0.17(0.47)
Prior knowledge	0.28(0.38)	0.25(0.39)	0.25(0.39)	0.06(0.39)	0.38(0.37)
Mediating variable					
Network centrality	1.11**(0.34)			0.89*(0.35)	
Tie strength		1.22**(0.47)		0.77(0.49)	
Independent variable					
Network capability			1.21*(0.53)	0.65(0.55)	1.16*(0.51)
Power distance					0.86*(0.24)
Moderating variable					
Network capability × power distance					− 1.21*(0.60)
R^2	0.21	0.20	0.19	0.23	0.25
Adjusted-R^2	0.18	0.17	0.17	0.21	0.22

Note: N = 212.
* $p < 0.05$.
** $p < 0.01$.

Table 5
Results of the indirect and conditional indirect effects estimation.

	B	S.E.	95% CI	
			LL	HH
ENC → ties strength → opportunity discovery (H3a)	0.25	0.17	− 0.03	0.65
High level of power distance (+ 1 SD) (H5a)	0.26	0.21	− 0.08	0.76
Low level of power distance (− 1 SD) (H51)	0.22	0.18	− 0.05	0.68
ENC → network centrality → opportunity discovery (H3b)	**0.31***	0.16	**0.06**	**0.73**
High level of power distance (+ 1 SD) (H5b)	0.10	0.25	− 0.04	0.59
Low level of power distance (− 1 SD) (H5b)	**0.46***	0.24	**0.08**	**1.01**

Note: the estimation of the indirect effects was based on 2000 bootstraps.

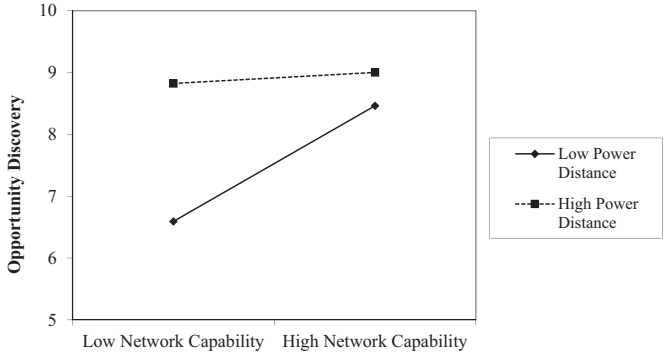

Fig. 3. Interaction of network capabilities and opportunity discovery.

centrality ($\beta = 0.46$, 95% CI = [0.08, 1.01], not containing zero). This finding suggested that although network capability is conducive to better network positions, the value of such a network configuration to promoting opportunity discovery decreases for high power distant entrepreneurs. However, the indirect effect from network capability to opportunity discovery via tie strength was not significant either for high power or for low power distant entrepreneurs. Thus, Hypothesis H5a was supported.

3.1.1. Supplementary analysis

We conducted a series of additional analyses concerning the four sub-dimensions of network capability. First, we tested the direct relationship between the four sub-dimensions and opportunity discovery. The results indicated that network building ($\beta = 0.82$, $p < 0.05$) and network coordination ($\beta = 0.70$, $p < 0.05$) were positively related to opportunity discovery. Network maintenance was marginally related to opportunity discovery ($\beta = 0.71$, $p < 0.10$). Network orientation did not show a significant influence on opportunity discovery ($\beta = 0.13$, *n.s.*). Then, we tested the links with two mediating variables and found that network building ($\beta = 0.38$, $p < 0.01$) and network maintenance ($\beta = 0.33$, $p < 0.01$) were positively related to network centrality. Whereas network building ($\beta = 0.30$, $p < 0.01$) and network coordination ($\beta = 0.17$, $p < 0.05$) were positively related to network centrality, network orientation was not related to either of the mediating variables. However, further testing of the internal relationships among the four dimensions revealed that network orientation was positively related to network building ($\beta = 0.17$, $p < 0.05$), network maintenance ($\beta = 0.19$, $p < 0.05$) and network coordination ($\beta = 0.70$, $p < 0.05$), indicating the motivational effects of network orientation on the subsequent networking behaviors.

4. Discussion

In this study, we proposed entrepreneur network capability (ENC) to describe entrepreneurs' agent roles in building and managing their entrepreneurial networks. We then developed a scale to measure ENC concerning its four sub-dimensions, and we showed the reliability and validity of the scale. We further tested its impact on opportunity discovery via the mediating roles of network centrality and the strength of network ties. In summary, we found that ENC was positively related to opportunity discovery, and this relationship was mediated by network centrality. Moreover, the relationship between ENC and opportunity discovery was stronger for low power distant entrepreneurs.

4.1. Implications

We identified an important but neglected factor that contributes to

opportunity discovery. The process through which individual factors can influence opportunity discovery is a key question in the field of entrepreneurship (Baron, 2007). In fact, several approaches have been suggested in the entrepreneurship literature to capture entrepreneurs' personal characteristics or abilities. Studies have identified several factors, such as social competence (Baron & Markman, 2003), social skill (Baron & Tang, 2009), and political skill (Semrau & Sigmund, 2012; Sigmund et al., 2015), that influence success in different phases of entrepreneurial processes. However, these factors have excessively focused on effectiveness in interacting with others on a face-to-face basis (Baron, 2007). This paper extends the prior perspectives on entrepreneurs' ability to manage their social networks regarding opportunity discovery by discussing entrepreneurs' orientation to use networks, certain aspects of entrepreneurs' behaviors, and the border domains of treatments in interpersonal settings.

Second, we provided an integrated framework that examined the relationships among individual difference, social network, and entrepreneurial activities. Ardichvili et al. (2003) proposed five factors crucial to opportunity recognition: entrepreneurial alertness, information asymmetry and prior knowledge, social networks, personality traits and the type of opportunity itself. However, they argued that these factors interact with each other to result in opportunity recognition. Most of the subsequent studies considered only one factor but neglected the potential internal relationships among those factors (Bhagavatula et al., 2010). Our research found that social networks do not exert influences on entrepreneurial activities independently but are influenced by more distal personal differences. Entrepreneurs are different in their abilities to construct and manage their entrepreneurial networks, and these differences can result in variations in entrepreneurial network configurations (i.e., relational and structural embeddedness), which addressed the endogeneity problems of individual social capital in previous network-based entrepreneurship research (Stuart & Sorenson, 2007).

We should note here that we did not find support for the mediating role of tie strength. The insignificant result potentially lies in disputes between dense and sparse networks. Although numerous scholars have identified the benefit of cohesive networks that provide emotional support, interpersonal/interorganizational trust, and tacit knowledge transfer (Brüderl & Preisendörfer, 1998; Coleman, 1988), others believe that high levels of tie strength can entail disadvantages, such as the risk of overembeddedness and the danger of being “locked in” (Uzzi, 1997). In addition, entrepreneurs acquire information benefits not only from their direct contacts but also from secondary structure holes (i.e., the relationships between direct contacts and third parties), while the latter is more likely to exist in low cohesive networks (Burt, 1992).

Finally, our results also indicated a more complex relationship between ENC and opportunity discovery regarding the role of cultural values. Past research has provided some initial evidence regarding how cultural values influence entrepreneurial activities (e.g., McGrath, MacMillan, & Scheinberg, 1992). For example, Busenitz and Lau (1996) found that individuals across different cultures tended to be more prolific in starting new ventures than others both inside and outside the home country. Mueller and Thomas (2001) posited that innovative orientation is more prevalent in low uncertainty avoidance cultures than in high uncertainty avoidance cultures. Nevertheless, the research has mainly been concerned with cultural values as contextual factors at the country level. Little has been accomplished in terms of internalized cultural values that vary between individuals. Our results revealed that entrepreneurs' endorsements of inequality between different social classes impede their use of network capability to bridge social gaps as a means of influencing information gathering processes. The additional moderated mediation analysis revealed that the mechanism underlying the moderating effect of power distance orientation was that it amplified or inhibited the value of network configurations in promoting opportunity discovery and thus moderated the influence of network capability. The second stage moderation indicates that the heterogeneity of information sources (i.e., different social hierarchies in this study) and network position jointly influence opportunity discovery.

The current study also has some implications for entrepreneurs. First, our results indicated that entrepreneurs' personal network configurations were not invariant and could be proactively improved. Entrepreneurs who are not well connected in networks are able to successfully launch businesses through their initiative efforts. Being aware of this finding could help entrepreneurs to pay greater attention to cultivating their network orientation and to devise appropriate strategies for developing and managing network ties.

4.2. Limitations and future research

This study had several limitations. First, all of the constructs examined in this study were assessed with self-reported measures, although we attempted to minimize bias by distributing the questionnaires at two different time points. Harman's single-factor test and the latent method factor measurement model also suggested that same-source bias did not significantly influence our current model specification. Nevertheless, we strongly encourage further studies to examine their relationships with more objective measures (e.g., archival data such as IPO records).

Second, although we collected data at two different time points (the dependent variable was measured one week after the first-round collection), the one-week time lag was not sufficient to capture the causal relationship between network capability and opportunity discovery. In particular, we assumed that opportunity discovery was a result of networking behaviors, so longitudinal studies with longer time lags are needed to better reveal the differential role of network capability in different entrepreneurial stages. In addition, all of the items of the four dimensions of network capability were collected at the first time point, which prevented us from undertaking a more detailed examination of how the four dimensions interacted with each other over time. Moreover, the four dimensions are not always in synchronicity. For example, individuals who are high in network building do not necessarily benefit from these connections because relationships that lack regular maintenance are likely to become dormant (Walter et al., 2015). Accordingly, we recommend panel designs to draw better inferences about causality in the future and to gain a better understanding of internal causality among these four dimensions.

Third, we established the link between network capability and opportunity discovery in this study. However, our research design limited us from determining whether the network capability is further linked to opportunity exploitation. The previous literature suggested that the resources involved in the recognition phase will be also needed in the exploitation phase (Foss et al., 2013). Solid testing of this hypothesis requires more sophisticated research designs (e.g., longitudinal study) in which opportunity discovery and exploitation can be temporarily separated.

Finally, although our sample was obtained from a network-oriented culture, which is ideal for us to develop our network capability theory, it also constrained the generalizability of our findings. We believe that cross-culture comparisons of the roles of network capabilities are needed, especially for the question of whether or not network capability could be inefficient or even dysfunctional in societies in which entrepreneurial institutions are already well established. Future research might also address the contingency of institutional variables, such as enforcement inefficiency and government support. In general, we advocate a series of studies regarding entrepreneur networks because they could stimulate the emergence of new theories appropriate for transitional or emerging economies.

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