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Extending the Role of Similarity Attraction in Friendship and Advice Networks in Angel Groups

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Although similarity attraction theory is often utilized to explain why people form relationships with similar others, we utilize diversity research to look beyond surface-level demographic characteristics similarity to explain situations when angels form interpersonal relations with angels with dissimilar deep-level personal characteristics due to a strong desire to receive information and cognitive benefits. We use data collected from a chapter of one of the largest angel organizations in the United States. Our results show that although individuals often form relations with similar others, conditions exist when angels exert the extra effort required to form relations with dissimilar others.

Introduction

Angel investing research tends to focus on the investment criteria angel investors consider when evaluating the funding potential of new ventures (Maxwell, Jeffrey, & Levesque, 2011). Recently, research has found that gender composition of the angel group impacts the likelihood of deals being funded (Becker-Blease & Sohl, 2011) and the interpersonal relations formed within an angel group differ in their impact on angels' decision to invest and not to invest (Mitteness & Sudek, 2011). Although the individuals that surround angel investors appear to impact their funding decisions, entrepreneurship researchers have focused on how similarity attraction impacts entrepreneurs when forming new venture teams (e.g., Clarysse & Moray, 2004; Godwin, Stevens, & Brenner, 2006; Ruef, Aldrich, & Carter, 2003). This stream of research has determined that the

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right social ties increase individual and group performance (Sparrowe, Liden, Wayne, & Kraimer, 2001) and enable individuals to obtain resources and social support (Klein, Lim, Salz, & Mayer, 2004; Zimmerman & Zeitz, 2002). The networks of entrepreneurs may evolve in a goal-oriented manner as entrepreneurs appear to create and manage their networks to gain resources such as financial and human capital (Slotte-Kock & Coviello, 2010). However, relatively little attention has been paid to how the formation of the interpersonal relations (advice and friendship) for angel investors differs from entrepreneurs because angels are motivated to form interpersonal relationships to gain information and cognitive benefits in order to improve their decision making compared with entrepreneurs who are trying to gain resources key to new venture survival.

Examining the formation of friendship and advice relations offers important insights missing in existing angel investment studies. We make a contribution to angel research by explaining why angels form interpersonal relations with some angels in their angel investment group. Specifically, we examine what impacts angel investors' motivation to exert the additional effort required to interact with someone who is dissimilar because they anticipate information and cognitive benefits. In addition to the desire to make a profit from their investment money, angels also want to form interpersonal relations with other angels. These goals may motivate angels to be strategic when deciding what interpersonal relations to form. Building on work suggesting positive/friendly ties can be used to achieve instrumental work even when an unfriendly person is more competent (Casciaro & Lobo, 2008), we explain why angels may use expressive relations (i.e., friendships) as instrumental relations (i.e., advisors). We argue that the formation of interpersonal relations (specifically, advice and friendship relations) act as a key mechanism through which angel investors adapt to the angel investment group by working through both social and task transitions (Fisher, 1986) to gain access to benefits that help them reduce social and task uncertainty. However, not much is known about the antecedents of relationship formation in a context involving high stakes and uncertainty such as angel investing.

Angel investment groups represent a context involving high stakes and uncertainty because angels invest in the very early stage of a new venture's existence (Wiltbank, Read, Dew, & Sarasvathy, 2009) and are often required to make a minimum investment of \$25,000 of their personal funds. Angel investing is an important component of the entrepreneurial process because angels invest in approximately 20 times the number of new ventures as venture capitalists (Sohl, 2005; Wiltbank, 2005). Angel capital fills the funding gap between the stage when entrepreneurs require the amount of capital that can be provided by friends and family and the amount required to garner interest from venture capitalists (Becker-Blease & Sohl, 2007). Early-stage capital is critical to the performance, growth, and survival of new ventures (Cassar, 2004). Therefore, determining why angels form interpersonal relations to make better decisions is an important contribution to entrepreneurship research because the funding decisions of angels impact many individuals in the entrepreneurial process.

Although similarity attraction theory is often utilized to explain why people tend to form relationships with similar others, we argue that angel investing is a context where individuals are motivated to form relations with dissimilar others due to a strong desire to receive information and cognitive benefits. We utilize diversity research to look beyond surface-level demographic characteristics to examine dissimilarity based on less readily apparent, deeper-level personal characteristics (e.g., Barrick, Stewart, Neubert, & Mount, 1998; LePine, Hollenbeck, Ilgen, Hedlund, 1997) that have been shown to impact angel investing decisions.

We also examine the moderating effect of opportunities for interaction on the relationship between personal characteristics similarity and the formation of interpersonal

relations. Individuals that interact have more opportunities to exchange personal information and observe each other's behavior (Gruenfeld, Mannix, Williams, & Neale, 1996). However, recent research has argued the importance of considering the context in which these interactions occur (e.g., Gibbons & Olk, 2003; Sorenson & Stuart, 2008). We explain how the two different settings in which opportunities for interaction occur in angel investing, dinner meetings and screenings, differ in their impact on the relationship between personal characteristics similarity and the formation of friendship and advice relations. Existing entrepreneurship research "sheds little light on how engaging in social interactions (versus having social relationships) might affect other outcomes of interest" (Fischer & Reuber, 2011, p. 5). We explain how opportunities for interaction at social settings (dinner meetings) differ from instrumental settings (screenings) in facilitating the identification of deep-level (i.e., unobservable) personal characteristics and how these different settings affect the impact of dissimilarity on the formation of interpersonal relations due to the nature of the exchanges that occur at these events.

The paper proceeds by presenting the relevant research related to organizational socialization, similarity attraction, diversity, and information processing. This then leads us to develop our hypotheses regarding the effects of personal characteristic similarity on the formation of interpersonal relations (advice and friendship). Next, we explain how opportunities for interaction are expected to moderate the relationship between personal characteristic similarity and the formation of interpersonal relations. In doing so, we provide a more comprehensive explanation of the interpersonal relations formation process by explaining the antecedents to a key mechanism by which angels adapt to their angel investment group through forming relationships with dissimilar others.

The Socialization Process

When angels join an angel investment group they must adjust and adapt to their new environment. This phenomenon has been referred to as socialization, and has been defined as interactions that lead to the building of personal familiarity, improved communication, and problem solving (Gupta & Govindarajan, 2000). The socialization process is essentially an uncertainty reduction process (Bauer, Bodner, Erdogan, Truxillo, & Tucker, 2007; Berger, 1979) as individuals seek to create more predictable environments (Berger & Calabrese, 1975), as well as learn to make better decisions by acquiring knowledge (Ostroff & Kozlowski, 1992). The socialization process involves both social and task transitions (Fisher, 1986); therefore, two types of uncertainty must be reduced—social uncertainty that emerges when individuals feel socially isolated and task uncertainty that arises from the lack of information regarding the task (Farh, Bartol, Shapiro, & Shin, 2010). Upon organization entry, individuals form interpersonal relations, such as friendship (i.e., social related) and advice (i.e., task related) relations to facilitate adaptation (Bauer & Green, 1994; Reichers, 1987). In summary, there are two distinct forces at work when individuals enter an organization. Individuals reduce social uncertainty by forming friendships with similar others because it is easier to interact with similar others (Harrison, Price, Gavin, & Florey, 2002). Alternatively, individuals reduce task uncertainty by forming advice relations with dissimilar others because they have a strong desire to acquire new information and receive content benefits from individuals that differ from them on task-relevant characteristics.

Although the potential exists for any two members of an organization to form an interpersonal relation, not all of them do. Individuals have limited time and energy for the development and maintenance of interpersonal relations, requiring them to be selective

when forming interpersonal relations (Wellman, 1988). Therefore, individuals must determine the types of interpersonal relations that will maximize the benefits they seek (Ibarra, 1993) because interpersonal relations differ in terms of their content—what is exchanged in the relation (Gibbons, 1998). The importance of distinguishing among the content of interpersonal relations matters because research shows different content relates to different outcomes (Ibarra & Andrews, 1993).

Research investigating relation content typically distinguishes between advice and friendship relations (e.g., Ibarra & Andrews, 1993) and has found that key players in advice networks do not operate as key players in friendship networks (Krackhardt, 1992). For example, friendship relations (and not advice relations) have been found to relate positively to similarity in perceptions of fulfillment of organizational promises (Ho & Levesque, 2005) and advice ties have been found to be influential in angels' decisions to invest whereas friendship ties are especially influential in angels' decisions not to invest (Mittens & Sudek, 2011). The differential effects of advice versus friendship relations make it important for researchers to distinguish among the content of relationships, particularly when investigating cognitive processes and information processing (Ibarra & Andrews). Here, we are interested in both advice and friendship relations.

Advice relations may be defined as interpersonal relations involving the exchange of information and knowledge related to the completion of a job or task (Ibarra, 1993; Ibarra & Andrews, 1993). Advice relations involve the reduction of task uncertainty, rather than social uncertainty, because individuals initiate advice relations to exchange information relating to the completion of a task (Ibarra; Ibarra & Andrews). Advice relations typically arise out of interactions required by one's job (Burt, Hogarth, & Michaud, 2000) and supply job-relevant information, assistance, and guidance from individuals with job or task expertise to individuals without it (Morrison, 1993; Sparrowe et al., 2001).

Friendship relations may be defined as voluntary interpersonal relations that reflect a history of reciprocal information sharing and social support leading to perceptions of intimacy and trust (Ibarra & Andrews, 1993; Klein et al., 2004; Krackhardt, 1992). Friendship relations involve the reduction of social uncertainty, rather than task uncertainty, because friendship relations involve discussions of personal matters (Burt et al., 2000) and general organization information rather than task-related information (Ho & Levesque, 2005; Shah, 1998). These types of interactions allow individuals to adapt to an organization's culture by providing normative information that helps individuals understand expected behavior and social information, as well as allowing them to assess their acceptance in the organization (Morrison, 1993). In the entrepreneurship context, friendship plays an important role in new venture team formation, functioning, stability, and ultimately the performance of new venture teams (Francis & Sandberg, 2000). Entrepreneurs strategically build trust-based partnerships when converting strangers into friends (Nguyen & Rose, 2009) and frequently make decisions based on discussions with friends (Bruderl & Preisendorfer, 1998). Individuals indicate a friendship relation exists by expressing how they generally feel about another individual with the options being that the other person is considered a close friend, a friend, or neutral feelings exist (Labianca & Brass, 2006).

Similarity Attraction Theory

Researchers tend to explain relationship formation using similarity attraction theory. Research suggests that similarities between individuals decrease uncertainty, whereas dissimilarities increase uncertainty (e.g., Berger & Calabrese, 1975) because interacting

with similar others is more predictable than interacting with dissimilar others (Thibaut, Kelley, 1959). Although individuals have a desire to increase the predictability of interactions between themselves and others within an organization, there are also situations when individuals are motivated to exert the additional effort required to interact with someone who is dissimilar when they anticipate benefits due to the acquisition of new information (Lin, 2001). However, interacting with dissimilar others is not easy and whether these benefits are valued by an individual depends on the type of uncertainty (social uncertainty or task uncertainty) the individual seeks to reduce and the personal characteristic involved. In the following paragraphs, we explain how personal characteristic similarity impacts the information diversity expected between two individuals and how this diversity impacts the likelihood of forming advice and friendship relations.

We utilize research on similarity attraction and diversity, as well as literature specific to each personal characteristic, to develop hypotheses regarding how similarity of personal characteristics with the potential to generate information benefits will impact the formation of friendship and advice relations. “It is not always easy to tell what differences make a difference” (Mannix & Neale, 2005, p. 35). Research examining the impact of personal characteristic similarity has not specified the precise attributes that matter in a given setting, instead leaving it to researchers to determine which attributes matter based on the context they are examining (Vissa, 2011). There are numerous personal characteristics that might have the potential to generate cognitive and information benefits in the context of angel investing. Relevant personal characteristics include any attribute individuals use to determine if another person is different from themselves (Williams & O’Reilly, 1998). Similarity involves not only observable attributes but also signals of unobservable attributes (Vissa, 2011). The information processing approach was used to guide our selection of personal characteristics. This approach argues that although coordination problems will occur, individuals that gain information because of interactions with individuals that have different backgrounds, networks, information, and skills will have improved outcomes (Mannix & Neale). Two commonly examined personal characteristics are education and occupational/industry experience because previous research has linked them to similarity attraction and/or diversity (e.g., Mannix & Neale; Milliken & Martins, 1996). Researchers have paid relatively little attention to the similarity of characteristics relating to decision making (Murnieks, Haynie, Wiltbank, & Harting, 2011). Therefore, to extend our understanding of the role of similarity attraction in the formation of interpersonal relations in angel investing, we also include similarity of cognitive style (e.g., Armstrong & Priola, 2001) and regulatory focus (e.g., Weber, Mayer, Macher, 2011). These characteristics are especially relevant to angel research because different types of experience (Mittleness, Baucus, & Sudek, 2012), as well as cognitive style, and regulatory focus have been found to impact angels’ evaluations of funding potential (Mittleness, Sudek, & Cardon, 2012). However, previous research has not examined how similarity of these personal characteristics impacts the development of interpersonal relations among angel investors.

Similarity Attraction and the Formation of Advice Relations

Advice relations are typically formed to achieve a specific goal—to gain something an individual needs (Lin, 2001). Here, individuals are motivated to exert the extra effort required to interact with someone who is dissimilar to them when they anticipate benefits due to the acquisition of new information (Lin, 2001). In other words, the content benefits (e.g., access to new information) may be greater than the process benefits of increased efficiency of interacting with someone similar (Grossman, Yli-Renki, Janakiraman, 2012).

There are two potential content benefits to interacting with individuals that have different personal characteristics: (1) information benefit—they provide information needed to complete the task (Lin, 1982) and (2) cognitive benefit—they prompt us to think differently about the task (Milliken & Martins, 1996; Watson, Kumar, & Michaelsen, 1993).

Research has found that diversity increases decision quality when it increases the variety of perspectives and approaches brought to the decision (Mannix & Neale, 2005), encourages greater cognitive understanding of the issue being discussed, and increases affective acceptance of decisions (Simons & Peterson, 2000). When given a complex cognitive task, individuals benefit from differences in opinions and perspectives (Bourgeois, 1985; Eisenhardt & Schoonhoven, 1990; Jehn, 1995). Therefore, motivation exists for individuals to expend the additional effort required to form advice relations with individuals that differ on a key characteristic when they anticipate receiving information and cognitive benefits. Under these circumstances when individuals are forming ties strategically, similarity attraction theory may become less influential on the formation of interpersonal relations due to the benefits dissimilar others may provide. However, the characteristic that the dissimilarity is based upon must have the ability to provide these benefits.

Rather than differences based on surface-level characteristics (i.e., demographics), differences based on deep-level characteristics are more likely to provide these benefits. Deep-level (i.e., underlying or not observable) characteristics refer to psychological attributes that are “expressed in behavior patterns, verbal and nonverbal communication, and exchanges of personal information” (Harrison et al., 2002, p. 1031). Initially, these deep-level personal characteristics are not visible and instead become known or visible as individuals interact with one another and reveal themselves through verbal and nonverbal behavior patterns (Gillaume, Brodbeck, Riketta, 2012). Education and industry experience represent deep-level attributes that are sometimes referred to as “achieved” characteristics (e.g., Ruef et al., 2003). Difference in deep-level attributes can generate different perspectives toward issues (Milliken & Martins, 1996). Diversity on achieved characteristics such as education and industry experience is particularly relevant in organizational settings because diversity along these skill-based dimensions allows individuals to draw information from different sources, facilitating the ability make more effective decisions (Harrison & Klein, 2007; Milliken & Martins). Information diversity provides individuals with information benefits to complete a task because it involves differences in the knowledge bases and perspectives of individuals due to differences in education and experience (Jehn, Northcraft, & Neale, 1999). Support for the notion that differences in educational level produce cognitive benefits was demonstrated in the finding that educational heterogeneity of top managers was positively related to a firm’s return on investment and growth in sales (Smith et al., 1994). Due to individuals’ apparent willingness to exert the additional effort required to interact with someone that differs from themselves when they anticipate information benefits required to complete the task (Lin, 1982), we expect level of education dissimilarity will lead angel investors to the formation of strong advice relations.

Angel investors also differ in how they gain industry experience—either they have worked in an industry or they have started a new venture in an industry (Mitteness, Baucus, et al., 2012). Individuals who work in an industry acquire industry operating experience whereas industry start-up experience is gained by individuals who start a business in the industry (Busenitz & Barney, 1997). Corporate entrepreneurs (i.e., individuals with industry operating experience) tend to focus on idea protection and tend to perceive more uncertainty about entrepreneurial roles and tasks than individuals that have started a new venture because corporate entrepreneurs have not performed these roles and

tasks (Corbett & Hmielski, 2007). Gaining industry experience in an environment with easier access to and more abundant resources enables entrepreneurs (and by extension angel investors with industry operating experience) to quickly see potential in strong opportunities (Corbett & Hmielski). Alternatively, angel investors that have started a new venture in an industry (i.e., angels with industry start-up experience) acquire expectations regarding how work should be done in that industry (Dokko, Wilk, & Rothbard, 2009). Angel investors with industry start-up experience may be more critical of the opportunities and entrepreneurs in industries in which they have started a business, especially when determining whether the deal matches with their investment goals (Mittens, Baucus, et al., 2012). Due to both types of industry experience impacting how angels evaluate the funding potential of a new venture, we expect angel investors to seek to form advice relations with angels that differ in terms of their industry operating experience and industry start-up experience in order to get a different perspective on the investment deal.

In addition to education and industry experience dissimilarity generating content benefits due to the information benefits (i.e., access to new information) it creates (Jehn et al., 1999), cognitive style and regulatory focus are two additional personal characteristics that have the potential to provide content benefits because of their potential to provide cognitive benefits (i.e., prompt individuals to think differently). Cognitive style and regulatory focus represent even deeper-level attributes because they involve cognitive processes. Lack of diversity of underlying cognitive processes could create mental “blind spots,” preventing individuals from noticing things that the opposing cognitive process would resolve (Murnieks et al., 2011).

Individuals have preferred cognitive styles indicating their automatic way of organizing and processing information and situations to arrive at judgments (Kirton, 1976, 2003; Riding & Rayner, 1998; Streufert & Nogami, 1989). Individuals with an innovator (i.e., intuitive) cognitive style tend to see individuals with an adapter (i.e., analytical) cognitive style as being against change and intolerant of ambiguity, whereas adapters perceive innovators as liking change for the sake of change and have little interest in ensuring that the changes are relevant (Kirton, 2003). In addition, individuals with an innovator cognitive style are described as being more friendly and warm toward others, whereas adapters are perceived as impersonal and more task oriented (Armstrong & Priola, 2001). However, deeper thinking occurs when individuals with different cognitive styles interact (Kirton, 2003). Adapters (i.e., analysts) use a structured approach to problem solving and use rational thinking, basing judgment on mental reasoning, whereas innovators (i.e., intuitivists) use an open-ended approach to problem solving and use intuition, basing judgment on feelings (Allinson & Hayes, 1996). Due to the different approaches to problem solving, interacting with individuals with different cognitive styles is difficult but it may also prompt angels to think differently about the task and therefore produce cognitive benefits that lead to the formation of advice relations.

Angels may also differ in their cognitive processes based on their regulatory focus. Individuals with similar goals possess different ways of achieving these goals due to their regulatory focus (Higgins, 1997). Although individuals experience both types of regulatory foci—promotion and prevention focus—they have a predisposition for one or the other (Higgins et al., 2001). Promotion-focused individuals are more sensitive to the presence or absence of positive outcomes, whereas prevention-focused individuals are more sensitive to the presence or absence of negative outcomes (Higgins, 1998). Angels likely see value in discussing investment opportunities with someone who focuses on the presence or absence of negative outcomes (i.e., prevention-focused individuals) if they tend to be more sensitive to the presence or absence of positive outcomes (i.e., promotion

focused). We are not suggesting that individuals will come to the conclusion that they have a promotion-dominated regulatory focus and angel A has a prevention-dominated regulatory focus. Instead they will learn that angel A always seems to be concerned with not investing in a bad deal and therefore has done a thorough investigation of everything that could go wrong with the investment, whereas they always seem to concentrate on making sure all the pieces are in place to grow the business to the fullest.

Although angels likely will not know their cognitive style or regulatory focus, they will recognize when an individual approaches a problem or decision in a different way than they do and they will appreciate a fresh perspective to make sure they have thoroughly analyzed the investment. We expect cognitive style and regulatory focus similarity to exhibit a negative relationship with advice relations due to individuals' willingness to exert the additional effort required to interact with someone that differs from themselves when they anticipate receiving cognitive benefits (i.e., angels form advice relations with individuals that prompt them to think differently about the task).

Due to individuals forming advice relations to gain something they need (Lin, 2001), we argue that angels will view the content benefits (i.e., information and cognitive benefits) of interacting with individuals with dissimilar personal characteristics as greater than the cost of the inefficiencies associated with interacting with these individuals. To reduce task uncertainty, angels will form advice relations based more on diversity (i.e., dissimilarity) than on similarity. Individuals with the greatest potential to provide information and cognitive benefits are individuals with dissimilar level of education, industry operating experience, industry start-up experience, cognitive style, and regulatory focus; individuals will use these differences as the basis for forming advice relations. Stated formally,

Hypothesis 1: The greater similarity of deep-level personal characteristics (level of education, industry operating experience, industry start-up experience, cognitive style, and regulatory focus), the lower the likelihood of forming an advice relation.

Similarity Attraction and the Formation of Friendship Relations

Similarity attraction research suggests that individuals form friendships with similar others because interacting with similar others creates process benefits—communication is easier, behavior is more predictable, and interpersonal trust is increased (Bauer et al., 2007; Byrne, 1971; Lincoln & Miller, 1979). Individuals have a natural preference to interact with individuals with similar characteristics because these interactions tend to reinforce their own beliefs and behaviors and reduce social uncertainty (Harrison et al., 2002). However, unlike most organizational contexts, angel investing provides a context involving high stakes and uncertainty that cause angels to be conflicted by the natural tendency to connect with similar others because it reduces social uncertainty while also feeling compelled to connect with dissimilar others because of the large payoffs these connections can provide (Vissa, 2011). Instrumental and affective motivations are intertwined in most social interactions (Lindenberg, 1997). Both social similarity and task consideration matter in entrepreneurship; however, when they conflict, task considerations trumps similarity (Vissa).

Although friendship and advice relations are conceptually distinct, they are not mutually exclusive. They may overlap due to the cost of seeking task-related information. Directly seeking task-related information opens an individual up to interpersonal risks by revealing lack of knowledge in a particular area (Borgatti & Cross, 2003; Shah, 2000). Individuals decide from whom to seek task-related information by trading off the expected

knowledge gained and the cost of obtaining it (Nebus, 2006). Findings suggest that diversity only increases performance when group processes are carefully controlled (Webber & Donahue, 2001). Angels may rely on friends for task-related information, exposing their knowledge deficiencies in a context of relational security. Friendship relations enable individuals to risk vulnerability to each other (Gibbons, 2004). We argue that angel investors use friendships to seek task-related information. Therefore, angels use some friendships with dissimilar others in more instrumental ways and may not feel the need to form advice relations with a dissimilar other. Thus,

Hypothesis 2: The greater similarity of deep-level personal characteristics (level of education, industry operating experience, industry start-up experience, cognitive style, and regulatory focus), the lower the likelihood of forming a friendship relation.

Moderating Impact of Opportunities for Interaction

We propose that opportunities for interaction (i.e., joint attendance at organization events) will moderate the relationships between personal characteristic similarity and the formation of both friendship and advice relations. Infrequent contact makes forming interpersonal relations with dissimilar individuals even more difficult, whereas focused activity puts people into contact with one another to foster the formation of these relations (McPherson, Smith-Lovin, & Cook, 2001). Therefore, individuals whose paths cross often are more likely to form interpersonal relations, even if they are dissimilar on key personal characteristics. As individuals interact, they have more opportunities to observe the other person to become aware of their deep-level attributes (Gruenfeld et al., 1996; Harrison et al., 2002). Research has found that even attributes that are unobservable can be inferred after repeated interactions. For example, diversity based on conscientiousness, terminal values, task meaningfulness, and outcome importance can only become known after team members have more opportunities to observe each other's behavior (Harrison et al.).

Recent socialization research argues that opportunities for interaction can either have an amplifying or dampening effect on the relationship between similarity and tie strength (e.g., Reagans, 2011). The magnitude of the similarity attraction effect may depend as much on the social setting as on the particular attribute (Gibbons & Olk, 2003). Organization events can either be dominated by social interactions or by instrumental interactions. Instrumental interactions differ from social interactions because the former involve task-related exchanges (Zohar & Tenne-Gazit, 2008). Angels have the option of attending two different types of organization events—screenings and dinner meetings. In the paragraphs that follow, we explain how the two different settings in which the opportunities for interaction occur differ in their impact on the relationship between personal characteristics similarity and the formation of friendship and advice relations.

Opportunities for Interaction in Social Settings

Angels have the option of attending dinner meetings. These meetings occur once a month and consist of a social hour and one or two presentations made by entrepreneurs who have reached the funding stage and therefore have a strong social component. Due to the strong social component at dinner meeting, we argue that angels will have less motivation to interact with diverse individuals at these meetings because they want to

enjoy the social aspect of the event. Due to repeated interactions with the same individuals making their unobservable personal characteristics more visible and their behavior more predictable, these opportunities for interaction likely lower social uncertainty. Interactions with a constantly changing set of individuals tend to be less satisfying than repeated interactions with the same individuals (Baumeister & Leary, 1995). As individuals become more familiar with each other, the costs associated with interacting with them likely fades. When examining work groups, Harrison and colleagues found that deep-level similarity had little effect on group cohesion early in the group's formation. However, over time, deep-level similarity had a greater impact (Harrison, Price, & Bell, 1998). Therefore, the negative relationships between personal characteristic similarity and the likelihood of forming a friendship and advice relation are weaker for individuals that have had more opportunities for interaction (i.e., attraction to similar others is strengthened) when the opportunities for interaction occur in a social setting. Thus,

Hypothesis 3: Opportunities for interaction involving social settings (i.e., dinners) negatively moderates the relationship between personal characteristics similarity and the formation of (a) friendship and (b) advice relations, such that the negative relationship between personal characteristics similarity and the formation of friendship and advice relations will be weaker for angels with high opportunities for interaction.

Opportunities for Interaction in Instrumental Settings

Angels also have the option of attending screenings. Screenings typically occur twice a month and focus on the task of new venture funding evaluation and therefore have limited time for social interaction. Due to screenings being focused on the task of evaluating the funding potential of new ventures, we argue that angels will have more motivation to interact with diverse individuals at screenings because they want to be pushed to think differently and gather as much information they can to make the best funding decision. Identifying unobservable (i.e., deep level) personal characteristics allows individuals to determine the information these individuals are able to provide, lowering task uncertainty. Pelled, Eisenhardt, and Xin (1999) provide support for this notion in their finding that diversity was less likely to trigger conflict for groups that had worked together longer. As individuals interact, they have more opportunities to exchange personal information and observe a larger sample of each other's behavior to determine how others "think" about the task (Gruenfeld et al., 1996). This is especially true for deep-level attributes that only become known as individuals interact and learn more about each other (Harrison et al., 2002; Jehn et al., 1999). Based on these arguments, the negative relationships between personal characteristic similarity and the likelihood of forming a friendship and advice relation are stronger for individuals that have had more opportunities for interaction (i.e., attraction to similar others is weakened) when the opportunities for interaction occur in an instrumental setting. We hypothesize:

Hypothesis 4: Opportunities for interaction involving instrumental settings (i.e., screenings) positively moderates the relationship between personal characteristics similarity and the formation of (a) friendship and (b) advice relations, such that the negative relationship between personal characteristics similarity and the formation of friendship and advice relations will be stronger for angels with high opportunities for interaction.

Methods

The Setting: Angel Organization

We test the hypotheses in the context of angel investing. Angel investment groups represent a context involving high stakes and uncertainty because angels invest their personal funds and expertise in the very early stage of a new venture's existence (Wiltbank et al., 2009). The angel organization examined here represents one of the five chapters that make up one of the largest angel organizations in the United States. This angel organization does not invest as a whole, but instead each individual angel decides independently whether to invest in a new venture.

Individuals differ in their motivation to actively engage in their new organizations (Ashford & Black, 1996), especially in voluntary organizations like angel organizations. Therefore, we expected that there would be a core group of angels that truly represent the angel organization and other angels that represent members in name only. Due to our interest in examining the formation of interpersonal relations in the core group of angels, we sought to identify this core group. To ensure that we obtained a sample of active members as complete as possible, we used the reputational sampling approach that is appropriate when researchers have good reasons to believe that the informants will have a good knowledge of the target population and are able to report this accurately (Scott, 2000). We selected the investment screening director and two members of the focal chapter's executive board as informants. At least two of the three informants agreed that 37 of the 68 members represent active members with an initial inter-rater reliability of .899. After the informants discussed their responses, they reached 100% agreement that these 37 angels represent the active core group. This sample size compares favorably with samples used in other social network research published in top journals such as Friedkin (1993) with a sample size of 23; Totterdell, Wall, Holman, Diamond, and Epitropaki (2004) with 43; and Tsai (2002) with 24, as well as Borgatti and Cross (2003) with samples of 37 and 35 and Human and Provan (1997) with 19 and 23. This core group represents 54% (37/68) of the angel organization's membership and is comparable to the percentages in previous research (e.g., Human & Provan).

Angels provided previous relationships data when applying to the angel organization. The focal angel organization collects data regarding attendance at organization events on an ongoing basis. Measures of tenure are as of July 2008 and attendance at organization events cover a 1-year period ending June 2008. We used self-administered questionnaires to collect the remaining data. We collected angel background data (age and education) in January 2007. These data are updated as angels join the angel organization. We collected interpersonal relation data and additional angel background data including industry experience, cognitive style, and regulatory focus in June 2008. The overall response rate for survey collecting age and education data was 100% (37/37) and 94.6% (35/37) for the survey collecting interpersonal relation (friendship and advice) and other additional background data.

Measures

Advice and Friendship Relations

Complete network data (as opposed to egocentric data) were collected for both advice and friendship relations (i.e., for each type of relation angels made 36 responses, one for each of the other 36 angels) because they represent positive, direct interactions in organizations. Following the work of Ho and Levesque (2005), Ibarra and Andrews (1993),

and Klein et al. (2004), we assessed advice relations by asking angels “Please indicate the extent to which you agree or disagree with the statement: I’ve gone to this angel for investing advice in the past.” Angels responded using a 5-point agree/disagree scale that was converted to a dichotomous measure: 1 = if an advice relation was indicated (agree or strongly agree) and 0 = if an advice relations was not indicated (neutral or either disagree response). As suggested by Labianca and Brass (2006), friendship relations were determined by asking angels “How to you generally feel about each angel?” The response scale includes items “consider a close friend,” “consider a friend,” and “neutral.” Friendship relations were also converted to a dichotomous measure: 1 = if a friendship relation was indicated (consider a close friend or consider a friend) and 0 = if a friendship relation was not indicated (neutral response). We used these responses to create two matrices—one involving advice relations and the other friendship relations. In the advice matrix, a 0 in cell i,j indicates that actor i does not seek advice from j and a 1 indicated the angel seeks advice from j . A 0 in cell i,j in the friendship network indicates that actor i is not friends with j , whereas a 1 indicates a friendship with j .

Education

Angels indicated their highest level of education was a bachelor, master’s, or PhD degree. We coded PhD degrees a 3, master’s degree a 2, and bachelor degree a 1. We calculated the absolute value of the difference between two individuals’ education. For example, if angel A has PhD (3) and angel B has a bachelors (2), then the cell entry for X_{ab} of 1 produces a dissimilarity matrix when calculated for each pair. Due to these calculations indicating dissimilarity, we multiplied the absolute difference score by minus one to create a similarity matrix.

Industry Experience

In the context of angel investing, angels differ in terms of the type of industry experience they have gained because they may have started a new venture in an industry or worked in an industry (labeled industry start-up experience and industry operating experience, respectively). Angels reported the industries in which they have started a new venture and worked using the list of industries used by the Angel Capital Association to categorize investments (Hudson, 2007). Industries include biotechnology, business products/services, computers and peripherals, financial services, media and entertainment, among others. Due to industry experience responses involving more than one industry choice, we used Pearson correlations as a measure of similarity (e.g., Ho & Levesque, 2005) to compute similarity matrices regarding each type of industry experience. For example, two angels that have operating experience in both biotechnology and financial services will have a higher correlation (more similar industry operating experience) than two angels who only have similar operating experience in biotechnology.

Cognitive Style

Consistent with other research in this context (e.g., Kickul, Gundry, Barbosa, & Whitcanack, 2009), we measured cognitive style using the established cognitive style index developed by Allinson and Hayes (1996). Angels responded to 38 items using a trichotomous response scale ranging from 0 to 2 (true, uncertain, false). A sample of the items used include: “In my experience, rational thought is the only realistic basis for

making decisions,” “I am more at home with ideas rather than facts and figures,” and “I find that ‘too much analysis results in paralysis’.” The last two items are reverse coded. A high score indicates a more analytical and less intuitive cognitive style. Our alpha of .885 falls in the range achieved by Allinson and Hayes (.84–.92). The established cognitive style scale provides a single number for each angel. To calculate a measure of similarity across any pair of angels, we simply take the absolute value of the difference in their scores. This would provide a measure of dissimilarity (0 is perfect similarity and increases as they are less similar), so we multiply the result by -1 in order to get a measure of similarity.

Regulatory Focus

The regulatory focus measurement consists of the 18-item scale developed by Lockwood, Jordan, and Kundra (2002). This scale was developed to measure the extent to which individuals vary on the two dimensions of promotion and prevention focus theorized by Higgins (1997). A sample of items include: “In general, I am focused on preventing negative events in my life” and “I frequently imagine how I will achieve my hopes and aspirations.” We adopted the measurement instrument developed, tested, and published by Lockwood and colleagues directly, with only minor adjustments to account for the specific context of our study. For example, we amended some of the items to pertain to the investing context instead of the academic context utilized to develop the scale. For example, instead of “I often worry that I will fail to accomplish my academic goals,” we used “I often worry that I will fail to accomplish my goals.” The endpoints of this scale indicate 1 = not at all true of me and 5 = very true of me. The instrument developed by Lockwood and colleagues yields scores for both strength of promotion focus and a strength of prevention focus by averaging the items belonging to each of these dimensions. Analysis of the scale items for each dimension showed high reliability, consistent with the findings published by Lockwood et al. (promotion alpha = .819, prevention alpha = .75). Because the established regulatory focus measure produces a multifactor score, we measure similarity across the factors using Pearson correlation across each pair of angels’ scores on each factor. This produces a single measure of similarity that accounts for the similarity in the pattern of scores across the dimensions of regulatory focus, rather than calculating simple differences for each factor and aggregating them, which would not necessarily reflect the overall pattern of similarity as well.

Opportunities for Interaction

Angels have different opportunities for interacting based on their joint attendance at organization events such as screening and dinner meetings. Screenings typically occur twice a month and focus on the task of evaluating the funding potential of new ventures and therefore have limited time for social interaction. Dinner meetings occur once a month and consist of a social hour and one or two presentations made by entrepreneurs who have reached the funding stage, and therefore, these meetings have a strong social component. We calculated two matrices. One indicating the number of new venture screenings a pair of angels attended together over a year, and another indicating the number of dinner meetings attended by a pair of angels over the same year. When pairs of angels have not attended any of the same events, the cell entry was coded zero, pairs attending one event together were coded 1, attending two events together were coded 2, and so on.

Control Variables

Individuals joining the angel organization may already have interpersonal relations established with existing members. Therefore, it is necessary to control for these pre-existing interpersonal relations. When applying for membership in the angel organization, individuals indicated who referred them to the angel organization. We used these responses to capture previous relationships of angels as they join the group over a period of time and created a matrix that is square, dichotomous, asymmetrical matrix. We also controlled for tenure because individuals are motivated to achieve a certain minimum quantity and quality of interpersonal relations in general (Baumeister & Leary, 1995). Once they meet this level, their motivation to form new relationships diminishes when the need to belong is already well satisfied (Baumeister & Leary). Therefore, tenure (in years) was included as a control using the date angels joined the angel organization to calculate his or her tenure with the angel organization. We converted this individual level variable into dyadic data (i.e., a matrix) by inputting the angel's tenure across every cell for that angel to obtain a square matrix the same size as the other matrices.

Research has found that age similarity leads to affiliation (Berscheid, 1985), whereas interacting with someone of a different age reduces aspects of individual and team functioning (Harrison et al., 2002) because age differences imply differences in underlying attributes such as values and beliefs (McGrath, Berdahl, & Arrow, 1995). We calculated the absolute value of the difference between two individuals' age. For example, if angel A is 55 and angel B is 50, then the cell entry for X_{ab} of 5 produces a dissimilarity matrix when calculated for each pair. Due to these calculations indicating dissimilarity, we multiplied the absolute difference score by minus one to create a similarity matrix.

Data Analysis

We utilize social network analysis to examine the complete network of an angel organization. Complete network data include interpersonal relations individuals do not have with other angels in their angel organization, that have been regarded as having equal importance to the relations individuals do have (Burt, 1980). The potential autocorrelation of error terms within the rows and columns of relational data violates the basic assumption of independent error terms in ordinary least squares (OLS) regression. Therefore, using standard econometric statistical testing of network data increases the likelihood of biased hypothesis tests (Krackhardt, 1988). Therefore, all social network analyses were completed using UCINET 6 (Borgatti, Everett, Freeman, 2002). X-conditional semi-partialing is a new variation of multiple regression quadratic assignment procedure (MRQAP) that offers more robustness under simultaneous conditions of multicollinearity and structural autocorrelation (Dekker, Krackhardt, & Snijders, 2007). The unstandardized coefficients and R^2 obtained in MRQAP are interpreted in the same manner as those in OLS regression (Borgatti & Cross, 2003). Testing for moderation in social network analysis follows the same procedure used in standard multiple regressions (Cohen, Cohen, West, & Aiken, 2003). We calculated interaction terms using centered scores to create interaction term matrices. Independent variables were entered into the model containing the control variables to create a main effects-only model, followed by the interaction terms to create a contingency model (Cohen & Cohen, 1983). The significant interactions were plotted to further explore their exact nature.

Results

The descriptive statistics are shown in Table 1. The highest correlation among independent variables occurs between industry operating experience and industry start-up experience ($r = .392$). Relatively low correlations among the other independent variables indicate that multicollinearity is not an issue. Given the high correlation between the friendship and advice networks (.681), many pairs (dyads) from our sample exhibit multiplex ties (i.e., both have friendship ties and advice ties). This is not unexpected, given other research in the formation of both instrumental (advice) and affective (friendship) ties (Casciaro & Lobo, 2008). We address the potential for cross-model disturbances below.

We examined the formation of two types of interpersonal relations—advice and friendship. The control models presented in Table 2, models 1 and 4, indicate that previous relations and tenure explain 12.9% of the variance in friendship relations and 5.4% of the variance in advice relations. The inclusion of the independent variables in models 2 and 5 increased the amount of explained variance to 30.8% ($p < .001$) for friendship relations and 16.2% ($p < .001$) for advice relations. Adding the interaction terms in models 3 and 6 increased the amount of explained variance to 31.0% ($p < .001$) for friendship relations and 17.7% ($p < .001$) for advice relations.

Before discussing how our results relate to our hypotheses, we need to discuss that while our research focuses on comparing and contrasting the factors which facilitate each type of tie separately, the high correlation and the presence of multiplex ties requires, we validate that there are not cross-model effects when considered together. We performed several analyses to this effect. First, within MRQAP, we predicted each dependent variable (friendship and advice) based on the other, and repeated the analyses presented here on the residuals. Although the results of that analysis show similar patterns for the mechanisms, such an analysis privileges the “other” dependent variable (e.g., friendship or advice) as the primary mechanism for predicting the other (e.g., advice or friendship, respectively). Effectively, this approach examines if the two dependent variables mediate each other. Without longitudinal data, however, we cannot determine which relationship mediates the other. Further, our intent is to study the more distal antecedents for both, rather than the mediating effects of one on the other.

Therefore, to test for cross-model disturbances across the two unmediated models, we performed seemingly unrelated regression (SUR) analysis on the two models. Since SUR is not available in UCINET, we performed this analysis in STATA 13 (StataCorp, 2013). To prepare the data for STATA, we converted all of the matrices containing the relational data into vectors, effectively making each row one unique ordered pair of angels. We then repeated the regression analyses, receiving exactly the same results for both standardized and unstandardized coefficients. While significance testing from traditional OLS regression is inappropriate for network data (Krackhardt, 1987), this provided a baseline model for the SUR analysis that showed no cross-model disturbances, and no changes to the coefficients when considered simultaneously. The results of this analysis are presented in Table 3. In addition to the SUR two-step estimation for the joint regression, we also repeated the analysis using simultaneous equations with maximum likelihood estimation using STATA’s `cmp` procedure (Roodman, 2011). Again, no cross-model disturbances were evident.

Hypothesis 1 argued that personal characteristics similarity decreases the likelihood of forming an advice relation. Support for this hypothesis was found for education similarity ($\beta = -.113$; $p < .01$). Surprisingly, industry operating experience similarity also predicted the likelihood of forming a strong advice relation, although the coefficient was

Table 1
Means, Standard Deviations, and Correlations

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Advice	.322	.467											
2. Friendship	.435	.496	.681**										
3. Previous relationships	.031	.173	.156**	.159**									
4. Tenure	4.993	3.398	.156*	.302**	.039								
5. Attendance screenings	3.176	4.17	.157*	.267**	.076	-.022							
6. Attendance dinners	3.803	2.565	.303**	.422**	.122*	.280**	.333**						
7. Age similarity	-11.039	7.964	.089	.136*	.014	.031	.086	.112					
8. Ind start-up exp similarity	-5.051	14.403	-.009	.015	.032	-.019	.104	.037	.029				
9. Ind operating exp similarity	.06	.266	.06	.06	.074*	.002	-.046	.023	.023	.392**			
10. Education similarity	-.694	.627	-.147**	-.108*	.038	-.024	.05	-.068	-.084	.183**	.019		
11. Cognitive style similarity	-13.294	11.233	-.125*	-.113	-.028	-.104	-.005	-.016	0	.042	.047	.124*	
12. Regulatory focus similarity	.458	.271	.002	-.013	-.076	-.144	-.086	-.075	.131	-.073	-.048	-.025	.079

* $p < .05$; ** $p < .01$.
 n = 1,332 (37 × 36).
 exp, experience; ind, industry; SD, standard deviation.

Table 2

Multiple Regression Quadratic Assignment Procedure (MRQAP) Results

	Friendship			Advice		
	1	2	3	4	5	6
Control variables						
Previous relationships	.146***	.103***	.106***	.149***	.124***	.134***
Tenure	.293**	.190**	.185***	.148*	.058	.052
Age similarity	.124	.021	.024	.082	.006	.009
Independent variables						
Education similarity		-.073*	-.069*		-.113**	-.116***
Industry start-up exp similarity		-.029	-.036		-.032	-.035
Industry operating exp similarity	.072*	.074*		.071*	.076*	
Cognitive style similarity		-.043	-.05		-.082	-.091*
Regulatory focus similarity		.065	.061		.052	.05
Moderator variables						
Joint attendance at screenings		.220***	.217***		.111*	.113*
Joint attendance at dinners		.324***	.314***		.251***	.238**
Interaction terms						
Education × dinners			.018			-.028
Industry start-up exp × dinners			-.045			-.064*
Industry operating exp × dinners		.024			.051*	
Cognitive style × dinners			.007			-.001
Regulatory focus × dinners			.021			.057*
Education × screening			.003			-.022
Industry start-up exp × screening		.05			.061*	
Industry operating exp × screening		-.044			-.04	
Cognitive style × screening			-.021			.015
Regulatory focus × screening			.029			.034
R ²	.129***	.308***	.310***	.054***	.162***	.177***
Adjusted R ²	.127	.302	.3	.052	.155	.162
Change R ²	.129***	.179***	.002	.054***	.108***	.015**

n = 1,332, * $p < .05$; ** $p < .01$; *** $p < .001$.

Standardized regression coefficients are displayed in the table.
exp, experience.

positive rather than negative ($\beta = .071$; $p < .05$). Findings presented in Table 2, model 2, support hypothesis 2 predicting personal characteristic similarity would decrease the likelihood of forming a friendship relation when examining education similarity ($\beta = -.073$; $p < .05$). Surprisingly, industry operating experience exhibited a positive effect when predicting friendship relations ($\beta = .072$; $p < .05$).

Next, we tested the moderating effect of opportunities for interaction (i.e., joint attendance at dinners and screenings) on the relationship between personal characteristic similarity and the formation of interpersonal relations (friendship and advice). We find support for none of the moderating effects involving friendship relations and four for advice relations. In particular, we find support for hypothesis 3b in the positive and significant coefficient for the interaction term between industry operating experience similarity and joint attendance at dinners ($\beta = .051$; $p < .05$) as well as regulatory focus similarity and joint attendance at dinners ($\beta = .057$; $p < .05$). As illustrated in Figure 1a and b, the negative relationship is weaker when there is high joint attendance at

Table 3

Seemingly Unrelated Regression (SUR) Analysis Results

	Friendship Model 3	Advice Model 6
Previous relationships	.337	.403
Tenure	.027	.007
Age similarity	.002	.001
Education similarity	-.054	-.086
Industry start-up exp similarity	-.071	-.064
Industry operating exp similarity	.138	.135
Cognitive style similarity	-.002	-.004
Regulatory focus similarity	.112	.088
Joint attendance at screenings	.061	.044
Joint attendance at dinners	.026	.013
Education × dinners	.006	-.008
Industry start-up exp × dinners	-.037	-.049
Industry operating exp × dinners	.019	.037
Cognitive style × dinners	0	0
Regulatory focus × dinners	.016	.042
Education × screenings	.001	-.004
Industry start-up exp × screenings	.023	.026
Industry operating exp × screenings	-.021	-.018
Cognitive style × screenings	0	0
Regulatory focus × screenings	.012	.013
Intercept	-.103	-.069
RMSE	.427	.412
R ²	.175	.314
χ ²	252.64	<i>p</i> < .001
Sig	544.45	<i>p</i> < .001

exp, experience.

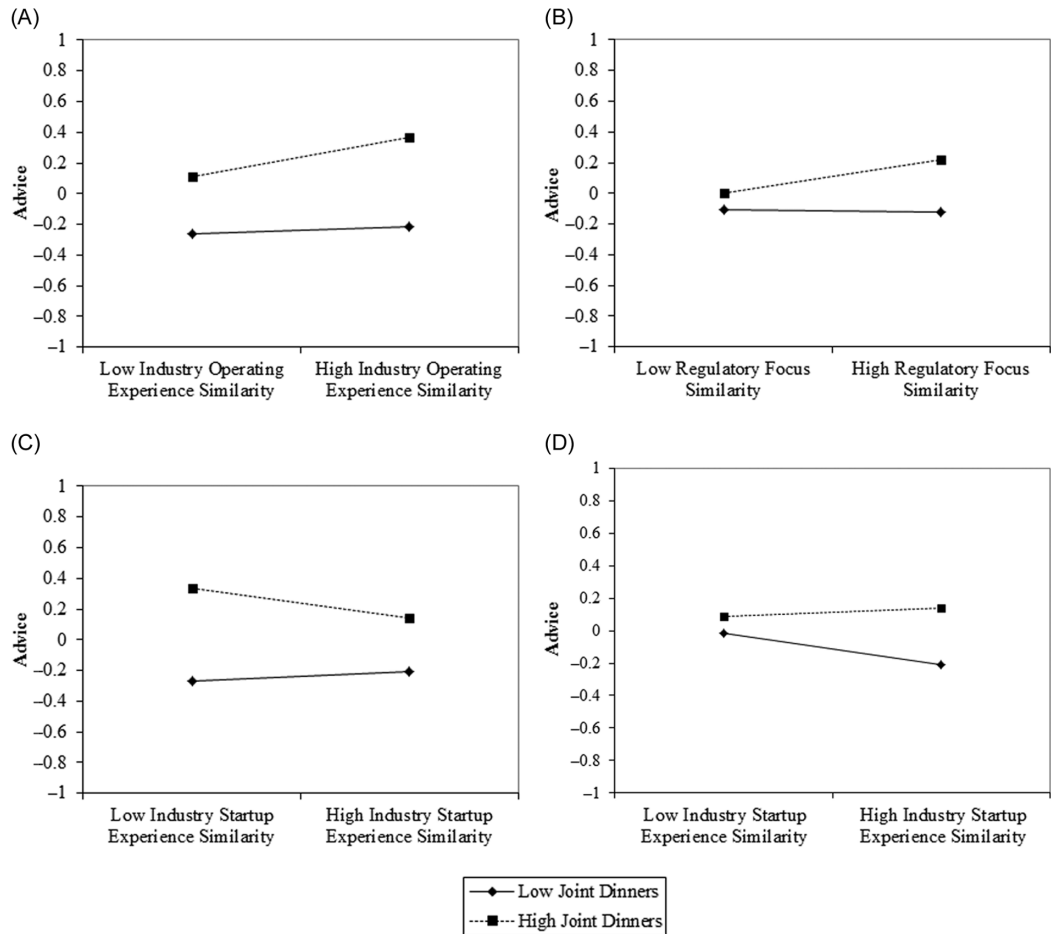
dinner meetings. Surprisingly, the interaction term between industry start-up experience similarity and joint attendance at dinners is also significant, but the sign is negative ($\beta = -.064$; $p < .05$). Figure 1c shows that angels with high industry start-up experience similarity are less likely to form advice relations than angels with low industry start-up experience similarity when they have high joint attendance at dinners (i.e., the negative relationship is stronger when there is high joint attendance at dinner meetings). We also find a surprise with regards to hypothesis 4b. The interaction term between industry start-up experience similarity and joint attendance at screenings is significant and positive ($\beta = .061$; $p < .05$). Figure 1d indicates that angels are least likely to form an advice relation when they have high industry start-up experience similarity and low joint attendance at screenings.

Discussion

Research tends to ignore the impact of the social environment surrounding angel investors, portraying them as individuals isolated from the social influences that surround them when they make decisions. However, individuals do not make decisions in isolation;

Figure 1

Interaction Plots



- (a) Moderation of Industry Operating Experience Similarity on Advice
- (b) Moderation of Regulatory Focus Similarity on Advice
- (c) Moderation of Industry Start-Up Experience Similarity on Advice
- (d) Moderation of Industry Start-Up Experience Similarity effect Advice

they consult and are influenced by individuals in their environment (Aldrich & Zimmer, 1986). The relationships formed among angels involved in an angel investment group are important because they have been found to impact angels' investment decisions (Mittens & Sudek, 2011). Overall, our findings suggest that under conditions of high stakes and uncertainty, such as angel investing, individuals compare the cost and benefits of their actions and are sometimes motivated to exert the additional effort required to interact with dissimilar others when they perceive an opportunity to gain information and cognitive benefits. This study offers new insights into the interpersonal relation formation process of angel investors. We discuss these insights in the paragraphs that follow.

This paper goes beyond the examination of surface-level (i.e., demographic) personal characteristic similarity by examining how the similarity of deeper level personal characteristics influences the formation of interpersonal relations of angel investors. We provide preliminary evidence that under conditions of high stakes and uncertainty, circumstances exist that contradict similarity attraction theory. Our findings indicate a negative relationship between both education similarity and cognitive style similarity and the formation of advice relations. These results indicate that the cognitive benefits of having dissimilar individuals push angels to think differently about the task (Milliken & Martins, 1996; Watson et al., 1993) may provide the bases for which individuals form advice relations. Angels appear to recognize this cognitive benefit and prefer to form advice relations with someone with a different level of education and cognitive style because they force them to think differently about the investing process. Cognitive style and level of education may represent deep-level attributes that are easier to identify than the other unobservable personal characteristics examined. In addition, we build on work suggesting positive/friendly ties can be used to achieve instrumental work (e.g., Casciaro & Lobo, 2008) by finding support for the argument that angel investors may use friendships in instrumental ways. Education similarity exhibited a negative relationship when predicting friendship relations. Although research has found that education similarity should increase the likelihood of forming a friendship relation because it increases affect between supervisors and their subordinates (Tsui & O'Reilly, 1989), angel investors may find it interesting, and therefore not intimidating, to interact with angels that differ in their level of education and this difference does not prevent them from forming a friendship relation.

Although angels appear to be motivated to form interpersonal relations with dissimilar others, similarity attraction theory explained the formation of both friendship and advice relations between angels with similar industry operating experience. A possible explanation for these surprising results may be that although diversity research has found that exchanges among dissimilar individuals impact cognitive outcomes in potentially positive ways, it is often difficult to fully capitalize on these potential content benefits because of the difficulties they introduce to the communications (Gillaume et al., 2012; Milliken & Martins, 1996; Watson et al., 1993). The cost of seeking task-related information can be high because the interaction can result in embarrassment for revealing ignorance or uncertainty regarding the task (Klein et al., 2004). Angels may perceive the cost of seeking task-related information from someone with different industry operating experience as greater than the information benefits these dissimilar others may be able to provide and prevent them from forming both advice and friendship relations.

Our findings also provide support for the notion that when examining the boundary conditions of similarity attraction theory, it is important to consider the opportunities for interaction, such as joint attendance at two types of organization events. Joint attendance at dinners positively moderated the relationship between both industry operating experience similarity and regulatory focus similarity on the formation of advice relations. Due to the strong social component at dinner meetings, we argue and find support for the notion that angels will have less motivation to interact with dissimilar individuals in this social setting because they want to enjoy the social aspect of the event. Information diversity can trigger friction because individuals may interpret the behavior of someone playing "devil's advocate" as a personal attack instead of a constructive debate (Jehn, 1997; Simons & Peterson, 2000). When there is a mismatch of regulatory focus, individuals often find it difficult to pinpoint the reason for the discomfort but conclude that something about that person just "bothers them" (Carlson, Hoover, & Mitchell, 2013). It

appears that angel investors with similar regulatory focus and industry operating experience are attracted to each other at dinner meetings because they both focus on the same outcomes and enjoy more relaxed social exchanges in this setting.

Additional support for the importance of considering the impact of the different settings in which opportunities for interaction occur is found in the results regarding industry start-up experience. Industry start-up experience similarity did not exhibit a direct effect with either friendship or advice relations. However, joint attendance at screenings strengthens the negative relationship between industry start-up experience similarity and the formation of advice relations but the opposite effect was found when the joint attendance was at a dinner meeting. Perhaps due to the heavy social component associated with dinner meetings, angels are less willing to engage in discussions with someone with different industry start-up experience because it challenges their way of thinking. Research suggests that the bond between individuals that share a characteristic is stronger the more the individual identifies with that shared characteristic (Mehra, Kilduff, & Brass, 1998; Reagans, Zuckerman, & McEvily, 2004). Angels likely identify strongly with their start-up experience; therefore, industry start-up experience similarity may be more susceptible to similarity attraction in screening events because they are instrumental settings. Similarity of this characteristic may be even more important for individuals who are strategically forming advice relations under conditions of high stakes and uncertainty (Galaskiewicz & Shatin, 1981; Ibarra, 1993). However, in the instrumental settings (screenings), angels prefer interactions with those angels with different industry start-up experience because it allows them to better evaluate the investment deal.

Limitations and Implications

We acknowledge the limitations of our study. First, due to the context in which we tested the developed hypotheses, we were unable to include race and gender similarity. Angel organizations tend to have members that have little variation in race or gender (Shane, 2009; Wiltbank & Boeker, 2007). In addition, opportunities for interaction was determined by the number of events (dinners and screenings) a pair of angels attended together over one year. We have no way to determine if the angels that attended the same event communicated with one another. Therefore, we labeled this variable *opportunities* for interaction. Future research could document actual interactions that occur at events to examine if the results change.

We constrained our analysis to active members of the focal chapter of the angel organization. Due to the voluntary nature of angel organizations, many members are not active. Therefore, we felt it necessary to eliminate inactive angels from the sample. This limited our sample size to 37 and likely reduced the statistical power of our study. However, this limitation makes conclusions of statistical significance even more convincing. In addition, the generalizability of the results from this study may be limited. One of the principal objectives of this research was to advance the development of theories regarding the formation of interpersonal relations. Therefore, we decided to first focus on gaining an in-depth understanding of one angel investment group leaving open the possibility to replicate this research in additional organizations. Although our analysis examines the formation of advice and friendship ties based on various forms of similarity independently, the high correlation between the two distinct dependent variables suggests they may be mediating effects, perhaps mutual, among them. Future research, with a longitudinal design, could help shed light on the temporal sequencing of such mediation.

We believe that our findings provide a valuable starting point for future research. Three types of interpersonal relations typically form in organizations—advice, friendship, and adversarial relations (Burt et al., 2000). Future research could also examine what factors predict the formation of adversarial relations since researchers argue that negative relations may have a greater effect on task outcomes than positive relations (e.g., Labianca & Brass, 2006). It may be that instead of personal characteristic similarity, certain combinations of characteristics may lead to the formation of adversarial relations. It would also be interesting to examine how interpersonal affect impacts the formation of interpersonal relations, as well as how outcomes associated with interactions impact whether individuals continue or sever interpersonal relations with others in the future (Borgatti & Cross, 2003; Kelley & Thibaut, 1979). Individuals develop positive affect toward individuals that reward them and negative affect toward those that punish them (Byrne, 1971; Labianca & Brass). Therefore, future research could examine how knowledge of the accuracy of outcomes associated with interactions affects the formation or destruction of interpersonal relations.

This work also has many implications for practice. Understanding the antecedents of the formation of interpersonal relations is important because forming the right interpersonal relations leads to advantages due to the increased access to information and assistance that individuals may lack. Individuals that limit the interpersonal relations they form to those with similar characteristics limits their social worlds in a way that has powerful implications on information received, attitudes formed, and interactions experienced (McPherson et al., 2001; Mehra, Kilduff, & Brass, 2001). Our study provides insight into how interpersonal relations likely form in organizations involving conditions of high stakes and uncertainty. Individuals could use our findings to understand why they have formed specific interpersonal relations and how they can overcome the tendency to form homophilous interpersonal relations so they can acquire information and cognitive benefits.

Conclusion

This paper extends angel investing research and research regarding similarity attraction theory by utilizing diversity research to look beyond surface-level demographic characteristics similarity to explain situations when angels form interpersonal relations with angels with dissimilar deep-level personal characteristics because of the benefits they may provide. Relatively little attention has been paid to how the formation of the interpersonal relations for angel investors differs from entrepreneurs because angels are motivated to gain information and cognitive benefits to improve their decision making compared with entrepreneurs who are trying to gain resources key to new venture survival. We also explain how two different settings in which opportunities for interaction occurs in angel investing differ in the likelihood that similarity will impact the formation of interpersonal relations. Our findings suggest that angels compare the cost and benefits of their actions and are sometimes motivated to exert the additional effort required to interact with dissimilar others. However, the process appears more complex than originally thought. Therefore, this study offers new and unexpected insights into the process of forming interpersonal relations.

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