A RELATIONAL EXAMINATION OF RESOURCE ACQUISITION IN ENTREPRENEURIAL NETWORKS

by

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ABSTRACT

MELISSA RENEE-CARTER MEDAUGH. A relational examination of resource acquisition in entrepreneurial networks. (Under the direction of DR. JANAKI GOOTY)

Social networks provide entrepreneurs with a cost-effective way to acquire resources from people they know personally. In the current research, I develop and test a relational model of resource acquisition, which demonstrates the predictive role of universal social perceptions in resource owners' decisions to provide resources (i.e., customer referrals) to entrepreneurs in their social networks. I draw on social exchange theory to explain that network members provide resources to dyadic partners because they expect the recipient will eventually reciprocate in kind. I then integrate social cognition research to explain how network partners' expectations of reciprocity may be influenced by judgments of each other's willingness to engage in reciprocity, which is manifest in perceptions of warmth attributes, such as liking. I test the model by analyzing data from over 4,000 entrepreneurial dyads in 37 bounded social networks. Findings provide clear evidence that the provision of customer referrals is a dyadic phenomenon. Further examination of isolated relationship effects of unique liking confirms the importance of interpersonal dynamics when resource acquisition is required for entrepreneurial success.

DEDICATION

I dedicate this thesis to my dearly departed grandmother, my life's cheerleader, who believed I could achieve anything I set my mind to; my husband and partner, whose love and support have opened a wide world of possibilities; my children, who compel me to better myself every day; and all my family and friends, who faithfully encourage me to pursue my hopes and dreams and serve as witnesses to my personal growth and career advancement. I am forever thankful.

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An earlier version of this paper was presented at the 2016 Academy of Management (AOM) meetings in Anaheim, CA[1]. Although the paper I present for degree fulfillment is far more developed than the manuscript submitted to AOM, I built upon those preliminary ideas to develop the theoretical and empirical model proposed and tested in this thesis. Thus, I wish to convey my sincere appreciation for the contributions of my collaborators, who volunteered their scholarly prowess and time: I thank Dr. Jeff Pollack for the privilege of working with such a rich and fascinating data set. I appreciate his openness to the ideas I presented, suggestions for improvement he shared, and readiness to discuss the project whenever needed. I thank Andrew Loignon for his intellectual contributions and for sharing his methodological talents. I appreciate his help in developing expertise in the analytical techniques I used in this work. Dr. Pollack and Andrew helped to write the methods section of the AOM submission, as well. Their efforts provided a template for presenting the methodology described in this thesis. I also thank David Sheaf, who identified the seed of the ideas I present here: A conceptual and

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operational disconnect in the social capital literature. His knowledge of the entrepreneurship process and willingness to discuss the connections I discovered through my research were invaluable, as was David's ability to help me see and explain gaps in my developing theory. Finally, I thank Dr. Gooty for her dedication to high quality research. Each advisor and collaborator played an influential role in bringing this work to fruition.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1: INTRODUCTION

Entrepreneurs exploit opportunities to create value by recombining a variety of tangible and intangible, economic and non-economic resources (e.g., financial capital, equipment, information, support) in novel ways (Barney, 1991; Shane & Eckhardt, 2005; Casson, 1982; Gardner, 1989; McMullen & Dimov, 2013; Schumpeter, 1950; Shane & Venkataraman, 2000). As entrepreneurs typically do not possess all the resources needed to execute their exploitation strategies, they must acquire resources from other sources. Purchasing resources, however, may be difficult for entrepreneurs who tend to have limited financial capital and lack power to negotiate advantageous contractual arrangements (Alvarez, & Barney, 2004; Stinchcombe, 1965). To overcome these constraints, entrepreneurs often look to their social networks for resources (Adler & Kwon, 2002; Aldrich & Zimmer, 1986; Emerson, 1972; Shaw, 2006; Wiklund, & Shepherd, 2008). Social networks provide entrepreneurs with a cost-effective way to acquire resources from people they know interpersonally. For example, an entrepreneur may rely on her social connections (i.e., network partners) for customer referrals when she has limited funds to spend on advertising to attract new clients. Not surprisingly, academic inquiry focused on the role of social networks in opportunity exploitation is a core area of research in the entrepreneurship domain.

Social networks include direct ties (i.e., one-on-one relationships between an entrepreneur and a network partner; network dyads) and indirect ties (i.e., relationships

between an entrepreneur's network partner and a third-party) (Brass, Galaskiewicz, Greve, & Tsai, 2004). Each direct tie represents a conduit for potential resource exchange grounded in an expectation of eventual reciprocity (i.e., providing resources to a network partner in return for resources received) (Adler & Kwon, 2002; Emerson, 1972; Molm, 2010). The extent to which social networks are beneficial to entrepreneurs, however, is contingent on multiple factors that affect their access to, and acquisition of, resources from their network partners.

To understand the benefits associated with entrepreneurs' networking efforts, past research has often focused on the relationship between network structure and entrepreneurial outcomes (Shaw, 2006). An entrepreneur's network structure (i.e., broad patterns of social relationships between network partners) determines the amount and diversity of resources she may access (Adler & Kwon, 2002), and is thus related to the amount of resources an entrepreneur may acquire. Larger networks with structural holes (i.e., non-redundant ties) and varying tie strengths (weak/bridging or strong/bonding), for instance, provide entrepreneurs access to the greatest variety of potentially valuable resources (Adler & Kwon, 2002; Burt, 2000; Granovetter, 1973; Oh & Kilduff, 2008; Stam & Elfring, 2008). For example, Yui and Lau (2008) demonstrate that entrepreneurs' number of strategic alliances (i.e., network ties) is positively associated with firm performance. They indicate the total number of alliances (i.e., network size) "represents the amount of resources and social capital derived from such alliances" (p. 46). Additionally, Davidsson and Honig (2003) conclude that nascent entrepreneurs who report being involved in at least one business network (e.g., a trade organization) engage in more opportunity exploitation activities, have sales sooner, and are more profitable

than less-connected peers. Network membership represents resources gained from weak ties (i.e., bridging social capital). Davidsson and Honig dichotomize network membership in their analyses, thus weighting the benefit of each business network equally, though without considering entrepreneurs' total number of network ties (i.e., network size). Neither example considers potential differences in the amount of benefit entrepreneurs receive from network ties, specifically the amount of resources entrepreneurs actually secure from individual resource owners in their networks.

Importantly, research demonstrating the influence of structural properties on entrepreneurial outcomes without considering unique differences among network ties makes a major assumption: An entrepreneur's network tie provides not only access to, but also certain acquisition of, the same types and amount of resources as entrepreneurs with similar network ties. Such an assumption, however, may not adequately reflect the reality of resource acquisition in social networks. For instance, entrepreneurs have access to vastly different amounts of resources depending on the number of network partners in their networks (i.e., differences in network size) (Aldrich & Reese, 1993). Network partners also own an array of resource types (Hite, 2003), which means some entrepreneurs may have access to resources that could facilitate exploitation efforts while others may have access to resources that are not as useful (i.e., differences in network content).

Finally, and most relevant for the current research, even if networks are the same size and entrepreneurs have access to the same types of resources, the mere existence of a network tie does not guarantee entrepreneurs will secure resources from respective network partners or the same amount of resources as other people with ties to the same

resource owner (Adler & Kwon, 2002; Ozdemir, Moran, Zhong, & Bliemel, 2016; Portes, 1998). Put another way, access and acquisition are not synonymous; network access is a necessary but insufficient condition for resource acquisition (Kim, Longest, & Aldrich, 2009). Resource acquisition occurs when an entrepreneur owns or is able to secure a resource previously controlled by another person or entity. As entrepreneurs must first acquire resources before leveraging or mobilizing them, research that overlooks this distinction may hinder rather than advance the literature. To make accurate inferences about the influence of social networks on entrepreneurial outcomes, I need to consider whether and under what conditions resource acquisition may actually occur (or not).

I thus suggest a non-optimal omission exists in the literature, where past entrepreneurial network research may overlook the fundamental, practical distinction between resource access and resource acquisition when examining benefits associated with entrepreneurs' networking efforts. At the root of this overlooked distinction is an implicit but logically flawed assumption: Network actors are equal recipients of each other's resource donations. I refer to this as the uniformity of acquisition assumption (hereafter, uniformity assumption).

I suggest that the uniformity assumption may be symptomatic of a broader issue affecting research on entrepreneurial networks: a general misalignment of theory, methodology, and levels of analysis. That is, research adhering to the uniformity assumption makes ecological inferences about lower level outcomes, often without accounting for lower level dependencies (Robinson, 1950), which may lead to erroneous conclusions (Liden, Anand, & Vidyarthi, 2016). Specifically, extant research often overlooks qualitative differences in dyadic relationships that may inform our

understanding of resource acquisition (Bliemel, McCarthy, & Maine, 2014), despite the acknowledged role of dyadic relationships in social networks and resource exchange.

Indeed, relatively little research explicitly examines how unique interpersonal dynamics influence entrepreneurs' ability to acquire resources and exploit opportunities. Even research that purports to take a relational approach to entrepreneurial network research may rely on broad measures to capture entrepreneurs' acquisition of network resources exchanged at the dyad level. For example, Semrau and Werner (2014) measure resource acquisition in social networks by dichotomizing receipt of resources from network contacts (i.e., "yes" or "no"), without considering potential differences in the amount of resources entrepreneurs receive from individual network partners or adjusting for unique dyadic experiences that might explain those differences. They also mirror previous research (e.g., Aldrich & Reese, 1993) by measuring relationship quality – a unique characteristic of the dyad – by averaging the total number of hours entrepreneurs spend with network contacts to derive "the average time spent per contact" (p. 509). Such a coarse-grained approach suggests that entrepreneurs spend the same amount of time with each network partner, which consequently fails to capture unique interpersonal dynamics (e.g., in this case, extent of dyadic interaction) that characterize and differentiate network dyads. I propose that such differences meaningfully influence resource acquisition in social networks and should be more thoroughly considered via conceptual and empirical alignment.

Accordingly, my objectives for the current research are two-fold. First, I discuss and demonstrate how course-grained approaches that ignore interdependencies among network dyads may result in research that inaccurately estimates the influence of social

networks on entrepreneurial outcomes and deter theory advancement at more micro levels of analysis (Gooty & Yammarino, 2011; Schriesheim, Castro, & Yammarino, 2000; Tse & Ashkanasy, 2015). To assess the possibility of inaccuracy in past research, I test the uniformity assumption in the context of bounded social networks using the social relations model (SRM; Kenny, Kashy, & Cook, 2006). I examine if variation in customer referrals given to entrepreneurs by other network members is primarily a function of 1) entrepreneurs' memberships in their respective networking groups (network level variance), which would provide support for inferences based on network-level differences and the uniformity assumption; 2) differences in individual network members' tendencies to receive or provide customer referrals (individual level variance); and/or 3) differences attributable to unique relationships between network members (dyad level variance), which would indicate the importance of considering unique interpersonal dynamics in resource acquisition.

My second objective is to refocus attention on the dyad as the fundamental unit of analysis for resource exchange in social networks, and thus, the level of analysis at which we are able to better predict entrepreneurs' resource acquisition. Past research from a relational approach has revealed insights about the types of resources entrepreneurs exchange (e.g., Hite, 2003; Ho & Pollack, 2014), the types of network relationships entrepreneurs maintain (e.g., Grandovetter, 1985; Hite, 2003), the extent to which entrepreneurs benefit from multifaceted relationships with individual network partners (e.g., Bliemel et al., 2014; Hite, 2005; Larson, 1991), and how embedded network relationships develop over time (e.g., Hite, 2005; Vissa, 2011). Other research has fostered greater understanding of how social governance mechanisms (e.g., mutual trust,

power, prestige) contribute to coordination and regulation of reciprocal exchange in social networks (e.g., Larson, 1992).

In the current paper, I integrate social exchange theory and social cognition research to further inform our understanding of entrepreneurs' resource acquisition in social networks from a relational approach. I develop and test a relational model of resource acquisition, which demonstrates the predictive role of universal social perceptions (Cuddy, Fiske, & Glick, 2008) in resource owners' decisions to provide resources to other members in their social networks. Specifically, I draw on social exchange theory to explain that social network members help each other because they expect the recipient will eventually reciprocate in kind. I then draw on social cognition research to explain how network partners' expectations of reciprocity may be influenced by initial judgments of each other's willingness to engage in reciprocity, which is manifest in social perceptions of liking. I test the model using data from over 4,000 entrepreneurial dyads in 37 Business Network International (BNI) networking groups. After first partitioning variance by levels of analysis and affirming that variation in customer referrals is primarily a function of the network dyad, I use isolated dyad level data (i.e., relationship effects) to estimate a multilevel Actor Partner Interdependence Model (APIM) (Kenny et al., 2006). These data represent network partners' liking and the provision of customer referrals among them that is unique to the relationship they share.

This research advances theory and practice in three important ways. Overall, I challenge an implicit assumption of uniform resource acquisition that pervades the social networking literature in the entrepreneurship domain. First, I show that entrepreneurs'

acquisition of valuable resources (i.e., customer referrals) from their social networks is a dyadic phenomenon. Findings suggest the need to consider conceptually and analytically the dyad level to ensure precision and accuracy (Krasikova & Lebreton, 2012) when determining the benefit of entrepreneurs' social networks to entrepreneurial outcomes (e.g., opportunity exploitation).

Relatedly, the current work advances a broader body of research on the microfoundations of entrepreneurship, which tends to be overlooked by more macro-oriented scholarship (e.g., network research that focuses on structural properties). By integrating multiple literatures to understand resource acquisition in social networks, this study extends a growing body of research taking a relational approach to entrepreneurship research. Specifically, I find that uniquely relational perceptions of liking play an important role in the ability of entrepreneurs to acquire customer referrals from their network partners. As I expect other dyadic factors may explain additional variance in entrepreneurial outcomes, my research design and methodologies used to isolate and analyze relationship effects may provide a conceptual and analytical roadmap for future research in this domain.

Finally, the current research has practical implications for entrepreneurs joining business networks to expand access to resource owners, as well as those who must inevitably decide whether maintaining certain network relationships is justifiable (Floyd & Wooldridge, 1999; Smith & Lohrke, 2008). Findings suggest that simply being a network member and having ties to resource owners may not translate benefit potential (i.e., access to resources) into actual benefit (i.e., resource acquisition). How network partners perceive each other interpersonally predicts their inclination to refer customers,

even within a networking group where referral exchange is encouraged and rewarded. Entrepreneurs may consider these findings when establishing new connections and investing time and energy to develop and maintain social network relationships, especially since liking perceptions may develop early but be resistant to change over time.

CHAPTER 2: CONCEPTUAL MODEL AND HYPOTHESIS DEVELOPMENT

A growing body of social network research acknowledges the unique relationships between entrepreneurs and their network partners (see Hoang & Antonic, 2003 and Hoang & Li, 2015 for reviews). For example, research on network content (i.e., nature of resources exchanged among network partners) offers valuable insight into the diversity and layering of resource types exchanged, especially when relationships are socially embedded (e.g., a personal relationship includes economic exchange) (e.g., Brüderl and Preisendörfer, 1998; Freeman, 1999; Granovetter, 1985; Hite, 2003, 2005; Ho & Pollack, 2014; Hoang & Gimeno, 2010; Larson & Starr, 1993; Stuart, Hoang, & Hybels, 1999). Other research reveals how social mechanisms provide entrepreneurs with means to coordinate and regulate resource exchange while reducing transaction costs typically associated with legal mechanisms (e.g., contracts) (Jones, Hesterly, & Borgatti, 1997; Larson, 1992). Network partners exchange resources in the absence of immediate or uncertain reciprocity because social mechanisms exist that lead them to have confidence that reciprocity will eventually occur.

Despite past insights, however, our understanding of the interpersonal dynamics that predict varied resource exchange (Blau, 1964), and differentiated resource acquisition specifically, is inadequately informed. We still know relatively little about why resource owners may choose to provide resources to some entrepreneurs and not others, and, more pointedly, why some entrepreneurs acquire more resources from their

network partners despite network norms. For example, in bounded social networks, network members may be subject to similar social governance mechanisms, but all members may not be recipients of initial resource exchange or reciprocal exchange.

Uniformity Assumption and the Norm of Reciprocity

Dubini and Aldrich (1991) note that, "the starting point for studying entrepreneurship through networks is a relation or transaction between two people" (p. 306). Indeed, social networks represent constellations of social ties – one-on-one interpersonal relationships entrepreneurs have with individual network members (i.e., dyadic relationships) (Hite, 2005). Social ties represent entrepreneurs' access to network members' resources and the potential for acquisition of those resources. For example, when a network partner provides an entrepreneur with a customer referral, the network member is providing a resource – a third-party introduction to, say, a family member potentially interested in the entrepreneur's product or service. Social ties also represent the potential for network partners to engage in resource exchange (i.e., reciprocity).

The norm of reciprocity is a universally accepted exchange rule at the root of social exchange theory, which suggests people feel obliged to reciprocate the actions of another person (Cropanzano & Mitchell, 2005; Emerson, 1976; Gouldner, 1960; Molm, 2010). According to the norm of reciprocity principle, if a network partner helps an entrepreneur by providing a resource (e.g., customer referral), then the recipient entrepreneur should help the donating network partner by providing a resource (e.g., customer referral) in kind and so forth. I suggest that the uniformity assumption prevalent in the entrepreneurial network research may be implicitly ground in this norm of reciprocity principle (Cropanzano & Mitchell, 2005; Larson, 1992).

That is, the uniformity assumption supports the notion that all network members feel morally bound by the norm of reciprocity (i.e., perfect reciprocity) (Adler & Kwon, 2002; Ekeh, 1974; Simsek, Lubatkin, & Flowd, 2003). However, past social exchange research shows factors at both the individual and dyadic levels may influence variation in reciprocity. For example, individual differences in reciprocation orientation affect the extent to which someone feels compelled by the norm of reciprocity and reciprocates resource donations (Eisenberger, Cotterell, & Marvel, 1987). Similarity in dyadic partners' age, sex, education, level of prestige, etc. also influences reciprocity (Brass et al., 2004; Tsui & O'Reilly, 1989; Vissa, 2011; Wagner, Pfeffer, & O'Reilly, 1984), as does the character of the network relationship (Blau, 1964). Given past work, I argue that research adhering to the uniformity assumption may inadvertently bias statistical inferences and stunt theoretical development, particularly when variance potentially attributable to dyadic factors is not considered conceptually or empirically (Gooty & Yammarino, 2011; Schriesheim et al., 2000). To explore these possibilities, I pose and answer the following research question in the context of BNI networking groups:

RQ1[2]: *Do dyad level factors account for greater variance in customer referrals than business network membership (i.e., a network level factor)?*

BNI members join local networking groups expecting to receive and provide customer referrals. Indeed, generalized norms of reciprocity may be particularly salient in these networking groups (Ekeh, 1974), where referral reciprocity is an espoused value of

[2] As detailed in the methods section below, variance attributable to dyad level factors is called relationship variance. Variable scores associated with relationship variance are called relationship effects. Variance attributable to network membership in a closed (bounded) social network (i.e., network level factors) corresponds to what is termed "group variance" in the SRM, and the variable scores are labeled "group effects." Group variance and network variance, and group effects and network effects, however, are used interchangeably in the methods and discussion sections.

the BNI organization. BNI networking groups thus provide an ideal context for testing the uniformity assumption. If the uniformity assumption leads to valid inferences about resource acquisition, I would expect to find the greatest variance in customer referrals is attributable to network membership (i.e., group effects), with little variation at the individual and dyad levels of analysis. I would also expect that unique reciprocity between dyads would be negligible if all members were equal beneficiaries of each other's resource donations.

Social Perceptions and Resource Acquisition

Based on research reviewed, I challenge the uniformity assumption and develop a relational model of resource acquisition grounded in alternative assumptions about resource exchange and acquisition within social network. I begin with the assumption that resource exchange may be differentiated across network dyads. Second, I assume that interpersonal dynamics may create conditions more or less conducive to entrepreneurs' ability to acquire resources from their network partners (Blau, 1964; Hite, 2005; Slotte-Kock & Coviello, 2010).

To understand why some network partners provide resources to some entrepreneurs and not others, I draw on the social cognitions literature. Previous social cognition research demonstrates the importance of social perceptions in how people interact with each other (e.g., Fiske, 1993). Social perceptions refer to judgments people make about another person's attributes (Cuddy et al., 2008). Research spanning more than 50 years and across cultures has consistently demonstrated links between social perceptions and a person's emotions, attitudes, and behaviors toward another person (e.g.,

helping, harming, associating) (e.g., Asch, 1946, Bales, 1950, Cuddy et al., 2008; Cuddy, Glick, & Beninger, 2011; Fiske, Cuddy, & Glick, 2006).

People generally perceive of each other as falling along a continuum of two broad attribute dimensions: warmth and competence (Cuddy et al., 2011). Perceptions of warmth attributes indicate one's judgment of another person's motives, as either self- or other-interested (i.e., a warmer person is perceived to have a greater interest in helping others than herself) (Cislak & Wojciszke, 2008). Perceptions of warmth attributes may manifest as judgments of liking, as well as friendliness, morality, and trustworthiness (Fiske et al., 2006). Perceptions of liking, in particular, are more dependent on the relationship between the perceiver and target than either person's individual characteristics (Kenny et al., 2006). In contrast to perceptions of trust, however, which develop as outcomes of accumulated social exchanges (Blau, 1964; Holmes, 1981), perceptions of warmth attributes tend to develop during initial interactions and may be enduring (Cuddy et al., 2008). That is, a person who is initially perceived as having self-interested motives may continue to be disliked despite subsequent interactions, even if that person engages in more other-interested, likeable behaviors. People are also more inclined to approach and help others they perceive as having warmer attributes and avoid those they perceive as colder (Cuddy et al., 2008; Wojciszke, Bazinska, & Jaworski, 1998). Indeed, dyadic partners' perceptions of each other's warmth attributes are a primary distinguishing factor in how they interact, including whether one member of the dyad will act to help the other.

Perceptions of competence, however, refer to one's judgment of another person's ability to effectively execute her intentions, which often manifest as judgments of

someone's intelligence, creativity, dominance, and skill (Fiske et al., 2006; Cuddy et al., 2011). Although perceptions of warmth and competence attributes tend to be highly correlated (e.g., Rosenberg, Nelson, & Vivekananthan, 1968), past research demonstrates their distinctiveness (Cuddy et al., 2008). For example, perceptions of warmth attributes are more affective than perceptions of competence attributes, particularly liking (Fiske et al., 2006). People also develop perceptions of warmth attributes quicker than competence attributes, reflecting their primacy effect on emotions, attitudes, and behaviors (Cuddy et al., 2011; Wojciszke & Abele, 2008; Wojciszke et al., 1998).

In the current research, I integrate past social cognition and social exchange research on reciprocity and social perceptions to develop an initial relational model of resource acquisition in entrepreneurial networks. I propose that, in the absence of immediate and certain reciprocity, perceptions of liking unique to each dyadic relationship may reflect each partner's estimation of the other as being other-interested and thus willing to eventually reciprocate helping behaviors, or as being mostly self-interested and thus a "taker," who seeks to benefit from the partner's help but is unlikely to respond in kind. The former would suggest a mutually rewarding relationship; the latter would suggest a one-sided relationship in which only one partner benefits. Furthermore, I propose that partners' estimations of each other's motives and willingness to reciprocate helping behaviors (i.e., more or less uniquely likeable) influences their decisions to help specific partners more than others or not provide any help to certain partners. That is, network actors may provide more help to partners they perceive as uniquely more likeable and avoid partners they uniquely dislike. In the BNI context, a network actor who perceives an entrepreneur as uniquely more likeable than other

network partners may have greater confidence in the entrepreneur's willingness to eventually reciprocate a customer referral, and thus, influence the decision to provide a referral to that entrepreneur. I thus hypothesize the following:

Hypothesis: *Network members' unique liking of specific partners will be positively associated with customer referrals they provide to those partners*.

CHAPTER 3: METHODOLOGY

Sample Description

Members from local Business Network International (BNI) networking groups across a large region in the southeastern United States participated in the current research.[3] BNI is an international organization established over 30 years ago with local groups in over 50 countries. Members include small business owners and entrepreneurs from a wide variety of industries who pay a membership fee and enjoy occupational exclusivity (i.e., one member per occupation per BNI group) (Thompson, 2010). After receiving permission from the sample region's executive director, all BNI members in each networking group were emailed an invitation to participate and a link to their group's online survey. In the current sample region, group sizes ranged from 9 to 46 members.

As mentioned previously, BNI's explicit purpose is to increase members' overall business revenues by facilitating interactions among them and encouraging the exchange of customer referrals between members. The organization has several policies to support this purpose: mandatory attendance at weekly group meetings; application procedures to establish new members' reputability (e.g., reference checking, interview with a sponsor);

[3] These data are part of the 2013 Survey of Entrepreneurial Networking Dynamics (SEND), which followed procedures established and validated in previous iterations (2009, 2011). The current study is the first to examine the 2013 data, although insights from previous iterations have been published (e.g., De Mol, Ho, & Pollack, forthcoming; Ho & Pollack, 2014; Pollack, Coy, Green, & Davis, 2014; Pollack, VanEpps, & Hayes, 2012).

and an ethics committee to handle grievances between members when customer referrals are not handled satisfactorily by the recipient.

Procedures

Data were collected using a round-robin approach, which enables researchers to collect ratings about all members of a bounded network from each other member (Kenny et al., 2006). The resulting data set included two scores per dyad per variable. The round-robin design permits estimation of all variance components in the SRM.

Using a roster-style survey, each BNI member was presented with a complete list of fellow group members' names for each question. Consistent with the person fastest moving approach to collecting round-robin data, participants answered one question about all referents before moving on to the next question with a list of the same referents and so forth until questions about all members were answered (Christensen & Kashy, 2012). The person fastest moving approach allows participants to contrast referents and reduces the likelihood that respondents rely on heuristics to rate each referent.

Members from all 38 networking groups in the sample region were surveyed. Of 725 members, 493 members responded, resulting in a 68% response rate. The response rate is slightly higher than previous SEND-based studies (e.g., 63% in Pollack, Forster, Johnson, Coy, & Molden, 2015) and much higher than the average found for this type of online study (i.e., 34% in Shih & Fan, 2008). Most participants were male (63.4%). The average participant was approximately 49 years old (SD = 11.64). The average tenure of participants at their respective companies was 8.70 years (SD = 8.29).

Measures

Liking. Past research supports the use of truncated measures in survey research using repeated measures (e.g., roster-style surveys) to reduce respondent fatigue and optimize response rates without sacrificing construct validity (e.g., Bergkvist & Rossiter, 2007; Pollack et al., 2012; Wanous, Reichers, & Hudy, 1997). Accordingly, a truncated measure of liking was adopted from Casciaro and Lobo (2008): "I like this individual" and "Interactions with this person are pleasant" ($\alpha = .83$, $M = 6.36$, $SD = .90$). Participants indicated their agreement with these statements about individual group members on a 7-point scale (1 - strongly disagree to 7- strongly agree), with higher numbers indicating greater liking of each referent. Participants did not provide self-ratings.

Customer referrals. The number of customer referrals BNI members provide each other provides a proximal measure of the resources entrepreneurs acquire from their network partners. Another option, revenue from referrals, confounds interpersonal behavior with individual ability to successfully convert a referral to revenue. An other-report measure of customer referrals was thus obtained by asking participants: "How many referrals have you received from this person in the last 12 months?" Participants chose a response option from a drop-down menu for each referent on the roster list. Values ranged from 1 to 50 and included a response option for "more than 50". This data point became the outcome score for each respective referent. On average, BNI members provided one customer referral to fellow entrepreneurs over the last year ($M = 1.30$, $SD = 3.54$). As each local BNI group and regional executive office tracks the number of customer referrals a member gives and receives and awards members for giving referrals,

respondents were expected to easily recall referral information. Given participants answered questions about liking for all referents before reporting the number of referrals they received from each referent, I believe this measure is rather objective.

CHAPTER 4: ANALYSES AND RESULTS

Variance Decomposition Using the Social Relations Model (SRM)

I first sought to examine the validity of the uniformity assumption by estimating two multigroup social relations models (SRM) (see results in Table 2 and a detailed description of the SRM in Appendix). The SRM allows for a multilevel componential approach to examining dyadic phenomenon and serves three primary purposes: 1) fully partition multilevel variance in observed scores; 2) estimate reciprocity; and 3) isolate variable scores associated with variance components (i.e., effects) for subsequent analyses (Kenny, 1994; Kenny et al., 2006; Kenny, Mohr, & Levesque, 2001). I used the TripleR package in R to analyze each SRM (Schönbrodt, Back, & Schmukle, 2012; Schönbrodt, Schmukle, & Back, 2016). TripleR's default setting removes individuals and groups with vast amounts of missing data; one BNI group per variable was eliminated. The 37 groups retained in the liking SRM included 4 to 20 members (M = 11.03). For customer referrals, the 37 groups retained in the SRM included 6 to 35 members (M = 13.16). To estimate all variance components, the SRM with round-robin design requires at least 4 members who provide ratings of each other (Kenny et al., 2006).

The SRM showed the greatest variance in liking and customer referrals is attributable to the specific dyadic relationships BNI members share with one another (i.e.,

relationship effects) (34% and 75%[4], respectively). Rater effects also explained a substantial amount of variance in both variables (22% and 19%, respectively). Target variance was comparatively small (7% and 6%, respectively), which suggests that how entrepreneurs are generally perceived by network members has far less influence on whether they receive referrals than the nature of their relationships with specific dyadic partners or the tendency of their network partners to provide referrals to all network members. After accounting for dyad and individual level variance, group effects (i.e., variance due to network level characteristics) explained a negligible amount of variance in liking (1%) and no variance in customer referrals.

Altogether, the SRM results indicate that the perceptions of network members' likeability and the number of customer referrals exchanged among them mostly depends on 1) unique interpersonal dynamics that characterize specific dyadic relationships; and 2) to a lesser extent, individual characteristics that explain actors' tendencies to provide referrals to all fellow BNI group members. These findings thus provide empirical evidence to answer my research question: The variance in customer referrals provided to entrepreneurs is attributable more to unique dyadic factors than membership in one BNI group or another. The SRM results suggest that network level characteristics are not robust explanatory factors in the current context. That is, group norms of reciprocity are not salient (Christensen & Kashy, 2012). Rather, an entrepreneur's ability to acquire customer referrals is fundamentally a dyadic phenomenon (Kenny et al., 2006: 203).

[4] For single-item measures such as customer referrals, the SRM is unable to distinguish between relationship and error variance (Kenny, 1994; Kenny et al., 2006). However, as previously detailed, the customer referrals measure is relatively objective. Taken together with the SRM findings of significant dyadic reciprocity, I assume the error variance in customer referrals is rather minimal (Kenny et al., 2001).

The SRM also provided evidence of positive reciprocity among network dyads, which further supports the relational nature of customer referrals and liking. For liking, the dyadic reciprocity correlation was moderate and significant ($r = .31$, $p < .01$). Dyadic reciprocity for customer referrals was small and significant ($r = .23$, $p < .01$). In the SRM with round-robin design, dyadic reciprocity is viewed as an intraclass correlation, which reflects the degree of non-independence and consistency of perceptions and behaviors among dyads (Kenny et al., 2006: 207). The SRM findings thus indicate that dyadic partners perceived each other similarly as more (less) likeable and responded in kind upon receiving customer referrals. The rather weak relationships between dyadic partners' relationship effects, however, suggests more variability than similarity in their unique scores.

As I observed similar variance and reciprocity patterns for liking and customer referrals, I concluded that both are relational variables (Kenny et al., 2006). I thus proceeded to isolate relationship effects for liking and customer referrals for use in subsequent analysis (Kenny et al., 2006). Compared to using observed scores as predictors and outcomes, using relationship effects in my analysis provides a more precise estimation of the predictors of resource acquisition in BNI networking groups, as resource exchange occurs at the dyad level.

Actor-Partner Interdependence Model (APIM)

To test my hypothesis (i.e., unique liking of an entrepreneur positively predicts customer referrals to that entrepreneur), I analyzed the relationship effects for liking and customer referrals in a multilevel APIM (Campbell & Kashy, 2002; Kenny et al., 2006). I used the Linear and Nonlinear Mixed Effects Models (*nlme*) package in R with restricted

maximum likelihood (REML) estimation (Pinheiro, Bates, DebRoy, Sarkar, & R Core Team, 2016). Both unique liking and customer referrals are mixed variables, meaning each varies between-dyads (i.e., differences in dyadic means) and within-dyads (i.e., each dyadic partner has a score that deviates from the dyadic mean) (Kenny et al., 2006). The APIM is particularly well suited for analyzing mixed variables and accounts for dyadic interdependencies. When no meaningful factor distinguishes dyadic partners (i.e., indistinguishable dyads), the multilevel APIM is a preferred estimation method (Kenny et al., 2006: 183).

To estimate the two-level APIM, I structured relationship effects data into pairwise, or double-entry, format (Ledermann & Kenny, 2015). Each dyad thus included two rows of data, with one row or observation per dyadic partner. Each observation included scores on the two predictor variables and respective outcome score. Row 1 presented Person A as the focal actor and included Person A's score for unique liking of Person B (i.e., X_i), Person B's score for unique liking of Person A (i.e., X_j), and the number of referrals Person A provided to Person B (i.e., Y_i). For Row 2, the actor and partner liking scores were interchanged such that Person B became the focal actor (i.e., X_i becomes X_j and vice versa). The outcome score for Row 2 was the number of referrals Person B provided to Person A.

Table 3 presents descriptive statistics and correlations among the relationship effects data. Findings reveal variability in unique liking (SD = .55, range = -4.48 to 2.07) and customer referrals (SD = 2.31, range = -8.59 to 43.67). As relationship effects are group mean-centered, the means for all variables was .00. The pairwise correlation between actor and partner perceptions of each other's unique likeability is positive and

significant (r_p = .26, p < .001), as are actor and partner measures of customer referrals (r_p = .18, p < .001). These pairwise correlations provide further evidence of dyadic perceptual and behavioral interdependence among BNI dyads (Kenny et al., 2006). That is, if an actor perceives a partner as more (less) uniquely likeable, the partner similarly perceives the actor as more (less) uniquely likeable. Likewise, provision of more (less) customer referrals to a dyadic partner is related to the receipt of more (less) customer referrals from that partner.

The APIM estimates two effects simultaneously: an actor effect and a partner effect. Although the same terms are used in the SRM to describe scores associated with variance components, they have different meanings in the APIM (Kenny et al., 2006). That is, actor and partner effects in the APIM infer causality or predictive influence. An actor effect in the APIM indicates the extent to which an actor's score on a predictor variable causes or predicts that person's outcome score (Christensen & Kashy, 2012; Kenny et al., 2006). In the current research, an actor effect indicates the extent to which an actor's unique liking of a dyadic partner influences or predicts how many customer referrals she provides that partner, above and beyond the number of referrals she tends to provide all other dyadic partners, the number of referrals the partner tends to elicit from all BNI group members, and the average number of customer referrals provided among all group members. A partner effect indicates the extent to which an actor's score on a variable may cause or predict their partner's outcome score.

I present APIM results in Table 4. To estimate the actor effect and partner effect in the APIM, I regressed customer referrals on the actor's perception of unique liking and partner's perception of unique liking, respectively. The actor effect was moderate and

positive (B = .40, p < .01), indicating that actors provide more customer referrals to partners they perceive as more uniquely likeable. The partner effect was also moderate and positive (B = .47, p < .01), which indicates that actors' decisions to provide customer referrals to their partners also depends on how uniquely likeable their partners perceive them. The existence of a partner effect provides evidence of mutual influence and further substantiates the relational nature of resource acquisition (Kenny et al., 2006). That is, the significant partner effect suggests that, to some extent, network actors are aware of how much (little) they are uniquely liked by their partners, and the awareness of their partners' unique liking influences their helping behaviors. Overall, dyadic partners' unique liking of each other predicts over 30% of the variance in customer referrals between them (see Figure 1).

CHAPTER 5: DISCUSSION

Social networks help entrepreneurs alleviate difficulties associated with being new, small, and resource poor that often prevent them from favorably acquiring resources through traditional market mechanisms (Aldrich & Zimmer, 1986; Wiklund, & Shepherd, 2008). Network ties (i.e., dyadic relationships) are essential components of social networks, as resource exchange and acquisition occurs at the dyad level. Past entrepreneurial network research, however, tends to focus on the effects of network level factors on entrepreneurial outcomes while ignoring qualitative differences between dyads and related interdependencies (Bliemel et al., 2014). I argue that such an approach makes ecological inferences (Robinson, 1950) grounded in an implicit but logically flawed assumption of uniformity: Resource access and resource acquisition are synonymous, such that the mere existence of a network tie is evidence of certain resource acquisition. However, ignoring dyad level variation and interdependencies may result in erroneous conclusions about the extent to which entrepreneurs acquire resources and ultimately benefit from their network memberships (Liden et al., 2016; Ozdemir, Moran, Zhong, & Bliemel, 2016; Portes, 1998). At minimum, research adopting the uniformity assumption may dampen interest in predictors at other levels of analysis.

In the current research, I examined whether and why some entrepreneurs may benefit more from their social networks than others, with resource acquisition being an indicator of such benefit (Adler & Kwon, 2002; Kim, Longest, & Aldrich, 2009; Portes,

1998). I integrated insights from social exchange theory, social network theory, and social cognition research to challenge the validity of the uniformity assumption and propose a model of resource acquisition that emphasizes relational dynamics over network characteristics. I grounded my model in following propositions: 1) unique perceptions of liking influence network partners' estimation of the likelihood that their resource donations will be reciprocated by the recipient partner; and 2) this unique estimate of reciprocity influences network partners' decisions to provide resources to each other in the absence of certain reciprocity. I thus broke from research adhering to the uniformity assumption in favor of a relational approach to understanding how and to what extent entrepreneurs' benefit from their social networks. This relational approach aligns with Kenny's (1994) observation that, "no relationship can be studied in isolation" (p. 113), which includes the constellation of unique relationships that define social networks. From this position, evaluating the influence of social networks on entrepreneurial outcomes required explicit conceptual and empirical consideration of factors that distinguish interactions between network partners.

Accordingly, I proposed and tested a relational model of resource acquisition while accounting for lower level interdependencies in the APIM. Analyses of data collected from over 37 bounded social networks and 4,000 dyads provided evidence suggesting the uniformity assumptions in social network research may be especially problematic when dyad level variance is overlooked. After establishing that the provision of customer referrals is a dyadic phenomenon, I explicitly focused further empirical attention on the unique relationships between social network partners and the dyadic factors that influence those relationships (Liden et al., 2016). I concluded that network

partners perceptions of each other as more or less uniquely likeable influences their decisions to help each other in kind via customer referrals.

Theoretical and Practical Implications

The current research involved a concerted effort at aligning theory, analysis, and inference that advances social network theory in the entrepreneurship domain in multiple ways. First, I assess the implicit uniformity assumption often made in social network research in the entrepreneurship domain. If the uniformity assumption led to valid inferences about resource acquisition in the sample, I would expect to observe between-network differences but no within-network differences when I conducted the SRM. That is, the average number of customer referrals entrepreneurs received would vary across BNI groups but not across dyads or individuals. If these conditions were met, I could infer that variation in entrepreneurial outcomes would be attributable to differences in network characteristics alone (e.g., size, generalized norms of reciprocity, social governance mechanisms) and carry on without fear of making ecological inferences (Robinson, 1950). The SRM, however, did not provide support for the uniformity assumption. I observed no evidence of network level variance, but did observe individual and dyad level variance. Indeed, the SRM provided evidence that the provision of customer referrals is primarily a dyadic phenomenon (Kenny et al., 2006), as the greatest source of variance in referrals was attributable to the unique relationships entrepreneurs shared with their respective network partners (i.e., relationship effects). Furthermore, the receipt and provision of customer referrals among dyads was not perfectly reciprocal. That is, some dyads exchanged more (less) referrals than others. The pairwise correlations between relationship effects suggested some degree of interdependency

among specific dyad members; however, these correlations were small. My findings suggest that, although there is a tendency within network dyads to reciprocate customer referrals, variability exists in whether specific partners respond in kind.

In sum, my findings suggest that research adhering to the uniformity assumption and ignoring the microfoundations of social networks may distort the true nature of social network phenomena. Indeed, past macro-oriented research may have inadvertently overestimated the relationships between network level characteristics and entrepreneurial outcomes, if individual and dyad level factors were not accounted for. In contrast, the current research demonstrates the need to explicitly explore between- and within-dyad variation in resource exchange. Given these findings, I suggest that social network research focused solely on network level predictors warrants additional scrutiny. Course-grained approaches to social network research in the entrepreneurship domain may inhibit understanding of the true benefits associated with network membership when the potential for lower level variation and interdependencies are ignored. I call for greater conceptual and empirical precision to advance scholarship in this area.

My second contribution lies in integrating extant theoretical and empirical work in social psychology with social network theory to better predict resource acquisition in social networks at the dyad level. I considered extant research on social exchange theory to understand why social perceptions, specifically, may predict network partners' decisions to provide customer referrals to entrepreneurs. I tested a relational model of resource acquisition in the APIM, which accounts for within- and between-dyad variability. Analysis revealed that network partners' perceptions of each other as uniquely likeable are significant, positive, and sizable predictors of customer referrals provided

among them, providing support for my hypothesis. The positive and moderate actor and partner effects provide evidence of perceptual and behavioral interdependence and mutual influence. The significant actor effect provides evidence that network actors who perceive specific partners as uniquely likeable also provide customer referrals to those partners. The significant partner effect suggests that, to some extent, network actors are aware of how their partners perceive them as uniquely likable, and that such awareness also influences their decision to provide referrals to those partners. Indeed, 30% of the variance in customer referrals unique to each dyad was attributed to network partners' unique liking of each other. These findings demonstrate empirically the importance of unique relational dynamics in resource exchange and supports such conclusions is past research (e.g., Blau, 1964; Hite, 2005).

Moreover, the relational model of resource acquisition presented and tested in the current research provides an accurate alignment of levels of theory, measurement, analyses and inference that is largely missing in the entrepreneurial networks research. As the current interest involves the resources entrepreneurs acquire within social networks, and resources are exchanged within dyadic relationships, I explicitly focus on the dyad level in the current research. My analyses demonstrate that failure to account for lower level variation and interdependencies between and within social networks may inadvertently result in inaccurate conclusions about the true benefit of entrepreneurs' social networking efforts. The methodology presented here provides a roadmap of sorts for future social network research to delve further into the dyadic factors that predict resource acquisition and exchange. That is, the current research demonstrates the value of investigating the unique experiences of dyadic partners within social networks by

empirically estimating, isolating, and examining relationship effects in subsequent analyses (Kenny et al., 2006). A combination of SRM and specific statistical techniques that account for dyad level variation, interdependencies, and mutual influence (e.g., APIM) may be particularly useful for moving our science forward in this domain.

Finally, this research has practical implications for entrepreneurs who might invest substantial time and energy in strategically expanding their social networks to acquire valuable resources (Dubini & Aldrich, 1991; Shane & Eckhardt, 2005). The decision to spend time on networking activities depends on the extent to which efforts to expand and maintain network relationships results in a net benefit, where the value of acquired resources exceeds the costs associated with activities. If entrepreneurs obtain referrals to potential new customers, for example, the benefit of joining a networking group (i.e., new sales) may justify the costs associated with their networking activities (e.g., time, fees). However, I conclude that having a network relationship or being a network member is insufficient for entrepreneurs to benefit from their social networks; they must cultivate relationships with network partners to realize the promise of resource exchange and thus acquire resources to exploit opportunities. Importantly, these findings provide evidence that social perceptions play an instrumental role in the extent to which individual entrepreneurs may benefit from their social networks. That is, a resource owner who perceives an entrepreneur to be uniquely likeable is also more likely to help that entrepreneur be more successful. In the current research, the provision of customer referrals is an example of helping behavior.

Limitations and Future Research

The current work, however, is not without limitations. First, I recognize that this study is cross-sectional. Future research could take a longitudinal, process-oriented approach to further assess how unique social perceptions such as liking might develop and change over time and, in turn, influence entrepreneurs' changing ability to acquire resources from network partners (Kenny et al., 2001). Of particular interest may be if and how entrepreneurs may strategically influence network partners' interpersonal perceptions over the course of their relationships, including strategies to compensate for initial perceptions of dislike.

I also used a single-item measure of customer referrals. As I suggested previously, however, customer referrals is an indicator tracked and rewarded by each BNI group and at the regional level. In the current study, participants reported the number of referrals they received from each partner. As participants did not answer consecutive questions about each referent, the likelihood of heuristic-based responses about referrals is diminished. However, researchers may want to avoid single-item measures in future modeling of relationship effects, particularly when investigating less objective outcomes (e.g., provision of social support). Additionally, having multiple indicators permits partitioning of error variance from relationship variance in the SRM (Kenny et al., 2006), which would increase confidence in inferences made from models using relationship effects and is especially important when variables are more subjective in nature.

Third, the relational model of resource acquisition tested here includes only the perception of liking as a predictor of customer referrals, an economic outcome. Although I expect future research will reach a similar conclusion – that resource acquisition is both

differentiated and contingent on unique relational dynamics– I recognize that the current work is but a preliminary step in untangling multilevel effects in entrepreneurs' social networks and modeling these phenomena in ways that represent their inherent complexity. On the outcome side of the model, researchers could examine whether the relationships I observe vary when entrepreneurs seek non-economic resources from their network partners (e.g., social support, advice). On the predictor side of the model, future research could investigate the predictive value of other social perceptions, such as perceived similarity (Zellmer-Bruhn, Maloney, Bhappu, & Salvador, 2008) and competence. Entrepreneurs who perceive each other as similarly passionate about being an entrepreneur, for example, may be more supportive and willing to help each other succeed in their entrepreneurial activities (Cardon, Wincent, Singh, & Drnovsek, 2009; Ho & Pollack, 2014). Network actors who perceive entrepreneurs as more competent may be more likely to refer friends and family. Additionally, given the moderate positive partner effect observed in the APIM, researchers may investigate how dyadic meta-accuracy may influence resource owners' decisions to provide resources. Dyadic meta-accuracy refers to how accurately an actor estimates their partners' unique perceptions of them (Kenny, 1994; Kenny et al., 2006).

Additionally, as the SRM findings demonstrated, the other substantive source of variance in customer referrals was due to actors' general tendencies to provide customer referrals to fellow network members (i.e., rater effects), regardless of their partners' individual characteristics and independent of their specific relationships. I observed the same pattern in perceptions of liking. Although the current research draws attention to the dyad as the level of analysis at which resources are acquired and exchanged, moderators

at other levels of analysis would certainly provide a more comprehensive understanding of resource acquisition in social networks. I thus suggest further examination of rater effects in future research. As rater effects reveal individual tendencies, future research may, for example, examine the role of individual reciprocation orientation (Eisenberger et al., 1987) on dyadic partners' exchange behaviors.

In conclusion, I present theory and findings that reveal the value of more explicitly examining the unique dyadic relationships that constitute social networks and relational factors that influence those relationships (e.g., liking). Particularly when resource acquisition is an outcome of interest, I hope the current work stimulates future social networks research that expands on these insights by exploring other dyadic factors and individual level moderators that may influence dyadic interaction and, in turn, differentiate entrepreneurial outcomes.

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APPENDIX A: DESCRIPTION OF THE SOCIAL RELATIONS MODEL

Using the round-robin data structure described above, the Social Relations Model (SRM) partitions observed scores into the variance components that determine interpersonal perceptions and behaviors: 1) group norms and/or other group factors (i.e., group level variance); 2) individual characteristics or tendencies of the rater and target (i.e., individual level variance)[5]; and 3) factors unique to each dyadic relationship (i.e., dyad level variance) (Christensen & Kashy, 2012; Snijders & Kenny, 1999). Error variance is also estimated when variables have multiple indicators (Christensen & Kashy, 2012; Kenny et al., 2006). All variance components are discrete.

Group Effects

Group effects represent group mean differences attributable to varying network level characteristics (e.g., reciprocity norms, size). In the BNI context, a group effect for liking would indicate between-group differences in how much all members in each group generally liked each other. For customer referrals, a group effect would indicate differences in the average number of customer referrals provided among all respective group members.

Individual Effects, Rater Effects and Target Effects

Individual effects are participant scores that reflect variance due to individual perceptual and behavioral tendencies. The rater effect indicates cross-partner consistency (Kenny et al., 2001) – how a person generally perceives or behaves with all interaction

[5] When analyzing perceptions, the SRM refers to the person providing the rating as "rater" and the referent as "target" (Christensen & Kashy, 2012). When analyzing behaviors, the SRM refers to the person performing the action as "actor" and the person who is acted upon as "partner." As "actor effects" and "partner effects" have different meanings in the SRM and APIM, I chose to use the terms "rater effects" and "target effects" when describing the SRM and "actor effects" and "partner effects" when referring to the APIM for conceptual clarity.

partners. For example, a high rater effect would suggest that a network actor is a "liker" and generally likes all network partners. For customer referrals, a high rater effect would indicate the network actor is a "giver" or generally provides customer referrals to all network partners. A target effect provides an estimate of cross-situational consistency (Kenny et al., 2001) – how a person is generally perceived or the extent to which a person elicits similar behaviors from all interaction partners. In the current research context, a high target effect for liking would suggest consensus among network actors that an entrepreneur is generally likeable or that she generally receives customer referrals from all network partners.

Relationship Effects

Relationship effects are participant scores that indicate how dyadic partners uniquely perceive or behave toward each other, after removing individual and group level effects (Christensen & Kashy, 2012; Kenny et al., 2001). For example, a relationship effect for liking suggests that a network actor perceives a specific partner as uniquely likeable, over and above the actor's general tendency to like all other network partners and each partner's tendency to be liked by all network actors. Similarly, a relationship effect for customer referrals would suggest that an actor provides more referrals to a specific network partner than she tends to provide all network partners and the referrals that partner tends to elicit from all network actors. The variance in scores is due to each network partner's unique perceptions of or behavior towards the other. A relationship effect is thus a property of the dyad (Kenny et al., 2006). Importantly, relationship effects are idiosyncratic and directional, as individual dyadic partners may vary in their

respective scores. That is, an actor may like a specific partner more than the partner likes her or provide less referrals to a specific partner than she receives from that partner.

Reciprocity Correlations

The SRM also estimates reciprocity at the individual level (i.e., generalized reciprocity) and the dyad level (i.e., dyadic reciprocity). Generalized reciprocity is the correlation between rater and target effects (Kenny, 1994; Kenny et al., 2001). A positive generalized reciprocity correlation answers the question: If an actor generally likes all other network members, do others generally perceive her as likeable? For customer referrals, a positive generalized reciprocity correlation would suggest that actors who generally provide customer referrals to other network members also tend to receive customer referrals from other members.

Dyadic reciprocity is the correlation between dyadic partners' idiosyncratic relationship effects. A positive dyadic reciprocity correlation would indicate that dyadic partners similarly perceive each other as more (less) uniquely likeable. For customer referrals, a positive and significant dyadic reciprocity correlation would suggest that dyadic partners provide each other with more customer referrals than they tend to provide other partners or elicit from other partners.

LIST OF FIGURES

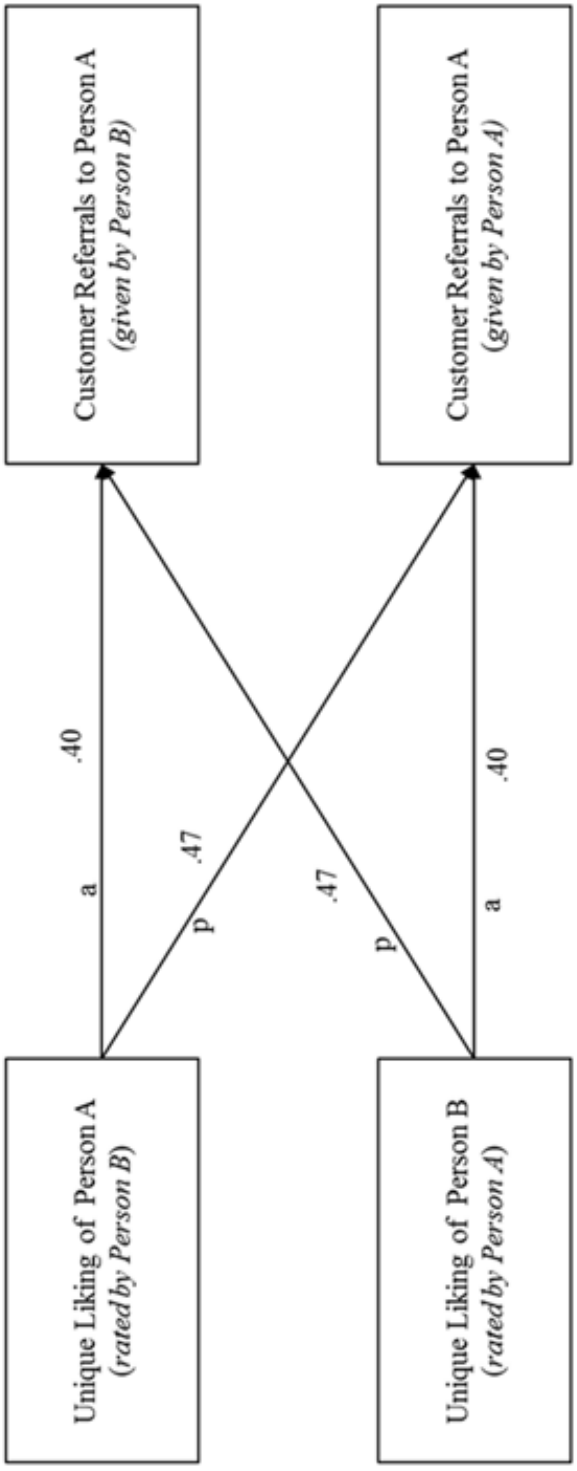

Figure 1: Results for Actor-Partner Interdependence Model (APIM) Predicting Customer Referrals
Note: a = actor effect, p = partner effect. All effects are significant at $p < .001$.

Table 1: Descriptive Statistics and Zero-Order Correlations for Liking and Customer Referrals

	Mean	SD	1	2
1. Liking	6.36	.90	(.83)	
2. Customer referrals	1.02	3.18	.12	-

Note. N = 8,358 ratings. All correlations are significant at $p < .001$. Alpha is provided for the latent construct, liking, in parentheses.

Table 2: Results from Multigroup Social Relations Models

	Liking			*Customer Referrals*		
	B	SE	%	B	SE	%
Variance Decomposition						
Rater	.17*	.02	22%	1.78*	.41	19%
Target	.05*	.01	7%	.56*	.16	6%
Relationship	.26*	.01	34%	7.02*	1.31	75%
Group	.03		1%	.22		< .01%
Error	.28		36%			-
Reciprocity Correlations						
Generalized Reciprocity	.01	.01	.20[a]	.34	.10	.35[a]*
Dyadic Reciprocity	.08	.01	.31[b]*	1.61	.79	.23[b]*

Note. N = 37 networking groups, liking: 408 respondents and customer referrals: 487 respondents. All coefficients are unstandardized. % = Proportion variance explained. [a] Covariance of rater and target individual effects. [b] Covariance of relationship effects, which is also ICC(1). *p < .001

Table 3: Descriptive Statistics and Correlations for Actor and Partner Relationship Effects

	Mean	SD	Min.	Max.	1	2	3	4
Actor								
1. Liking	.00	.55	-4.00	2.00	-			
2. Customer referrals	.00	2.31	-8.59	43.67	.12	-		
Partner								
3. Liking	.00	.55	-4.00	2.00	.26[a]	.11	-	
4. Customer referrals	.00	2.31	-8.59	43.67	.11	.18[a]	.12	-

Note. N = 4,642 – 6,894 dyads. Relationship effects are mean centered. All correlations are significant at $p < .001$. SD = standard deviation, Min. = minimum, Max. = maximum. [a] Pairwise correlations.

Table 4: Actor-Partner Interdependence Model (APIM) Predicting Relationship Effects of Customer Referrals

	B	SE	95% Confidence Interval	
Intercept	.00	.04	-.08	.07
Liking – Actor	.40*	.07	.27	.53
Liking – Partner	.47*	.07	.33	.60
Pseudo R^2	.30			

Note. N = 4,654 dyads. *p <.001