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An Altercentric Perspective on the Origins of Brokerage in Social Networks: How Perceived Empathy Moderates the Self-Monitoring Effect

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Social structure matters in organizational life, but our understanding of the origins of social network structure remains limited. In this paper, we observe that the literature on individual differences and social networks focuses almost exclusively on ego's views of herself and of her network. Our approach complements this egocentric perspective with a more altercentric view, in which others' perceptions of and reactions to ego's personality and relational behavior shape the structure of ego's network. Our altercentric perspective builds on earlier evidence that the construct of self-monitoring is associated with brokerage, but it suggests that the effect of self-monitoring on brokerage is amplified in those perceived as highly empathic and attenuated in those perceived as lower in empathy. A mechanism that underlies this effect is the greater propensity of others to reciprocate the social interactions of high-empathy, high self-monitors than those low in empathy. We find support for these predictions in a study of the dynamic emergence of a social network among a complete cohort of MBA students and conclude that alters are active agents in the formation of ego's network.

Keywords: social networks; brokerage; network dynamics; self-monitoring; empathy
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Introduction

In the past two decades, a substantial body of research has accumulated indicating that the structure of an individual's social network has important and wide-ranging personal and career implications (reviewed in Burt 2005, Kilduff and Brass 2010, Burt et al. 2013), but our understanding of the origins of such network structures remains limited. Various scholars have considered organizational antecedents of different types, but perhaps the most widely studied answer has come from microlevel research on the self-monitoring personality construct. Self-monitoring is a personality characteristic that accounts for "individual differences in the self-control of expressive behaviors [in response to varying social situations]" (Snyder 1974, p. 527), and scholars have demonstrated, across a range of different settings, that individuals high in self-monitoring are more likely than are low self-monitors to develop advantageous brokerage positions in social networks (e.g., Mehra et al. 2001, Kilduff and Krackhardt 2008, Oh and Kilduff 2008, Sasovova et al. 2010).

This study aims to advance the literature on network formation by investigating the impact that others' perceptions of the focal individual's behavior may have on the relationship between self-monitoring and the forging of social network ties. The agentic view that undergirds the literature on self-monitoring and social networks—and the literature on network formation more generally—is implicitly egocentric, focusing its attention on the tendency of high self-monitors to forge ties that bridge disconnected social groups. The flip side of this coin, however, is that the extant literature implicitly portrays alters as passive recipients of social influence attempts. The assumption, usually unstated, is that alters will respond positively to the social gestures of high self-monitors by forming ties with them. We relax this assumption and consider systematic differences in how others' perceptions of ego's behavior may influence their propensity to accept or reciprocate ego's ties. In doing so, we argue that others are active contributors to ego's ability to build her network through their choices to reciprocate her social interactions.

Many aspects of alters' perceptions may affect their willingness to connect with ego and thereby affect the evolution of ego's social network. As an initial investigation into this question, we focus in particular on perceptions of ego's empathy. We chose empathy for two related reasons. The first is the existence of a social psychological literature that points to the importance of empathy in the emergence of social relations. This work suggests quite unequivocally that when ego is viewed as empathic—as understanding others' thoughts and feelings (Hogan 1969, Rogers 1980, Davis 1994)—this confers to interaction partners a feeling of being understood, which induces a desire to form and maintain a social relationship (Reis et al. 2004, Oishi et al. 2010). The

second reason is the availability within this literature of well-established measures of this construct that point to discrepancies between self and observer perceptions of empathy and to the greater accuracy of observer perceptions (Davis and Kraus 1997). Discrepancies between alters' views of ego's behavior and ego's self-perceptions make it easier to establish the value of an altercentric perspective on the formation of social networks.

In recognition of the important role of alters' perspectives in the formation and evolution of ego's network, the crux of our argument is, very simply, that others' perceptions of ego's empathy should moderate the effect of ego's self-monitoring personality on the structure of her social network. In line with recent research on dynamic network analysis, we consider the interaction of self-monitoring and perceived empathy on both static and dynamic conceptions of brokerage. Consistent with our prediction, results indicate that self-monitoring is a particularly strong antecedent of brokerage for people who are perceived to be high in empathy, both in static, cross-sectional models and in models of network dynamics. To further elucidate the moderating effect of perceived empathy, we directly examine the propensity for a given person's potential contacts to reciprocate her social gestures. Consistent with our theory, results of a dyad-level analysis indicate that the focal actor's perceived empathy and self-monitoring personality interact positively in their effect on others' reciprocation of the actor's social advances. We find support for these hypotheses in a dynamic analysis of the emerging socializing network among the complete cohort of MBA students in a top business school.

A key contribution of this study lies in highlighting the potential benefits of complementing the current egocentric perspective with a more altercentric approach to the study of the relationship between individual differences and networks. Psychologists have long established that observers' views of ego's personality traits possess a high degree of agreement and stability (Funder et al. 1995, Riemann et al. 1997, McCrae and Weiss 2009) and strongly predict important outcomes (Connelly and Ones 2010, Oh et al. 2011). Yet much of the literature on individual differences and social networks focuses almost exclusively on ego's views of herself and of her network. Our perspective suggests that others' perceptions of and reactions to ego's personality and relational behavior will play a significant role in shaping the structure of ego's network—that is, that alters are active agents in the formation of ego's network.

Self-Monitoring and Brokerage

It is no longer controversial to assert that networks matter. In voluminous research across a variety of disciplines dating back to Moreno's (1937) sociometry, scholars have demonstrated that individual action is embedded in networks of social relations (Granovetter 1985) and that the structure of individuals' networks has consequences for their actions and for their outcomes. In research on intraorganizational networks, considerable scholarly attention has been focused on one network structure in particular: brokerage[1] (e.g., Burt 1980, 1992; Gargiulo and Benassi 2000; Buskens and van de Rijt 2008; Sasovova et al. 2010; Obstfeld et al. 2014). Brokers have networks that link them with diverse and disconnected others, bridging structural holes in the social fabric of the organization. As a result, brokers have vision advantages (Burt 2005), as their sparse, far-reaching networks allow them to see valuable information earlier and more completely than others. Consistent with this view, empirical evidence has amassed indicating that brokers tend to get promoted faster (Brass 1984), to produce more creative output (Fleming et al. 2007), to get paid more (Burt 1997), and to receive more favorable performance evaluations (Burt 2004), among myriad other positive outcomes.

The many benefits of networks rich in brokerage beg the question: Where does brokerage come from? Scholars have addressed numerous antecedents of brokerage, including career history (Kleinbaum 2012), training (Burt and Ronchi 2007), and organizational structure (Kleinbaum and Stuart 2014), but the most robust research stream has focused on individual personality. In this domain, psychologists have argued that brokerage results from high self-monitoring, a psychological construct concerning the extent to which people seek to modify their behavior to match the varying expectations of different social settings (Snyder 1974, Gangestad and Snyder 2000, Toegel et al. 2007). Theory on self-monitoring builds on Goffman's (1959) notion of self-presentation by arguing that people vary in the extent to which they tend to present themselves favorably to different audiences. High self-monitors are more concerned with the social cues and norms that others use to indicate appropriate behavior in different settings (Snyder 1974). Like shrewd politicians, high self-monitors tune in to the beliefs and emotions that may be more socially adaptive to express within a particular situation (Gangestad and Snyder 2000). They engage in relatively high levels of both surface and deep acting (Scott et al. 2012) and are attentive to the achievement of status (Flynn et al. 2006). High self-monitors, for example, are quick to recognize when a situation calls for somber formality, or when it is more informal and sportive, and will adjust their own manners accordingly. On the other hand, low self-monitors tend to heed Polonius' advice in Shakespeare's *Hamlet*: "To thine own self be true." They tend to express self-consistent behavior across diverse social contexts, regardless of—even in spite of—what might be expected in a particular situation (Kilduff and Day 1994, Gangestad and Snyder 2000). Low self-monitors are more likely to tell jokes in a serious setting, or stay staid in a more relaxed one, if

such behavior is natural to their personality, even when it should be clear that the behavior is ill-matched to the social atmosphere and will not ingratiate them to others who are present.

There is a certain prima facie parallel between self-monitoring personality, which prompts one to adapt one's behavior to match diverse social settings, and a brokerage network, which links one to disconnected, socially diverse others; self-monitoring has been described as "a psychological analogue to bridging structural holes" (Burt 2012, p. 548). So it is not surprising that research on the psychological antecedents of brokerage has focused on self-monitoring. In early work, Caldwell and O'Reilly (1982) showed that high self-monitors perform better at boundary-spanning work, building relationships with distant others more effectively than low self-monitors, who may prefer to remain within a cohesive social circle in which behavioral norms match their own inclinations. Cross-sectional studies have found a positive relationship between self-monitoring and brokerage in the friendship networks of employees at a small high-technology firm (Mehra et al. 2001) and in the acquaintance networks of entrepreneurs (Oh and Kilduff 2008). More recently, dynamic analysis of network evolution has indicated that self-monitoring personality predicts increases in network brokerage over time. Sasovova et al. (2010) tracked friendships within a radiology department longitudinally and found that high self-monitors added more new social connections over time and that these connections were more likely to involve people previously disconnected from their networks, thereby increasing their brokerage. In short, research at the intersection of social networks and psychology has consistently demonstrated a robust effect of high self-monitoring on brokerage.

One of the key features of this literature is that it takes the perspective of ego, emphasizing ego's adaptation to varying situations. High self-monitors' social initiative is implicitly assumed to be accepted and reciprocated by targeted alters. For example, Sasovova et al. (2010) wrote of an "expectation that high self-monitors will be more capable of *gaining the friendship of others*" (p. 643; emphasis added). Building on this foundation, economic models of network formation make the explicit assumption that "actors *are able* to strategically arrange their ties in order to optimize their expected utility (Jackson 2006)" (Burger and Buskens 2009, pp. 63–64; emphasis added).

An Altercentric Perspective

Although empirical findings (e.g., Mehra et al. 2001, Oh and Kilduff 2008, Sasovova et al. 2010) suggest that self-monitoring is associated with network brokerage on average, we propose that a more complete understanding of the effect of self-monitoring on social networks requires greater consideration of alters' perspectives. Alters form their own views of ego, and those views very likely shape their propensity to form ties with ego.[2] Self-monitoring may have a positive effect on the creation of social relationships in general, but high self-monitors may sometimes risk being perceived as doing "whatever it takes to enhance their social appearance in a given situation" (Day and Schleicher 2006, p. 699) or of actively constructing their "public selves to achieve social ends" (Gangestad and Snyder 2000, p. 546). In other words, the high self-monitor's chameleon-like tendencies could lead alters to see them as socially self-serving, uninterested in paying genuine attention to other people and, consequently, as undesirable contacts. Thus, high self-monitors can experience varying degrees of success in their attempts to form social relationships as a result of differences in how others perceive them. In this sense, self-monitoring—similar to extraversion (Bendersky and Shah 2013, Felier and Kleinbaum 2015), high self-esteem (Baumeister et al. 1996), and emotional intelligence (Austin et al. 2007, Kilduff et al. 2010, Côté et al. 2011)—may be a generally positive quality that has a "dark side."

We argue that these variations are attributable, in part, to differences in the degree to which ego is perceived by others as empathic, defined as the degree to which others perceive that ego understands their thoughts and feelings (Rogers 1980). Empathic people make others feel understood in their company, and social psychological research indicates that feeling understood is "a critical ingredient in most positive relationship outcomes, including interpersonal liking, intimacy, and relational longevity" (Oishi et al. 2010, p. 406). Feeling as if one's perspectives and feelings are understood by someone else is thought to make people feel "that they are worthy of respect, of being heard, and that their feelings and behaviors make sense" (Greenberg et al. 2001, p. 382–383), providing a sound basis for an interpersonal relationship. Self-verification theory suggests that alters will prefer interactions with ego if he or she is seen as accurately perceiving important parts of themselves, such as goals and emotions (Swann et al. 1992, 2003). Feeling understood by another person promotes satisfaction in social relationships (Reis et al. 2004), such as friendships (e.g., Parks and Floyd 1996, Gore et al. 2006), and it elevates positive emotions (Oishi et al. 2008). Indeed, feeling understood by another person has a host of far-reaching positive consequences. Satisfaction with life is higher on days when people report feeling more understood by others (Lun et al. 2008), and an experimental induction of feeling understood led people to show increased self-efficacy, including a higher pain tolerance and more favorable perceptions of physical obstacles ahead of them (Oishi et al. 2013). And yet, despite its importance in social interaction, empathy has played a little role in the literature on psychological antecedents of network structure.

If self-monitoring is about reading social situations and understanding what behaviors are appropriate in those situations, and perceived empathy is about conveying to others an understanding of their thoughts and feelings, we suggest that these qualities are complementary in their effects on network formation. Based on the social value that alters derive from feeling understood by an empathic other (Reis et al. 2004), we expect that high self-monitors who are perceived as highly empathic will find it easier to form social relationships than high self-monitors who project less empathy. At the same time, empathy alone, in the absence of high self-monitoring, will be insufficient for the formation of ties that lead to a high-brokerage network position. A person who is perceived as highly empathic but who is low in self-monitoring may create in others a feeling of being understood but may have trouble attracting new social connections because of a lack of sensitivity to important variations in the social environment. Such people live as if "put-on images are falsehoods, as if only those public displays true to their privately experienced self are principled" (Gangestad and Snyder 2000, p. 531). Low self-monitors' penchant for principled but situationally inappropriate behavior—such as, for example, expressing strong views in a situation where deference to others would be more appropriate—may alienate potential contacts, no matter how empathic those contacts perceive the focal individual to be (see also Friedman and Miller-Herringer 1991). We therefore predict an interaction between self-monitoring and perceived empathy such that network brokerage is elevated for those individuals who are high in both self-monitoring and empathy, with each variable amplifying the effect of the other.

The literature on brokerage in social networks is developing rapidly. Early research focused almost exclusively on cross-sectional networks, with static measures of aggregate brokerage (e.g., Burt 1982, 1992). More recently, as scholarly understanding of cross-sectional structure matures and new data sources and analytical methods become available, the focus is shifting to how these network structures form and evolve over time. Ahuja et al. (2012), in their introduction to a special issue of *Organization Science* on network dynamics, asserted that scholars of social networks are increasingly interested in understanding how networks evolve over time. The longitudinal equivalents of cross-sectional brokerage are the ties and the structural holes that an individual adds to her network from one point in time to the next (Sasovova et al. 2010). Consistent with this direction, we hypothesize that the interaction of self-monitoring with empathy will affect not only the static, cross-sectional structure of brokerage—in which the focal actor is linked to others who are disconnected from each other—but also its dynamic evolution through the formation of new ties and new structural holes in the focal person's network.

HYPOTHESIS 1A. *Perceived empathy moderates the positive effect of self-monitoring on* brokerage: *for people perceived as being higher in empathy, the self-monitoring effect on network brokerage is stronger than for people perceived as being lower in empathy.*

HYPOTHESIS 1B. *Perceived empathy moderates the positive effect of self-monitoring on* the formation of new ties: *for people perceived as being higher in empathy, the self-monitoring effect on the formation of new ties in their network is stronger than for people perceived as being lower in empathy.*

HYPOTHESIS 1C. *Perceived empathy moderates the positive effect of self-monitoring on* the formation of new structural holes: *for people perceived as being higher in empathy, the self-monitoring effect on the formation of new structural holes in their network is stronger than for people perceived as being lower in empathy.*

Although Hypothesis 1 explores the moderating effect of perceived empathy on the well-established relationship between self-monitoring and brokerage, elucidating the mechanisms by which empathy and self-monitoring affect brokerage dynamics requires finer-grained consideration of how others' perceptions of the focal actor affect how likely they are to reciprocate the ties that the high self-monitor seeks to forge. Indeed, the ability to induce others to reciprocate one's social ties lies at the heart of agentic network change. Scholarly research has long recognized that there are two actors who each have a role in the existence of a social relationship (e.g., Friedkin 1990). And whereas voluminous research has documented the general tendency for people to reciprocate behaviors such as helping (e.g., Bartlett and DeSteno 2006), gift giving (e.g., Cook and Rice 2006), and the performance of favors (e.g., Regan 1971, Flynn 2003), relatively little research has explored reciprocity in the processes of initiation of conversation, self-disclosure (cf. Sprecher et al. 2013), and other gestures of friendship that contribute to the formation of social ties on a day-to-day basis (Friedkin 1990).

We argue that perceived empathy is a key variable that increases the likelihood that the contacts of high self-monitors will reciprocate their social ties. Echoing our argument above, high self-monitoring induces ego to attend to variations in situational cues and to showcase socially appropriate and desirable behavior across a wide range of settings and when in the company of a variety of people. In the absence of apparent empathy, however, this social flexibility may seem self-serving or superficial and may not incline alters to engage in social interactions with ego. Similarly, although perceived empathy engenders a feeling of being understood—a feeling that induces positive affect for alters—empathy alone may not be enough to produce in alters a desire to befriend

ego, if ego lacks the social savvy of the high self-monitor. As such, we argue that people high in both perceived empathy and self-monitoring will be most likely to have their social interactions reciprocated by others. This, we propose, is the theoretical engine that propels them into positions of brokerage in social networks.

HYPOTHESIS 2. *Perceived empathy moderates the positive effect of self-monitoring on* reciprocity: *for people perceived as being higher in empathy, the effect of self-monitoring on the likelihood that other people will reciprocate ties is greater than for people perceived as being lower in empathy.*

To conclude our theory development, and given that the importance of perceived empathy for social interaction lies, in part, in the induction of positive affect and interpersonal attraction in alters, we underscore three primary reasons for our focus on perceived empathy, rather than other constructs that might lead to those outcomes. First, research on empathy offers compelling and generalizable arguments that rest on a considerable theoretical and empirical literature and that play an important role in explaining the creation and maintenance of social relationships (e.g., Davis 1994, Reis et al. 2004, Lun et al. 2008, Oishi et al. 2010), yet empathy has been conspicuously absent from the social networks literature. Second, our focus on perceived empathy—a fundamentally relational quality—enables us to bring an altercentric perspective from social psychology into the analysis of network formation. And third, unlike some other variables that also influence interpersonal attraction and positive affect—such as sociodemographic similarity (e.g., Byrne 1971, McPherson et al. 2001) or physical attractiveness (Dion et al. 1972)—understanding the effects of perceived empathy on social network formation may yield valuable practical implications for management training, since individuals can learn skills (such as effective listening) that enable them to convey greater empathy.

Data and Methods

We tested these hypotheses about the role of perceived empathy in moderating the positive association between self-monitoring and network brokerage by examining the emergence of the socializing network among first-year master of business administration (MBA) students. Although studies of MBA students may lack the external validity to generalize readily to other kinds of organizations, this limitation is counterbalanced by the fact that we are able to observe the network during its formative phase. Similar to Sasovova et al. (2010), we measured friendship networks because these networks represent connections that are entered into voluntarily through effortful social interactions (rather than being "given" to students via formal structural arrangements, such as study group assignments), because friendship networks influence professional success (e.g., Burt 1992, Ingram and Roberts 2000) and success in business school (Baldwin et al. 1997), and because friendship networks are particularly salient in our study population.

A new cohort of MBA students is a particularly apt setting in which to study the role of personality in shaping social networks for two reasons. First, few people know one another in advance. Unlike any going concern, an MBA cohort is constructed from scratch, with no prior history, few preexisting relationships, and little formal structure to shape or constrain the formation of social ties. Additionally, although instrumental reasons for forming ties undoubtedly emerge later (e.g., one person has prior work experience in an industry in which another would like to work), the earliest period is characterized by people who have just arrived in a new place seeking out stability and order in their social world. The network emerges largely from this blank slate. Those formal structures that do exist—section assignments and study groups—are randomly assigned and can be accounted for econometrically, leaving significant variance to be explained by intrapersonal factors, such as personality. As a result, this setting is well suited to examining the socioemotional dynamics of empathy and self-monitoring as they affect incipient social networks.

Sample and Data Collection

Our sample included all 268 first-year MBA students (33% women, 57% white non-Hispanic, 60% U.S. citizens, mean age of 28.0 years) at a private East Coast university, who participated in this study as part of their required coursework in organizational behavior. Our analysis required collection of four different data sets. First, we collected online surveys of the emerging social network in the new cohort of MBA students at two points in time: first in late September, in the fourth week of classes and five weeks after students had arrived on campus for orientation (hereafter "time 1"); and again in early November, six weeks later (hereafter "time 2"). After following a link to the study website, students answered a question (adapted from Burt 1992, p. 123) that was designed to assess their position within the evolving first-year MBA social network: "Consider the people with whom you like to spend your free time. Since you arrived at [university name], who are the classmates you have been with most often for informal social activities, such as going out to lunch, dinner, drinks, films, visiting one another's homes, and so on?" Because of the large number of first-year students who had so recently met one another, we were concerned about the possibility of biased or incomplete recall (Brewer 2000). Consequently, we used a roster-based name generator, with the roster displayed in one column per section of the MBA program and names listed alphabetically within each section.[3] Respondents

indicated the presence of a social tie with a given person by checking the box next to that person's name. No upper limit was placed on the number of names that a respondent could check, but a minimum of two was required. The median respondent cited 18 social ties at time 1 and 22 at time 2. Both distributions had very long right tails (time 1: min = 2, max = 134, SD = 20.1; time 2: min = 2, max = 188, SD = 29.3). The overall increase in mean network size was expected during a period in which networks are actively being formed. The response rate was 100% in both surveys.

Second, we gathered data from a self-report scale to measure students' levels of self-monitoring. This instrument was administered during the fourth week of classes. Two students failed to complete this survey and were dropped from all analyses, yielding a final response rate of 99.3%. The number of incomplete observations is too small for any statistical analysis, and since there is nothing that clearly distinguishes these students in the observable data, we simply assume they were missing at random.

Third, in the seventh week of the term, students completed surveys in which they privately rated the empathy levels of peers in their study groups. Like many business schools, the institution we studied assigned each student in our sample to a study group through a stratified, quasi-random process that is designed to create diversity within each study group and relative parity of experience across study groups. Study groups were required to meet at least five days a week, often convening for several hours each day, throughout the period of our study. The first months of the fall term are perhaps the most academically intense period at the school we studied; within this cauldron, we believe that by the seventh week of the term, students had sufficient time to form meaningful impressions of the socioemotional qualities of their study group members. Study groups thus provide an excellent setting in which to gather peer evaluations of empathy. Each student's empathy was rated by at least three other students, with a modal number of five raters per student. The response rate for our peer-evaluated empathy scale was 100%. Since perceived empathy is reported by numerous study group members, there is the possibility that error terms in our regressions might be correlated because of the structure of peer evaluations of empathy within study groups, violating the regression assumption of independent errors. To account for this dependence, we adjust the standard errors in all models that include perceived empathy by clustering our estimates around study group assignment.

Finally, demographic information was provided by the school's registrar about students' gender, race, citizenship, age, class section, study group assignment, and residence status (on or off campus). All identifying information was removed, leaving these various data sets linked together only by anonymous student ID numbers.

Measures and Models

Our outcome of interest was the emergence of brokerage in the social network, so we examined both the presence of brokerage in the cross-sectional networks and the emergence of brokerage longitudinally. We describe each of these analyses in turn.

Cross-Sectional Analysis. First, we examined the presence of brokerage in a static analysis using Burt's (1992) structural constraint measure. Actor i's structural constraint at time t is defined as

$$Constraint_{it} = \sum_{j=1}^{n}\left(P_{ijt} + \sum_{q=1}^{n} P_{iqt}P_{qjt}\right)^2,$$

where P_{ijt} represents the proportion of actor i's ties that comprise actor j in time t. The inner summation incorporates the indirect constraint imposed on each actor i by actor j through connections among actors q who interact with both i and j. We used the igraph package (Csárdi and Nepusz 2006) in the R statistical computing environment (R Core Team 2013) to calculate constraint. The dependent variable in our cross-sectional models is $Brokerage_{it} = (Constraint_{it})^{-1/2}$. This monotonic transformation introduces no bias to estimation and eliminates skewness ($p > 0.35$, indicating no significant deviation from normal in the transformed variable; see D'Agostino et al. 1990), thereby improving model fit. Additionally, the negative sign in the exponent results in a direct measure, rather than an inverse measure, of brokerage, which facilitates an intuitive interpretation of results. In our static models of brokerage, we estimated models using ordinary least squares regression. To conserve space, we report time 2 results, but identical results obtain in time 1.

Dynamic Analysis. Second, to further elucidate the interplay between perceived empathy and self-monitoring in the dynamic emergence of network structure, we follow Sasovova et al. (2010) in estimating a series of models that examine changes in the network from time 1 to time 2. We define two different dependent variables in these analyses, *Ties Added* and *Structural Holes Added*.

Ties Added is the count of inward ties that the focal actor possesses at time 2, but not at time 1. Because *Ties Added* is based on inward ties, or citations to the focal person by others in their survey responses, it relies only on the reports of others, which are likely to be more reliable than self-reports by the focal actor (Sasovova et al. 2010). *Structural Holes Added* is the count of structural holes that the focal actor possesses at time 2, but not at time 1. By "structural holes," we mean the number of triads in which the focal actor is cited by two alters who do not cite each other.[4]

Our measures of social ties and structural holes added are count variables, so models are estimated using Poisson quasi-maximum likelihood. Because Poisson is in

the linear exponential family, the conditional mean of the data is assumed to be correctly specified, but no assumptions about the distribution of the data are required to generate consistent coefficient estimates. Specifically, unlike maximum likelihood, quasi-maximum likelihood Poisson estimation does not assume that the data are distributed with the mean equal to the variance of the event count (Gouriéroux et al. 1984, Wooldridge 1997, Silva and Tenreyro 2006).

Self-monitoring: To measure self-monitoring, we used Snyder and Gangestad's (1986) 18-item self-report scale that requires participants to label statements about themselves as either true or false. This revised scale is psychometrically superior to Snyder's (1974) original 25-item self-monitoring scale (Lennox and Wolfe 1984). Sample items include "In different situations and with different people, I often act like very different persons"; "I would not change my opinions (or the way I do things) in order to please someone or win their favor" (reverse scored); and "I would probably make a good actor." Reliability for the self-monitoring scale was acceptable in our sample (Cronbach's $\alpha = 0.73$). Finally, we normalized each individual's self-monitoring score by subtracting the global minimum self-monitoring score and dividing by the range in self-monitoring scores; the resulting normalized variable had a minimum of 0 and a maximum of 1 by construction (mean = 0.49, SD = 0.22).

To gain a deeper understanding of the composition of the self-monitoring scale, we performed a principal components analysis with an oblique rotation (promax), which allows the components to correlate with each other. The scree plot revealed a sharp drop-off after two components (component 1 eigenvalue = 3.46, 19.2% of variance explained; component 2 eigenvalue = 1.86, 29.5% cumulative variance explained). Examining the loadings of the first six components, only these first two components were interpretable in terms of prior theory and empirical research, so we retained only these components. Using the same 0.30 factor loading criterion, the results of our analysis correspond closely to those of Briggs and Cheek (1988), who termed the two components of self-monitoring "public performing" and "other-directedness."

Perceived empathy: Consistent with our altercentric theoretical approach, we measured perceptions of empathy using peer ratings of participants' behaviors. Because we were interested in measuring others' perceptions of ego's tendency to show understanding of others' thoughts and feelings, and not in perceptions of ego's tendency to actually feel the same emotions that others are feeling or to feel sympathy for others in distress, our research falls within the "cognitive" tradition of empathy research (e.g., Hogan 1969; see also the perspective-taking subscale in Davis 1980) rather than the "emotional" tradition (e.g., Mehrabian and Epstein 1972; see also the empathic concern and personal distress subscales in Davis 1980). Cognitive measures of empathy seek to capture understanding of another person's thoughts and feelings. They are characterized in the literature on empathy as cognitive because the focus is on understanding another person, and they are not concerned with measuring the tendency to respond emotionally to the experiences of others. Incidentally, although our construct of interest is the perceptions of empathy and not empathic accuracy per se, research indicates that others' perceptions are likely to be good indicators of ego's objective accuracy in understanding others. That is, studies have found that aggregated peer ratings of empathy are reliably correlated with objective accuracy in identifying others' thoughts and emotional states, whereas self-ratings of empathy or perspective-taking tendencies have little relationship with empathic accuracy (Davis and Kraus 1997). More generally, in two large meta-analyses, observer ratings of personality predicted important outcomes such as academic achievement and job performance better than self-ratings did (Connelly and Ones 2010, Oh et al. 2011).

We used the empathy scale of the Emotional and Social Competencies Inventory (ESCI; see Wolff 2005), a multirater 360-degree instrument. The ESCI was developed based on a theoretical model of emotional and social competencies (Boyatzis 1982, 2009) and has been used in previous research (e.g., Kellett et al. 2002, Offermann et al. 2004, Koman and Wolff 2008, Margaret and Diana 2008). The items composing the empathy scale asked peers (in our case, all members of one's study group) to indicate the frequency with which the focal actor exhibited five different behaviors reflecting empathy, on a scale from 1 (never) to 5 (consistently): "Understands another person's motivation," "Understands others by listening attentively," "Does *not* understand subtle feelings of others" (reverse scored), "Understands others by putting self into others' shoes," and "Understands others' perspectives when they are different from own perspective." Averaging across peer ratings for each item for each participant, internal consistency for the perceived empathy scale was excellent in our sample (Cronbach's $\alpha = 0.90$). Rater consensus (or interrater reliability) when averaging across items (average intraclass correlation coefficient = 0.58) compared favorably to other studies of observer ratings of personality (e.g., John and Robins 1993, Funder et al. 1995). As with the self-monitoring variable, we normalized each individual's perceived empathy score by subtracting the global minimum empathy score and dividing by the range in perceived empathy scores; the resulting normalized variable had a minimum of 0 and a maximum of 1 by construction (mean = 0.59, SD = 0.16).

Control variables: To account for demographic differences that may affect social network structure, we included in our models the participants' gender and a

binary indicator of whether they belonged to the majority racial group, white non-Hispanic. We also included a binary indicator for whether the focal actor was a U.S. citizen, because international student status was believed to play a significant role in socializing patterns among MBA students. For both racial and citizenship groups, we tested the robustness of our results using alternative specifications; we report the most parsimonious approach here and note that results for alternative specifications were substantively identical. We included a dummy variable for on-campus residence, another plausible determinant of social interactions (Festinger et al. 1950, Marmaros and Sacerdote 2006), as well as a binary indicator of whether the person was older than 30 to account for the possibility that older students tend to engage in different socializing patterns than younger students. Finally, we controlled for each student's section assignment, in case interaction patterns differed by section.

Dyad-Level Analysis. We test Hypothesis 2 using dyad-level models of tie formation at time 2, conditional on the state of the tie at time 1. Dyad-level models include individual-level variables describing the focal actor, including the self-monitoring and perceived empathy scores and their interaction, as well as the control variables described above. Additionally, dyad-level covariates are included to indicate whether the two dyad members are in the same section and study group, whether they both live on campus, and whether they belong to the same gender group. The dependent variable in our dyad-level analyses is a binary indicator of the presence of a tie between two specific individuals, so models are estimated using logistic regression.

Of course, estimation of dyad-level network models is complicated by the fact that each individual in the data set participates in multiple different dyads, which are consequently not independent of one another. That is, Y_{ijt} may be correlated with Y_{ikt} to the extent that unobservable attributes of person i affect both dyadic observations. Additionally, Y_{ijt} may be correlated with Y_{jit} because of unobservable attributes of the dyad. Consequently, conventional estimation approaches will underestimate standard errors and could falsely report results as significant (Kenny et al. 2006). We address this problem empirically by estimating models with standard errors that are simultaneously clustered on both members of the dyad individually and on the undirected dyad itself. Furthermore, since our peer-reported measure of perceived empathy requires that standard errors also be clustered around the focal person's study group, our dyad models employ a four-way clustering of standard errors around the focal individual, her study group, the other member of the dyad, and the dyad itself. This approach—developed conceptually by Cameron et al. (2011) and implemented for Stata in clus_nway.ado (Kleinbaum et al. 2013)—is functionally similar to other approaches to dealing with dyadic dependence, such as the bootstrap-like resampling approach of the quadratic assignment procedure (QAP) for logistic or linear regression or the use of exponential random graph models (ERGMs) (Cameron et al. 2011). For robustness, models were alternatively specified using logistic and linear multiple regression, with quadratic assignment procedure adjustments to standard errors (LR-QAP and MR-QAP, respectively) and using exponential random graph models; because all these approaches account for the nonindependence of observations and because results were substantively identical across all specifications, we included the results of the multiway clustering approach, which are more readily interpretable. Results of alternative specifications are available in the online supplement (available as supplemental material at http://dx.doi.org/10.1287/orsc.2014.0961).

Results

Descriptive statistics and a correlation matrix appear in Table 1; several network statistics are included for descriptive purposes, even though they are not used in other analyses.[5] Table 2 presents the results of regression models of cross-sectional brokerage in the time 2 network on demographic and dispositional covariates; time 1 results were substantively identical. In the baseline results in Model 1, we found no differences in brokerage by gender, race, or citizenship status. We also found no differences across sections (coefficients not shown). On-campus residence and being age 30 or younger were both associated with higher levels of brokerage ($p < 0.05$). In Model 2, we added to our baseline model a covariate for self-monitoring, and consistent with the prior literature (e.g., Mehra et al. 2001, Oh and Kilduff 2008, Sasovova et al. 2010), we found a positive, significant ($p < 0.002$) effect of self-monitoring on brokerage. In Model 3, we added a covariate to the baseline model to capture the main effect of perceived empathy and found the effect to be positive but not statistically significant ($p > 0.20$). In Model 4, we entered both self-monitoring and perceived empathy covariates into a regression model together. Results directly paralleled the independent effects of self-monitoring in Model 2 and of perceived empathy in Model 3: perceived empathy had no significant main effect on brokerage, but the effect of self-monitoring remained positive and significant. Thus, results from the prior literature—the main effect of self-monitoring on brokerage—are robust to the main effect of perceived empathy.

In Model 5, we find support for Hypothesis 1A. The results indicate a positive, significant interaction between self-monitoring and perceived empathy ($p < 0.02$) in their effect on brokerage in the cross section, consistent with a moderating effect. Although we did not

Table 1 Descriptive Statistics of Individual-Level Variables, Including Means, Standard Deviations, and An Intercorrelation Matrix

Variable	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) *Self-Monitoring*	0.49	0.22	1													
(2) *Perceived Empathy*	0.59	0.16	−0.02	1												
(3) *Female*	0.33	0.47	−0.01	0.01	1											
(4) *On-Campus Residence*	0.51	0.50	0.07	−0.09	0.27*	1										
(5) *U.S. Citizen*	0.60	0.49	0.23*	0.11	0.05	−0.02	1									
(6) *Age* ≤ 30	0.85	0.36	0.06	0.06	0.16*	0.14*	0.24*	1								
(7) *White*	0.57	0.50	0.09	0.02	0.07	−0.13*	0.54*	0.19*	1							
(8) *In-degree* (time 2)	30.8	14.2	0.33*	0.17*	0.05	0.26*	0.27*	0.24*	0.12	1						
(9) *Out-degree* (time 2)	30.8	29.3	0.16*	−0.01	0.01	0.13*	0.03	0.06	0.02	0.35*	1					
(10) *Reciprocity* (time 2)	0.58	0.22	−0.04	0.10	0.09	0.00	0.10	0.04	0.07	0.22*	−0.53*	1				
(11) *Brokerage* (time 2)	4.69	0.88	0.27*	0.08	0.02	0.20*	0.16*	0.19*	0.11	0.70*	0.80*	−0.36*	1			
(12) *Inward Ties Added*	15.84	7.56	0.30*	0.10	0.02	0.16*	0.29*	0.22*	0.13*	0.89*	0.30*	0.18*	0.65*	1		
(13) *Reciprocal Ties Added*	7.95	6.69	0.22*	0.09	−0.04	0.11	0.16*	0.16*	0.07	0.58*	0.80*	−0.28*	0.74*	0.57*	1	
(14) *Inward Structural Holes Added*	499.1	515.7	0.29*	0.15*	−0.03	0.20*	0.21*	0.19*	0.03	0.93*	0.33*	0.16*	0.63*	0.87*	0.58*	
(15) *Reciprocal Structural Holes Added*	195.0	323.8	0.21*	0.13*	−0.03	0.14*	0.15*	0.12*	0.01	0.58*	0.79*	−0.22*	0.65*	0.52*	0.89*	0.61*

$^*p < 0.05$.

theorize an interaction at the level of the factors of self-monitoring, we note that the interaction effect is captured by the "public performing" component of self-monitoring and not the "other-directedness" component (results not shown). The public performing component of self-monitoring is highly correlated with extraversion (John et al. 1996) and is characterized by items such as "I have considered being an entertainer." A person high in public performing may thus risk being seen as self-absorbed and not genuinely interested in understanding others. Our interaction result is therefore consistent with our hypothesized mechanism because those self-monitors who are high in public performing are precisely the people at risk of failing to forge meaningful connections with others if others view them as lacking in empathy.[6]

We took numerous steps to further understand this interaction. First, we split our sample at the median value of perceived empathy, then reran Model 2 (i.e., regressions of self-monitoring and control variables, but not perceived empathy or its interaction with self-monitoring) on the separate subsamples. In the high-empathy subsample, results were similar to those reported in Model 2 of Table 2, except that the coefficient on self-monitoring is more than 50% larger ($\beta = 1.50$, $p < 0.001$). In the low-empathy subsample, the self-monitoring effect is statistically insignificant ($p > 0.25$). Second, to further unpack the interaction effect, we estimated marginal effects of the self-monitoring coefficient in Model 5. When perceived empathy was held constant at any value below the sample median, self-monitoring had no significant effect on brokerage. The self-monitoring effect on brokerage became statistically significant at the 0.05 level when perceived empathy was held constant at 0.5, approximately one-half standard deviation below its mean value. When perceived empathy was held constant at the 75th percentile value in our sample, the self-monitoring effect was large ($\beta = 1.46$) and highly statistically significant ($p < 0.001$). In contrast, at extremely low values of perceived empathy, the self-monitoring effect on brokerage was negative, although statistically insignificant. These tests not only provide robust support for the hypothesis that the self-monitoring effect on brokerage in the cross section is moderated by others' perception of the focal person's empathy; they also suggest that perceived empathy may be a necessary condition for brokerage in high self-monitors.

To gain a deeper understanding of the possible mechanisms underlying this moderating effect, we examine the dynamic microfoundations of brokerage—the formation of ties and of structural holes. We model the formation and dissolution of ties between time 1 and time 2 as a function of self-monitoring, perceptions of empathy, their interaction, and control variables. In Table 3, we

Table 2 Regression Models of Brokerage at the Individual Level in the Time 2 Network

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Self-Monitoring		0.935		0.950	−1.404
		(0.259)**		(0.266)**	(1.010)
Perceived Empathy			0.466	0.499	−1.719
			(0.399)	(0.404)	(1.052)
Self-Monitoring × Perceived Empathy					4.142
					(1.562)*
Female	−0.129	−0.122	−0.133	−0.125	−0.088
	(0.127)	(0.124)	(0.128)	(0.124)	(0.120)
On-Campus Residence	0.376	0.335	0.394	0.354	0.344
	(0.105)**	(0.106)**	(0.106)**	(0.106)**	(0.099)**
U.S. Citizen	0.193	0.076	0.173	0.053	0.035
	(0.170)	(0.160)	(0.165)	(0.155)	(0.159)
Age ≤ 30	0.314	0.323	0.300	0.309	0.298
	(0.169)+	(0.171)+	(0.165)+	(0.166)+	(0.164)+
White	0.098	0.121	0.109	0.133	0.150
	(0.147)	(0.145)	(0.146)	(0.144)	(0.148)
Constant	4.140	3.738	3.857	3.427	4.689
	(0.189)**	(0.235)**	(0.356)**	(0.414)**	(0.730)**
Observations	268	266	268	266	266
R-squared	0.10	0.14	0.10	0.15	0.18

Notes. Substantively identical results obtain in a cross-sectional analysis of the time 1 network. Cluster-robust standard errors are in parentheses. Section dummies are included but are not significant.

$^{+}p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$.

present the results of individual-level regression models of network change. In Models 6–8, the dependent variable is the count of the number of new inward[7] ties added during the interval between time 1 and time 2; Models 9–11 consider the number of structural holes added during the same interval. Importantly, our models

Table 3 Individual-Level Poisson Quasi-Maximum Likelihood Regression Models of the Number of Ties and Structural Holes Added from Time 1 to Time 2

DV:	*Inward Ties Added*			*Inward Structural Holes Added*		
Variable	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Self-Monitoring	0.505	0.515	−0.227	1.132	1.162	−0.437
	(0.131)**	(0.134)**	(0.402)	(0.288)**	(0.299)**	(0.899)
Perceived Empathy		0.259	−0.468		0.870	−0.735
		(0.147)+	(0.359)		(0.300)**	(0.822)
Self-Monitoring × Empathy			1.286			2.698
			(0.624)*			(1.353)*
Female	−0.039	−0.041	−0.031	−0.197	−0.200	−0.181
	(0.066)	(0.067)	(0.065)	(0.124)	(0.126)	(0.122)
On-Campus Residence	0.120	0.129	0.127	0.344	0.370	0.373
	(0.053)*	(0.055)*	(0.053)*	(0.110)**	(0.116)**	(0.113)**
U.S. Citizen	0.211	0.197	0.192	0.370	0.317	0.306
	(0.079)**	(0.077)*	(0.078)*	(0.168)*	(0.153)*	(0.152)*
Age ≤ 30	0.244	0.238	0.233	0.610	0.580	0.563
	(0.104)*	(0.100)*	(0.098)*	(0.226)**	(0.209)**	(0.202)**
White	−0.009	0.000	0.006	−0.149	−0.109	−0.095
	(0.071)	(0.069)	(0.072)	(0.157)	(0.149)	(0.150)
Constant	2.113	1.949	2.369	4.777	4.221	5.175
	(0.105)**	(0.136)**	(0.217)**	(0.251)**	(0.320)**	(0.534)**
Observations	266	266	266	266	266	266

Notes. Cluster-robust standard errors are in parentheses. Section dummies are included but are not significant. DV, dependent variable.

$^{+}p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$.

of ties and holes added rely on the reports of other people, not on the reports of the focal individual.

Models 6 and 9 indicate that high self-monitors experience a higher rate of network churn than low self-monitors, consistent with the findings of Sasovova et al. (2010): they form both new ties and new structural holes more rapidly than do low self-monitors. In Models 7 and 10, we add in the main effect of perceived empathy and obtain two interesting results. First, the main effects of self-monitoring on the formation of both ties and structural holes are unaffected by the addition of empathy to the models. Second, the main effect of perceived empathy on tie formation (Model 2) is weak and marginally significant ($\beta = 0.259$, $p < 0.10$). Taken together, Models 7 and 10 suggest that perceived empathy may have some main effect on the augmentation of one's network.[8] Finally, in Models 8 and 11, we introduce the interaction between self-monitoring and empathy. Results indicate that the interaction is positive and significant on the addition of both ties (Model 3; $p < 0.05$) and structural holes (Model 6; $p < 0.051$): similar to the cross-sectional results of Table 2, the evidence marshaled in Table 3 shows that high self-monitors experience greater network churn than low self-monitors but that empathic high self-monitors augment their networks at a faster rate than high self-monitors perceived as low in empathy. The results in Models 8 and 11 thus support Hypotheses 1B and 1C, respectively.

In Hypothesis 2, we argued that a mechanism by which empathy moderates the effect of self-monitoring on brokerage lies in the greater ability of high-empathy people than of low-empathy people to induce others to reciprocate social ties. To test this hypothesis, we estimated dyad-level logit models of tie formation by time 2, conditional on the dyadic relation at time 1. Across all the models in Table 4, our dependent variable is a binary indicator for whether the other member of the dyad

Table 4 Dyad-Level Logistic Regression Models of Reciprocity Over Time

Subset:	*No* time 1 tie			Time 1 tie *outward* only		
Variable	Model 12	Model 13	Model 14	Model 15	Model 16	Model 17
Self-Monitoring	0.715 (0.153)**	0.730 (0.151)**	−0.491 (0.373)	−0.236 (0.282)	−0.225 (0.289)	−1.430 (0.633)*
Perceived Empathy		0.478 (0.190)*	−0.707 (0.338)*		0.337 (0.355)	−0.834 (0.689)
Self-Monitoring × Perceived Empathy			2.100 (0.611)**			2.155 (0.995)*
Female	0.066 (0.096)	0.061 (0.095)	0.078 (0.092)	0.114 (0.121)	0.120 (0.121)	0.140 (0.123)
On-Campus Residence	−0.040 (0.139)	−0.022 (0.143)	−0.024 (0.140)	−0.297 (0.171)+	−0.296 (0.174)+	−0.289 (0.173)+
U.S. Citizen	0.215 (0.108)*	0.194 (0.105)+	0.187 (0.105)+	0.426 (0.131)**	0.396 (0.132)**	0.373 (0.127)**
Age ≤ 30	0.293 (0.123)*	0.281 (0.117)*	0.274 (0.115)*	−0.247 (0.113)*	−0.240 (0.110)*	−0.225 (0.109)*
White	0.042 (0.090)	0.054 (0.088)	0.063 (0.087)	0.057 (0.135)	0.080 (0.137)	0.089 (0.135)
Same Section	0.740 (0.044)**	0.740 (0.044)**	0.741 (0.044)**	0.064 (0.095)	0.062 (0.095)	0.061 (0.096)
Same Study Group	1.590 (0.197)**	1.600 (0.197)**	1.598 (0.197)**	0.459 (0.166)**	0.465 (0.164)**	0.478 (0.163)**
Both on Campus	0.350 (0.212)+	0.350 (0.212)+	0.350 (0.212)+	0.105 (0.208)	0.112 (0.209)	0.111 (0.209)
Same Gender	0.312 (0.085)**	0.312 (0.085)**	0.313 (0.085)**	0.212 (0.105)*	0.211 (0.105)*	0.212 (0.105)*
Constant	−4.456 (0.225)**	−4.762 (0.264)**	−4.074 (0.277)**	−1.371 (0.248)**	−1.587 (0.329)**	−0.964 (0.451)*
Observations	61,180	61,180	61,180	3,192	3,192	3,192

Notes. Models 12–14 show the effects of self-monitoring and empathy on the formation of new ties by including in the model only those dyads in which both dyad members report no tie at time 1; the dependent variable is a binary indicator of whether the other person cites the focal person at time 2. In Models 15–17, observations were included when the focal actor reported a tie *to* the particular contact at time 1 but that tie was not reciprocated at time 1; the models show the role of self-monitoring and empathy in inducing reciprocity by time 2. Four-way, cluster-robust standard errors are in parentheses. Section dummies are included but are not significant.

+$p < 0.10$; *$p < 0.05$; **$p < 0.01$.

reports a tie to the focal member at time 2, as a function of the focal actor's empathy and self-monitoring scores and their interaction.

In Models 12–14, we examine the subset of our sample ($N = 61{,}180$ dyads) in which neither member of the dyad reported social relations with the other at time 1; this is the risk set of dyads in which the formation of a new tie is possible. Results in Model 12 indicate a significant ($p < 0.01$) effect of the focal actor's level of self-monitoring on whether others report new ties with them: a one-standard-deviation increase in self-monitoring score (over the mean value) implies a 17% increased likelihood of tie formation. In Model 13, we add the main effect of others' perceptions of the focal actor's empathy to the model and find that it, too, exerts a strong independent effect on whether others report socializing ties with her; increasing the perceived empathy score from its mean by one standard deviation implies an 8% higher probability of tie formation. Model 14 adds an interaction between perceived empathy and self-monitoring, and consistent with our earlier findings, their interaction is positive and significant ($\beta = 2.100$, $p < 0.01$). High-empathy high self-monitors are better able to induce others to form new ties with them than are people who are lower in these qualities.

In Models 15–17 of Table 4, we zero in on those dyads in which the focal actor may be actively trying to form a tie: specifically, we look at the subset of dyads ($N = 2{,}926$) in which the focal actor reported a tie at time 1 but the other actor did not. Results in Models 15 and 16 indicate that in these dyads, neither self-monitoring nor perceived empathy has a significant main effect on the propensity of the other actor to reciprocate the tie to the focal actor by time 2. But in Model 17, we see that their interaction is positive and significant ($\beta = 2.155$, $p < 0.05$): consistent with our hypothesized moderating effect, high-empathy high self-monitors are better able to induce reciprocity in others than are people who are lower in one or both of these qualities. Thus, the evidence marshaled in Table 4 supports Hypothesis 2: a mechanism for the moderating effect of perceived empathy lies in its role in engendering reciprocity in social relations.

Discussion and Conclusion

We have long known that social networks confer advantages to well-connected individuals. In seeking to unpack the antecedent conditions for the formation of networks rich in brokerage, the self-monitoring personality type has drawn significant scholarly interest. In this paper, we extend this line of work by examining the impact of alters' views of ego's behavior on the relationship between self-monitoring and social networks. Specifically, we focused on perceived empathy because conveying to others that we understand them, their thoughts, and their feelings significantly impacts our social relations. Consistent with this perspective, we find positive interactions of self-monitoring and perceived empathy in their effect on brokerage both cross-sectionally and longitudinally, in the formation of new ties and new structural holes, and in the successful inducement of friendship reciprocity in dyads.

When high self-monitors, chameleon-like, modify their behavior to fit into a variety of different social settings, others may perceive them as genuinely interested in understanding the people around them or, alternatively, as simply acting instrumentally toward their own self-interests. These perceptions of self-monitors' behavior as benevolent or as self-interested are likely to affect others' willingness to accept and reciprocate their gestures of friendship. Although we cannot take others' perceptions of empathy as indicators of actual good intentions on the self-monitor's part, our findings suggest that focusing on others' views of ego's behavior enriches our conceptualization of the drivers of social connection, offering a more nuanced understanding compared with views of the process that implicitly assume that agency over the network resides only with ego. By highlighting perceived empathy as a moderator of the self-monitoring effect on brokerage, we help refine the specification of social psychological models of the antecedents of brokerage. Although high self-monitors may engage in more brokerage, on average, than low self-monitors, we have no theoretical reason to believe that all high self-monitors realize similar benefits to their networks. Indeed, as Flynn and Ames (2006, p. 272) observed, "Self-monitoring may not be equally useful for everyone." More generally, by focusing on the perceptions of others, how those perceptions affect others' willingness to reciprocate ego's social interactions, and how such reciprocation affects the network of ego, our results suggest that alters are active—and relatively unexamined—agents in the formation of ego's network.

Our results indicate that the network benefits of high self-monitoring accrue primarily to those high self-monitors who are also perceived as empathic. In addition to refining the specification of theoretical models of brokerage, our findings have practical implications for high self-monitors who wish to forge brokerage positions but who often find their social overtures rebuffed by alters. Conveying empathy to others more effectively may be critical here, and such high self-monitors may make listening reflectively to others (Fisher 1981) and otherwise conveying a sense of empathy a personal development focus (see also Flynn et al. 2001).

An interesting implication of our findings lies in their potential to recast a popular scholarly view of brokers as well as a widespread view of networking. Contemporary work on brokerage originates with Burt (1992), who fleshed out Simmel's (1902 [1950]) notion of the broker

as *tertius gaudens*, the third who benefits. Although brokerage has been associated with positive outcomes, the broker has often been implicitly portrayed as achieving these benefits through devious or duplicitous means: as our own students inevitably point out, the *tertius gaudens* model of brokerage can be perceived as strategic at best and manipulative at worst. Our experience teaching brokerage echoes that of Baker (2000), who noted, "Many people . . . interpret the message of social capital as blatant manipulation: building and using relationships for self-serving and instrumental goals, even nefarious purposes" (p. 19). Burt (1992, pp. 24–25) himself acknowledged as much when he colorfully conceded that "judging friends on the basis of [structural] efficiency is an interpersonal flatulence from which friends will flee." To wit, a recent study examining networking from the lens of moral psychology argues that "networking can make us feel dirty" (Casciaro et al. 2014). Consistent with this view, an editorial in the business press pointedly critiqued: "Business school . . . professors should stop telling students to grow their networks. Instead they should tell them to develop their relationships and to treat people with the respect they deserve. When people feel respected, they like to provide help and support. When they feel manipulated like a tool, they do not" (Bearden 2014). Following Bearden's prescription, the present findings offer a more positive view of networking: that brokers' ability to build a diverse set of ties rests, in part, on effectively conveying a sense of empathy to others. By adding empathy—a prosocial emotional competence—to the empirically documented repertoire of brokers, our findings paint brokerage in a more favorable light in terms of process, as well as consequences.

Our research also points to a more integrative perspective on networking research. Recent work (e.g., Oishi and Kesebir 2012, Vissa 2012) has pointed to a trade-off between broad and deep networking strategies. Although we wholeheartedly agree that broad and deep networks yield different benefits (Coleman 1988, Burt 1992), our work suggests that viewing them as a strict trade-off may be a false dichotomy. If we take seriously the agency of others in joining—and, thereby, in determining the structure of—ego's network, then conveying empathy to build deep individual relationships will be instrumental to building broad, far-reaching networks as well.

Of course, this research is not without limitation. Most notably, empathy may be merely an instantiation of a broader set of social and interpersonal traits and skills, many of which induce positive affect and interpersonal liking. This critique is consistent with a structural perspective, suggesting that identifying any single personality variable is necessarily incomplete. For example, Burt (2012) measured "network-related personality" as the residual person-effect across roles in models of network structure on performance. He argued that measuring personality directly is problematic "because there are too many personality measures that could be used to control for personality differences. Research on any one, or any subset of the many, does not provide a general answer to the agency question so much as it provides an answer interesting but specific to the personality variables tested" (Burt 2012, p. 551). We see more promise in direct measures of personality and social skill than Burt does because identifying specific variables, such as perceived empathy, enables individual improvement through training and coaching. Nevertheless, we share his concern that there are many different, and related, personality variables that could potentially be measured. We do not claim that empathy is the only individual difference on which to develop an altercentric perspective. We hope that this study inspires additional efforts aimed at shedding new light on how alters' reactions to ego's behavior influence the formation of social networks.

A further limitation is that our sample may lack external validity to the extent that it is difficult to generalize from the socializing ties of a population of MBA students. We do not know whether perceived empathy has the same moderating effect on instrumental ties in work settings, where expectations of connecting with others on a personal level may differ (Ingram and Zou 2008). For the present research, we believe that this limitation is both mitigated and offset by compensatory benefits. The validity concern is mitigated because the covariates of interest to us—self-monitoring and perceived empathy—are individual, psychological variables, which we might reasonably expect to be similar in students in a top MBA program compared to the practicing managers they aspire to become. Furthermore, the concern may be offset by the fact that we are able to observe the network as it forms, an opportunity that could never occur in a real corporation with ongoing operations. For these reasons, we believe that the limitations inherent in an MBA student sample are justified for this research.

Despite these limitations, we believe this work contributes to scholarly knowledge of the antecedents of network structure in several ways. First, we build on and extend prior research by directing scholarly attention to the important role of perceived empathy in moderating the self-monitoring effect on brokerage. Second, and more generally, our findings lend support to our view that greater consideration of others' interest in forming ties with high self-monitors is one path by which we may be able to advance understanding of the microlevel processes underlying the formation of social networks.

Based on this finding, we conclude with a call for further "altercentric" network research that brings an explicit consideration of the role of others in shaping ego's network through the effect of ego's own personality, behavior, and actions on others. This is an area in which network scholars can engage with psychologists

in a productive interdisciplinary conversation. Although ours is the first such call we know of, other researchers also call attention to the critical role of alters. For example, Burt (2014) examines the extent to which the value that accrues to ego from a structural hole depends on the extent to which the hole is "reinforced" by dense networks surrounding the alters on each side of ego's hole. Casciaro and Lobo's (2008) analysis of the role of interpersonal affect in task-related interactions implies that negative affect should undercut the networks of its subjects. Rubineau and Polman (2012) argue that social capital may be seized or, alternatively, may be granted to ego by others. Even at the firm level of analysis, recent research suggests there are benefits to "seeing through the eyes of a rival" (Tsai et al. 2011). In this paper, we join this rising tide of interest in better understanding the role of alters in shaping ego's network and call for more scholarly attention to this important topic.

Supplemental Material

Supplemental material to this paper is available at http://dx.doi.org/10.1287/orsc.2014.0961.

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Endnotes

[1]Of course, brokerage is not the only network structure that matters. Other scholarly work has examined network centrality (e.g., Freeman 1979), cohesion (e.g., Coleman 1988), and small worlds (e.g., Watts 1999), among many others. However, we focus on brokerage because its well-documented effect on individual attainment is of particular relevance to scholars of organization theory.

[2]In related work, actors' perceptions of the structure of the network itself affect their propensity to form ties (see, for example, Dekker et al. 2002; on cognitive social structures more generally, see Krackhardt 1987).

[3]We ran three robustness tests to assuage concerns about the possibility that people listed closer to the top or to the left of the page might be cited more often. First, we tested to see whether people listed on the first viewable screen were cited more often than people listed further down the page. Second, we tested for a continuous association between order and citation frequency. Finally, we tested to see whether citation frequency was associated with the ordering of columns. Across all three tests, we found no evidence of order effects on frequency of citation.

[4]Structural holes can be added through two distinct mechanisms. In the first, a closed triad is opened by the severance of the tie between the alters, allowing the focal actor to intermediate between them. The second mechanism by which an actor can add a structural hole is by forming a new tie with an individual who is disconnected from someone already in her network. Because relatively few ties are severed in our empirical setting, our results are driven by the second mechanism and are substantively unchanged in either measure of structural holes added.

[5]Particularly noteworthy is the near-zero correlation between self-monitoring and perceived empathy. To further explore the robustness of this univariate result, we estimated unreported multivariate regressions, controlling for a range of demographic variables and still found no significant association ($p > 0.50$). This result is notable because it implies that adding perceived empathy to models of the self-monitoring effect should significantly improve model specification.

[6]We are grateful to an anonymous reviewer for emphasizing the significance of this result.

[7]The results in Table 3 are based on the addition of inward ties or holes in the *directed* network. If we instead model the count of new *reciprocal* ties (i.e., the number of ties in which both the focal person and the other person cited one another at time 2, but at least one of them did not cite the other at time 1), the effects are even stronger: in the model of reciprocal ties added, $\beta_{Self-Monitoring\times Empathy} = 3.19$ ($p < 0.01$); in the model of structural holes added in the reciprocal ties network, $\beta_{Self-Monitoring\times Empathy} = 5.05$ ($p < 0.015$). To conserve space, we do not report full tables, but we note that support for Hypothesis 1 appears to be very robust.

[8]Related analyses indicate that high self-monitors also sever ties with time 1 friends at a higher rate than do low self-monitors but show no evidence of any main effect of perceived empathy on the dissolution of either ties or structural holes.

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