

Why Should I Trust You?

Predictors of Interpersonal Trust in a Knowledge Transfer Context

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Abstract

Prior research has demonstrated that interpersonal trust is critical to knowledge transfer in organizational settings. Yet there has been only limited systematic empirical work examining factors that promote a knowledge seeker's trust in a knowledge source. We propose three categories of variables that affect interpersonal trust in this context: attributes of the relationship between the knowledge seeker and source; attributes of the knowledge source; and attributes of the knowledge seeker. We analyzed these multilevel data simultaneously with hierarchical linear modeling (HLM) using survey data from three companies in different industries and countries. We found that (1) variables in all three categories were statistically significant, with the biggest effect coming from more malleable features such as the cognitive dimension of social capital (i.e., shared vision and shared language), and little or no effect from more stable and visible features such as formal structure and demographic similarity; (2) benevolence-based trust was easier to predict than competence-based trust, both in terms of the number of significant predictors and the variance accounted for; and (3) knowledge seekers' reliance on knowledge-source behaviors in determining how much to trust a source's competence—the so-called “clues for competence”—were relied on even more heavily by knowledge seekers with more division tenure, suggesting that certain attitudes in the trust realm may solidify over time.

Why Should I Trust You?

Gathering information, and above all developing trust, have become the key source of sustainable competitive advantage.

— Heil, Bennis, & Stephens (2000)

With the emergence of a more knowledge-intensive economy, scholars have become increasingly interested in knowledge creation and transfer in organizations (Brown & Duguid, 1991; Kogut & Zander, 1992, 1996; Nonaka & Takeuchi, 1995; Spender, 1996). Organizations better able to transfer knowledge are likely to be more productive and adaptable over time (Argote, 1999; Argote, Ingram, Levine, & Moreland, 2000). However, transferring knowledge within organizations, though potentially rich in benefit, is a time consuming and difficult challenge (Szulanski, 2000). In particular, research has consistently illustrated that relationships have a strong effect on the success of knowledge transfer efforts (Hansen, 1999; Szulanski, 1996; Uzzi, 1997). One of the most important characteristics of a relationship in this context is trust (Tsai & Ghoshal, 1998).

Interpersonal trust, while important to many organizational contexts, is critical to the knowledge transfer context because it enables people to share information more seamlessly and effectively (Kramer & Tyler, 1996; Mayer, Davis, & Schoorman, 1995; Sitkin, Rousseau, Burt, & Camerer, 1998). Empirically, trust has been shown to lead to increased overall knowledge exchange (Andrews & Delahay, 2000; Butler, 1995; Carley, 1991; Penley & Hawkins, 1985; Tsai & Ghoshal, 1998; Zand, 1972). Interpersonal trust makes knowledge exchanges less costly (Currall & Judge, 1995; Zaheer, McEvily, & Perrone, 1998) and increases the likelihood that newly acquired knowledge is sufficiently absorbed so as to be useful to the recipient (Levin, 1999; Levin, Cross, & Abrams, 2002; Mayer et al., 1995; Srinivas, 2000).

Given the importance of trust in promoting effective knowledge transfer, it is surprising that we do not know more about predictors of interpersonal trust. Although there is a large literature on trust in general (see Dirks & Ferrin, 2001; Gambetta, 1988; Kramer & Tyler, 1996; Mayer et al., 1995; Sitkin et al., 1998 for reviews) and research on predictors of trust placed in organizations (Brockner, Siegel, Daly, Tyler, & Martin, 1997; Gilbert & Tang, 1998; Tyler & Degoey, 1996), there is little empirical work examining factors associated with greater or lesser interpersonal trust. We undertook this research to better understand predictors of interpersonal trust in the context of knowledge transfer. Such research holds importance for scholarship, given the central role of interpersonal trust in theories of social capital (Adler & Kwon, 2002; Coleman, 1990; Nahapiet & Ghoshal, 1998) and, increasingly, organizational learning and knowledge (Levin et al., 2002). It also holds strong implications for practitioners who could benefit from building more trusting relationships in organizations.

Theory and Hypotheses

This study is concerned with predictors of perceived trustworthiness, defined as the attitude of knowledge seekers (trustors) that makes them willing to be vulnerable to a knowledge source (trustee). However, as a short hand, we will use the abbreviated term *trust* in place of *perceived trustworthiness*. Mayer et al. (1995) identify three main factors of perceived trustworthiness: benevolence, ability (i.e., competence), and integrity. Given the context of our study—situations where individuals seek someone out for information or advice—we chose to focus here on the dimensions of benevolence and competence as particularly relevant. While integrity, or consistently adhering to a set of principles that the trustor finds acceptable, is clearly important in markets or in situations of reliance on ongoing relationships (e.g., Tsai & Ghoshal, 1998; Zaheer et al., 1998), it is likely to be less critical in the knowledge-seeking context. Unlike

actors in a market exchange, where opportunism and deception can be a major concern (Williamson, 1985), knowledge seekers typically do not rely on a knowledge source to follow any particular set of principles consistently over time. In contrast, knowledge seekers *do* benefit when the knowledge source is perceived to be benevolent and competent (Levin, 1999; Levin et al., 2002).

We focus here on determining predictors of a knowledge seeker's benevolence- and competence-based trust in a knowledge source. Interpersonal trust in this context can be studied in a variety of ways. One can look at attributes of the knowledge source (Butler, 1991). Alternatively one can look at attributes of the knowledge seeker. For example, researchers have examined people's "propensity to trust" based on individual or group characteristics (Mayer et al., 1995; Rotter, 1967; Whitener, Brodt, Korsgaard, & Werner, 1998). And one can look at attributes of the relationship between the two parties, such as demographic similarity (Cross, Rice, & Parker, 2001; McPherson, Smith-Lovin, & Cook, 2001). To date, little empirical work has modeled all three types of attributes simultaneously to derive a sense of relative importance of such attributes. We engaged in a study to assess these factors together. Our hypotheses describing the trust predictors below are grouped into categories of (1) characteristics of the *relationship* between "ego" (i.e., the survey respondent, who was the knowledge seeker) and "alter" (i.e., the knowledge source sought out); (2) characteristics of *alter*; and (3) characteristics of *ego*. We also hypothesize interaction effects between these last two categories.

Relationship-related Predictors of Trust

Homophily. One of the long-standing findings in the social sciences literature is the role of similarity in promoting voluntary interaction. We know that communication is more likely to occur between people who are demographically similar—i.e., in "homophilous" relationships

(McPherson et al., 2001; Monge & Contractor, 2000; Wagner, Pfeffer, & O'Reilly, 1984). For example, Zenger and Lawrence (1989) found that technical communication was related to age similarity and tenure similarity within an organization. In general, people are more likely to have social ties, especially strong ones, with those who are similar to themselves on a set of socially important attributes such as race, sex, education and age (e.g., Marsden, 1988; Ibarra, 1992, 1993, 1995). Both Ibarra (1992) and Leenders and Gabbay (1999) have shown that gender similarity affects who communicates with whom. "Interpersonal similarity increases ease of communication, improves predictability of behavior, and fosters relationships of trust and reciprocity" (Ibarra, 1993: 61). Thus, we would expect that homophilous relationships are more likely to be ones with benevolence-based trust.

H1: A knowledge seeker who is the same age as a knowledge source will have greater benevolence-based trust in that source.

H2: A knowledge seeker who is the same gender as a knowledge source will have greater benevolence-based trust in that source.

We do not predict any effects of homophily on competence-based trust. There is little reason to think that, in general, perceived competence would be a function of demographic similarity, at least for age and gender. (We were unable to collect data about racial identity in our study as attorneys in each organization would not allow us to collect these data. Further, in these settings there was thought to be insufficient racial diversity to draw meaningful conclusions.)

Social Capital. Recently, sociologists, network theorists, and others have begun to examine the concept of social capital—the notion that people derive economic and other benefits from social relations (Adler & Kwon, 2002; Coleman, 1990; Portes, 1998; Sandefur & Laumann, 1997). Nahapiet and Ghoshal (1998) have suggested that three dimensions of social capital are important to consider in relation to the intellectual capital of organizations (i.e., knowledge). First, structural characteristics of relationships, such as who is tied to whom in a social network,

constitute a form of social capital (Baker, 1990; Burt, 1992). Second, Nahapiet and Ghoshal (1998: 246) put forth a cognitive dimension of social capital defined as “resources providing shared representations, interpretations and systems of meaning among parties.” Finally, they include a relational dimension of social capital, such as trust. We argue, consistent with Tsai and Ghoshal’s (1998) findings, that the structural and cognitive dimensions of social capital are predictors of trust, although we expand their findings to include at the interpersonal level both dimensions of trust and multiple aspects of social capital’s cognitive dimension.

For the structural dimension of social capital, we suggest interpersonal trust will be higher when the two parties have a strong tie; i.e., a close working relationship involving frequent interaction (Granovetter, 1973; Hansen, 1999; Marsden & Campbell, 1984). Note that tie strength and trust may be correlated, as we hypothesize in H3 below, but they are hardly synonymous. In fact, Tsai and Ghoshal (1998: 465) point out:

...the structural dimension of social capital includes social interaction.... People can use their personal contacts to get jobs, to obtain information, or to access specific resources. The relational dimension of social capital, in contrast, refers to assets that are rooted in these relationships, such as trust and trustworthiness.... The structural dimension of social capital, manifesting as social interaction ties, may stimulate trust and perceived trustworthiness, which represent the relational dimension of social capital.

So even though tie strength and trust are conceptually distinct, it is still often the case that having a close working relationship with someone means that you also trust that person (Currall & Judge, 1995; Glaeser, Laibson, Scheinkman, & Soutter, 2000; Sniezek & Van Swol, 2001), especially his or her benevolence. For instance, research in social psychology has shown that the mere exposure to a stimulus, including another person, typically leads people to have increased feelings of liking for that stimulus (Saegert, Swap, & Zajonc, 1973; Zajonc, 1968). Thus, we would expect that greater interaction and communication with a knowledge source would make him or her appear more benevolent to a knowledge seeker. In addition, the familiarity and ease of

evaluation inherent to strong ties should enhance competence-based trust as well.

H3: Knowledge seekers will have greater (a) benevolence- and (b) competence-based trust in a knowledge source with whom they have a strong tie.

We also suggest that the cognitive dimension of social capital affects interpersonal trust. This dimension of social capital might take one or both of two forms. First, scholars have suggested that shared vision—i.e., having similar goals and purpose (Chatman, Polzer, Barsade, & Neale, 1998)—should constitute an important form of social capital. For example, Tsai and Ghoshal (1998: 466) note: “Common values and a shared vision, the major manifestations of the cognitive dimension of social capital, may also encourage the development of trusting relationships.” Second, besides trust arising from a similarity of goals and vision, this cognitive dimension might also take the form of a shared language or jargon (Levin, 1999), what Argyres (1999: 162) calls, “a ‘technical grammar’ for communication.” For instance, “workers in some groups do develop special ‘languages’ that are difficult for people outside of those groups to understand” (Moreland & Myaskovsky, 2000: 120). People with this type of shared language may feel a closer bond with one another and be more trusting in terms of benevolence. They may also come to believe in the competence of others who share this same language and jargon. Dougherty (1992) has highlighted many of the difficulties, including misunderstandings and distrust, experienced by people who inhabit very different “thought worlds,” such as those in marketing versus engineering. We expect both aspects of the cognitive dimension of social capital—shared vision and shared language—to promote interpersonal trust.

H4: Knowledge seekers will have greater (a) benevolence- and (b) competence-based trust in a knowledge source with whom they have a shared vision.

H5: Knowledge seekers will have greater (a) benevolence- and (b) competence-based trust in a knowledge source with whom they have a shared language (e.g., jargon).

Homophily versus Social Capital. McPherson, Smith-Lovin, and Cook (2001) argued

that one reason homophilous ties predominate is because demographically similar people tend to have tastes, ideas, and knowledge in common. In part, such people associate with each other because they find it is easier to communicate and work together. Given this we would expect to see that demographic categories, while more visible physically, may be only imperfect indicators of more important cognitive and social processes, such as shared vision, shared language, and strong ties. In other words, the substance of a relationship—e.g., how much we interact, how much we see eye to eye—is likely to be more important in predicting benevolence-based, and even competence-based, trust than will less nuanced variables like demographic similarity. Along these lines, Farh, Tsui, Xin, and Cheng (1998) found that age similarity and gender similarity had no effect on the trust placed by Chinese executives in their important work ties once the researchers controlled for the history of the relationship (e.g., prior classmates). In sum:

H6: Knowledge seekers will have greater (a) benevolence- and (b) competence-based trust in a knowledge source more as a function of social capital than as a function of homophily.

Alter-related Predictors of Trust

Characteristics and behaviors of people within an organization should also lead others to trust them to a greater or lesser degree. Butler (1991) proposed various conditions likely to lead one person to place trust in another. We focus here on three such “alter” characteristics that do not overlap closely with Mayer et al.’s (1995) dimensions of trustworthiness; that can be perceived by a knowledge seeker even without a prior relationship; and that are not too strongly inter-correlated: the perception of a knowledge source as available, as discreet, and as receptive.

Available Source. When a knowledge source is available for assistance, even if this availability is not acted upon, it makes the person seem more approachable and therefore more benevolent. Someone who would make time for you is likely to be seen as someone who cares

about you and would look out for your interests (Butler, 1991).

The opposite effect, however, may occur with competence-based trust. Someone who is extremely busy, and therefore unavailable, is more likely to be seen as a highly competent worker, particularly in knowledge-intensive environments where worker discretion is high. In contrast, someone who seems to have a lot of time on his or her hands may cause others to wonder: “Doesn’t this person have any work to do? Why isn’t this person more in demand?” As a result, while available knowledge sources may seem more benevolent, they may also be perceived as less competent, all else equal.

H7: Knowledge seekers will have (a) greater benevolence-based trust in a knowledge source whom they perceive as available—but (b) greater competence-based trust in a knowledge source whom they perceive as *unavailable*.

Discreet Source. We would also expect that the extent to which a knowledge source is discreet (i.e., does not reveal confidential information) would be related to perceptions of that party’s benevolence. Because knowledge seeking is often an interactive, back-and-forth process, knowledge receivers may worry about revealing too many “secrets” (e.g., about the unsolved problem) when requesting information or advice and so feel more trust towards a knowledge source perceived as discreet. This perspective is consistent with the literature in economics on “knowledge spillovers” (e.g., Irwin & Klenow, 1993), where people worry about valuable knowledge “leaking out” to outsiders. It is also likely that knowledge seekers will feel benevolence-based trust when interacting with a source they believe will not make public the knowledge seeker’s lack of expertise in a given domain. In addition, in terms of competence-based trust, a knowledge source who lacks discretion may not come across as very professional; as a result, such a person might give the impression to others that he or she is not competent.

H8: Knowledge seekers will have greater (a) benevolence- and (b) competence-based trust in a knowledge source whom they perceive as discreet.

Receptive Source. People perceived as receptive—i.e., as being a good listener—will be trusted more (Butler, 1991). A receptive listener is demonstrating concern for the welfare of others, an indicator of benevolence (Whitener et al., 1998). Of course, a good listener may or may not necessarily be seen as competent, so we only hypothesize an effect for benevolence.

H9: Knowledge seekers will have greater benevolence-based trust in a knowledge source whom they perceive as receptive.

Ego-related Predictors of Trust

Age. Do younger people or older people place greater trust in those whom they seek out for advice? The literature on this point is unclear. On the one hand, when it comes to trusting strangers or people in general, older people in the U.S., Canada, and Great Britain—the three countries in our study—are more likely to be trusting (General Social Survey, 1972-2000; Inglehart et al., 2000). On the other hand, older workers may have grown more cynical about the workplace as a result of having been “burned” before in their work lives—as is more likely to occur, just through random chance, to older people than to younger people. Such incidents of misplaced trust, even if rare, are extremely salient, with effects that can spill over for years to come. In contrast, younger workers have fewer work experiences, and so they may be more naïve in trusting others in the workplace. As well, younger workers might be more tentative and cautious as to whom they seek out for advice, since they may feel more insecure about their position and status and do not want to be perceived as a nuisance or as incompetent. Thus, younger workers might be more careful to only go to those whom they trust to be benevolent and competent, whereas older workers might feel confident enough to go to whomever is useful. In this vein, it is worth noting that younger business executives in China were more likely to trust their important work ties than were older executives (Farh et al., 1998). Given the limited evidence in the literature, however, one could reasonably argue for either position:

H10: Older knowledge seekers will have greater (a) benevolence- and (b) competence-based trust in their knowledge sources.

H10-ALT: Younger knowledge seekers will have greater (a) benevolence- and (b) competence-based trust in their knowledge sources.

Gender. Although researchers have noted the structural constraints faced by women in constructing their network of ties (e.g., Ibarra, 1992; McPherson, Smith-Lovin, & Cook, 2001), this stream of research has not specifically addressed the issue of how trusting those relationships are likely to be. Interestingly, Croson and Buchan (1999) found no experimental evidence of gender differences in trusting behavior among college students in three Asian countries and in the U.S. Similarly, Farh et al. (1998) found no gender differences among Chinese executives in how much they trusted their important work ties. Population surveys, too, in the U.S., Canada, and Great Britain have been mixed as to how much men versus women trust people in general, with contradictory, unstable, or null findings in each country (General Social Survey, 1972-2000; Inglehart et al., 2000). Thus, there may be no overall gender effect at all—a finding which would be interesting in its own right, given the attention paid to gender issues in network and other sociological studies (e.g., Ibarra, 1992). Again, due to the literature’s relative silence on this point, we consider both possibilities:

H11: Female knowledge seekers will have greater (a) benevolence- and (b) competence-based trust in their knowledge sources.

H11-ALT: Male knowledge seekers will have greater (a) benevolence- and (b) competence-based trust in their knowledge sources.

Tenure. People with more experience in a division have had more interpersonal interactions in that division. Since each work group or division is unique, these idiosyncratic interpersonal dynamics do not necessarily translate from one work setting to the next. Moreover, several studies, including this one, have found that most knowledge-seeking ties occur within the same division (Cross et al., 2001), and social psychology experiments have demonstrated the

powerful impact of in-group status on social and emotional bonds (Billig & Tajfel, 1973; Sherif, Harvey, White, Hood, & Sherif, 1961). Given the additional fact that people tend to look for confirming evidence for their beliefs and identity (Dutton & Dukerich, 1991; Starbuck & Milliken, 1988; Walsh, 1988), one might expect to see this in-group goodwill intensify during a person's tenure. Thus a person with greater division tenure may build up a kind of institutional trust in the benevolence of his or her colleagues—a sense that others care about and have that person's interests at heart, regardless of how well they know that person. We would not predict a direct effect of tenure on competence-based trust, however, because having a lot of experience with people in a real-world environment does not necessarily make one think they are competent. Instead, the effect of tenure on competence-based trust may be more indirect, moderating the impact of other variables, as discussed next.

H12: Knowledge seekers with more tenure will have greater benevolence-based trust in their knowledge sources.

Interaction Effects for Predicting Competence-based Trust

We hypothesize that tenure will strengthen the effect on competence-based trust of alter characteristics. Repeated interactions in a division (i.e., more tenure) deepens the reliance on certain alter behaviors that provide clues to a knowledge seeker of the competence of the knowledge source. While everyone relies on these “clues for competence,” according to H7b and H8b, we argue further that the more a person remains in a given setting, the more likely he or she is to learn and come to rely on these clues. “When individuals are involved with an organization for a longer period of time, their attitudes (positive or negative) crystallize based on repeated interactions” (Van Dyne, Vandewalle, Kostova, Latham, & Cummings, 2000: 10). Yet it requires interaction, observation, and time for knowledge seekers to develop these rules of thumb—or, “inferential shortcuts” (Johnston, Locke, Giles, & Rattray, 1997)—for determining someone

else's competence. Thus, we hypothesize that more years of interaction with one's colleagues in general (tenure) leads to greater reliance on "clues for competence" in determining whose competence to trust.

H13: Knowledge seekers with more tenure will have even greater competence-based trust in a knowledge source whom they perceive as unavailable or discreet than will knowledge seekers with less tenure.

Methods

Sample

This study's data were collected as part of an ongoing and larger program of research focused on trust in the knowledge-sharing context. These data comes from surveying a division of a U.S. pharmaceutical company, British bank, and Canadian oil and gas company. All three divisions were engaged in knowledge-intensive work where one would anticipate a reliance on colleagues for information. Further, having sites from three different industries and countries increases our confidence in the external validity of the research. After intensive follow-up by phone and e-mail, we obtained an overall response rate of 48%, with 42 respondents from the pharmaceutical company, 41 from the bank, and 44 from the oil and gas company. As described below, each respondent reported on four knowledge sources, for a preliminary total sample of 508 observations.

Our sample had no significant response bias for gender and office location. Most respondents were male (61%), in their 30s or 40s (70%), and college graduates (68%). Nearly half (47%) of respondents had a graduate or professional degree. On average, respondents had worked in their division for 5.2 years; company, 10.4 years; and industry, 15.3 years.

Data Collection

We conducted a pre-test with 20 people before creating the final survey, which took

approximately 40-60 minutes in total to complete. We then sent out a two-part survey in Microsoft Excel via e-mail attachment. Respondents were promised confidentiality and returned their surveys directly to the researchers to reduce the likelihood of biased answers.

Using standard egocentric network survey techniques, we employed a two-step name generator/interpreter methodology to elicit and then define people that the respondents relied on for informational purposes (Burt, 1992; Scott, 1990; Wellman, 1982). Specifically, the survey first requested that people: “Consider a project that you are currently involved with or that ended recently (in the past three months) that you feel holds significance for your career.” Respondents then listed up to 10 or 15 people to whom they had turned for information, knowledge, or advice to get their work done on that project. To avoid a biased sample, which might have occurred if we had just asked for the top four advice givers, we had respondents choose the two most helpful and the two least helpful advice givers for the project. For each of these four alters, we then asked a series of questions; e.g., how much did you trust this person? Within a week or so after completing part A, respondents received part B of the survey, which asked additional questions—e.g., how discreet was this person?—about the same four people, whose names (or pseudonyms) we pasted into the second Excel file.

We decided to split the survey for two reasons. First, to improve the response rate and the quality of responses, we wanted to lessen the burden of the overall survey by creating two 20-30 minute surveys instead of a more intimidating 40-60-minute survey. Second, and more importantly, this split allowed us to reduce the “common methods” bias of respondents by separating their responses for the trust items in part A by a week’s time from their responses for most of the trust-predictor items in part B (Doty & Glick, 1998). Because our variables all come from a single respondent, our study may suffer from common methods variance, but common methods *bias* may not be a problem. Doty and Glick (1998: 400), after scrutinizing numerous

studies, concluded that “most observed relationships are 26% more positive than the true relationships. [Thus], we need to consider if reported results would still be significant if the observed relationship was 26% more negative.” If we were to make this correction, all of the hypothesized direct effects significant at the .05 level in the rightmost column of our regression tables would still be at least marginally significant ($p < .06$). In addition, for competence-based trust, we have an interaction effect, which is another indicator that common methods bias is less of concern (Brockner et al., 1997). Thus, we conclude that our results are reasonably robust to any possible common methods bias.

Variables

To ensure that the survey items relating to our outcome and predictor variables were all tapping distinct constructs, we conducted a factor analysis of all 23 items. As expected, there were eight distinct constructs, with good discriminant validity: the “elbow” in the scree plot of the eigenvalues suggested the presence of eight factors. The resulting eight-factor solution, using principal axis factoring with direct oblimin rotation, is shown in Table 1. We included items with factor loadings above .35. The full wording of each item is shown in Table 2. We then took the unweighted average of the relevant items to construct multi-item variables (Harman, 1976). Convergent validity was also high, with all Cronbach’s alphas above .7.

[Insert Tables 1 and 2 about here]

Outcome Variables. Benevolence-based trust was adapted from three items used by Johnson, Cullen, Sakano, & Takenouchi (1996) and parallel the benevolence items used by Mayer and Davis (1999). Competence-based trust was adapted from McAllister’s (1995) two top-loading items for cognition-based trust. Chattopadhyay (1999) has also used these items, which parallel the ability items used by Mayer and Davis (1999). Since the two trust dimensions

were somewhat skewed, we re-ran all the regressions with a logarithmically transformed (and less skewed) version of each variable. Using this transformed variable ($= -\log[8 - \text{initial score on 1-7 scale}]$) did not change the significance of findings. On the whole, then, our results appear fairly robust to potential violations to the statistical assumption of normality.

Predictor Variables. We measured age as an 11-point scale, with five-year age ranges: 1 = 24 years old or younger, 2 = 25-29 years old, etc., up until 11 = 70 years old or older. Gender was coded 1 for male and 2 for female. Respondents indicated how many years and months they had been in their current division; to reduce skewness, tenure was computed as the logarithm of the number of years (including fractional years) plus one. We chose to use tenure in the division, rather than in the company or industry, because the division should be a more meaningful reference group for interactions and trust issues.

We adapted nine items from Butler (1991) that asked if a knowledge source seemed available, discreet, and receptive.

For homophily we asked a yes/no item on same gender, indicating if the knowledge source was of the same sex as the respondent (1) or not (0). Respondents also indicated if the knowledge source was the same age as the respondent plus or minus five years (1), or if that person was younger or older by more than five years (0).

Tie strength was based on three items. We adapted the first two items—closeness of a working relationship and frequency of communication—from Hansen's (1999) two-item construct. Based on feedback from our pre-test, we instructed respondents before these two items (on a 1-7 scale, later reverse-scored): "If you had no prior contact at all with this person before you sought information/advice from him or her on this project, please choose 7 for the next two questions. Otherwise, answer to the best of your recollection." In addition, to enhance this construct's reliability, we added a third item later in the survey on the frequency of interaction.

Due to the different scales, we normalized each item before creating the overall variable. As a validity check, we also tested tie strength in all our analyses based solely on Hansen's (1999) two unstandardized items and also based just on the two normalized items for frequency of communication and of interaction (Cronbach's alphas $> .80$), all with the same results. The latter analysis was done to demonstrate further that the closeness item does not overlap with trust. Thus our results appear robust to various conceptualizations of the tie strength concept.

We measured two distinct constructs related to the cognitive dimension of social capital (Nahapiet & Ghoshal, 1998). Shared vision was based on three new items, which measured the extent to which a knowledge source and knowledge receiver (in the eyes of the receiver) had shared goals, concerns, and purpose. These items are similar to those used by Tsai and Ghoshal (1998) for shared vision. Shared language was based on three new items measuring the extent to which the knowledge receiver and source understood each other, used similar jargon and terminology, and seemed on the same "wavelength."

Control Variables. Knowledgeable respondents might not need to trust a knowledge sender as much as novices do. We therefore included the control variable, receiver's expertise, based on three dyad-specific self-assessed items adapted from Srinivas (2000): "Prior to seeking information/advice from this person on this project, ...I had a full understanding of the subject matter in which I turned to this person."; "...I didn't have adequate expertise to feel comfortable with the subject matter about which I turned to this person." (reverse coded); "...I was confident in my ability to perform successfully all the activities myself in the subject matter about which I turned to this person."

We controlled for relationships established by relative position in formal structure in four ways. First, we measured organizational closeness as a single item (reverse coded): "Please indicate each person's location at the time of this project." [1 = in the same function in this

office; 2=in the same function but in a different office; 3=in a different function but in this office; 4=in a different function and in a different office; 5=outside the company]. Second, hierarchical level was assessed based on a single item: “Please indicate each person’s hierarchical level relative to your own at the time of this project.” [1 = two or more levels below mine; 2=one level below mine; 3=equal to mine; 4=one level above mine; 5=two or more levels above mine; 6=does not apply]. We later recoded the “does not apply” responses as missing values. Third, to measure task interdependence, we included the yes/no variable, on same project, based on the item: “Does (or did) this person work on this project?” Finally, physical proximity was also a single item (reverse coded): “Please indicate each person’s physical proximity to you at the time of this project.” [1=worked immediately next to me; 2=same floor and same hallway; 3=same floor but different hallway; 4=different floor; 5=different building; 6=different city; 7=different country].

Analysis

We analyzed the data using hierarchical linear modeling (HLM) (Hoffman, 1997; Kreft & De Leeuw, 1998; Raudenbush & Bryk, 2002; Snijders & Bosker, 1999) with the statistical package HLM 5 (Raudenbush, Bryk, Cheong, & Congdon, 2001). This analytic technique is particularly well suited to egocentric network studies as it accounts for the inherent nesting in the data. With the assessment of personal networks, any relationship and “alter” characteristics are nested “within” each respondent (or “ego”) and his or her network. With HLM we first estimate “level one” parameters describing the relationship between predictor and outcome variables. At this lower level, we are using characteristics of relationships (e.g., tie strength) and alters (e.g., perceived availability) to predict perceived benevolence- and competence-based trust. The parameters established in this process are modeling “within” respondent/network variance

generally in a manner equivalent to an ordinary least squares (OLS) regression. Once fitted, the intercept and slope estimates in the “level one” model become the outcome variables for the “level two” analysis, which in our case entails using characteristics of the respondent (age, gender, and tenure) as predictor variables in the “level two” model. The parameters established in the “level two” equation are modeling “between” respondent/network variance and can provide evidence of cross-level interaction effects as well.

A significant strength of HLM is that it does not rest on the assumption of independent observations, a cornerstone of OLS regression procedures. As outlined in van Duijn, van Bussbach, and Snijders (1999: 188), “Two ties of the same respondent are correlated because they share the same ego-dependent residual (or residuals). These multiple variance parameters are interesting in themselves since they represent conceptually distinct sources of variability present in the data.” While we could use dummy variables to control for respondent effects, this taxes our degrees of freedom and also does not entirely correct for non-independence. As a result, HLM is particularly appropriate for egocentric network studies (van Duijn et al., 1999; Wellman & Frank, 2001).

In our analysis we first fit a model whereby our “level one” predictor variables (i.e., relationship and alter characteristics) were used to predict the outcome variable at the same level (i.e., perceived benevolence- or competence-based trust). We initially employed fixed effects across all predictor variables and then allowed the alter and relationship measures to vary across respondents. This process requires a listwise deletion of missing values. Analytically, three steps are required in building our model. First, we must establish that sufficient between-respondent (or “ego”) variance exists to warrant use of hierarchical linear modeling. A one-way ANOVA with random effects model allows us to partition variance in benevolence- or competence-based trust into “within” and “between” respondent components. The intraclass correlation coefficient

measures the proportion of variance that resides between respondents (Raudenbush & Bryk, 2002: 24), which in this case was 29% for benevolence-based trust and 24% for competence-based trust. A chi-square test on the residual variance indicates whether the level-two “between” variance is significantly different from zero. In this case, both the test for benevolence-based trust (chi-square = 331.13, $p < .001$) and competence-based trust (chi-square = 289.70, $p < .001$) rejected the null hypothesis that no systematic variance existed between respondents.

Next, before moving to a level-two set of predictors, we need to establish whether significant variance remains to be explained by level-two variables in the intercept or slopes of the predictor variables (Raudenbush & Bryk, 2002: 26). Again, a chi-square test on the residual variance indicates whether significant variation exists in the intercept even after controlling for the level-one predictor variables and controls. In this case, both the test for benevolence-based trust (chi-square = 539.07, $p < .001$) and competence-based trust (chi-square = 344.62, $p < .001$) rejected the null hypothesis that no significant variance existed in the intercept of either model after inclusion of all level-one predictors. In terms of slopes, for competence-based trust, significant variance existed in the slopes of source availability (chi-square = 125.19, $p < .001$) and source discreteness (chi-square = 135.02, $p < .001$), as predicted by H13.

With these pre-conditions established, we moved on to an “Intercept-as-Outcome” model for benevolence-based trust (see Table 4 below) and an “Intercept- and Slopes-as-Outcomes” model (Raudenbush & Bryk, 2002: 80-85) for competence-based trust (see Table 5 below). In this process one must be careful in the centering decisions made as they can influence the interpretation of level-two intercept and slope models (Hoffman & Gavin, 1998). With grand-mean centering, the variance in the intercept term reflects the adjusted between-respondent variance in the outcome variable (benevolence- or competence-based trust) after controlling for predictors in the level-one model. With *group*-mean centering, the intercept variance is

composed of the between-group variance in the outcome variable (benevolence- or competence-based trust) without controlling for the level-one variables. Thus, following Snijders and Bosker (1999: 81), we employed grand-mean centering to control for the effects of level-one variables in estimating level-two models. However, Hoffman and Gavin (1998) have demonstrated that grand-mean centering can cause problems with cross-level interactions. As a result, following Hoffman, Griffin, and Gavin (2000: 495), we ran one final analysis where we group-mean centered the level-one variables, added a mean level-one variable into the level-two data file, and re-ran the analysis. In all cases no statistically significant differences were found.

Results

Table 3 shows the reliabilities, means, standard deviations, and simple correlations among the variables used in the regression equations in Tables 4-5. Although several variables are highly correlated, a parallel analysis (not shown) using ordinary least squares regression with respondent fixed effects led to similar results, with all variance inflation factors below the standard cutoff of 10. This provided us with confidence that there was not a problematic level of multicollinearity among the predictor variables.

[Insert Tables 3-5 about here]

As shown in the first column of Tables 4 and 5, we controlled for knowledge expertise and formal structure so that any hypothesized effects detected would be over and above these controls. As one might expect, the more a knowledge receiver was an expert in the relevant subject matter, the less important it was for him or her to trust the benevolence ($p = .007$) or competence ($p = .021$) of the knowledge source, all else equal. Interestingly, none of the formal structure variables, including physical proximity, remained statistically significant once we added the relationship, alter, and ego variables to the HLM regression models. This result

suggests that our hypothesized trust predictors have a more powerful and fundamental effect on both trust dimensions than does formal structure.

Note that the R-squareds of the level-one models in Tables 4 and 5 improved substantially with the inclusion of our trust predictors. We calculated the “variance accounted for” for both levels of analysis, as outlined in Hoffman et al. (2000: 484-488). Level-one R-squared used the “within” respondent variance as the denominator; level-two R-squared, the “between” respondent variance as the denominator. This allowed us to assess each variable’s ability to account for variance at its respective level.

H1-H6: Relationship Characteristics (Homophily, Social Capital)

We found no evidence supporting the notion that homophily—in terms of either similar age (H1) or gender (H2)—affected benevolence-based trust. There were also no cross-level interactions between these variables and ego’s age or gender. Though we did not hypothesize an effect for homophily on competence-based trust, it is interesting to note that there was actually a negative effect of age similarity on competence. In a separate analysis, we found that younger sources were seen as more competent in this sample.

In contrast to homophily, we found strong support for the social capital hypotheses. Knowledge seekers had greater benevolence-based trust ($p < .001$) in a knowledge source when they had a strong tie (H3a), shared vision (H4a) and by shared language (H5a). Competence-based trust was also strongly predicted ($p < .001$) by shared vision (H4b), and shared language (H5b) between knowledge seeker and source. Contrary to H3b, though, tie strength did not have a direct impact on competence-based trust. However, a separate mediation analysis revealed that the link between tie strength and competence-based trust was mediated by the shared vision and shared language dimensions of social capital. This was a four-part test: first, tie strength alone

did predict competence-based trust ($p < .001$); second, tie strength predicted shared vision ($p < .001$) and shared language ($p < .001$); third, shared vision ($p < .001$) and shared language ($p < .001$) both predicted competence-based trust when tie strength was removed; fourth, tie strength lost statistical significance ($p = .288$) when all three predictors were included, while shared vision ($p < .001$) and shared language ($p < .001$) remained statistically significant. Thus, we would argue that, although the direct effect hypothesized by H3b was not supported, there was strong evidence for an indirect effect of tie strength on competence-based trust (Cohen & Cohen, 1983). That is, we found that strong ties are trusted to be competent *because* these ties tend to have a shared vision (e.g., common goals) and a shared language (e.g., same jargon). Tsai and Ghoshal (1998) hypothesized a similar indirect effect, although they did not find evidence of it with a sample of business units. We attribute this difference to our focus on individuals, where effects may be stronger.

H6 was strongly supported, since the social capital variables had a major impact on both benevolence- and competence-based trust, whereas the two homophily variables had a null, or even negative, impact. As such, a formal statistical test of H6 was unnecessary.

H7-H9: Alter Characteristics (Availability, Discreetness, Receptivity)

For benevolence-based trust, in Table 4, the perception that the knowledge source was available (H7a) had no discernable impact. Nevertheless, as predicted by H8a and H9a, knowledge sources were seen as more benevolent when they were also perceived to be discreet ($p = .006$) and receptive ($p = .029$). For competence-based trust, in Table 5, H7b was marginally supported; i.e., busy, unavailable sources were seen as slightly more competent ($p = .065$). Discreet sources, as predicted by H8b, were also seen as more competent ($p = .031$). These are the two “clues for competence” that respondents apparently used to help determine if a

knowledge source's competence could be trusted. (Note that we did not predict an effect for receptive source on competence-based trust, but we have included this non-significant variable in Table 5 anyway, so that Tables 4 and 5 can be compared more easily.)

H10-H12: Ego Characteristics (Age, Gender, Tenure)

As predicted by H10-ALT, younger respondents were more likely than older respondents to trust the benevolence ($p = .002$) and competence ($p = .019$) of their knowledge sources. Men had essentially the same inclination to trust the benevolence and competence of their knowledge sources as did women; i.e., there was no effect for gender (H11). Consistent with H12, respondents with more tenure were marginally more likely to trust the benevolence of their knowledge sources ($p = .069$). Although we did not predict a direct effect for tenure on competence-based trust, we have included it in Table 5 for comparison purposes.

H13: Cross-Level Interaction Effects

The evidence supports H13; namely, respondents with more tenure were significantly more likely to see a knowledge source as competent if that source was unavailable ($p = .035$) and discreet ($p = .014$). The average respondent also relied on these "clues for competence" but their impact was magnified for respondents with greater division experience.

Discussion and Conclusion

With this work we seek to contribute to the stream of literature on trust as a significant characteristic of relationships considered effective in knowledge transfer efforts. Although many scholars have suggested that trust increases information exchange (Andrews & Delahay, 2000; Butler, 1995; Carley, 1991; Levin, Cross, & Abrams, 2002; Penley & Hawkins, 1985; Tsai & Ghoshal, 1998; Zand, 1972), there has been little evidence as to the predictors of interpersonal

trust in this context. This study contributes to the trust, organizational learning and knowledge, and social capital literatures via a more comprehensive assessment of factors associated with greater or lesser levels of interpersonal trust in the knowledge transfer context. Specifically, this study makes three main contributions:

First, this study's comprehensiveness—in studying multiple predictors of two dimensions of trust at two levels of analysis—is an important advance in our theoretical understanding of trust. Our use of hierarchical linear modeling (HLM), increasingly employed in social networks research, has allowed us to better understand important categories of trust predictors.

Until recently, studies...have been constrained by their methodological inability to integrate analytic levels in to a comprehensive analysis. Methodological weakness has led to constrained analysis.... Quantitative analysts have examined separately the effects of *either* individual characteristics, ties, *or* the ego-centered, personal community networks in which they are embedded. Little quantitative analysis has been done of interactive effects. Because many statistical techniques assume independence between units of analysis, they cannot focus simultaneously on different units of analysis. (Wellman & Frank, 2001: 237-238)

Here we found statistically significant effects for all three categories of variables proposed. Characteristics of the relationship between “ego” and “alter,” characteristics of alter, and characteristics of ego were all predictive of interpersonal trust. Further, this approach allowed us to assess the relative importance of each category of variable. For example, somewhat counter-intuitively we found that more stable features of relationships, such as relative position in formal structure and demographic similarity, were not significant predictors of either benevolence- or competence-based trust. In contrast, more malleable and personal factors, such as sharing the same goals or being discreet, were much better predictors of interpersonal trust.

As part of this more comprehensive approach, we found that both cognitive elements of social capital—shared vision (e.g., common goals) and shared language (e.g., similar jargon and terminology)—were highly and independently predictive of benevolence- and competence-based

trust. In fact, the standardized beta coefficients (not shown) suggested that both of these elements of the cognitive dimension of social capital are among the most important factors in relation to who trusts whom in the knowledge transfer context. Nahapiet and Ghoshal (1998) specifically advanced the cognitive dimension of social capital as unique because it had often been overlooked in relation to structural and relational features of social capital. In further support of Nahapiet and Ghoshal (1998), we find evidence that social capital at the dyadic level does appear to have three empirically distinct components: relational, structural, and cognitive. Although Tsai and Ghoshal (1998) also found these three distinct components of social capital, they did not explore the cognitive component of social capital in as much depth as we have done here. That is, we validate not just the shared vision subcomponent of the cognitive aspect of social capital, as Tsai and Ghoshal (1998) did, but we also add and validate in this study another cognitive subcomponent: shared language. These two subcomponents, and the distinction between them, allows for greater specificity in understanding and delineating critical cognitive-related predictors of trust in the knowledge transfer context. Moreover, both cognitive subcomponents mediated the positive effect of tie strength on competence-based trust; i.e., strong ties were trusted to be competent because they shared the same vision and language as the knowledge seeker.

Second, we found that it appears to be easier to predict benevolence-based trust than competence-based trust, at least with the group of variables included here. Not only were more of the variables statistically significant predictors of benevolence- than of competence-based trust, but the amount of explained variance (level-one R-squared) was greater for benevolence-based trust as well. Why is competence-based trust apparently harder to predict? One explanation is that competence-based trust may be inherently task specific. While benevolence-based trust deals more with stable, expressive features of relationships, competence-based trust, by contrast,

is likely more contingent on the perception of ever-shifting tasks at hand. Another possible explanation for the relative difficulty in predicting competence-based trust is that its predictors (e.g., shared vision, shared language, unavailable and discreet source, younger knowledge seeker) have more of a cognitive feel to them, whereas predictors of benevolence-based trust have both a cognitive (e.g., shared vision, shared language, discreet source, younger knowledge seeker) *and* emotional (e.g., strong ties, receptive source) component. Benevolence-based trust, then, may be more “personal” than its competence-based counterpart. These differences in the predictors of each trust dimension highlight the value of not just theorizing about “trust” unidimensionally but rather examining its components.

Third, we found an intriguing interaction effect involving the “clues for competence” that people looked for in others’ behavior. As predicted, the average respondent trusted a knowledge source to be more competent when that source exhibited certain behavioral clues for competence—namely, being seen as busy and discreet. Yet, as predicted, these clues were even more important for people with greater tenure. In essence, the accumulated history of interactions within a particular division appears to amplify and reinforce (Van Dyne et al., 2000) a knowledge seeker’s views about what makes a knowledge source likely to be competent.

Another possible explanation for this finding is that respondents with more tenure, at least in knowledge-intensive environments like those in our sample, may be in greater demand and under greater cognitive strain than those new to an organization. People under this type of cognitive stress or overload have been shown to rely more heavily on stereotypes as a cognitive shortcut (Bodenhausen, 1990). The clues for competence assessed in this study, then, may be serving as a stereotype for what a competent knowledge source looks like, and so people with greater tenure (and, hence, cognitive strain) are more likely to rely on these stereotypes. This finding—that people’s attitudes in the trust realm tend to solidify over time—is a prime example

of how a cross-level interaction can bring out a more nuanced view of the trust domain than could have been demonstrated using traditional statistical techniques. In this case, all else equal, if knowledge seekers in general rely on a behavior to determine how much to trust an alter's competence, then knowledge seekers with more work experience in a given division will rely on these perceived behaviors even more heavily.

Following Wellman and Frank (2001), we hope to encourage further application of hierarchical linear modeling (HLM) to better understand interpersonal trust as embedded in personal networks. First, this technique allows us greater precision in accounting for the variance than can be obtained through ordinary least squares (OLS) regression. In general we find that standard errors in the HLM models are lower than comparable models run in OLS with respondent fixed effects. As a result, HLM gives us the ability to detect effects with greater confidence. For example, the marginal effect ($p = .065$) of knowledge source unavailability in predicting competence-based trust was not detectable at all using OLS, while other statistically significant effects had a higher significance level in HLM. More importantly, HLM allows us to demonstrate the effects of level-two variables (e.g., age, tenure) in ways that OLS cannot, in addition to cross-level interactions between level-two variables and level-one variables.

Of course our study has limitations that should be acknowledged. One limitation is that, like all research relying on cross-sectional data, it is not possible for us to deduce cause and effect. While we are inclined to see the trust predictors measured in this study as causes of trust, we have nonetheless tried to be careful in referring to them only as factors associated with greater trust. Future longitudinal or experimental research, however, could resolve this concern.

Second, our study does rely on the ability of respondents to accurately report their prior perceptions of a person or relationship. To reduce any retrospective bias, we instructed respondents to answer questions "to the best of your recollection, regardless of whether or not

you had a prior relationship with this person.” While it is possible that the knowledge transfer itself led to greater trust (e.g., Butler, 1995) and that this reverse causality biased our responses, we tried to minimize this possibility. We started items with the phrase, “Prior to seeking information/advice from this person on this project, ...” to focus the respondents on their thoughts and feelings *before* the knowledge transfer. We also attempted to reduce memory problems by anchoring respondents on something relatively recent and concrete: a current or recent work project (77% of respondents chose a current project).

Finally, our survey design represented an expensive investment on the part of the companies engaging with us in this research (45-60 minutes per respondent). As a result, we were not able to do a “snowball” sample and conduct a second round of two-part surveys with each of the knowledge sources nominated by our original respondents. However, we do think this “reciprocity check” could be an interesting avenue for future research. In a similar vein, we were unable to include every conceivable variable in our survey due to constraints on survey length. In general, we have tried to model key features of the social context in which interpersonal trust occurs for knowledge transfer. Future research, though, may wish to include survey items on racial similarity (Ibarra, 1993, 1995; McPherson et al., 2001), ego’s propensity to trust (Van Dyne et al., 2000), and integrity-based trust (Mayer & Davis, 1999).

Nevertheless, we feel this research contributes to the trust, social capital, and organizational learning/knowledge transfer literatures. In terms of trust, while theory has been developed at various levels of analysis regarding the role and outcomes of trust in organizations (Kramer & Tyler, 1996; Sitkin et al., 1998), there has been comparatively less empirical evidence offered to support these models. With this study we are able to offer empirical evidence, derived from three companies in different countries, of predictors of two types of interpersonal trust between a knowledge seeker and knowledge source. In terms of the social

capital literature, a great deal of research has focused on structural properties of social networks and dyads (e.g., Leenders & Gabbay, 1999; Lin, 2001; Lin, Ensel, & Vaughn, 1981) and paid comparatively less heed to Nahapiet and Ghoshal's (1998) cognitive dimensions. By virtue of these findings, we offer further evidence of the importance of shared vision (Tsai & Ghoshal, 1999) and advance the new construct of shared language as an important and empirically distinct component of social capital. Finally, in terms of the organizational learning and knowledge literature, while research suggests that trust is important to knowledge flows (Andrews & Delahay, 2000; Levin, Cross, & Abrams, 2002; Penley & Hawkins, 1985), to date there has been little inquiry into characteristics of relationships that lead to trust between a knowledge seeker and source. With these findings we offer evidence of important predictors that should inform scholarly models of knowledge transfer.

In terms of management practice, it is important to note that each set of variables here represents an opportunity for managers to promote trust within the context of their organization. It was encouraging to note that factors most difficult for managers and individuals to change—homophily and formal structure—were least important in predicting trust. In contrast, factors that are easier, relatively speaking, for managers and individuals to change—shared vision, shared language, and knowledge source behaviors—had the biggest effect on trust in a knowledge source. For example, employing team development practices to ensure a shared vision or common understanding of language is one “lever” a manager might pull with great success in promoting interpersonal trust. Alternatively, hiring, training, and evaluating employees based on trust-building behaviors might represent strategic human resource mechanisms that could be employed to develop trust. Practical and relatively inexpensive means of developing trust along the lines suggested by this study's findings should allow managers to increase the transfer of useful knowledge within their organization in a relatively efficient fashion.

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Table 1
Factor Analysis of Trust Dimensions and Predictor Variables^a

Survey Item	Receptive Source	Tie Strength	Available Source	Competence Trust	Benevolence Trust	Shared Vision	Shared Language	Discreet Source
Listen to what I say	.79	.04	-.01	-.05	-.03	-.01	-.03	.07
Try to understand me	.65	-.01	.09	.06	-.02	-.04	-.05	.08
Really listen to me	.60	.03	.15	.01	-.05	-.13	.06	.09
Closeness	.07	.91	-.05	.04	-.02	.02	.03	.02
Freq. Communic.	-.04	.85	.04	-.01	-.02	.03	-.01	.00
Interaction	-.02	.78	.05	-.02	.00	-.04	-.04	.00
Can get in touch	-.04	.03	.82	-.01	.00	.00	.01	.04
Can find easily	.04	.00	.81	-.07	-.07	.00	-.08	.03
Usually around	.19	.09	.56	.15	.04	-.10	.09	-.02
Competent/prepared	.07	.05	-.04	.70	-.13	-.01	.05	.03
Professn'l/dedicated	-.07	.03	.06	.68	.01	-.09	-.14	.08
Look out for me	-.07	-.04	.08	.02	-.86	-.05	.04	.03
Avoid damaging me	.12	.10	-.03	-.01	-.75	.00	-.04	-.01
Care about me	.06	.18	-.07	.16	-.52	-.07	-.03	.12
Common purpose	-.01	.02	.08	.10	-.07	-.64	-.02	.10
Same issues	.11	.03	.02	-.06	-.14	-.58	-.14	.04
Similar goals	.22	-.01	.07	.19	-.02	-.39	.02	.06
Use familiar jargon	-.02	.17	.00	-.04	.04	-.17	-.55	.03
Can understand	.12	-.01	.09	.27	-.07	.09	-.49	.04
On same wavelength	.15	.01	.11	.18	-.18	-.06	-.42	.02
Not tell secrets	.03	-.04	.02	-.04	-.04	.04	-.07	.93
Keep confidential	-.01	.03	-.03	.04	.04	-.07	.09	.82
Keep secrets	.04	.03	.04	.00	-.02	.03	-.03	.77

^a Boldfaced factor loadings indicate the items retained. Relevant items have already been reverse-coded (see Table 2).

Table 2
Survey Items^a

Survey Item	Item Wording
Benevolence Trust	
Look out for me	...I assumed that he or she would always look out for my interests.
Avoid damaging me	...I assumed that he or she would go out of his or her way to make sure I was not damaged or harmed.
Care about me	...I felt like he or she cared what happened to me.
Competence Trust	
Competent/prepared	...given his or her track record, I saw no reason to doubt this person's competence and preparation.
Professn'l/dedicated	...I believed that this person approached his or her job with professionalism and dedication.
Tie Strength	
Closeness (R)	...how close was your working relationship with each person? [1= <i>very close</i> ; 4= <i>somewhat close</i> ; 7= <i>distant</i>]
Freq. Communic. (R)	...how often did you communicate with each person? [1= <i>daily</i> ; 2= <i>twice a week</i> ; 3= <i>once a week</i> ; 4= <i>twice a month</i> ; 5= <i>once a month</i> ; 6= <i>once every 2nd month</i> ; 7= <i>once every 3 months or less (or never)</i>]
Interaction	...to what extent did you typically interact with each person? [1= <i>to no extent</i> ; 2= <i>to little extent</i> ; 3= <i>to some extent</i> ; 4= <i>to a great extent</i> ; 5= <i>to a very great extent</i>]
Shared Vision	
Common purpose	...I believed that this person and I shared a commitment to a common purpose.
Same issues	...I assumed that this person and I cared about the same issues.
Similar goals (R)	...I felt like this person and I were working toward completely different goals.

Continued on next page

^a All items begin with the phrase, "Prior to seeking information/advice from this person on this project, ..." Unless stated otherwise, items are on a 1-7 scale of 1=strongly disagree, 2=disagree, 3=somewhat disagree, 4=neutral, 5=somewhat agree, 6=agree, 7=strongly agree. (R) indicates a reverse-coded item, as already reflected in item name.

Table 2—*continued*
Survey Items^a

Survey Item	Item Wording
Shared Language	
Use familiar jargon	...I was familiar with the jargon/terminology that he or she used.
Can understand	...I could understand completely what this person meant when he or she was talking.
On same wavelength	...it felt like we could communicate on the same “wavelength.”
Available Source	
Can get in touch (R)	...I assumed that it would generally be hard for me to get in touch with this person.
Can find easily	...I assumed that in general I could find this person if I wanted to talk to him or her.
Usually around	...I assumed that he or she would usually be around if I were to need him or her.
Discreet Source	
Not tell secrets	...I assumed that this person would generally <u>not</u> tell others about things if I asked that they be kept secret.
Keep confidential	...I assumed that, in general, if I gave this person confidential information he or she would keep it confidential.
Keep secrets	...I assumed that I could count on this person in general to keep secrets that I told him or her.
Receptive Source	
Listen to what I say (R)	...I assumed that he or she would generally fail to listen to what I would say.
Try to understand me	...I assumed that I could rely on him or her in general to make an effort to understand what I had to say.
Really listen to me	...I assumed that, in general, he or she would really listen to me.

^a All items begin with the phrase, “Prior to seeking information/advice from this person on this project, ...” Unless stated otherwise, items are on a 1-7 scale of 1=strongly disagree, 2=disagree, 3=somewhat disagree, 4=neutral, 5=somewhat agree, 6=agree, 7=strongly agree. (R) indicates a reverse-coded item, as already reflected in item name.

Table 3
Cronbach's Alphas, Means, Standard Deviations, and Correlations^a

	Initial Alpha	Initial Mean	S.D.	Survey Part	1	2	3	4	5
1. Benevolence Trust	.89	5.115	1.374	A					
2. Competence Trust	.78	6.030	1.106	A	.63**				
3. Receiver's Expertise	.77	4.441	1.549	A	.18**	.17**			
4. Organizational Closeness	n/a	3.539	1.297	B	.13**	.10*	.08		
5. Hierarchical Level	n/a	3.113	1.253	A	.04	.08	.03	.02	
6. On Same Project	n/a	.766	.424	A	-.02	.03	-.03	.03	-.08
7. Physical Proximity	n/a	4.091	1.749	B	.26**	.21**	.06	.46**	.01
8. Same Age	n/a	.423	.495	B	-.07	-.16**	-.01	-.04	.02
9. Same Gender	n/a	.665	.473	B	.06	.03	-.13**	-.14**	-.06
10. Tie Strength	.90	.124	.908	A	.57**	.41**	.35**	.34**	.09
11. Shared Vision	.82	5.634	1.111	B	.68**	.60**	.27**	.19**	-.01
12. Shared Language	.74	5.537	1.091	A	.64**	.61**	.38**	.13*	-.01
13. Available Source	.85	5.482	1.204	B	.53**	.42**	.13**	.20**	-.16**
14. Discreet Source	.90	5.789	1.078	B	.62**	.51**	.11*	.08	-.01
15. Receptive Source	.89	5.796	1.042	B	.65**	.49**	.16**	.07	-.07
16. Ego's Age	n/a	4.995	1.673	A	.06	.07	.11*	.04	-.20**
17. Ego's Gender	n/a	1.365	.482	A	.02	.05	.19**	.05	.12*
18. Ego's Tenure	n/a	.633	.333	A	.21**	.10	.06	-.04	-.02

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• $p < .05$; ** $p < .01$; two-tailed tests.

^a N = 397. To make this table easier to interpret, we repeated ego's age, gender, and tenure for each of ego's alters in this table's data set. Part B of the survey was administered approximately one week after part A.

Table 3—*continued*
Cronbach's Alphas, Means, Standard Deviations, and Correlations^a

	6	7	8	9	10	11	12	13	14	15
6. On Same Project										
7. Physical Proximity	.12•									
8. Same Age	-.06	-.04								
9. Same Gender	.01	-.04	.00							
10. Tie Strength	-.03	.36••	-.03	-.04						
11. Shared Vision	.12•	.30••	-.13••	.03	.46••					
12. Shared Language	.02	.24••	-.06	.02	.57••	.63••				
13. Available Source	.11•	.38••	-.11•	.02	.46••	.59••	.48••			
14. Discreet Source	.03	.16••	-.08	.01	.40••	.63••	.52••	.55••		
15. Receptive Source	.01	.16••	-.04	.01	.41••	.66••	.56••	.66••	.70••	
16. Ego's Age	.04	.11•	.06	.00	.21••	.19••	.25••	.20••	.16••	.14••
17. Ego's Gender	.09	.07	.07	-.19••	.16••	.07	.03	.04	-.03	.06
18. Ego's Tenure	-.09	.04	-.05	.05	.17••	.07	.14••	.10	.15••	.08

	16	17
16. Ego's Age		
17. Ego's Gender	.01	
18. Ego's Tenure	.16••	.08

• $p < .05$; •• $p < .01$; two-tailed tests.

^a $N = 397$. To make this table easier to interpret, we repeated ego's age, gender, and tenure for each of ego's alters in this table's data set.

Table 4
HLM Regression Results Predicting Benevolence-based Trust^a

Variable	Controls Only	Intercept-as-Outcome Model
Intercept	4.995*** (.083)	5.004*** (.059)
<u>Controls</u>		
Receiver's Expertise	.118** (.045)	-.099** (.036)
Organizational Closeness	.133** (.050)	-.019 (.030)
Hierarchical Level	.028 (.046)	.027 (.033)
On Same Project	.173 (.172)	.024 (.099)
Physical Proximity	.182*** (.031)	.023 (.022)
<u>Relationship Characteristics</u>		
Same Age (Homophily)		-.022 (.075)
Same Gender (Homophily)		-.003 (.086)
Tie Strength (Social Capital)		.340*** (.069)
Shared Vision (Social Capital)		.355*** (.064)
Shared Language (Social Capital)		.263*** (.068)
<u>Alter Characteristics</u>		
Available		-.034 (.058)
Discreet		.227** (.081)
Receptive		.138* (.063)
<u>Ego Characteristics</u>		
Age		-.111** (.035)
Gender		.064 (.126)
Tenure		.020† (.011)
	Level-One R ² =	.166
	Level-Two R ² =	.661
		.067

† $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; two-tailed tests.

^a N = 401. Unstandardized coefficients shown, with standard errors in parentheses.

Table 5
HLM Regression Results Predicting Competence-based Trust^a

Variable	Controls Only	Intercept-as-Outcome Model	Intercept- and Slopes-as-Outcomes Model
Intercept	5.989*** (.064)	5.993*** (.050)	5.993*** (.048)
<u>Controls</u>			
Receiver's Expertise	.070† (.043)	-.082• (.036)	-.081• (.035)
Organizational Closeness	.063† (.035)	-.001 (.030)	-.002 (.030)
Hierarchical Level	.023 (.032)	.024 (.026)	.024 (.025)
On Same Project	.120 (.133)	.016 (.098)	.015 (.096)
Physical Proximity	.113*** (.028)	.026 (.022)	.027 (.022)
<u>Relationship Characteristics</u>			
Same Age (Homophily)		-.194• (.077)	-.182• (.076)
Same Gender (Homophily)		-.011 (.083)	-.007 (.081)
Tie Strength (Social Capital)		-.013 (.064)	-.029 (.062)
Shared Vision (Social Capital)		.228*** (.070)	.235*** (.072)
Shared Language (Social Capital)		.401*** (.075)	.398*** (.076)
<u>Alter Characteristics</u>			
Available Source		-.096† (.052)	-.088† (.051)
Discreet Source		.173• (.080)	.192** (.074)
Receptive Source		.086 (.070)	.091 (.070)
<u>Ego Characteristics</u>			
Age		-.054** (.023)	-.054** (.022)
Gender		.070 (.115)	.106 (.118)
Tenure		-.004 (.008)	-.004 (.008)
Tenure * Available Source			-.017• (.008)
Tenure * Discreet Source			.021• (.008)
	Level-One R ² =	.079	.478
	Level-Two R ² =		.052
			.482
			.094

† $p < .10$; • $p < .05$; ** $p < .01$; *** $p < .001$; two-tailed tests.

^a N = 397. Unstandardized coefficients shown, with standard errors in parentheses.