



Firsthand Experience and The Subsequent Role of Reflected Knowledge in Cultivating Trust in Global Collaboration

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ABSTRACT

While scholars contend that firsthand experience — time spent onsite observing the people, places, and norms of a distant locale — is crucial in globally distributed collaboration, how such experience actually affects interpersonal dynamics is poorly understood. Based on 47 semi-structured interviews and 140 survey responses in a global chemical company, this paper explores the effects of firsthand experience on intersite trust. We find firsthand experience leads not just to direct knowledge of the other, but also knowledge of the self as seen through the eyes of the other - what we call “reflected knowledge”. Reflected and direct knowledge, in turn, affect trust through identification, adaptation, and reduced misunderstandings.

INTRODUCTION

Globalization increasingly requires workers to routinely collaborate across vast geographical distances. Distributed collaboration, in which employees work with, and meaningfully depend on, distant colleagues on a day-to-day basis, allows firms to leverage their intellectual capital, enhance work unit performance, face ever-changing customer demands more fluidly, and gain competitive advantage in a dynamic marketplace (Townsend, DeMarie, and Hendrickson, 1998; Jarvenpaa and Leidner, 1999; Malhotra, et al., 2001; Sole and Edmondson, 2002).

Research over the last decade, however, has provided us mounting evidence that distributed collaboration poses unique obstacles. Cultural differences among collaborators, (Gelfand, Erez, and Aycan, 2007), mismatches in common language proficiency (Beyene, 2007), the lack of mutual knowledge (Cramton, 2001), and even the structure of distribution itself (Cramton and Hinds, 2005; Polzer, et al., 2006; O'Leary and Mortensen, forthcoming) have been shown to adversely affect team dynamics and outcomes. In particular, intersite trust has received considerable attention as adversely affecting distributed collaboration (for example, see Jarvenpaa and Leidner, 1999; Piccoli and Ives, 2003; Walther and Bunz, 2005; Wilson, Straus, and McEvily, 2006). Thus, while global collaboration is a necessary strategic choice for an ever increasing number of organizations, the literature indicates that socio-demographic, contextual and spatio-temporal barriers engender many interpersonal challenges for distant co-workers and are likely to adversely affect trust between sites (referred to in this paper as intersite trust).

A key argument often made by distributed work scholars (see Hinds & Keisler, 2002) is that firsthand experience — time spent onsite directly observing the people, places, and norms of a

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distant locale — with a distant site and its members provides a means to effectively bridge gaps, thereby fostering intersite trust. The literature suggests that firsthand experience across sites can provide workers with a better understanding of the other location and its members, resulting in enhanced mutual understanding among geographically distant workers. For example, in a study of global software companies Orlikowski (2002) found that having employees spend time at distant partner sites was seen as a means to share not only resources and expertise, but also experiences that in turn helped them more effectively interact in their global environment. More recently, Hinds and Cramton (2008) conducted an ethnographic study of intersite visits and found that contextual insight about distant colleagues and local work practices increases when employees spend time in each other's physical space. Such findings are consistent with the growing body of research on perspective-taking (Galinsky and Moskowitz, 2000; Galinsky, 2003). These empirical studies, conducted in non-distributed contexts, show that accessing the point of view of the other reduces negative biases (Galinsky, 2003). Given the advantages of firsthand experience for globally dispersed collaborations, it is not surprising that most distributed colleagues choose to travel occasionally in order to meet face-to-face (Egido, 1990; Maznevski and Chudoba, 2000; Griffith and Neale, 2001).

Despite the research that points to potential gains derived from firsthand experience, we still lack an understanding of the mechanisms through which firsthand experience affects collaboration dynamics and ultimately trust. The purpose of this paper is therefore to explore the role of firsthand experience in global collaborations as a means of engendering trust. More specifically, we address two research questions: first, what is the nature of the knowledge gained from

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firsthand experience in global collaborations; and second, how does such knowledge impact intersite trust?

To address our research questions, we conducted a qualitative and quantitative study of employees at a multinational organization who collaborate across distance. Given the dearth of field studies that examine firsthand experience and its effects in distributed work, we employed a two-phased approach comprised of 47 semi-structured interviews, and 140 web-based survey responses. In the inductive first phase, we conducted semi-structured interviews to identify key constructs and relationships affecting ongoing globally-dispersed collaborations. To ensure that the constructs examined in this study accurately reflected the reality of firsthand experience in cross-cultural collaborations, we went into the field without a preconceived framework or model of the phenomena in question. In the deductive second phase, we reviewed existing theory in light of our phase one findings, developing a model of the role of firsthand experience in promoting trust in global collaborations, which we tested using data collected in a web-based survey.

In brief, we find that firsthand experience fosters both direct and reflected knowledge. On the one hand, we find that direct knowledge as a baseline awareness already explored in the literature, entailed knowledge about physical space and facilities, cultural traits of co-workers, work processes, people and relationships. On the other hand, we identified a new form of awareness that we call reflected knowledge. Reflected knowledge enabled actors to view how their home office was both presented to, and perceived, by others. Both types of knowledge

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impact trust through differentiated mediating paths, contributing to our understanding of interpersonal dynamics in distributed collaboration.

THEORETICAL BACKGROUND

In the inductive first phase of our study, we drew upon a basic understanding of prior theorizing on firsthand experience and trust. The few studies that examine the role of firsthand experience, conceptualized here as time spent observing firsthand the people, places, and norms of a distant site, suggest that such experience affords people useful knowledge about the other location that, in turn, facilitates intersite collaboration. One source of firsthand experience is the site visit. Hinds and Cramton (2008) recently explored the impact of intermittent site visits as sources of situated knowledge. In their ethnographic study of 143 individuals in nine globally-distributed software development teams, Hinds and Cramton found that site visits encouraged knowledge about distant colleagues that was both contextually situated and interconnected with practice. Building on Orlikowski's (2002) research on knowing in practice, they found that this knowledge helped employees gain a deeper understanding of the behaviors and motivations of their distant colleagues, because such knowledge was both shaped and constrained by the local context. Furthermore, this "knowing who" had an enduring effect long after the conclusion of a visit. These site visits served as a source of new collaborative practices and transformed relationships as well as future interactions.

Another source of firsthand experience is the expatriate assignment, in which workers spend extended periods at foreign sites (for recent reviews, see Mendenhall, et al., 2002; Hechanova, Beehr, and Christiansen, 2003). Earley and his colleagues (Earley and Mosakowski, 2000;

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Earley and Ang, 2003) argue that expatriate assignments provide individuals with a high-level awareness of, and appreciation for, cultural differences. The authors do not, however, explicitly address the nature of the knowledge gained through such assignments. Relatedly, incorporating the effects of cultural distance, Gong (2003) examined the likelihood of using expatriate workers to enhance the success of subsidiary sites. Gong's study, however, takes a strategic perspective, focusing on the success of the sites rather than their interpersonal dynamics.

Though focused less on the means by which intersite information is gained, the concept of perspective deepens our understanding of firsthand experience. While firsthand experience addresses the time spent onsite, perspective-taking captures resultant behaviors in which individuals actively take on the point of view of the other. Perspective taking is defined as “the active consideration of another's point of view, imagining what the person's life and situation are like, walking a mile in the other person's shoes” (Galinsky and Ku, 2004 p. 596). In studies of groups, perspective-taking has been shown to increase the overlap between representations of the self and the other (Turner, et al., 1987), increasing the likelihood of the other being attributed ingroup status, and thereby reducing intergroup bias, prejudice, stereotyping, outgroup derogation, and conflict (Batson, et al., 1997; Galinsky, 1999; Galinsky and Moskowitz, 2000; Galinsky, 2003). Research has further shown that the likelihood of an individual understanding the perspective of another increases when he or she has shared that other person's experience. In a classic example, Clore and Jeffery (1971), found that spending an hour traveling about a university campus in a wheelchair significantly increased subjects' empathy towards specific disabled individuals and the disabled in general.

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Finally, as outlined by Jarvenpaa and Leidner (1999), scholars have argued that many antecedents of trust are likely to be adversely affected by distribution. Missing in distributed work scenarios is a common context in the form of shared experiences, social norms, and repeated interactions, all of which have been found to increase the likelihood of trust within groups (Lewis and Weigert, 1985; Mayer, Davis, and Schoorman, 1995). Also, many scholars have argued for the critical importance of face-to-face interaction (Nohria and Eccles, 1992; O'Hara-Devereaux and Johansen, 1994; Latane, et al., 1995) or physical contact (Handy, 1995) as sources of trust, since the physical and psychological distances inherent in globally distributed work reduce the likelihood that trust will emerge.

While the work of Hinds, Cramton, Earley and their colleagues provides insights into the effects of specific behaviors that lead to firsthand experience; the work of Galinsky and others on perspective-taking highlights its cognitive effects; and the work of Jarvenpaa and others highlight the complex relationship between trust and distribution, we lack an integrated understanding of how first-hand experience affects the formation and maintenance of trust in distributed contexts. In particular, we lack an understanding of the intervening factors and mechanisms through which first-hand experience is translated into intersite trust within global collaborations.

PHASE 1: INDUCTIVE INVESTIGATION OF FIRSTHAND EXPERIENCE AND INTERSITE TRUST

Given the limited research on the role of firsthand experience on global collaboration, we designed the first phase of our study as an inductive investigation of the key constructs and relationships pertaining to employees spending time at distant sites.

Research Setting

The “MD” division of “ChemiCo,” a large multinational chemical company, is responsible for the research, development and manufacturing of specialty chemicals used in the production of consumer electronics. Producing primarily for a small number of large manufacturers with whom they have longstanding contracts and relationships, MD’s products are highly customized. As a result, the MD division must work closely with these customers to identify their ongoing requirements, and to subsequently tailor the baseline MD offerings to fit the clients’ needs.

Primary research and development is carried out at ChemiCo headquarters in Germany, with advanced R&D conducted at a research facility in the UK. The ChemiCo headquarters also houses the large-scale production facility where MD’s baseline chemical mixtures are created. Because customers for MD’s chemical technology are based almost exclusively in Asia, MD maintains country offices in Korea, Taiwan, Japan, and Hong Kong, all of which handle primary customer relations as well as final customization.

The German headquarters, UK research and development facility, and Asian country offices are highly interdependent, with a complex flow of information and materials circulating among

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them. To give a sense of this complexity, we offer the following typical scenario for a product order: research and development designs new mixtures, which it sends to headquarters, which then produces a basic product and sends the recipe and specifications for that product to the country offices. These country offices work closely with local clients to determine customization requirements, which are then transmitted back to the laboratories at headquarters, where final design specifications are determined, samples created, and tests run. The samples, along with final design specifications outlining how to carry out the required customization, are then transmitted back to the country offices along with generic base mixtures. Country offices are then responsible for the final manufacturing process, which involves recombining those generic base chemicals. Thus, while partitioned according to role (research and development vs. sales and production), MD's sites are highly interdependent and require significant intersite interaction.

Given the dispersed structure of R & D and basic production in Europe, and sales and final production in Asia, management of the MD division recognizes the importance of coordinated work across sites, the impact of cultural differences, and the importance of facilitating interaction and connection between sites. Firsthand experience and knowledge are viewed by MD management as means of promoting intersite awareness and understanding. To that end, assignments at other sites are employed extensively, and successful completion of at least one expatriate assignment is required for advancement to division-level management.

Phase 1 Data collection and analysis

In phase 1, we interviewed a total of 47 ChemiCo employees across seven country offices (see Table 1 for interview count by location and round). Interviewees included both individuals who had firsthand experience visiting another office location as well as those who had no such experience of other sites. Interviews were conducted in situ when possible, in order to increase the comfort level of the interviewees, and to allow us the opportunity to observe the facilities and gain a sense of the work environment at that location. We conducted telephone interviews when onsite interviews were not possible. In all cases, interviews were conducted one-on-one, either in person, in an office or other private space, or by telephone.

Insert table 1 about here

The interviews were semi-structured, conducted around a set of open-ended questions aimed at learning about informants' experience with and attitudes towards working with colleagues in geographically dispersed locations. As the phase 1 interviews occurred prior to our hypothesis formulation, the interviewers were blind to the hypotheses tested in phase 2. The time between the rounds did, however, allow for refinement of the interview protocol based on initial analysis of the previous rounds of interviews. Also, questions were tailored to fit the particular location and context in which the respondent was working. Sample items from the protocol included: "Describe your most recent interaction with a ChemiCo employee at another location," "How different is the working environment at [distant site] from the environment here?" and "How do your interactions with expatriates differ from those of locals at [distant site]?" Interviews averaged about one hour and were digitally recorded and subsequently transcribed.

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We coded the transcribed interviews using qualitative analysis software (NVivo), employing two coders who independently coded interview transcripts for relevant themes centered on global collaboration dynamics, and firsthand experience of distant sites. The interview transcripts were coded following qualitative procedures (Strauss and Corbin, 1998). Interviews were initially free-coded to identify emergent themes, which were then used to refine both the existing coding schemes and existing codes. Again, given the timing of phase 1, all themes emerged prior to the formulation of hypotheses. This iterative process of coding, refining, and recoding ultimately led to the final body of qualitative data analyzed in the inductive phase of the study.

Phase 1 Findings

We designed the semi-structured interview protocol to allow respondents to focus on the issues they themselves felt were most important and relevant to global collaboration and firsthand experience. Our analysis evinced four key themes related to the link between first-hand experience and trust in distributed contexts, all of which were mentioned repeatedly and broadly across the sample of interviewees. We coded these as: a) The distinction between direct and reflected knowledge; b) the benefits of identifying with the distant other; c) the benefits of adapting to the distant other; and d) the costs of misunderstanding the distant other. We briefly expand on each of these themes below and provide example quotes that represent the most frequent themes heard from interviewees.

The distinction between direct and reflected knowledge. As one might expect, informants noted the importance of knowledge about the other site and its members in promoting trust and supporting effective global collaboration. This included knowledge about physical space and

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facilities, cultural traits, work processes, people and relationships. We labeled this “direct knowledge” (see Table 2 for representative quotes). Informants also, however, noted the importance of a distinct, second type of intersite knowledge. Consisting of knowledge about the views of members at the distant site towards the respondent’s own home location, with respect to the same criteria, we labeled this “reflected knowledge” (see Table 3 for representative quotes).

Insert tables 2 and 3 about here

We turn first to direct knowledge, which is typically associated with the benefits of firsthand experience. Many respondents spoke of recognizing differences in culture and work processes between sites. As one German spoke of being surprised when he first visited Korea:

[What surprised me was] the way you're treated by the customer. We're still a material supplier, but I was very naïve when I first started. I went on my first customer visit, and I thought these people would show us their production line – that they would be extremely friendly and so forth. But even with our best customers we were not treated as well as I had naïvely expected. We were brought to an ordinary reception room where the company has interviews with all their material suppliers, so there was nothing special. It was not very friendly and we were not treated as equals. They were the producers and we were the material supplier; that was interesting to me. I had not expected it to be that way. I don't know if other colleagues have had the same experience, but I would assume so: you go there very naïvely and you get a little bit sobered up.

Another informant echoed the importance of physically being at the other site toward gaining an understanding of interpersonal dynamics. Through firsthand experience, he came to understand that the purpose of meetings at the Asian sites was to achieve consensus, rather than to voice differing points of view. As he shared:

This is, I think, not so easy to understand, except perhaps theoretically from reading; but actually you have to experience it. You go around in circles forever until you come to a common conclusion. This is an experience you really can only gain through very intensive contact with colleagues in Asia.

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Speaking about social relationships, a Mexican spending time at the German office explained:

Sometimes I have to go to the cafeteria alone because this is new to me. You have to make appointments if you want to have lunch with someone. You have to schedule it just like a meeting. I didn't know that, so I'm getting used to it. If you go to the cafeteria and see one of your friends, and you ask him, "Can I sit here?" he might say, "Oh no, I have an appointment."

Such examples suggest that employees in this organization learned about their distant colleagues and their environment by spending time at their site. This insight then served as a basis for perspective-taking, as defined by Galinsky and colleagues (ex: Galinsky and Moskowitz, 2000; Galinsky, 2003; Galinsky and Ku, 2004).

By contrast, reflected knowledge seemed to shape informants' views of their own home site. That is, firsthand experience of distant sites gave informants a new lens through which to understand their local work sites. Being physically located at the distant office immersed informants in that site's environment, giving them the opportunity to see their home office from an "outsider's perspective." They were able to see how their home office was both presented to, and perceived, by others. An interviewee noted: "Looking backwards, there's new awareness about where you come from; you look at your country, your headquarters, and what you have done in the past, from a different perspective." As another German employee said:

It's a totally different view: standing a bit aside and looking from outside of the system. Of course, I understand much better how Germany is seen by other companies of [ChemiCo] worldwide. There is certainly a big difference between working at headquarters, and dealing with headquarters while working abroad.

Many respondents further explained that visiting other sites opened their eyes to what was often an unpleasant reality, that requests from their home site were sometimes frustrating to colleagues abroad. For example as one German expatriate from headquarters noted:

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I basically thought OK, well, this might be the same everywhere else. But you learn that there's a difference between being at headquarters and not being at headquarters. [Here they were], a lot of the time actually thinking 'OK, what is stupid Germany doing at the moment?' 'What is the headquarter asking of us? I never had a sense of this before.

Such realizations often had a transformative effect, with an informant simply noting, "What happens is you see your own country and headquarters completely differently."

Importantly, interviewees' comments regarding reflected knowledge were substantively different in both content and implication from those regarding direct knowledge. Thus, our inductive interviews suggested that firsthand experience was seen as a means for gaining two distinct forms of knowledge: direct and reflected.

The benefits of identifying with the distant other. The second theme that surfaced in our interviews was the importance of identification with distant colleagues. Not surprisingly, given the findings of substantial prior research on the role of identification in distributed work contexts, many interviewees stressed that while they recognized differences between sites, they saw their distant colleagues as sharing the same roles, goals, and approaches. When asked how he thought about the distinctions between sites, one interviewee responded:

I think there is a rather clear understanding that we all are basically working for the same purpose. Of course, there are always some small differences of opinion ... but I think this is not really the dominant part of the relationship. Really, I think we have in common the belief that we will prosper by serving our customers well.

Another employee spoke about the headquarters' role in using strategy to establish a common identity across sites:

I believe the headquarters' job is very much to motivate branch employees - to show them the bright future we intend to reach. [Not saying] "I'm from headquarters; you have to do what I want," but more to say: "Hey, we are a big team. We are a team, a

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worldwide, global team. We have one common goal and we have different possibilities and opportunities in each country.”

Another interviewee was quite explicit in noting how similar identities played a role in creating common ground, saying: “We are talking between technical guys, and so usually with technical people, we identify ourselves by the results we achieve in technical terms.” Another pointed out that, “All of us are scientists or at least have been scientists.” In this case, the informant focused not on site-based identity, but on an overarching “technical” identity that was not merely grounded in offices or social groups, but on results. Such comments provided evidence that despite being in different locations, colleagues of different nationalities identified with each other. Thus, our initial interviews indicated that identification helped in developing connections between globally-dispersed collaborators, thereby serving as a basis for trust.

The benefits of adapting to the distant other. A third theme that consistently emerged throughout our interviews was the importance of being aware of and adapting to the interaction norms of the distant other. Building in part on insights borne of firsthand experience, many respondents said they recognized the need to adapt their interaction style to fit their collaborators. Many highlighted what they perceived to be specific cultural differences between sites. For example:

My impression is that the Japanese are very indirect. They won't say ‘no’ straight to your face. Koreans are very aggressive and direct, pushing and trying to force you to do what they want. The Japanese would never do that.

Another stated: “The problem is, I’m a German, so I think like a German, and basically work like a German. This is different from how things are done in some Asian countries, and so one has to find a way to work together.” Others spoke more broadly about differing styles of interaction,

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with comments like: “It depends on the style of communication, which is different in each country. I think that reasonable [misunderstandings] can be avoided, but it's mainly a question of adapting to the customs of each country.” Consistent across respondents’ comments, however, was the recognition that it was important to tailor their interactions to fit the particular context of their interaction partners. Many were quite explicit about perceived differences between another culture’s styles and approaches: “Koreans and Japanese see things in different ways, so I have to try to understand their thinking, and then try to communicate to find some solution.” Another commented, “I try to translate the way I say things, to accommodate their ways of working and behaving, and these are different [between sites].” At the same time, they recognized that this was a difficult task, stressing that while they tried to adjust their behavior, they were not always successful:

I always try to adjust my communication style to the audience affected, but I have to say, ‘I try’ because sometimes I use words...we know – normal words; for other people unknown expressions. So therefore, I try to use or I try to adjust.

Our interviewees thus highlighted the important role of recognizing contextually based differences in interaction styles and actively tailoring their one’s own styles to align with those of their collaborators. It appears knowledge of site-appropriate norms provided collaborators with a means of reaching out to their distant colleagues and bridging the gap between sites, thereby engendering trust.

The costs of misunderstanding the distant other. The fourth and final theme that arose in our interviews was the negative effect of intersite misunderstandings. While interviewees noted that both identification with distant others and adaptation to their cultural norms served to increase trust, many respondents stressed that misunderstandings between sites had a corresponding

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negative effect. The majority of informants cited situations in which misunderstandings created tensions between sites and made it more difficult to maintain trust.

Interviewees identified a wide range of factors that gave rise to misunderstandings, including language barriers, task complexity, and mediated communication. Making matters worse, as one German employee explained, simple misunderstandings quickly escalate when the parties made personal attributions. Describing an interaction with colleagues in the Japan office, he recounted:

Colleagues presented some results... [and] for us it was not clear what the background of these results were. A colleague asked: 'We don't understand these results, why did you do this and why did you do that?' Then the colleagues in Japan just clam up and you can't get anything out of them anymore. They say: 'Oh well, he doesn't like the results' or 'He's criticizing my results' Often the communication is almost cut and you have to restart it again.

Furthermore, whatever the source of the misunderstanding, when they went unnoticed and unresolved misunderstandings resulted in collaborators acting in unexpected ways. One manager described a recent exchange he had with a co-worker at another site:

I'd been talking too fast and they just didn't get it, but they were too shy to ask again, or felt uncomfortable to ask again. They just didn't do what I was telling them to do. Then I found out they're not doing it [and I wonder:] 'Why aren't they doing it?' Then I find out OK, they just didn't understand what I was saying.

In this situation, his distant colleagues did not act as he had expected, leaving him to wonder why it was that his request was not being carried out. Thus, throughout our interviews, interviewees stressed the negative effects of misunderstandings as sources of intersite tensions and unpredictable behavior, both of which we know negatively impact trust.

PHASE 2: A MODEL OF FIRSTHAND EXPERIENCE AND TRUST

Phase 2 Hypothesis generation

In the second phase of our study, we coupled the findings of our interviews with existing theory to generate hypotheses, which we tested using data from web-based surveys. As noted, the four key firsthand experience mechanisms that impact trust evinced from our qualitative data analysis were as follows: a) the distinction between direct and reflected firsthand knowledge; b) the impact of identifying with the distant site; c) the importance of understanding and adapting to the norms of the other; and d) the negative effects of intersite misunderstandings. Though certainly not encompassing all factors that may affect the success of global collaborations, the frequency and consistency with which interviewees discussed these themes suggested that they were among the most important to them. For this reason we used these themes to guide our exploration of the literature. With these constructs as starting points, we used prior theory to map specific relationships among them, and to generate testable hypotheses. As noted, one of the first and most obvious benefits of firsthand experience with another site is knowledge of that site, which we label as “intersite knowledge.” Based on the results of our inductive interviews, we differentiate between two distinct types of intersite knowledge. The first, “direct” intersite knowledge, consists of information about the other site itself, such as the physical environment, work practices, people, relationships, and knowledge [held]. The second, “reflected” intersite knowledge consists of knowledge of how distant colleagues view those same dimensions at the local site. In effect, reflected knowledge consists of employees having direct knowledge about their own home office.

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Firsthand experience and direct knowledge. Several studies have found that distribution of personnel, and the resulting reliance on mediated communication, makes communication and information sharing across sites more difficult (e.g. Chidambaram and Jones, 1993; Hightower and Sayeed, 1996; Cramton, 2001). Particularly susceptible to this lack of intersite information flow is contextual information about the people, relationships, and environment at the distant site. Cramton (2001) finds that geographically dispersed collaborators face a particularly difficult problem in establishing mutual knowledge, given their lack of shared experience, context, and space. Cramton's research built on previous work establishing that information exchange is less complete in technology-mediated, as opposed to face-to-face, interactions (Hightower and Sayeed, 1995; Hightower and Sayeed, 1996; Hollingshead, 1996), and that mediated interactions convey information more slowly (Walther and Burgoon, 1992; Straus and McGrath, 1994; Lebie, Rhoades, and McGrath, 1996; Straus, 1997). In a related later study, Cramton (2002) found that people who lack situational information about distant others resulted in a reliance on dispositional explanations for behaviors.

Taken together, these studies suggest that in distributed contexts, individuals lack detailed information about the context of their distant colleagues. Firsthand experience, however, provides a mechanism through which individuals themselves can experience and better understand the context of colleagues at other sites. Given the expectedly low baseline of contextual knowledge about distant others, we expect a positive relationship between firsthand experience and knowledge about distant others and their contexts.

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Hypothesis 1a: Firsthand experience at a distant site will be positively related to an actor's knowledge of the distant site (direct knowledge).

Firsthand experience and reflected knowledge. In addition to increasing one's knowledge of distant colleagues' context, firsthand experience also provides an individual with knowledge of how distant colleagues view that individual and his/her own context. Such "reflected" knowledge – defined as knowledge about one's own context gained through understanding others' perception of it – is related to work on the reflected self (Tice and Wallace, 2003; Roberts, et al., 2005), which posits that individuals form their self-conceptions based in part on how they perceive others see them. This view is represented in a large body of research, which finds that the relational context in which individuals are ensconced has a major effect on how they define and feel about themselves (Granovetter, 1985; Gabarro, 1990; Ely, 1994; Kahn, 1998; Bradbury and Lichtenstein, 2000; Gersick, Bartunek, and Dutton, 2000). Of particular importance in creating an individual's self image are the opinions of those they value or depend on (Ashford, 1986).

By immersing workers in the context of their distant colleagues, firsthand experience provides information not only about that context, but also about how people at that site interact with their "home" site. Firsthand experience allows individuals to observe how their home office portrays itself and is seen by distant colleagues, thereby providing an otherwise unavailable deep and contextualized understanding of "home." For these reasons, we predict a positive relationship between firsthand experience and reflected knowledge.

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Hypothesis 1b: Firsthand experience at a distant site will be positively related to an actor's knowledge of how that site views his or her home site (reflected knowledge).

The relationships of direct and reflected knowledge to: identification, adaptation, and misunderstanding. We expect that direct and reflected knowledge will have effects on both social ties and the mechanics of day-to-day interactions. This leads to four related hypotheses linking direct and reflected knowledge to the three key factors identified by our interviewees: identifying, adapting, and misunderstanding the distant other.

First, the familiarity bred through direct knowledge of the distant context will foster collaborators' identification with distant others. Researchers studying identity have repeatedly found that a shared group identity is a key antecedent of effective functioning and success (Fiol and O'Connor, 2005). For example, Brown and Wade (1987) found that groups lacking a distinct identity performed more poorly than those with established identities. Moore, Kurtzberg, Thompson, and Morris (1999) also identified the lack of a shared identity as a major impediment to building rapport and the ability to reach consensus. Research in distributed contexts has yielded similar effects. Hinds and Mortensen (2005) found that shared identity moderated the relationship between distribution and conflict in distributed teams. Similarly, Hinds and Bailey (2003) argue that individuals who do not identify strongly with their group are less likely to discuss intersite issues when they occur, thereby impeding their ability to work through and resolve those issues effectively.

We expect that firsthand experience at the other site will be positively related to identification with that site, as the result of both shared experience and opportunities to recognize intersite

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similarities. First, research has shown that shared experience and context leads to greater perceived similarity, and consequently greater entitativity (Brewer and Harasty, 1996). Related research in distributed contexts has found that interaction increases interpersonal bonds (Nardi and Whittaker, 2002), rapport (Morris, et al., 2002), connectedness and community (Sarbaugh-Thompson and Feldman, 1998), and ultimately identity (Hinds and Mortensen, 2005). Thus, the increased interaction and shared experience that results from intersite visits will be positively related to identification with the members of the distant site.

We also expect that firsthand experience will be positively related to collaborators' awareness of intersite similarities. Given Cramton's (2001; 2002) findings that collaborators lack awareness of the characteristics of their distant sites, they are unaware of the similarities in task and work processes likely to exist among collaboration partners at other locations. Instead, they are likely to focus on observable differences (e.g., culture or language), resulting in their identification with the local site versus the broader group. Firsthand experience provides a vehicle for collaborators to become aware of intersite similarities, thereby providing a foundation for identification. Taken together, this suggests a positive relationship between firsthand experience and collaborators' identification with distant sites.

Hypothesis 2a: Direct knowledge will be positively related to identifying with the distant other.

In addition to the effects of direct knowledge on identification with the distant other, we also believe reflected knowledge will be positively related to identification, by allowing collaborators to experience the perspectives of their colleagues. Work by Gudykunst and Kim (1984) stresses

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the importance of taking on the other's viewpoint as a means to empathize with a cross-cultural communication partner. This is visible in subsequent studies by Hammer (1989), and by Gibson and Manuel (2003). Gaining reflected knowledge through experiencing and understanding the perspectives of distant collaborators towards the home office allows employees to share that experience, thereby building a greater basis for identification. By allowing members of one group to see things through another's eyes, those in the other group gain a perspective on their interactions that allows them to understand the others' point of view. Such awareness serves as a basis for identifying with distant collaborators.

Hypothesis 2b: Reflected knowledge will be positively related to identifying with the distant other

Third, by increasing understanding of the context of the distant other, we expect that direct knowledge will provide individuals with greater awareness of intersite differences and the interaction norms of their distant colleagues. As illustrated in reviews of research on culture (see Leidner and Kayworth, 2006; Gelfand, Erez, and Aycan, 2007), individuals' attitudes, beliefs, and behaviors are shaped both by the environment and culture in which they are raised, and the one in which they currently find themselves. Thus, as people behave in accordance with their context, collaboration across sites means that collaborators are likely to approach a given interaction based on different and potentially clashing or contradictory perspectives – each rooted in that collaborator's location. Such difficulties, arising from collaborating from within different cultural contexts have been linked to numerous negative outcomes, including reduced quality in decision-making (Stagl, et al., 2007); low self-image and reduced effort (Shapiro, et

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al., 2002); high ethnocentrism (Cramton and Hinds, 2005); ingroup biases (Salk and Brannen, 2000), and increased conflict (Elron, 1997; Von Glinow, Shapiro, and Brett, 2004). In addition, parallel to cultural differences, linguistic barriers pose a related obstacle to global collaborators. Adding further complexity are varying degrees of adoption of a mandated lingua franca in some organizations (Beyene, 2007), and differing comfort levels and proficiency therein (Pearson, 1989; Swift, 1991; Reeves and Wright, 1996; Marschan, Welch, and Welch, 1997; Mackey, 2000; Meierkord and Knapp, 2002; Beyene, Hinds, and Cramton, 2007). Cramton and Hinds (2007) note that the negative effects of boundaries, cultural and otherwise, are further compounded when they coincide with boundaries of other dimensions such as language and geographic location. As such alignment is frequently the case in global organizations, the negative effects described by Cramton and Hinds may increase at an exponential rate.

Direct knowledge will provide collaborators with insights into the norms governing interaction both at and with that site. Such awareness of interactional norms is distinct from direct knowledge itself as it is based on the synthesis of all aspects of life at that site, including knowledge that may not directly be about interaction itself. For example, understanding the severe power-dynamics of a distant site may provide insights into why interaction partners are sensitive to criticism, even though that information is not directly about intersite collaboration. That knowledge further allows individuals to actively adapt their own interaction styles to fit those of their distant colleagues. Thus, we hypothesize that direct knowledge about all aspects of a distant site will be positively related to awareness of interaction norms at that site.

Hypothesis 2c: Direct knowledge will be positively related to adapting to the distant other.

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Finally, reflected knowledge provides individuals insights into how their distant colleagues might interpret intersite interactions. It provides them with ongoing, detailed feedback about how the actions and behaviors of those at their home location are perceived. Such information is likely to include observations of behaviors that are in some instances misunderstood and in other instances contextually inappropriate for their interaction partners. As collaborators see the effects of their home office's interactions with distant colleagues, from the perspective of those colleagues they are then able to recognize opportunities to refine and revise their interaction style. In so doing, they avoid future confusion or inappropriate actions. Thus, the more individuals know about how they are perceived, the more they can adapt and tailor their behavior to ensure they are not misunderstood.

Hypothesis 2d: Reflected knowledge will be negatively related to misunderstanding the distant other.

Effects on trust. Trust researchers have differentiated between three distinct classes of processes underlying trust: cognitive, affective, and behavioral (Lewis and Weigert, 1985). Trust is based in cognition in as much as individuals cognitively choose whether to trust another based on evidence of that other's trustworthiness. At the same time, there is an emotional basis of trust, as affective bonds promote trust, in part through the knowledge that breaches may irreparably damage the relationship. Finally, the behavioral basis of trust stems from individuals engaging in trusting behavior and having that behavior either reinforced, or betrayed. The three processes identified by our respondents: identification, adaptation, and misunderstanding operate through these three bases of trust: social, cognitive, and behavioral respectively.

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Socially, identifying with distant others provides an emotional connection to those distant collaborators, an affective connection that has been widely asserted to influence trust (for a discussion, see: Williams, 2001). As noted by Jones and George, “People often decide if they can initially trust someone by examining the feelings they have toward that person” (Jones and George, 1998, p. 534). Furthermore, affective attachment drives positive behaviors that in turn foster trust (Mayer, Davis, and Schoorman, 1995; McCallister, 1995). Identification provides a basis for such feelings people associate positive feelings with those they identify with (Brewer, 1979). In support of this link, prior research indicates that the desire to maintain social attachments, and to belong to a collective both drive trusting behavior (Granovetter, 1985; Podolny and Baron, 1997). Conversely, research finds that distrust can arise from being categorized as belonging to a different group (Spears and Lea, 1992; Gibson and Manuel, 2003). In addition, identification is likely to further engender trusting on the basis of wanting to maintain and not threaten existing relationships. As noted by Jones and George (1998), breaking emotional-based trust has been shown to trigger a strong emotional response signaling the need to attend to and potentially reevaluate the relationship (Barber, 1983; Frijda, 1988). Thus, through both an initial positive connection and the fear of damaging the existing relationship, identifying with the distant other provides a basis for socially-based trust. We therefore predict identification will be positively related to trust in the distant other.

Hypothesis 3a: Identifying with distant others will be positively related to trust.

Cognitively, knowledge of the cultural norms of the other provides an awareness of how distant interaction partners are likely to perceive and react to a collaborator’s own actions. As such, they

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increase the cognitive basis on which an individual feels they can accurately predict the behaviors and motivations of distant collaborators. While trust only meaningfully exists in the face of risk (Mayer, Davis, and Schoorman, 1995), the reduction of uncertainty reduces the distance collaborators must span to reach their collaboration partners – central to the cognitive framing of trust as providing a foundation for a cognitive “leap” (Lewicki, Tomlinson, and Gillespie, 2006). Such uncertainty reduction is a key contributor to the establishment of trust in any given intersite interaction. As noted by Williams, researchers from a wide range of fields agree that trust develops in part through increasing the accuracy of information about others’ trustworthiness (2001). In Meyerson et al.’s (1996) study on swift trust, the researchers build on prior work, arguing that a key antecedent of trust is uncertainty (Gambetta, 1988).

The act of adaptation reinforces this effect by giving actors reason to expect more predictable interactions. Knowing how distant colleagues interact, and knowing that one has adapted one’s own behavior to better suit that interaction style will increase an actor’s confidence in the predictability of intersite interactions. In effect, the adaptation becomes further evidence supporting the actor’s cognitive appraisal of colleagues’ trustworthiness. Thus, increased knowledge of the interaction norms reduces uncertainty in interactions, and adaptation reinforces that relationship, making it more likely trust will be established.

Hypothesis 3b: Adapting to distant others will be positively related to trust.

Behaviorally, the presence of a misunderstanding between distant others contributes to expectations (both of behavior and interpretation thereof) not being met, resulting in perceptions of unpredicted behavior. Numerous scholars have emphasized the importance of feedback loops,

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arguing that prior trust-related experience helps to shape future trusting behavior, with trust begetting more trust and failures reducing it (Mayer, Davis, and Schoorman, 1995; Das and Teng, 1998; Serva, Fuller, and Mayer, 2005). As Lewis and Weigert (1985) posit, individuals choose to trust based on “evidence of trustworthiness.” Thus, increased predictability, arising from greater knowledge of interaction norms is likely to increase trust. Supporting this view, Jarvenpaa and Leidner (1999) found that unpredictable communication hindered trust in distributed groups. We therefore predict a negative relationship between intersite misunderstandings and intersite trust.

Hypothesis 3c: Misunderstanding distant others will be negatively related to trust.

Phase 2 Data collection and analyses

To test our hypotheses, we conducted a web-based survey within the same organizational context as that used in the first phase of the study, the “MD” division of “ChemiCo.” An MD executive sent an initial email to inform all ChemiCo global employees that they would be contacted by researchers to complete a web-survey on the topic of global collaboration. Employees were assured that their participation would be confidential and voluntary. We followed up soon after by sending invitations to employees who were identified by management as having some intersite interaction. Initially, 213 of the approximately 250 members of the division were contacted, from which we received 159 responses, yielding a response rate of 75 percent.

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Dropping incomplete responses resulted in a final survey sample of 140.¹ Respondents were distributed across six country offices as follows: Taiwan (39), Germany (26), Japan (21), Korea (21), United Kingdom (17), and Hong Kong (16). The respondents worked in a wide range of positions, and were on average highly educated, with the majority holding some form of graduate degree: bachelor (37%), masters (31%), doctorate (26%).

Measures. Respondents were asked, early in the survey, to identify the distant site with which they most often interacted. All subsequent questions were tailored to the site they had chosen. For example, a respondent who answered that she interacted most with the Japan office, would receive subsequent questions in the form: “What is the total amount of time you have spent visiting the **Japan** office” [emphasis added]. This tailoring ensured that respondents’ answers referred to a specific and consistent target other. In the remainder of this section, that target other will be referred to as the “distant site”, although the precise site differed with each respondent (See Appendix A for survey items). To assess first-hand experience, we asked respondents to provide the total length of time they had spent at that distant site. Responses were standardized into a per-month measure that ranged from 0 – 138 months.

To measure knowledge of the other site (direct knowledge), we asked respondents to rate how much they knew about the other site with respect to each of ten dimensions: physical environment, tasks, technical details, work processes, work culture, people, relationships,

¹ Though additional information on non-respondents was not available, member and manager interviews suggest these non-respondents were not significantly or systematically different from the rest of the population.

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customers, knowledge, and reporting relationships. Respondents were asked to rate how much they knew about each dimension on a seven-point Likert scale, anchored by 1 = “not much” and 7 = “a lot”. Factor analyses suggested that all ten loaded onto a single dimension, which reliability analyses reinforced as a reliable measure with a Cronbach’s alpha of .93. Thus, the mean of all ten dimensions was used as a measure of direct knowledge.

We assessed reflected knowledge using a similar measure to that used in assessing knowledge. We asked respondents to rate the extent to which visiting the other office had helped them to better understand the same ten dimensions at their own workplace. The scale was again anchored by 1 = “not much” and 7 = “a lot”, and reliable $\alpha = .90$. Thus, the mean of all ten dimensions was used as a measure of reflected knowledge.

We measured identification with a pictorial measure of interpersonal closeness shown to correlate with feelings and behaviors of interconnectedness (Aron, Aron, and Smollan, 1992; Tropp and Wright, 2001; Hinds and Mortensen, 2005; O’Leary and Mortensen, forthcoming). We provided team members with a set of six graphical representations of relationships between “self” and “other”, and asked them to select the number that corresponded to the picture that most closely matched their relationship with the other site and its members (1 = “very distant”, 6 = “very close”).

To measure individuals’ knowledge of intersite appropriate interactions and their adaptation to their distant collaboration partners, we asked them to rate the accuracy of four statements (e.g., “I know what kinds of questions are culturally acceptable in the [distant site] office,” and “I adjust my behavior to let colleagues know that I respect them.”). The scale was again anchored

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by 1 = “not at all true”, and 7 = “very true”. The mean of the four items was deemed a reliable index $\alpha = .85$ and used as the measure of adaptation to distant other.

To measure misunderstanding distant others, we asked respondents to rate the accuracy of four statements (e.g., “Colleagues from the [distant site] office misunderstand my intentions,” and “I have been misunderstood by colleagues in the [distant site] office.”). The scale was again anchored by 1 = “not at all true”, and 7 = “very true”. The mean of the three items was deemed a reliable index $\alpha = .74$ and used as the measure of intersite misunderstandings.

To measure individuals’ trust in the members at other site, we adapted Cook and Wall’s (1980) interpersonal trust scale, asking them to rate the accuracy of eight statements (e.g., “I can trust the people I work with in the [distant site] office to help me if I need it,” and “I feel quite confident that my colleagues at the [distant site] office will always try to treat me fairly.”). The scale was again anchored by 1 = “not at all true” and 7 = “very true”. The mean of the eight items was deemed a reliable index $\alpha = .92$ and used as the measure of trust.

Phase 2 Results

To test the proposed model, we analyzed the survey data using structural equation modeling (SEM) with maximum likelihood estimation. We used SPSS AMOS (Byrne, 2001) version 16 to

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analyze the saturated measurement model, the structural model corresponding to the full set of hypotheses, and to individual hypotheses (see table 4 for correlations between key variables).²

Insert table 4 about here

We assessed model fit using several statistics. First, we used the chi-square test that assesses the goodness of fit between the reproduced and observed correlation matrices. The non-significant Chi-square [$\chi^2(10) = 18.034, p = .06$] here indicated that the departure between the model in this study and the data is not significant. Because the chi-square test is widely known to be highly sensitive to sample size, such that the models that fit the data reasonably well are often rejected due to the moderate to large size of the test samples (Bentler and Bonett, 1980), we also used three other widely used goodness of fit criteria that are not sensitive to sample size (Bentler and Bonett, 1980): Normed Fit Index (NFI, Bentler and Bonett, 1980), Incremental Fit Index and Tucker-Lewis Index (IFI & TLI, Bollen, 1989), and Comparative Fit Index (CFI, Bentler, 1990). These indices have expected values of 1.00 when the hypothesized model is true in a population with a value of .90 or higher, and has been suggested as indicating adequate fit on these indices (Bentler and Bonett, 1980). The values for all four within the saturated model indicated an excellent fit (NFI = .92, IFI = .96, TLI = .92, and CFI = .96). Finally, we used the Root Mean Squared Error of Approximation (RMSEA, Steiger and Lind, 1980), which is an estimate of the

² We assessed variable normality and found non-normal distributions for: firsthand experience, reflected knowledge, cross-cultural effectiveness, and trust. Transforming these variables successfully reduced skewness and kurtosis and models with transformed and untransformed variables were identical with respect to significance of both model and individual weights. We report results for transformed variables as they yielded models with slightly better overall fit.

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discrepancy between the original and reproduced covariance matrices in the population. A RMSEA value of .05 and under represents a close fit and RMSEA of .08 represents a reasonable fit (Browne and Cudeck, 1993), and the saturated model showed a RMSEA value of .08.

Insert figure 1 about here

In hypotheses 1a and 1b we predicted that firsthand experience would be positively related both to individuals' direct knowledge of the other site, and their reflected knowledge about their home site. Both paths were significant in the model, with weights of $\beta = .46$ $p < .001$ for direct knowledge and $\beta = .41$ $p < .001$ for reflected knowledge. Thus, we find support for hypotheses 1a and 1b. In hypotheses 2a, b, c, and d we predicted that direct (2a) and reflected (2b) intersite knowledge will both be positively related to identification with the distant other, that direct knowledge would be positively related to adaptation to the distant other (2c), and finally that (2d) reflected knowledge will be negatively related to intersite misunderstandings. The paths leading to identification from both direct ($\beta = .26$ $p < .01$) and reflected ($\beta = .24$ $p < .01$) knowledge were both significant, as was the path between direct knowledge and adaptation to the other ($\beta = .50$ $p < .001$). Finally, the path from reflected knowledge to intersite misunderstandings was significant and negative ($\beta = -.21$ $p < .01$). Thus, we find support for hypotheses 2a-d. In hypotheses 3a, b, and c, we predicted that trust (3a) and adaptation to the distant other (3b) would both be positively related to trust in the other site, while intersite misunderstandings would be negatively related to trust (3c). All three hypotheses were supported, as all paths were significant and in the expected direction (identification: $\beta = .23$, $p < .01$; adaptation to distant

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other: $\beta = .26$, $p < .001$; intersite misunderstandings: $\beta = -.28$, $p < .001$). Thus, the model as a whole was supported, as were all individual paths.

Additional supporting analyses. To address alternative explanations, we ran models that included two additional paths. First, to test whether reflected knowledge would help employees to better adapt to the culture of their collaborators, we included a path from reflected knowledge to adaptation. Second, to assess whether intersite misunderstandings might be predicted partially, or entirely by employees adaptation to their collaborators, we included a path from adaptation to intersite misunderstandings. We analyzed models that included each path separately and one that included both. In all three models, the added paths were non-significant.

In our analyses, we did not differentiate between firsthand experience gained through short-term site visits and longterm expatriate assignments. To validate this decision, we reran the model, replacing the measure of firsthand experience with measures of short-term site visits, and long-term expatriate assignments. Both site visits and expatriate assignments yielded models that fit the data well ($\chi^2(6) = 8.67$, $p = .19$ and $\chi^2(6) = 3.75$, $p = .71$ respectively), with NFI, IFI, TLI, and CFI in both models all over .90, and RMSEA at .05 or lower. The pattern of estimates and their significance in both models remained the same as that of the baseline model. Thus, while there is no question that two are qualitatively distinct and while it is reasonable to expect they will relate differently to many constructs of interest to distributed-work researchers, within our data we find no notable difference between site-visit and expatriate-based firsthand experience, indicating that it is reasonable to combine them in our analyses.

DISCUSSION

In this study, we provide the first empirical analysis of firsthand experience and its role in facilitating global collaboration through intersite trust. While prior studies have noted the value of specific behaviors such as site visits (ex. Hinds and Cramton, 2008) or expatriate assignments (ex. Earley and Mosakowski, 2000), to our knowledge this is the only field study that focuses on firsthand experience as the unit of analysis, rather than on specific behaviors that may contribute to it. We found that firsthand experience was positively related to intersite knowledge, which itself was differentiated into two types: direct and reflected. Both types of knowledge are positively associated with identification with members at other sites, while direct knowledge is positively associated with adaptation to the distant other and reflected knowledge is negatively related to misunderstanding the distant other. Trust is subsequently positively related to identification and adaptation, and negatively related to misunderstanding of the distant other. This research provides insights into the mechanisms linking firsthand experience to trust in global work, the importance of differentiating between direct and reflected knowledge, and has direct implications for both scholars and practitioners.

Importance of firsthand experience in global collaboration

In this study, we introduce the concept of firsthand experience to expand the growing discourse of face-to-face contact in the distributed work literature (see Hinds & Kiesler, 2002). Rather than emphasis on the much studies nature of face-to-face contact only, firsthand experience provides a more nuanced perspective that relies on intersite exposure to norms, cultures and behaviors as a source of fostering relationship among co-workers. Further, we provide a conceptual lens

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through which to examine the role of context on intersite dynamics. This research augments prior work by providing a key mechanism through which dispersed collaborators can overcome issues such as those identified in Cramton's (2001) pivotal work on the mutual knowledge problem, and establish intersite trust. Differing from that framing, however, this approach focuses not on creating a single commonly held body of knowledge, but on augmenting each site's own locally-held knowledge with intersite knowledge about the other, resulting in a more diverse and contextually richer work environment.

It is important to note that while our work parallels recent research by Hinds and Cramton (2008) on the role of site visits in establishing situated knowledge, it differs in its level of abstraction, and as such extends that work. We focus not on the mechanisms of knowledge acquisition (e.g., site visits or expatriate assignments themselves) but on individuals' specific experiences and their subsequent effects on knowledge. Importantly, this de-linking of firsthand experience from the underlying mechanisms through which it is created allows for different potential mechanisms. Though, within this study, we examined firsthand experience as created through physically visiting another site, there may be other current or future mechanisms through which firsthand experience can be generated. Recent technological advances in telepresence, for example, suggest it may be possible to approximate firsthand experience without actually travelling to a remote site. We believe this conceptualization of firsthand experience at a level above the site visits or expatriate assignments on which it is based, makes an important contribution toward increasing the explanatory power of our models of knowledge and understanding in globally collaborative contexts.

Differentiation between direct knowledge and reflected knowledge

Beyond highlighting the critical role played by firsthand experience, perhaps our most interesting finding is the distinct and important role played by reflected, as opposed to direct knowledge. To our knowledge previously unexplored, we believe the construct of reflected knowledge provides significant new insight into the mechanisms through which global collaborators relate and adjust to one another. While prior research on perspective-taking has clearly established the importance of being able to take on another's point of view, that research has left largely unexplored precisely what it is that perspective-takers are seeing. In particular, it has not differentiated between the other's view of his or her context, and the other's view of the focal actor's context. For the purposes of improving interpersonal interaction, this is a particularly important distinction for two reasons.

First, although reflected knowledge is about the others' perception of a focal actor's home site, to the extent that actor identifies with that site, those perceptions reflect on the actor him or herself. Because reflected knowledge affects the actor's own self-concept, we expect it to have a stronger and more direct effect on that actor's own behavior, than will direct knowledge about the others' broader context. Building on prior research that finds that individuals define themselves, in part, through their interactions and relationships with others (Aron, Aron, and Smollan, 1992; Brewer and Gardner, 1996), our findings reinforce the important role of others' perceptions in our own self-definition. Substantial research on identification has shown that the way one perceives oneself significantly affects one's actions, behaviors, and attitudes (Abrams and Brown, 1989).

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Thus, reflected knowledge provides a means of leveraging powerful identity effects, driving transformative changes in behavior and attitudes, and thus improving intersite collaboration.

Second, reflected knowledge is important because, for a focal actor observing the context of the "other," of all the elements observed, the actions and behaviors of the focal actor him or herself are the only factors solely within that actor's control. While recognizing that exogenous factors which may be impeding effective collaboration (cultural norms, linguistic barriers, technological differences etc.), may point an actor towards potential solutions, many such factors lie beyond that actor's scope of influence. As a result, while direct knowledge may help to identify barriers to collaboration, there is no guarantee that a given actor can ameliorate them. In contrast, reflected knowledge provides feedback about the actor's own context, and related factors which are more likely to lie within his or her control. Thus, while actors may or may not be able to influence other external or environmental factors, in attempting to improve the actor-other relationship, they can at the very least change their own behaviors or displayed attitudes, in a step towards improving the effectiveness of intersite collaborations. For both reasons, reflected knowledge, beyond merely perspective-taking and firsthand experience, stands to have a unique impact on relationships among global collaborators. Furthermore, as there is nothing about reflected knowledge that is inherently tied to physical dispersion, these mechanisms may be expected to work even in face-to-face cross-group collaborations in which groups may be defined in any of a number of ways based on socio-demographic characteristics.

Implications for research on distributed work and trust

In addition to highlighting firsthand experience as an important construct to be included in future studies of dispersed collaborations, the present study has broader implications for the way in which we think of and study such distributed workers, particularly as it relates to how trust develops among them. Trust in distributed work has predominantly been studied in short-term settings that have contributed to our understanding on concepts such as swift trust as promulgated by Jarvenpaa and colleagues (1998). Our study is a theoretical expansion of trust in distributed contexts by encompassing long-term collaboration work relationships in which social, affective and cognitive dimensions of trust are activated through three mediating factors (identification, adaptation and misunderstanding of the distant other).

We would also argue that most studies of trust and other intersite dynamics have been conducted as if distributed sites were mutually exclusive, composed of individuals connected primarily to others at their local sites. Taking, for example, prior field work on categorization in distributed contexts, such work has generally assumed that individuals at any given location identify with their local colleagues over their distant ones, in part because they lack intersite ties. Our findings suggests that this model may be in contrast with the reality, wherein teams are comprised of people who increasingly have experience at distant sites, and have established relationships with distant colleagues.

We suggest that, as organizations increasingly move towards more global designs, with greater intersite communication and mobility, a more highly-socialized view of global collaborations is required. Rather than focusing solely upon global collaboration to examine and understand

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relevant relationships, it is important that we consider and account for the possibility that global collaborators may have significant intersite relationships, built through a combination of site visits and expatriate assignments. While accounting for such relationships requires a significantly more complex model of global collaboration, failing to do so may provide an unrealistic model of the relationships that exist within such collaborations. Scholars may benefit from a more system-level perspective on global endeavors. In cases where site visits and expatriate assignments are frequent, it may be useful to think of global collaborators as drawn from a single interconnected global resource pool, rather than as representatives of the particular geographically-based groups in which they currently find themselves.

This research has implications not only for the way we think about global work, but also for what we, as scholars choose to study. While we have a substantial and growing body of literature on dispersed work contexts, for the most part that research focuses on the emergent dynamics found within those contexts. These studies provide only part of the picture, although they are insightful and informative. There is a general absence of studies that examine and assess the effectiveness of actual managerial practice, leaving unexplored much of the purposive efforts of the individuals we study.

Implications for research on perspective taking

The recognition of reflected knowledge and its effects suggests an important construct to be taken into account in current and future work on perspective-taking. While research on perspective-taking has highlighted the numerous benefits of putting oneself in the shoes of the other (Galinsky and Moskowitz, 2000; Galinsky and Mussweiler, 2001), it has focused primarily

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on a broad set of effects that arise primarily from being exposed to their experience. By experiencing the environment of the other, an actor can better understand that other's behaviors – in effect counteracting the fundamental attribution error (Ross, 1977). As such, the benefit of perspective taking occurs because the actor has more information about the other.

In contrast, we suggest that the benefits of reflected knowledge occur because the actor gains information that, filtered through the view of the other, is about his or her own context and perspective. Without differentiating between direct and reflected knowledge and their distinct roles in perspective-taking, it is difficult to clearly identify the mechanism underlying the positive effects of perspective-taking. This is particularly important given the varying motivational sources previously discussed. As such, we believe further research on the impact of reflected knowledge in perspective-taking is warranted, and stands to provide us with a clearer image of the mechanisms that give rise to its beneficial effects.

Implications for management practice

For managers, our findings suggest a means of addressing some of the problems that arise in cross-cultural global collaborations. Managers may want to consider some combination of short-term expatriate assignments and longer-term site visits as a means of establishing firsthand experience and intersite knowledge. Our findings have particular relevance for the oft-cited suggestion that it would be constructive to hold an initial face-to-face meeting to kick-off a global collaboration. Supporting conventional wisdom, our findings suggests a key mechanism through which such kickoff meetings may benefit their members: firsthand experience and the establishment of intersite knowledge. Furthermore, our findings suggest that, beyond having

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people meet face-to-face, it is important that any such meeting occur onsite, allowing individuals to observe their collaborators' local context. This is of particular interest given the recent surge in technologies designed to support telepresence. Our findings suggest a key obstacle to the success of such systems may be their inability to provide reflected knowledge. While technology may be designed to mirror the other's view (ex. providing a 'self-view' of how you appear), it cannot provide the full breadth of reflected information typically gained while on-site. One obvious example being information that arises outside the intersite interaction itself, as when colleagues rehash a meeting at the water cooler. Our findings also suggest that managers provide for subsequent reciprocal visits to ensure that the hosts of any first meeting gain firsthand experience of their collaborators sites.

Future Research

Our findings suggest a number of directions for future research on firsthand experience and reflected knowledge. First, while we provide an important first look at the differential effects of direct and reflected knowledge, we does not delve deeply into the relationship between the two constructs and their subsequent effects on attitudes, behavior and ultimately dynamics. While the effects of reflected knowledge suggested earlier may be expected to drive behavior more strongly than the effects of direct knowledge, this remains an empirical question to be addressed by future research. Also, the effects of each are likely to reinforce and strengthen the other – particularly by impacting identification. Furthermore, as noted, the effects described in this study are not inherently tied to geographically-dispersed contexts. One might expect to see

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similar effects in collocated cross-cultural groups. Thus further research examining direct and reflected knowledge in both distributed and collocated contexts may yield fruitful insights.

Second, our research does not address questions about the extent to which actors can and do generalize their firsthand experience across multiple and varied distant sites, and the effects of potential misapplications of that information. In this particular context it is not clear, for example, whether firsthand experience gained by an individual from Germany who spends time in the Japan office, would result in better or worse understanding of the context and issues in the Taiwan office. This may hinge on the extent to which that individual can and does generalize knowledge across sites. Such experience may, in fact, have a negative effect if it leads collaborators to over-generalize and assume they have a better understanding of a related, yet distinct, context than is actually the case (ex. assuming that knowledge gained about Japan will translate to the Taiwanese context). In support of this, related research on perspective-taking has suggested that while perspective-taking increases sensitivity to the target group, that effect does not necessarily translate to other similar groups, and might actually decrease such sensitivities (Galinsky, 1999) or lead to preferential treatment (Batson, et al., 1995). We would expect this to be driven by the extent to which an individual differentiates between the “other” contexts; however there should be further examination of how individuals define and bound their distant collaborators.

Third, while we examine the role of firsthand experience in driving outcomes, we do not examine the pattern of that firsthand experience. It is unclear, for example, if multiple individuals with firsthand knowledge within a given distributed work context would have

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multiplicative benefits, or whether additional individuals with firsthand knowledge would fail to yield additional benefits. We have also not considered characteristics of the experiences themselves beyond duration, for example the recency of experience or the nature of the work conducted both during and after it. Also not considered was whether the firsthand experience resulted from one or many visits, and if many, whether the effects of the first visit are different from those of subsequent visits. Additional examination of such factors would provide insights into how quickly the noted effects might disappear. Identifying such a decay rate would be valuable to managers seeking to optimize the benefits reaped from firsthand experience.

Fourth, we examine the processes and mechanisms which may allow firsthand experience to overcome issues endemic to globally distributed work. Still unclear is whether, which, and how benefits of firsthand experience might be created where there is no opportunity to travel to another site. The impact of improving telepresence, and the effect of virtual presence on both direct and reflected knowledge, remains unexplored. While it may be the case that the effects noted here are uniquely found in contexts involving expatriate workers or intersite visits, this remains a question for future research.

Limitations

Our contributions to globally distributed collaboration research, which work towards augmenting our understanding of firsthand experience, must be tempered by limitations in our study. First, we do not examine the effects of negative firsthand experiences on intersite collaborations.

Whereas firsthand experience has the potential of being both positive and negative, the sentiment throughout the MD division of ChemiCo was that intersite experience was beneficial to working

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relationships, and thus site visits were planned as a means of improving intersite relations. In contrast, in many organizational contexts, intersite experience arises from emergency “fire-fighting” visits. We might expect that the intersite experience gained during such visits might have negative effects on identification, and may or may not affect cross-cultural effectiveness. Our data, however, did not allow us to examine these potential effects of negative firsthand experience.

Second, given the scope of this study, we have focused our data collection and analyses on constructs and issues arising from geographic distribution that are interpersonal in nature (e.g., identification, trust, conflict, and satisfaction). Doing so, however, ignores an equally substantial and important set of strategic issues, regarding which we saw substantial evidence. These include communicative disconnects, in which different sites work towards variant or entirely different strategic goals. Distribution of the workforce may lead to reduced or inaccurate perception of customer needs. While dispersion may allow some members of the organization to be collocated and more closely tied to markets and customers, by the same token, others are not. This may result in organizations being less adaptive to shifts in markets and customer demands. Distribution may also result in leadership disconnects, in which distribution impinges on the ability of management located at one site to effectively manage and lead employees working at distant locations. Finally, in cases where management and staff are dispersed from one another, individuals may find that they and their actions are less visible within the organization, thereby negatively impacting advancement opportunities. While it has been necessary to limit the scope of this study, future research on the effects of firsthand experience on these strategically-focused effects of distribution appears warranted.

Conclusion

Increasingly, organizations are turning to firsthand experience, through site-visits and expatriate assignments, as a means to cope with the problems that arise in global collaborations. In this study we provide a first look at the mechanisms through which such firsthand experience relates to trust and in this way ameliorates intersite collaboration issues. We further highlight the critical role played by reflected knowledge in providing collaborators with information, not simply about their distant collaborators, but about how those counterparts perceive the actors' own contexts.

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TABLES AND FIGURES

Table 1: Interview and survey count by location

Location	Pre-Survey Interviews	Survey
Germany	24	26
Taiwan	8	39
Japan	9	21
Korea	1	21
United Kingdom	3	17
Hong Kong	2	16
Total	47	140

Table 2: Direct Knowledge - representative quotes

Example 1	Example 2	Example 3	Example 4
<p>“I will try to be more patient. Because in the past when I receive mail , it was very annoying, and I tried to answer it immediately. In this case, I was quite emotional and some wording is not proper. But now... I just save this mail and later after two or one hour I open it again and check what were my feelings and I try to understand my colleague again.” <i>(Korean employee)</i></p>	<p>“I think in Asia, before a decision is carried, at least in Japan before a decision is accepted, you can really convince colleagues by arguments – so not by feelings but by arguments on why this decision has been taken. And I think in Germany you can make a decision because you think this decision is the right one. And the arguments need not to be that strong as they need to be in Japan.” <i>(Dutch employee)</i></p>	<p>“I learned about [head quarters’] central distribution system and their warehouse. I think that’s quite impressive. They have to deal with all kinds of raw materials to each country office...I tell [Taiwanese colleagues] they [HQ] have systems and the warehouse is very big, so it is [possible] to have mistakes.” <i>(Taiwanese employee)</i></p>	<p>“You sound too bossy. Too, too bossy. I was told twice, especially at the beginning of my time [in Germany], not to treat my peers as subordinates. I never thought to that, but they were seeing my emails and the way I wanted the information as too commanding. Too bossy. I had to change. Study what they want, and then just adapt basically.” <i>(Mexican employee)</i></p>

Table 3: Reflected Knowledge - representative quotes

Example 1	Example 2	Example 3	Example 4
<p>“If you have to stay abroad what happens is... Let's put it this way. You were part of the headquarters, now you are not part of the headquarters. Looking backwards, there's new awareness to where you came from... You look at your own headquarters, your own country headquarters, on what you did in the past differently. “ <i>(German employee)</i></p>	<p>“[When visiting Taiwan], I tried to get their way of thinking when they faced some problems and when they received some complaints from a customer or a comment from a customer. I had to learn quite a lot of things in Taiwan particularly how they feel regarding their expectations to our [Japanese] company.” <i>(Japanese employee)</i></p>	<p>“I visit Headquarters with my colleagues to get a feeling of what is the way [employees] are working in Germany. We are now on the development to modify the systematic approach in Korea. So I got a feeling [for] a systematic approach in Germany and then when I came back to Korea, I tried to read a book related to such a system. Then I implemented such a systematic approach with the manual and documentation in Korea.” <i>(Korean employee)</i></p>	<p>“So Germans tend to say, especially if they are in research, OK, that [customer request] is not related to this [problem], so we need to do this. I intervened with my [German] colleagues, and I try to explain to them, we have to do that to support the customer; you have to do something to make sure that at least the data that the customer is asking for are there and you can still explain why you believe that [request] is not related.” <i>(German employee)</i></p>

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Table 4: Correlations between key variables

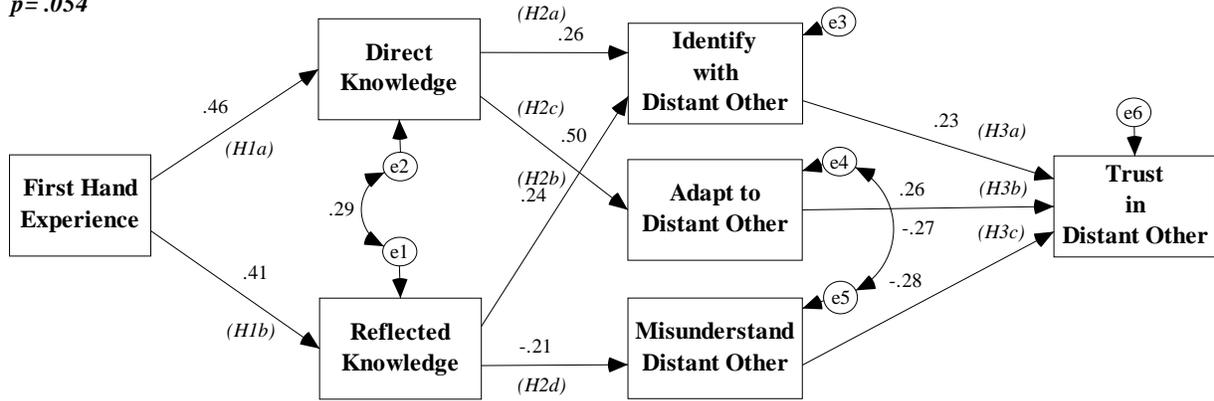
Variable	Mean	Std. Dev.	1 **	2 **	3 **	4 **	5 **	6 **
1 First-hand Experience	1.19	0.90						
2 Direct Knowledge	4.43	1.21	0.46**					
3 Reflected Knowledge	24.78	14.00	0.41**	0.43**				
4 Identification	3.71	1.12	0.14	0.37**	0.36**			
5 Adaptation	25.26	9.58	0.17*	0.50**	0.32**	0.30**		
6 Misunderstanding	9.08	6.53	0.07	-0.04	-0.24**	-0.14	-0.27**	
7 Trust in Distant Other	30.31	9.52	-0.03	0.28**	0.12	0.34**	0.40**	-0.38**

*p < 0.05, **p < 0.01

Note: Table represents transformed values

Figure 1: Structural equation model using minimum least squares estimates

Chi-square = 18.034 (10 df)
p = .054



Note: Weights on paths are standardized estimates

APPENDIX A: SURVEY MEASURES

First Hand Experience:

You noted that you have visited [DISTANT SITE]. Please let us know how much time (in total) you have spent there by entering a number and selecting the appropriate unit (ex. 5 days).

Direct knowledge:

Please answer the following questions regarding how much knowledge you have about the [DISTANT SITE] office by selecting a value from 1 to 7 based on the following scale: 1 = Not much and 7 = A lot.

How much do you know about [the following items] of/at the [DISTANT SITE] office?

1.	technical details (ex. materials being worked on)
2.	tasks (ex. current projects)
3.	work processes (ex. protocols and procedures)
4.	people (ex. identities, personalities, values, and roles)
5.	relationships (ex. friendships or sources of advice)
6.	work culture (ex. norms and expectations)
7.	physical environment (ex. facilities and office layout)
8.	customers (ex. needs and behaviors)
9.	knowledge (i.e. who holds what information)
10.	reporting relationships (i.e. who reports to whom)

Reflected knowledge:

You said you have been to [DISTANT SITE]. How has your visit helped you understand how things are done in your own [HOME SITE] office? Please select a value from 1 to 7 based on the following scale: 1 = Not much and 7 = A lot.

To what extent has visiting [DISTANT SITE] helped you to better understand [the following items] of/at your [HOME SITE] office?

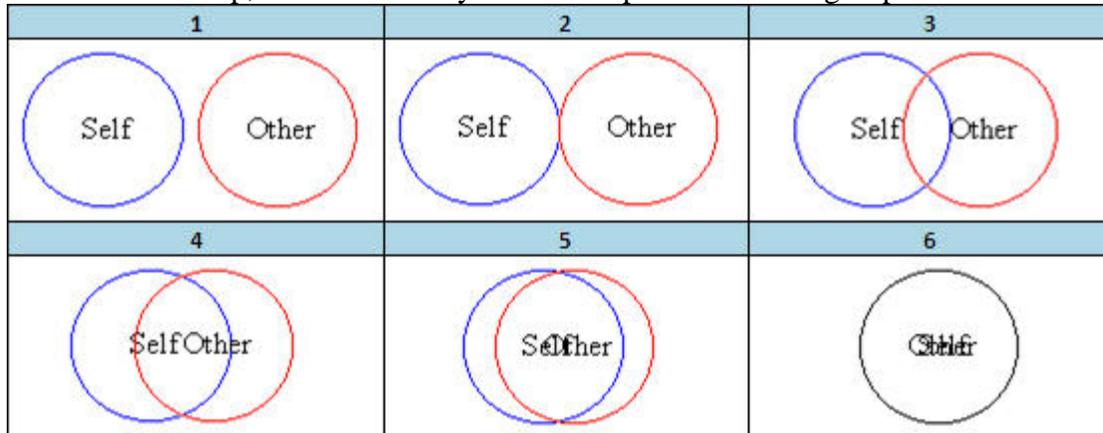
1.	technical details (ex. materials being worked on)
2.	tasks (ex. current projects)
3.	work processes (ex. protocols and procedures)
4.	people (ex. identities, personalities, values, and roles)
5.	relationships (ex. friendships or sources of advice)
6.	work culture (ex. norms and expectations)
7.	physical environment (ex. facilities and office layout)

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8.	customers (ex. needs and behaviors)
9.	knowledge (i.e. who holds what information)
10.	reporting relationships (i.e. who reports to whom)

Identification with the other site:

A person's professional relationship to a group can be represented pictorially by two circles. The more the circles overlap, the more closely related the person is to the group.



For each of the groups listed below, please select the number that corresponds to the picture that most accurately represents your relationship to that group. "Self" means You. 1= Very distant and 6 = Very close. Please respond with respect to how close you **feel** to that group and its members, not physical distance.

1.	CHEMICO (entire company)
2.	MD Division (across all locations)
3.	[home site] office
4.	[distant site] office

Adaptation to the other site:

Think back on your interactions with colleagues in the [distant site] office. Please indicate how true you think each statement is. 1= Not at all true and 7=Very true.

1.	I know what kind of questions are culturally acceptable in the [distant site] office.
2.	I know how to give effective feedback to colleagues from the [distant site] office.
3.	I adjust my behavior to let colleagues know that I respect them.
4.	I know how to address people of different levels in the [distant site] office.

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Misunderstandings with the other site:

Think back on your interactions with colleagues in the [distant site] office. Please indicate how true you think each statement is. 1= Not at all true and 7=Very true.

1.	I have been misunderstood by colleagues in the [distant site] office.
2.	I feel confident that my colleagues in the [distant site] office clearly understood me after our meetings. (reverse scored)
3.	I get confused after speaking to my colleagues in the [distant site] office.
4.	Colleagues from the [distant site] office misunderstand my intentions.

Trust in the other site:

Please indicate how true you think each statement is. 1 = Not at all true and 7 = Very true.

1.	I have full confidence in the skills of my colleagues in the [distant site] office.
2.	If I got into difficulties at work, I know my colleagues in the [distant site] office would try and help me out.
3.	I can trust the people I work with in the [distant site] office to help me if I need it.
4.	I feel quite confident that my colleagues at the [distant site] office will always try to treat me fairly.
5.	Most of my colleagues in the [distant site] office are reliable.
6.	Management in the [distant site] office can be trusted to make sensible decisions for the firm's future.
7.	Management in the [distant site] office seems to do an efficient job.
8.	Management in the [distant site] office is sincere in understanding employees' point of view.