

Running head: Connectivity Paradox

The Connectivity Paradox:
Using Technology to Both Decrease and Increase Perceptions of Distance in Distributed Work
Arrangements

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Abstract

The findings of this qualitative study show that teleworkers who adopted technologies with the explicit goal of reducing distance found, over time, that they were too connected to coworkers to attain the flexibility and focus they desired from their distributed work arrangements. Drawing on structuration theory, and applying a practice lens to the actions and perceptions of teleworkers, we found support for the idea that individuals strategically used technology to enact practices that allowed them to meet situational demands. Individuals realized that the same technologies that enabled a perpetual connection with coworkers also afford them an opportunity to regulate their visibility, meaning they could appear to work in a manner similar to how they would at an office while simultaneously reaping the benefits of not being in a central location. We discuss whether the subversive nature of the technological practices, though an effective means to manage distance, may prevent meaningful organizational change.

Keywords: Telework; Connectivity; Distributed Work; Distance; Organizational Change; information technology; presence

The Connectivity Paradox:

Using Technology to Both Decrease and Increase Perceptions of Distance in Distributed Work Arrangements

Many scholars have hypothesized that as information and communication technologies (ICTs) continue to improve the quality, accuracy, and ease with which people can communicate over physical and temporal distances, organizations will be likely to adopt structures and policies that permit individuals to work in a distributed fashion (Contractor & Eisenberg, 1990; DeSanctis & Monge, 1999; Rice & Gattiker, 2001). That is, the idea of “telework” suggested that the connective capabilities offered by ICTs meant that work no longer needed to be bound to a particular place. However, the same ICTs that allow workers to transcend location also facilitate ubiquitous connectivity, creating a paradox in which individuals away from an office setting may be confronted with communicative demands that negate the potential benefits of distributed work. The goal of the current study is to investigate the extent to which teleworkers experience a paradox associated with the use of ICTs, to uncover what strategies they use to manage this paradox, and to explore whether concomitant behaviors result in organizational change.

Although ICTs such as the telephone and the telegraph have enabled distributed work arrangements for more than a century (see e.g., Brooks, 1976; Chandler, 1962), it was not until the 1970s that researchers began to speculate that knowledge-intensive workers, armed with telephones and access to telecommunications networks for data transfer, could perform their work tasks away from the primary office site – at a client site, at a satellite office, or even from home (Nilles, 1975). However, distributed work arrangements did not begin to proliferate until the late 1980s when personal computers and corporate networks became common (Bailey & Kurland, 2002; O'Mahony & Barley, 1999). Even with increases in the use of personal computing and persistent, high-bandwidth residential Internet connections, teleworking arrangements have not been embraced to the extent that technologists predicted (Orlikowski & Barley, 2001). Although telework has not proliferated at the

pace some anticipated, teleworkers represents a sizable and growing segment of the labor force.

According to research published by the not-for-profit professional association WorldatWork (2009) and conducted by The Dieringer Research Group Inc., 17.2 million American worked at home at least once-a-month in 2008, representing a 39 percent increase since 2006.

Today, the term “telework” covers a wide array of organizational work arrangements, including work that is conducted entirely from home, partially at home and partially at the office, at a satellite office, at client sites (where the home team is back at the main office), and even where one person works at the company’s office in City A while the rest of her team members work at the office in City B. What is common to all distributed work arrangements is that one or more individuals are separated by distance from others, and that work is conducted through the use of ICTs (Daniels, Lamond, & Standen, 2001). The types of distance inherent in telework arrangements include geographic separation of coworkers and temporal differences, such as individuals work during different times (O’Leary & Cummings, 2007). The technological artifacts used to support telework commonly consist of ICTs that afford mobility and ubiquitous connectivity, allowing people to work in multiple locations and over indefinite time periods (Jessup & Robey, 2002). Thus because technology is used to mediate the communication between distributed individuals and mitigate the challenges associated with geographic and temporal separation, our examination is concerned with the way workers *perceive* the distance they experience in relation to coworkers. This perspective is grounded in findings showing that connections that allow for informal, spontaneous, frequent and visible communication can lessen the effects of physical distance (Armstrong & Cole, 2002).

Researchers have variously traced the success and failure of distributed work arrangements to how individuals manage their geographic and temporal distance from coworkers. Negative effects of distance, include problems of temporal entrainment (Olson & Olson, 2000), lack of common ground (Cramton, 2001), difficulty of establishing interpersonal bonds (Kiesler & Cummings, 2002), inability

to access important task-related information (Wellman, et al., 1996), and trouble recognizing and abating conflict (Hinds & Bailey, 2003). When such difficulties are successfully dealt with satisfaction with distributed work arrangements is expected. Contrarily, those who are not able to overcome the problems that distance brings report higher levels of absenteeism and turnover and produce lower quality outputs than their counterparts who work collocated with others (Butler, Aasheim, & Williams, 2007; Dimitrova, 2003).

Given a conceptualization of distance as a problem for teleworkers, it is not surprising that a good deal of research has suggested that perceptions of distance must be reduced if teleworking arrangements are to be successful and that scholars have been dedicated to investigating and testing technologies that can reduce the obstacles distance brings (Olson, Covi, Rocco, Miller, & Allie, 1998; Tan, Gergle, Scupelli, & Pausch, 2006).

Even research that discusses why employers encourage telework [e.g., to lower real estate and overhead costs (Frolick, Wilkes, & Unilever, 1993) and to encourage employee retention (Golden, 2007)], or why individuals choose to become teleworkers [e.g., to reduce commute time and cost (Baruch, 2000) and to strike a better work-life balance (Hylmo & Buzzanell, 2002)] suggest that such reasons are justifiable only if technologies are in place to overcome distance problems. The resulting image of a typical distributed organizational work arrangement is one in which managers and teleworkers deploy and use ICTs in ways that will countervail the distance, and associated perceptions of disconnection, created when a worker moves out of the office building.

Although it does appear that the objective distance inherent in a distributed work arrangement may cause problems for the organization and the employee initially, over time teleworkers are able to use ICTs to decrease issues of connectivity associated with perceived distance and thereby increase their work effectiveness (Belanger & Allport, 2008; Chudoba, Wynn, Lu, & Watson-Manheim, 2005). Such research indicates that geographic and temporal dimensions of distance themselves are not

necessarily problematic for the material aspects of distributed work arrangements; through the use of advanced ICTs teleworkers typically have access to needed work artifacts, they can fully participate in meetings, and they can adapt their schedules to the temporal rhythm of the office. What is problematic is that people remaining in the office might perceive that teleworkers are inaccessible or disconnected and therefore cannot be as reliable or as effective as if they were co-present. Thus to be successful, teleworkers must use the connections afforded by technologies to project an image that they are not so distant.

Although managing perceptions of their distance is likely important in enabling teleworkers to maintain the legitimacy of their work practices, perpetual connectivity might be disadvantageous from the perspective of those who telework. Research suggests that employees often opt for distributed work arrangements because they wish to have more control over the apportionment of work and personal activities throughout their day (Greenhill & Wilson, 2006; Hill, Hawkins, & Miller, 1996). Yet several studies note that teleworkers often have difficulty balancing the needs of their workplaces with domestic responsibilities (Hill, et al., 1996; Shumate & Fulk, 2004). In their attempt to manage these two different kinds of activities, teleworkers frequently segment work and non-work activities into discrete blocks of time in order to avoid interruptions of roles (Olson-Buchanan & Boswell, 2006). Such segmentation is effective when the employee can organize activities into large blocks of time (work related or non-work related) without worrying about these different kinds of activities impinging upon one another and causing role conflict (Ashforth, Kreiner, & Fugate, 2000).

Yet technologies that offer the opportunity for perpetual connectivity with the office may make it difficult for teleworkers to segment and compartmentalize work and non-work activities. When coworkers know that a teleworker has the technological infrastructure to maintain connectivity with the office, they often expect immediate responses, thus making it difficult for the teleworker to devote any block of time solely to non-work activities (Hislop & Axtell, 2007). Recent studies by Ellison

(2004), Greenhill and Wilson (2006), and Golden, Veiga, and Simsek (2006) showed that because of the near constant connection with the office enabled by email, IM and other ICTs, teleworkers often found that they could not achieve the work-life balance they desire. Similarly, studies by Marsh and Musson (2008), Golden (2006), and Leonardi, Jackson, and Marsh (2004) demonstrated that to compensate for not seeing them in the office frequently, managers and coworkers tended to over-communicate with teleworkers, often by using multiple ICTs simultaneously, thus leading teleworkers to feel micromanaged, not trusted, and eventually burned-out.

Taken together, these findings begin to question the extent to which ICTs that enable perpetual connectivity are beneficial for distributed work arrangements. In other words, connectivity might best be considered as a paradox. The ability of ICTs to connect an individual to others allows them to work in a distributed fashion, but that perpetual connectivity can undermine the benefits of working away from team members. There is a conflict between connectivity and flexibility that is mediated by the use of technology. To explore how teleworkers manage this potential paradox, we draw on the fundamental dialectic between social structure and human agency described by Giddens (1984) in his theory of structuration. Giddens observes that although structures constrain behavior by offering only a limited number of affordances for action they are ultimately a property of human action and are always available for people to appropriate to fit the exigencies of their local situations. Extending this notion of structuration to technology use, organizational communication researchers have suggested that despite having certain immutable properties, ICTs can be appropriated differentially to enable users to navigate the demands of their specific environments (Contractor & Seibold, 1993; DeSanctis & Poole, 1994). This means not only that users in one location may use ICTs for different purposes than people in another location, but also that changes over time in a user's environment may compel her to use the same ICT differently than she did before (Leonardi, 2007).

In an attempt to further refine this structuration approach to technology use, Orlikowski's (2000) practice lens theorizes changes in technology use over time. The practice lens builds on structuration approaches to ICT use, which recognize that technologies can support multiple interpretations and that these meanings are co-extensive with people's work practices. Use of a technology can change one's work practices. As those work practices change, her interpretations of the technology's functionality change too, thus enabling her to see new uses to which the technology could be put or to perceive new work-related demands that the technology could meet. These new interpretations then lead to new uses of the technology. Thus, even though an ICT is implemented for a specific purpose (e.g., to reduce perceived distance) and people may initially use it for this purpose, their continued use of the technology, over time, may change their work context sufficiently that they come to use the technology in new and unexpected ways – even in ways that subvert their own initial intentions (Boudreau & Robey, 2005; Vaast & Walsham, 2005).

In this paper, we start from the premise that teleworkers use ICTs to actively manage others' perceptions of them as they engage in distributed work arrangements. What is less certain is whether teleworkers experience the paradox of connectivity outlined above and, if they do, how they attempt to resolve it. According to the insights provided by the practice lens, one way to relieve this paradox would be to appropriate, in new ways, those same technologies that helped to create the paradox in the first place. Yet given the lack of empirical research on the connectivity paradox we do not know whether such appropriations take place and, if so, what form they take. Specifically, we asked three cumulative questions to guide our data collection and analysis: (1) To what extent are distributed work arrangements crafted to decrease perceptions of the teleworkers' distance from the office? (2) If successful, to what extent do perceptions of perpetual connectivity affect teleworkers' ability to achieve their goals? and (3) How do teleworkers use ICTs to manage others' perceptions of their

distance from the office while simultaneously achieving their own specific goals for the distributed work arrangement?

Method

Participants

Most research on teleworkers has focused on people who work entirely from home and have little face-to-face contact with coworkers located in the office. Bailey and Kurland's (2002) review of the broad telework literature criticized studies for characterizing teleworkers as completely removed from face-to-face interaction when, in fact, many teleworkers spend part of their time at a central office or a client site. To address this concern, our study includes informants from all three telework categories described by Garrett and Danziger (2007): *Flexiworkers* ($n = 14$), who split time among home, office, or satellite locations; *Fixed workers* ($n = 11$), who work exclusively from home or a satellite location, and *Mobile workers* ($n = 4$), who travel to various sites during the work day. We included a fourth category, which represents an increasingly common type of work arrangement: *Distributed workers* ($n = 7$) are individuals who work in one office building but who engage primarily with people at a different location. Examples of these workers abound in modern organizations; they may have a desk at their company's offices in Chicago, but they work on a team that is based out of Denver. Thus, even though they are surrounded by people who work for the same firm, those whom they consider to be their immediate coworkers are not collocated.

To include as many informants from each of these four categories as possible, we solicited participation from companies we knew supported distributed work arrangements. We then used a snowball method to find more informants, particularly those who occupied categories for which we did not yet have much participation (Lindlof, 1995). Informants worked in nine different industry sectors: Computer Services ($n = 8$), Education ($n = 3$), Finance ($n = 1$), Media ($n = 2$), Public Relations ($n = 9$), Publishing ($n = 3$), Software ($n = 4$), Telecommunications ($n = 5$), and Web Services ($n = 1$).

At the time of the study, the average informant had been teleworking for slightly longer than four years ($M = 4.1$), with durations ranging from 1 to 11 years ($SD = 2.8$). All informants indicated that they used ICTs daily to be able to work at a distance from colleagues.

Interviews

Each of the 36 individuals who participated in this study agreed to take part in an in-depth interview about their telework practices. We developed a semi-structured interview protocol (Kvale, 1996) that was designed to yield data points of rough equivalence, thereby allowing for systematic comparison across informants. The protocol asked respondents to describe not only their use of technology, but also the nature of their work, and their relationship to their organization, their managers, and their coworkers. Our questions asked informants to reflect on changes in their work practices from their earliest days of teleworking to the present. We also asked specific questions about the kinds of ICTs that informants used, who supplied and/or recommended them, and the ways that they used those ICTs for a variety of work and relational tasks. We paid attention to eliciting challenges, suggestions, and overall opinions regarding the role of technology in work, and how informants talked about changes in their use of ICTs over time. Finally, we asked individuals if they felt working at a distance had an effect on their career development. Interviews ranged from 20-45 minutes, averaging approximately 30 minutes in length. All interviews were audio-recorded and later transcribed verbatim resulting in 260 single-spaced pages of analyzable text.

Data Analysis

Our analysis of the data follows a constant comparative technique (Glaser & Strauss, 1967) involving iterative examination of themes that emerged from the interviews. We began by utilizing a process of selective coding (Strauss & Corbin, 1998). Specifically, we went through the interview transcripts looking for (1) how informants positioned their feelings about distance from coworkers and (2) how they used ICTs. The segments of text we identified were rather long and contained many

examples. To further classify the data we looked into each of these coded segments to uncover reasons that informants gave for why they had a certain orientation toward distance, how they used ICTs, and why they used them in this way. This process of axial coding (Strauss & Corbin, 1998) involved putting the coded data back together in new ways by grouping responses that were conceptually similar. After each coding stage the first two authors met to discuss the categorizations, and decisions to drop or retain choices were made by consensus. We then wrote two theoretical memos (Glaser, 1998), each consisting of a one paragraph summary, for each of the 36 informants. The first memo explained the informant's orientation toward distance and the second explained how and why he or she used ICTs to deal with this orientation.

Next, we constructed a matrix in which we classified each informants' distributed work arrangement according to six variables (1) the structure of the arrangement (2) the company at which they worked, (3) the industry in which they worked, (4) their gender, (5) how often they saw colleagues face-to-face, and (6) the size of their team of immediate coworkers. We used the matrix to cluster informants by each of these variables and thereby determine whether the summary paragraphs we wrote fell into categories based on any one or combination of the seven variables. This iterative method of comparison allowed us to uncover whether informants' orientation toward distance or their use of the technologies were common across our dataset, or whether such orientations cleaved along any particular demographic lines (Miles & Huberman, 1994). The first and second authors each conducted this procedure separately and both arrived at the conclusion that there were no combinations of variables that distinguished one subset of responses from another. After this process, we went back through our coded transcripts to find specific examples that would help us to answer each of the three research questions posed above. Using both the conceptual groups assembled during axial coding and the patterns in the theoretical memos as guides, we assembled both aggregate and exemplar responses pulled directly from the transcripts that informed our questions.

Findings

Reducing Others' Perception of Teleworkers' Distance

The first research question asked if work arrangements were crafted to decrease the perceived distance inherent in distributed work arrangements. When informants reflected on the negotiations with managers that began their telework arrangement, they unanimously responded that their managers would only agree to let them telework if they had the appropriate ICTs in place. Two classes of ICTs were deemed essential to support telework. The first class was comprised of ICTs that created a technological infrastructure. The second class was comprised of software applications that allowed communication to occur on top of this infrastructure. Nearly all (32 of 36, 89%) managers provided infrastructure and software technologies to teleworkers free of charge, and in the other cases managers made employees purchase and prove the effectiveness of their own ICTs before agreeing to allow them to telework. Regardless of whether or not the manager provided the worker with the technology, all 36 informants indicated that managers required that infrastructure and application technologies were in place before they would even agree to negotiate the terms of a distributed work arrangement.

Infrastructure. As knowledge-intensive workers, all informants were accustomed to working in office buildings equipped with advanced technologies. Managers expressed concern that without the same infrastructure to support them at home, teleworkers would not be as productive or as effective as they would be in the office. Informants (18 of 30, 60% of those not in an office) referred to managers' insistence that their work from home had to be "like I was in the office." To ensure that it could be, managers insisted that teleworkers have two infrastructural technologies available to them: laptop computers, and a dedicated Internet connection. Ninety-four percent (34 of 36) of our informants indicated that their companies provided laptops, which allowed employees to be mobile and connected to colleagues. All individuals had Internet access at work locations and 86 percent (31 of 36) of informants characterized their home or satellite office connections as "high-speed."

Applications. Informants consistently mentioned four software applications that they and their managers viewed as essential for effective telework: 1) e-mail, 2) voicemail, 3) instant messaging, and 4) virtual private networks (VPN). The first and most prominent form of communications for teleworkers was e-mail. For most teleworkers (28 of 36, 78%) e-mail was the default mode of communication and the main form of interaction with both colleagues and clients. Voicemail was used to deliver ad-hoc messages, to provide an asynchronous form of communication, and to deliver information that, due to urgency or sensitivity, one did not want to provide online. IM was used to provide an informal, synchronous form of communication that often supplemented other forms of communication. Instant messaging served as a back-channel for conversations during conference calls, or for simple questions that benefited from an immediate response. Finally, VPN connections allowed workers to access sensitive files from the corporate network that were necessary to get their job done.

Individuals used the provided infrastructure (or supplemented it as they saw fit) to develop personal routines to deal with existing distance. No single application was able to support communication, nor was any single mix of applications used consistently among informants. Rather, informants appropriated the tools and applications available to them in order to support effective communication. As Brandon, a fixed worker at a telecommunications company described his use of applications:

If it wasn't for email and voicemail I would literally see them like twice a year and wouldn't know what is going on with them in their lives, but with email and voicemail we probably talk anywhere from 3 to 20 times a week. We really keep in touch that way and it really helps to keep you from feeling so isolated in a job that could get really lonely.

The software applications available to employees were effective in reducing the amount of distance felt by employees. Informants indicated that they were not necessarily effective because they limited geographic distance, but rather because they reduced the functional differences between the respective work arrangements. Many respondents (17 of 30, 57% of non-office workers) reflected

Melissa's (a mobile worker at a publishing firm) feelings regarding the success of her teleworking arrangement: "My virtual office now is really treated no differently than space in an office building." For informants, collocation provided few perceived advantages relative to the benefits of teleworking, and in fact was often viewed as a hindrance to productive work. This perception stemmed in part from the fact that much of the work that individuals engaged in did not require any physical interaction with individuals or materials. As Judy, a fixed worker at a telecommunication company commented:

All I do every day is write, talk on the phone. My kids ask me that question what do you do? I don't make widgets. I write. I talk on the phone. I coordinate between people who are either writing or talking on the phone.

Thus because work was accomplished primarily through interpersonal communication –whether technologically mediated or not – the ease of connectivity was a critical factor in the perceived efficacy of arrangements.

Teleworkers Feel Too Connected

Although managers and teleworkers began distributed work arrangements united in the belief that infrastructure and application ICTs should be used to reduce distance, over time informants noted that their perceptions about distance began to change. Several informants (14 of 36, 39%) had initial concerns that working away from the office would make it difficult for them to access important task-related information necessary to complete their assignments. Informants indicated that within several months of the of a distributed work arrangement, their concerns were misguided. As Jade, a fixed worked at a PR firm commented, "It's really amazing how much comes to you by email. You get all the work related information you need from it. And you can get email from anywhere." Additionally, at the outset of teleworking arrangements informants were concerned that they were missing out on the ability to form interpersonal relationships with others. However, this passed over time as individuals developed competencies at connecting virtually with coworkers and 92 percent (22 of 24) of our informants who had teleworked for more than two years indicated that they no longer had

a concern about their ability to form relationships with people at the office. Most agreed with Tamika that “after a while you realize that getting ahead and getting along with your colleagues is about doing good work. You get face-time through email and on the phone. That’s plenty.”

In sum, informants (34 of 36, 94%) indicated that after a short time teleworking their concerns regarding problems with distance decreased. However, workers also found that the ability to reduce distance, though necessary for distributed work, was not sufficient in providing effective and desirable work practices. Rather, they perceived high connectivity as carrying potential costs associated with the time and effort needed to attend to communication demands. Employees found when they reduced distance via technology they risked losing two important aspects of the distributed work arrangement that were initial drivers for seeking it out: the flexibility to balance work and personal lives and the ability to focus on work without distraction from others.

Flexibility. One of the primary reasons that informants elected to work in distributed arrangements was that they wanted to better manage the competing demands of work and home life. Informants often (17 of 36, 47%) voiced the belief that a better work-life balance could be achieved if they had more flexibility in their schedule. As Kaltham, a fixed worker at a media company observed:

At the end of the day, my boss only cares that I get the work done. As long as it gets done I can go back and forth between work and other things and it’s no problem. . . . It’s flexibility that allows me to prepare for a party on Friday doing a few things that day and then going back to work on Saturday morning.

For informants, flexible work schedules implied control over one’s own work. Although they recognized that there were certain fixed constraints in their day, such as meetings they were required to call into, informants began teleworking quite optimistic that they would be in control of their schedules. As Maria, a fixed worker who had just completed one year of teleworking at a telecommunications company, said, “If I don’t have a client meeting, I have 100 percent flexibility of what I’m working on.”

Our analysis revealed that over time teleworkers discovered that distance itself did not afford flexibility, and that control of their day was related more to whether or not they needed to be available. For example, meetings might be scheduled at the last minute or unexpected office emergencies required attention. Over time, teleworkers realized the futility of planning in advance, for example, when one might get her car's oil changed. Instead, schedule flexibility was ad hoc, rather than predictable or planned. As Grant, a flexiworker who teleworked at a publishing company for five years, noted:

In theory, we are in control. But at the same time if the school needs you, you go. So, we are in control, but we are sort of not... You can only sort of be in control of your schedule at the last minute if you find a free block in the day then you can do what you want to.

Numerous informants (13 of 36, 36%), like Grant, indicated that the lack of control and flexibility they experienced in their work was due to the ease of communication with the office. As he commented later in the interview, "part of the problem is that you're on email all the time and there is a norm that you have to answer it quickly, so people just email you all the time and want things." Other informants voiced similar concerns with their IM tools, saying that the status indicators on the tool told people whether they were online and, if they were, coworkers or clients would send them messages asking for information or clarification. These unanticipated messages would disrupt plans they had made to be away from their desks (normally for personal reasons), which they had to then cancel for work matters. Consequently, informants often did not schedule flexible time in advance, for they never knew who would contact them and ask them to do more work, which of course, would disrupt flexible time. In essence, a message from a coworker in the office became something they felt they had to address as soon as they learned about it. As Jade, observed, "They can get me at all times. They can get me when I'm in the bathroom." Teleworkers' communication with team members was the primary means of exhibiting work, thus it increased the pressure to accommodate others. As Maria, noted, "you also have this kind of kind of panic inside of you of 'oh my God if I'm not connected, what if something

happens.’ It’s this kind of obsessive kind of thing that you go through.” Every informant who referenced the amount of time they worked per week mentioned that they worked more hours as teleworkers than they did (or would) in an office setting. As Abe, a mobile worker at a telecommunications company commented, “It’s very easy since I’m already at home to continue working to the later hours, which if I was at the office I would probably leave the office and I would stop working.”

Focus. A second reason why informants decided to become teleworkers was because they wanted to focus on their work without distractions endemic to the office environment. More than half of informants (20 of 36, 56%) specifically mentioned that they did not maximize their productivity in the office because people would frequently stop by their desks or call them into ad-hoc meetings. The problem with such distractions was that informants found themselves doing less work between 8am and 5pm and having to stay later in the evening or to go into the office on Saturdays to make up for lost time. Thus, as Ola commented, “At the office it was taking me like 60 hours a week to do 40 hours of work. That’s 20 hours I don’t get to spend with my family and friends.”

Informants believed that distributed work arrangements would remove the distractions that office buzz brought to their work. Less distraction meant more focus, and more focus meant more productivity and better quality of work. As Jean, a flexiworker at a software company, observed,

Well, there just seems to be more fires to put out when I come to the office. Because I’m right here, people grab me and ask me for help with this and that, where at home I concentrate on one thing at a time. I’m more efficient and I do better work, at least that’s the plan.

Thus, with regards to our second research question, informants were not concerned that they were too distant from the office. Instead, informants felt capable of using ICTs to both complete work tasks and maintain relationships. Conversely, they often felt they did not have enough distance from the office to allow them flexibility in their schedules and to focus on their work. For example, informants told stories in which they would block off large segments of time to write a report, put together a

presentation, or do some other task, and the phone would ring, emails would come in, and they would get IM chats. As Judy, a fixed teleworker at a telecommunications company said, lamenting the inability to find time to work, “when people are calling you all day long it’s hard to disappear.” These interruptions would impede their ability to focus on the task at hand. This created a few situations where informants suggested that they had more contact with coworkers as teleworkers than they did when they worked in the office. As Brandon speculated, part of this reason was due to the fact coworkers back in the office were “going overboard” to ensure that teleworkers were not left out:

I think when you’re [not working in the office] people try to do more to reach out to you. So they call you more or email you more to just check in. They can’t see you, so it’s like they’re going overboard to get in contact and let you know that they haven’t forgotten you. So they contact you more. More emails and phone calls - when maybe in the office you’d only talk to this person once a day now it’s two times a day.

While this sentiment was, on many levels, appreciated by teleworkers, they grew frustrated that enhanced levels of communication impeded them from focusing on their work. Constant connection with the office placed informants in the center of discussions that they thought they would avoid by becoming teleworkers. As they became drawn into email communication, they found themselves losing the focus that they desired from their distributed work arrangements. As Javier, a fixed worker at a computer company, noted, “sometimes it would be good to feel even further away from the office than I do now.” Whereas practices for office-bound workers offered the potential for spatial and temporal boundaries, the practice of telework invited anytime, anywhere communication. Maria describes the difficulty in pulling away from work:

I guess that is the biggest downfall of having all of this connectivity and stuff, you are almost too connected... What it does then is unless you turn it off, it doesn’t turn itself off. People are always wanting [your time], it’s real tough actually. You get into this kind of struggle with yourself. You have to struggle to break free and just be disconnected.

These comments epitomize the connectivity paradox teleworkers faced. Establishing broad availability through ICTs encouraged people in the office to perceive teleworkers as available, connected, and less

distant, which was critical to a successful work arrangement. As Jean noted, demonstrating connectivity was key to, “Overcoming the internal concern that I would be as available as they needed me to be.” Yet the more successful the teleworkers were in establishing connectivity, and reducing distance at the outset of the arrangement, the more that level may have come to be expected, and the more challenging it was for the individuals to obtain elements like focus and flexibility.

Using ICTs Strategically to Increase Distance

Contrary to received wisdom—and management concern—our results show these teleworkers perceived their level of connectivity as rivaling what they would experience in a physical office. Given this finding, we were interested in whether teleworkers might use ICTs strategically in ways that helped to increase, and reclaim, distance. Informants in this study began their distributed work arrangements, generally, aligned with managerial exhortations that ICTs be used to reduce the distance seemingly inherent in them. Yet, paradoxically, over time teleworkers found that ICTs kept them so well connected with coworkers that it was difficult to introduce flexibility into their day and to focus on their work. A practice lens suggests that faced with these emergent pressures teleworkers would enact uses of technology in ways that allow work practices to change. Indeed, informants noted two strategic uses of their ICTs that helped them to feel more distant from the office.

Disconnecting. Informants frequently indicated that one advantage of telework was that although coworkers could still talk to them via phone or correspond with them via email, they could not *see* what they were doing. Informants could increase the distance they felt from coworkers by disconnecting their ICTs from the office, a strategy engaged in by nearly a fourth of informants (8 of 36, 22%; another six informants recognized disconnecting as a viable strategy for teleworkers but reported they did not yet use it). As Jake, a fixed worker at a computer service firm commented, “Sometimes when I don’t want to be disturbed I just unplug my ethernet cable.” Darby, a fixed worker at a financial organization, similarly noted, “If I need to concentrate and need some distance

from people I'll shut down my email." These behaviors were enacted over time as responses to the connectedness teleworkers felt with clients and co-workers. Judy, a teleworker of four years, commented that she initially felt guilty about leaving her phone off but eventually found it necessary in order to accomplish work:

I actually had to go through a learning curve. I had to learn to turn the phone off at a certain time because people will call me at 6:00 in the morning, and 10:00 at night. If I were in the office I wouldn't be there to hear it. I eventually learned to unplug it.

For others, the disconnection from ICTs was supplemented by shutting the door to a room, an action that both symbolically served to end the workday and removed the temptation of the computer from sight. These informants felt that they had the latitude to disconnect their ICTs from the office precisely because coworkers would assume they had a legitimate reason for being unavailable. For example, consider Jean's rationale:

If I don't return email in the office someone will come by my desk to just ask me the question or ask me why I didn't return the email. When I'm working at the satellite office no one's there to see whether I'm at my desk or not. So if I just shut down my email for a while to work, people in the office just assume I'm away from the desk or I'm on a call or something.

Certainly, the practices of unplugging the infrastructure or shutting down applications were in direct opposition to managerial intentions to reduce distance. Such unanticipated (non)uses of the ICTs were situated responses to the threat of losing flexibility and focus and represented strategic attempts to regain distance in one's work. Informants cast their decisions to disconnect as decisions that were in the company's best interest. As Tran commented,

Sometimes if I can get some quiet and not be so connected to everyone else I can just work better. I get more done and then when I reconnect I have all this productivity to show. So even though I might be like off the radar for a while its overall a good thing for [my company].

Disconnecting provided a mental space in which informants could focus or regain control of their workday. Brandon commented that he cherished the time before he had to sign onto the computer

network, and the instant messenger service would reveal his availability. Faith's observation captures the somewhat ironic motivation for disconnecting:

[Teleworkers are] more likely to do something like catch-up on mail or whatever because they are just burned out, and they feel like if I can just hold my laptop, and plug it in with nobody seeing me... There is this incredible stress of being in the office, and when you do it day-in and out you may not even know why but it just exhausts you mentally

Such (non)use of their ICTs was a defense mechanism against the temptation to participate in phone, email, or IM communication. Disconnecting created more distance, which allowed teleworkers to reap the desired benefits of their distributed work arrangements.

Dissimulating. A second, though less common, way in which informants strategically used their ICTs to increase distance was through dissimulation (only 4 of 36, 11% of informants mentioned this behavior). In other words, informants used features of their ICTs to disguise their actual work status, so as to provide a cover that would allow them to regain flexibility and/or focus. For example, even though many teleworkers admitted to working in their pajamas, eating during meetings, and even ironing their laundry while on conference calls, informants also mentioned that they were worried that their managers would form unfavorable impressions if they discovered that teleworkers were engaged in such practices. In order to be able to carry out these sorts of activities, while actively working to manage impressions of their bosses and coworkers, informants would turn to their ICTs. Dale, a flexiworker at a software company described an ingenuous strategy:

If I need to go do something I'll just set the status on ICQ (an instant messaging program) to "in a meeting." Then people won't expect a response from me because they'll think I'm on a conference call.

Melissa described a similar, though more elaborate strategy, enacted through her use of the "away from the office" feature on email.

Maybe you might do something like make an "away from the office" memo in your email if you need to concentrate on some work. Everyone knows I'm always in transit from one place to another, so it doesn't seem strange, but they get the satisfaction of getting a response,

especially if you say when you'll be back. So it's like some peace of mind that I'll get back to them

Such uses of ICTs to intentionally increase distance were situated responses to the reality of a distributed work arrangement in which informants found themselves less distant from the office than they wished to be. As informants commented, using ICTs in these ways was more polite than asking coworkers not to call or email them so frequently, and it was more socially legitimate than simply disconnecting altogether. Interestingly, informants portrayed their practices of dissimulation as a way of maintaining the fiction that one's working style out of the office was the same as it would be if they were in the office. By dissimulating through strategic uses of ICTs, informants were able to increase the distance between themselves and their office, thus assuring that such questions would not be asked and that the fictional image of their traditional workday could be maintained by those who were interested in maintaining it.

Discussion

Our findings indicate that although distributed work arrangements contain the material features necessary to help teleworkers reduce distance from the office, informants appropriated technologies in a variety of ways to manage specific concerns related to completing tasks and maintaining relationships, while striving for flexibility and focus. Two aspects of the practice of telework clearly emerge from the informants' comments. The first is that practices change and emerge over time, and teleworkers change their use of technologies to constitute a variety of structures based on situated needs. For some individuals, ICTs were used to provide uninterrupted time to focus on work tasks, while for others technologies were used to create the appearance of work and allow time to be spent on other endeavors.

The second theme is that in distributed work arrangements the operating assumption was that distance meant disconnection in a communicative sense. In other words, people who were working

away from the main office would not be as connected to office happenings as they once were. Because distance was conceptualized as a communicative problem, the deployment of ICTs that afforded synchronous, data-intensive communication was thought to be a means by which to decrease distance, and over-use of communication eliminated much of the desired distance of teleworkers. In person, one has little control over the extent to which his or her work practices are visible to others as they are available by virtue of co-presence. However, the relative invisibility of teleworkers, combined with the ability to regulate their visibility through ICT use, afforded them an opportunity to strategically create distance (through mediated communication) from their managers, coworkers, and clients. Informants who did purposefully engage in such practices were able to appear as if they were working in a manner similar to how people worked in the office while reaping the benefits of being out of the office.

Theoretical Implications

This work extends theory on work, distance and technology in at least three ways. First, it offers evidence that teleworkers can experience a connectivity paradox. This apparent contradiction occurs at the individual level in that the ICTs that provide the connectivity for teleworkers to successfully conduct work also create the opportunity for perpetual connectivity that raises perceived obstacles to work. At the organizational level, the desire to increase connectivity to create a more office-like environment leads individuals to disconnect so they can escape the demands of the office. These findings are not meant to suggest that distributed work is doomed to failure and frustration. On the contrary our results support research demonstrating that individuals are surprisingly adept at managing the constraints of ICTs and reasserting control over work practices (e.g. Boudreau & Robey, 2005). Rather, to continue the circular logic spurred by paradox, the ICTs that create the contradiction of connectivity also provide individuals the means to manage potential goal and role-related conflicts. Thus the results suggest that if the source of contradiction lies in types of connectivity, theory must

consider the ability of individuals to manage actual and perceived connectivity both over time and among social roles.

Applied more broadly, these findings suggest that the benefits of connectivity and visibility promised by more robust ICTs may carry with them unforeseen challenges associated with privacy and control (Cousins & Robey, 2005). However, concern with the ubiquity or persistence afforded by ICTs extends beyond privacy to worries about the loss of distinction between social spheres and spaces (Binder, Howes, & Sutcliffe, 2009). To resolve and prevent conflicts individuals must be able to successfully control what information that they present, the manner in which it is presented, and the related obligations to tend to the available information of others. In turn, our findings support the perspective that ICTs possess tremendous interpretive flexibility and provide actors the opportunity to enact a diverse set of practices over time (Leonardi, 2009). Theories informing distributed work should consider not simply the material features inscribed in the design of technology, but also the efficacy and motivations of individuals to enact a variety of social practices through technology use.

Second, the findings suggest that visibility may be a key element in the relationship between technology use, structuration and organizational change. Interestingly, while the practices of disconnecting and dissimulating were sometimes used to purposefully obscure the fact that teleworkers were organizing their days in new ways, these practices might very well sustain their own necessity. Teleworkers engaged in work practices differently than they did (and would) in a collocated office setting to reclaim flexibility and focus. But by using ICTs in ways that allowed for disconnection and dissimulation, teleworkers were leading those back in the office to believe that work practices were the same as before. As such, managers and coworkers were more inclined to treat teleworkers as if they were organizing their days like office employees, thus further contributing to the need for teleworkers to disconnect and dissimulate. Recently, Barley and Kunda (2001) argued that although ICTs may be shifting the nature of work, the structure of most organizations is still based on images of work

associated with the industrial revolution. Our findings indicate that by strategically using ICTs to increase the distance they feel from the office without letting anyone know they are doing so, teleworkers may be forestalling organizational recognition that the nature of their work has indeed changed and that formal organizing structures and procedures must change with it. In short, using ICTs in ways that create the perception that someone is mirroring traditional and common work practices may merely reinforce extant organizational practices.

For this reason, our findings suggest a scenario in which work practices may well change without concordant changes in organizational structure. In other words, local changes in work practice are obfuscated from managers and other policy makers such that those changes cannot become institutionalized in an organization's formal structural procedures. This process of obfuscated change is presented as a structuration model in Figure 1, which we adapt from Barley and Tolbert (1997). In their model of institutionalization, Barley and Tolbert suggest that an observable shift in local work practices serves as a mechanism to constitute a new institutional structure (reflected on the left half of the Figure 1) and that this process can continue recursively over time. Our findings suggest a change to this model: teleworkers' local work practices change, but because those changes are purposefully hidden from view of managers and coworkers, they are never externalized and recognized at the organizational level.

We illustrate this dynamic in Figure 1. Upon beginning a distributed work arrangement teleworkers use ICTs to *decrease* distance, thereby allowing them to increase their connectivity with the office and project an image that they are always available to their coworkers. Over time, using technology to decrease others' perceptions of their distance from the office shifts organizational expectations regarding a teleworkers' availability such that perpetual connectivity is expected from them. This relationship between changes in local work practices and institutional structure (illustrated to the left of the dashed line in Figure 1) is exactly what Barley and Tolbert explain. However, our

findings show that perpetual connectivity can lead teleworkers to feel that they have lost the advantages of a distributed work arrangement such that they begin to feel too connected to others. Consequently, they may adjust their use of the technology to increase (or reclaim) distance. By doing so, teleworkers are able to change their work practices (e.g., leave in the middle of the day to run personal errands, block off large segments of time for focused work) without anyone back in the office finding out. If, as Giddens (1984) suggests, reflexive monitoring is the mechanism that drives (or forestalls) change, then the obfuscation created by strategic technology use implies that institutional change may not occur. Because the new uses of the technology purposefully obfuscate changes in work practices, those changes are never externalized and norms for how one should work and when they should be available are sustained. We illustrate this relationship between local work practices and institutions to the right of the dashed line in Figure 1 (note the difference in the direction of Arrow D before and after obfuscated change occurs).

Finally, this study highlights the importance of treating distance as a relative concept in organizational work arrangements. Our findings showed that the need to reduce distance was predicated on replicating the standard that existed for office workers. In this vein extant research commonly contrasts telework with work that is termed *traditional* (Orlikowski & Barley, 2001), *conventional* (Bailey & Kurland, 2002) or *standard* (Daniels, et al., 2001), despite little agreement as to what constitutes a teleworker (Ellison, 2004). The findings in this study show that although individuals may experience different objective levels of distance, and as a result different logistical obstacles related to coordination, the mere presence of increased distance relative to a collocated office worker is what prompts different expectations. Thus an individual who is the only teleworker on a large team of office workers is likely to experience different pressures than someone in a group that meets once a year. However, treating distance in this way means that theory about the relationship between technology and organizing processes must not only consider distance as a multidimensional

construct (O'Leary & Cummings, 2007) but also begin to view it in relation to the level of distance felt by comparison groups. Therefore research should move beyond treating co-located workers as a de facto control group and characterize distance within the context of the connectivity experienced by members of idiosyncratic organizations.

Practical Applications

Two potential applications for organizations and practitioners emerge from our data. First, organizations should conduct an exploratory audit to examine the communication practices of all types of teleworkers in order to identify the ways in which existing technologies are used to manage distance. This will not only reveal strategies and behaviors that are perceived as effective, but suggest the extent to which existing organizational technology can be appropriated to meet organizational and individual demands. Our investigation revealed that workers are largely able to satisfy work and relational needs with relatively lightweight ICTs such as phones, laptops, Internet connectivity, and secure network access. As such, we encourage organizations to embrace emergent and informal uses of technology by effective teleworkers to the extent that it does not compromise information security. However, organizations need to recognize that, like the disconnection and dissimulation displayed by some of our informants, it may be the subversive nature of these communicative behaviors that make them effective. Therefore, organizations should be cautious in formalizing policies regarding distance communication. The addition of organizational technologies explicitly designed to reduce distance, and accompanying directives for use, may serve as a burden for teleworkers and counterparts. Furthermore, observed technological practices might simply be a strategy to placate perceived organizational desires and not reflective of the functional value of tools. Alternatively, teleworkers might benefit from (and prefer) the flexibility to develop individual technological solutions and repertoires as opposed to having to conform to organizationally mandated options.

Second, our findings suggest that organizations should address the underlying communicative practices that make distanced work arrangements attractive—mainly, the level of interruptions and distractions that are pervasive in the work environment. The ironic finding in both our data and other studies is that individuals feel the need to remove themselves from the office environment in order to complete more work. Managers should start a dialogue about what individuals find distracting or disturbing and consider how to create a more productive work environment. Organizations can take steps to reduce the number of meetings employees must attend, establish office spaces for concentrated work, and set restrictions on who is able to distribute mass e-mails. Additionally, companies can develop training programs to prepare teleworkers for the potential work distractions while at a distance, or support a forum for employees to share helpful suggestions for accomplishing work from non-office locations. As our findings show, the distractions teleworkers face are largely products of the ease with which contemporary technologies allow connectivity and communication. Therefore, distributed organizations and teams should discuss expectations regarding the appropriate level of connectivity needed and regularly revisit the topic to determine if practices are being followed. The goal is not merely the reduction of distance, but also the appropriate management of distance. Organizations that recognize this can take advantage of the flexibility of technology to meet a variety of individual and organizational demands.

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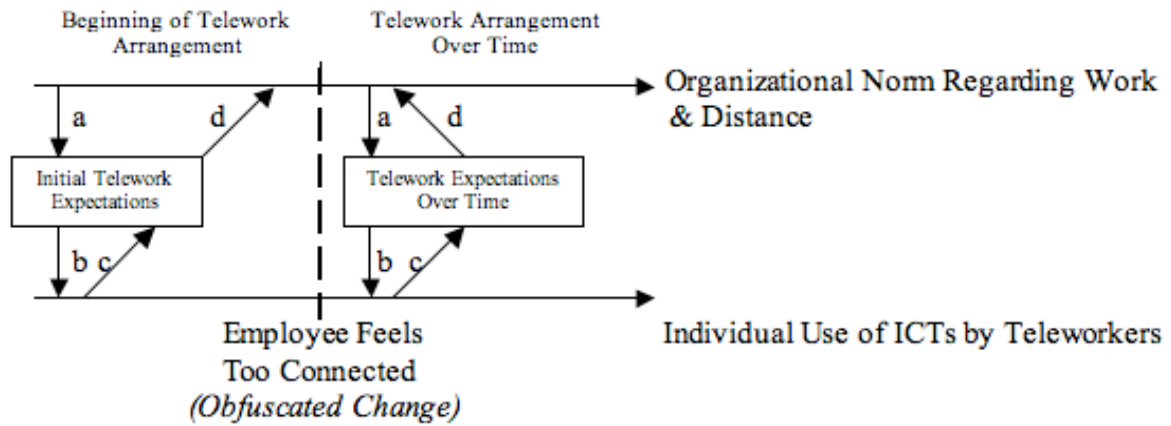
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Figure 1: Model of process of obfuscated change exhibited by teleworkers



- a) Understanding of how distant a worker ought to be perceived
- b) Behaviors intended to meet the expectations of distance
- c) Behaviors intended to change or maintain the personal experience of distance
- d) Behaviors establish a normative quality in line with existing expectations of distance