Telecommuting, professional isolation, and employee development in public and private organizations

CECILY D. COOPER[1]* **AND NANCY B. KURLAND**[2]

[1]*Department of Management and Organization, Marshall School of Business, University of Southern California, U.S.A.*
[2]*16802 Calle de Sarah, Pacific Palisades, CA 90272, U.S.A.*

Summary   This study employs a grounded theory methodology to compare the impact telecommuting has on public and private employees' perceptions of professional isolation. It relied on 93 semi-structured interviews with telecommuters, non-telecommuters, and their respective supervisors in two high technology firms and two city governments. These organizations had active telecommuting programmes and a strong interest in making telecommuting a successful work option, providing an opportunity to investigate the challenges of telecommuting that existed even within friendly environments. The interviews demonstrated that professional isolation of telecommuters is inextricably linked to employee development activities (interpersonal networking, informal learning, and mentoring). The extent to which telecommuters experience professional isolation depends upon the extent to which these activities are valued in the workplace and the degree to which telecommuters miss these opportunities. Public respondents appeared to value these informal developmental activities less than private employees. Therefore, we stipulate that telecommuting is less likely to hinder the professional development of public sector employees than that of employees in the private sector. Copyright © 2002 John Wiley & Sons, Ltd.

Introduction

Telecommunications and computer technology make working at home possible for many Americans. Estimates show that currently 16.5 million regularly employed Americans telework at least one day per month of their normal work schedule (International Telework Association, 2000). Telecommuting involves working outside the conventional workplace, for example, at home, and communicating with it by way of computer-based technology (Nilles, 1994). Organizations and employees can reap many benefits from telecommuting, including, but not limited to, lower absenteeism, better morale, reduced

overhead, attraction of a wider talent pool, more schedule flexibility, and fewer distractions (Kurland & Bailey, 1999).

Although the concept of telecommuting has been around since the seventies when Jack Nilles first coined the term, this work form is still 'new' since it has not yet become prevalent in most organizations. Practitioners and researchers are still trying to understand its nature, and, most notably, ask: (1) why do people telecommute? and (2) what is its impact on organizations and individuals in those organizations?

Academic research and the popular press suggest that people are telecommuting more (e.g., Nilles, 1994). However, in a review of the last 25 years of empirical research, Bailey and Kurland (1999—working paper) conclude that this increase may be illusory. At the individual level, motivations to telework have not been borne out. In attempts to model the preference of employees to telecommute neither commute factors, such as commute length or time (Mokhtarian & Salomon, 1997; Stanek & Mokhtarian; 1998), nor family factors such as child-care (Baruch & Nicholson, 1997; Kinsman, 1987; Huws, Korte, & Robinson, 1990) clearly predict who will telecommute. These contradictory findings leave open the question of why some employees opt to work remotely. At the firm level, scholars have identified little beyond managerial reluctance as an inhibitor to telework adoption and diffusion. That fewer people telework than many futurists and scholars predict indicates that the forces for telework on both the supply and the demand side may not be strong.

Numerous factors constitute key obstacles to telecommuting (Baruch & Nicholson, 1997), which may limit the degree to which organizations and employees actually adopt telecommuting. An oft-cited obstacle is employee isolation. Isolation of telecommuters can manifest itself professionally or socially (e.g., Salomon & Salomon, 1984; Broder, 1996; Tomaskovic-Devey & Risman, 1993). Professionally, employees fear that being off-site and out-of-sight will limit opportunities for promotions and organizational rewards. Socially, employees comment that they miss the informal interaction they garner by being around colleagues and friends. However, as Bailey and Kurland (1999—working paper) argue, the greatest impact on isolation appears to be telecommuting frequency. If people do not telecommute a lot, they will not be isolated. Yet, in study after study, respondents cite isolation as a reason why they do not want to telecommute frequently (Baruch & Nicholson, 1997; Kahn, Tung, & Turban, 1997; see Gainey, Kelley, & Hill, 1999 for a discussion). At second glance, it appears that a fear of isolation may limit telecommuting frequency rather than telecommuting infrequency limiting isolation.

Given this uncertainty in the relationship between telecommuting frequency and isolation, further research needs to explore the validity of these previous findings. In order to more closely investigate this phenomenon, we use a grounded theory approach in the present study to better understand whether, how, and why isolation, or the fear of the same, may impact employee demand for telecommuting. Moreover, we focus primarily on professional isolation, and only on social isolation to the extent that it impacts professional isolation.

Professional isolation and employee development

Professional isolation is inextricably linked to employee development. Employee development activities are critical for organizations to effectively adapt and compete in turbulent environments (Nadler & Nadler, 1990). They can be formal or informal. Informal developmental activities occur during an employees' day-to-day experiences on the job and can actually be more critical to employee development than formal developmental activities such as workshops and training. In fact, in a study of managers, Wick (1989) estimated that nearly 70 per cent of all development experiences were (on-the-)job experiences. Similarly, McCauley et al. (1994) empirically demonstrated that informal

developmental opportunities were significantly related to employee development and learning. Public sector scholars have also found that managers learn on a day-to-day basis and their learning emerges from a combination of person, job, and contextual factors (Kelleher, Finestone, & Lowy, 1986).

Three types of developmental activities include interpersonal networking with colleagues in the organization, informal learning that enhances work-related skills and information distribution, and mentoring from colleagues and superiors. We introduce and define these concepts now, because we found that they were also inextricably linked to telecommuters' professional isolation concerns discussed later in the paper.

Interpersonal networking

When employees work off-site, they miss informal interactions that occur in the workplace (Kugelmass, 1995; Piskurich, 1996). Interpersonal networking can exist in various forms, including office gossip and work-related, spontaneous discussions (Kurland & Pelled, 2000). For example, research has demonstrated that managers use the grapevine to disseminate information informally that they cannot, for organizational reasons, do so formally (Davis, 1953). Generally, interpersonal networks in organizations benefit employees because they allow people to establish relationships and gain access to information that can advance their professional careers.

Informal learning

Where interpersonal networking can contribute to professional advancement, informal learning can contribute to professional development. When employees work off-site, they miss the learning that occurs, informally, and spontaneously—learning that can not be scheduled. Informal communication is very often face-to-face, and facilitates data exchange, helping to build one's knowledge base (e.g., Fine & Rosnow, 1978). People in the workplace also learn skills vicariously by being in close proximity to and observing co-workers (Brown & Duguid, 1991). Obviously, work performed away from the conventional workplace will rarely provide such implicit learning opportunities.

Mentoring

Whereas informal interaction enables employees to negotiate an organization's political infrastructure and informal learning further develops the employee's expertise, mentoring does both. A mentor is an experienced, productive manager who relates well to a less-experienced employee and facilitates his or her personal development for the benefit of the individual as well as that of the organization (Kram, 1985). Mentoring can be a critical aspect of an employees' career development and has been empirically linked to salary level and promotions (Scandura, 1992). Mentors provide feedback, access (to official and unofficial organization networks and external networks), and emotional support (Altmeyer, Prather, & Thombs, 1994). They act as role models, encourage new behaviors, provide feedback, counsel, and facilitate informal exchanges of information about work and non-work experiences (Kram, 1985). Some informal mentoring relationships involve peer interactions through which colleagues help one another (Kram & Isabella, 1985; Carrell, Elbert, & Hatfield, 1995). Even long-tenured employees benefit from mentors.

Public versus Private

In order to gain a more holistic understanding of telecommuting, we also explore boundary conditions that might be relevant to professional isolation and telecommuting. One possible variant that may impact the relationship between these two factors is organizational context. In particular, if organizations have more formalized personnel practices, these may serve to insulate telecommuters from being

isolated. The more formalized systems may ensure that telecommuters have access to all the same information and resources as in-house employees. Moreover, these systems may diminish the importance of informal channels (to which telecommuters have less access) for achieving organizational rewards such as pay and promotions.

We explore the impact of these different types of contexts by studying the experiences of telecommuters in both public and private organizations. Recently, Kurland and Egan (1999b) found that public employees were less satisfied with their supervisors than were private employees. They concluded that 'while the changing nature of the employment contract in the private sector has been widely noted and discussed, little has been said about the changing nature of the employee–employer relationship in the public sector.' Telecommuting is one tool that may impact this relationship, and impact it differently in the public sector than in the private sector since public organizations typically have more formalized systems.

A considerable amount of literature supports the contention that public organizations are more rule-oriented, more hierarchical, more bureaucratic, etc., than are private organizations (for an overview, see e.g., Scott & Falcone, 1998). In fact, a number of studies have found that government managers, as compared to business managers, perceive a weaker relationship between their job performance and extrinsic incentives such as pay, promotions, and job security. These same government managers also felt constrained by formal personnel procedures in that these procedures made it more difficult to associate such incentives with performance. Managers in private industry did not feel similarly constrained (Rainey, 1979; Rainey, 1983; Rainey, Traut, & Blunt, 1986). Assuming these findings are representative of a public–private distinction, if public employees have more formalized processes for promotions and the like, then being on-site and in-sight may influence organizational reward outcomes less in public organizations than in private ones. Hence, public employees would be less concerned about professional isolation. We explore this possibility.

In short, the present study contributes to research on: (1) telecommuting and (2) the public–private distinction in four ways. First, using a grounded theory approach, we investigate in detail the relationship between professional isolation and telecommuting demand in order to understand more fully how and why professional isolation concerns manifest themselves. In doing so, second, we elicit insights from three perspectives: the telecommuter, a non-telecommuting colleague, and their respective supervisor. With few exceptions, research on telecommuting has concentrated only on the telecommuter's perspective, ignoring managers' and non-telecommuters' perspectives.

Third, we *interview* respondents. Again, with few exceptions, most data on telecommuting have been gathered via surveys (e.g., Mokhtarian & Salomon, 1997; Kurland & Egan, 1999a, Trent, Smith, & Wood, 1994). Although surveys can document the extent of isolation, they cannot provide explanations for *how* or *why* these concerns affect an employee's decision to telecommute, or capture the nature of the telecommuting arrangement, itself. And, fourth, we interview employees from two public organizations and two private organizations. We are concerned not only with how telecommuting affects an employee's professional isolation, but also whether employees in public and private organizations tend to have similar experiences with these issues. Comparative research of this type is critical as new organizational practices and forms emerge.

In sum, we wish to further understand how telecommuting employees experience their work by investigating three primary questions:

1. Does professional isolation impact employee demand for telecommuting?
2. If so, how does this occur? That is, why do employees associate the work form of telecommuting with professional isolation? What are underlying factors?
3. Are there any differences or similarities in how employees in public and private organizations experience telecommuting?

Organizational Context

The Companies

This research was conducted in four organizations, two high-tech publicly traded firms and two city governments. Each of these four organizations had active telecommuting programmes and wanted to make telecommuting a viable work option. Three of the organizations were located in Southern California. The other city government was located in a mid-sized city in the Western United States.

- One high-tech company was the largest subsidiary of a $36 billion computer, communications, and microelectronics firm with more than 160 000 employees worldwide. During the course of the study, this company was actively developing services and products targeted at the home telecommuter, hoping to take advantage of the growing number of home-based workers.
- The other high-tech firm designed, manufactured, and serviced electronic products and systems for measurement, computing, and communication used by people in industry, business, engineering, science, medicine, and education. It had long been heralded for its family friendly policies and commitment to achieving a healthy work–family balance—values instilled by its founders. The company had over 100 000 employees worldwide and $38 billion in revenues.
- The first public organization governed a large, Southern California city. It employed nearly 10 000 people including civil engineers, chemists, biologists, and data systems technicians. It offered a formal telecommuting programme city-wide in 1991 after a successful pilot in 1990.
- The second public organization, governed a large city in the western United States. WesCityGov employed 14 000 people, overall, and implemented their telecommuting programme in 1996.

The Employees

The informants included telecommuters, their supervisors, and non-telecommuting colleagues. In the private sector, we interviewed a total of 53 respondents. In the public sector, we spoke with 39 employees. The respondents included 37 telecommuters, 30 supervisors, and 25 non-telecommuting co-workers of telecommuters.

Time

The study was conducted between 1997 and 1999.

Methods

This study relied on informants from two high-technology firms and two city government agencies described below. We used Glaser and Strauss's grounded theory approach (1967; see also Creswell,1998; Eisenhardt, 1989; and Strauss & Corbin, 1990). A grounded theory is one that is 'inductively derived from the study of the phenomenon it represents' by using qualitative research methods in which 'data collection, analysis, and theory stand in reciprocal relationship with each other' (Strauss & Corbin, 1990: 23). It is most appropriate when researchers want to allow a deep understanding of a phenomenon to emerge from the data.

In taking a grounded theory approach, it is important to choose a sample which can 'contribute to the evolving theory' (Creswell, 1998, p. 118). In order to investigate our questions of interest it was

important that organizations in our sample: (1) had established telecommuting programmes; and (2) possessed an interest in making telecommuting a viable work option. These criteria were most important so our ideas could inform other organizations which were also trying to make telecommuting a successful work option. Conversely, if an organization had an informal telecommuting programme which was not fully sanctioned, we would expect that individuals telecommuting under these conditions may have even different (and likely more difficult) experiences with telecommuting than the subjects in our sample. Lastly, since we wanted to explore the experiences of telecommuters working in different contexts, particularly comparing employees in public and private organizations, we were certain to attain both types of organizations for our sample. All four organizations met these criteria. They had established telecommuting programmes that were formally supported by management. Moreover, two of the firms were from the private sector and two were from the public sector.

For the two private sector firms, members of the human resource staff facilitated our introduction into their respective organizations. In the two public organizations, we had initial contact with the individuals in charge of overseeing the telecommuting programmes, however, these were not human resource personnel *per se*. In three of the four organizations, we asked our contacts to provide us with a list of telecommuters and their supervisors matched with non-telecommuters who worked with them. Then, we contacted these people and requested interviews. In the other organization, we only had a list of telecommuters. As the end of each interview with these telecommuters, we asked them for the contact information for their supervisor and a non-telecommuting colleague. Of the individuals that we were able to contact, all of them agreed to be interviewed. In total, we interviewed 39 employees from two city government agencies and 54 employees from two publicly-traded companies (a.k.a. private organizations). All organizational names are pseudonyms.

Research sites

Private organizations

IntelliDat was the largest subsidiary of a U.S. $36 billion computer, communications, and microelectronics firm with more than 160 000 employees worldwide. This subsidiary analysed, designed, implemented, and managed intelligently integrated voice, data, and video network solutions that helped customers optimize communications with their customers, employees, and suppliers. During the course of the study, this company was actively developing services and products targeted at the home telecommuter, hoping to take advantage of the growing number of home-based workers.

CompuDat designed, manufactured, and serviced electronic products and systems for measurement, computing, and communication used by people in industry, business, engineering, science, medicine, and education. It had long been heralded for its family friendly policies and commitment to achieving a healthy work–family balance—values instilled by its founders. The company had over 100 000 employees worldwide and U.S. $38 billion in revenues.

Public organizations

The two public organizations were both city governments. The first, CalCityGov, managed and governed a large, Southern California city. It employed nearly 10 000 people including civil engineers, chemists, biologists, and data systems technicians. It offered a formal telecommuting programme city-wide in 1991, after a successful pilot in 1990. WesCityGov, the second public organization, also governed a large city in the western United States. WesCityGov employed 14 000 people, overall, and implemented their telecommuting programme in 1996.

Table 1. Description of study informants

	Gender	Age (in years)	Job tenure	Organizational tenure
Private sector				
Supervisors	3 female 14 male	35–57	1 mo.–25 years	8–31 years
Telecommuters	16 female 8 male	31–60	3 mo.–12 years	3 mo.–35 years
Non-telecommuters	3 female 9 male	31–62	2 mo.–8.5 years	1–39 years
Public sector				
Supervisors	4 female 9 male	39–61	2–12 years	7–27 years
Telecommuters	4 female 9 male	28–58	9 mo.–10 years	1–27 years
Non-telecommuters	8 female 5 male	32–57	4 mo.–10 years	1–18 years

Study informants

Private organizations

We interviewed 17 supervisors, 24 telecommuters, and 12 non-telecommuters. Supervisors' job areas included information systems, manufacturing, consulting, sales, operations, research and development, financial operations, project managers, procurement managers, human resources, product marketing, and general, regional manager. Telecommuters and non-telecommuters held titles such as accountant, business analyst, buyer, consultant, financial analyst, operations assistant, personnel administrator, proposal specialist, sales, and software engineer. All supervisors had earned at least a bachelors degree, and telecommuters and non-telecommuters all reported that they had had at least some college education. Four telecommuters (17 per cent) in the sample telecommuted full-time; four others telecommuted only an hour or two per day, several days a week. Half of the non-telecommuters had telecommuted at some point in their professional careers, albeit usually for short periods and informally (not formally sanctioned by the organization). See Table 1 for additional selected demographics.

Public organizations

Job categories of supervisors, telecommuters, and non-telecommuters included civil engineers, environmental review specialists, support service staff, data systems coordinators and technicians, chemists, and planners. Supervisors held titles such as Environmental Scientist Supervisor, Senior Environmental Engineer, and Support Services Manager. Telecommuters and non-telecommuters held titles such as Plan Review Specialist, Engineering Associate, and Information Systems Technician. As in the private organizations, all supervisors had earned at least a bachelors degree, and all but one of the telecommuters and non-telecommuters reported that they had at least some college education. The remaining individual held a high school diploma. In general, employees telecommuted one day either every one or two weeks. However, in WesCityGov, two individuals telecommuted three days a week and a three of the telecommuters in the sample also spent time out of the office doing site visits and inspections. See Table 1 for additional selected demographics.

Data collection and analysis

In accordance with a grounded theory approach, we used a semi-structured interview format to collect focused data. The interviews included three types of individuals: telecommuters, non-telecommuters, and supervisors of each. Telecommuters and non-telecommuters were matched by job and reported to the same supervisors. Triangulating the data gathering process in this manner (Eisenhardt, 1989; Glaser & Strauss, 1967) provided input from three perspectives about, as well as a reliability check on, each telecommuter's and manager's experience. Subjects responded to three types of questions: work-related, demographic, and general [see Appendix A for a partial interview protocol]. The primary task of the first few questions was to establish rapport with the focal person and to understand the individual's current job responsibilities. Subsequent questions focused on their experience with the telecommuting programme in their organization. Questions were mostly open-ended but designed to assess professional isolation perceptions. All interviews, both face-to-face and by phone, were recorded and transcribed and lasted between 20 and 60 minutes, yielding several hundred pages of data. We used Atlas® software, a qualitative data analysis package, to code the data.

We began analysing the data after conducting and transcribing about half of the interviews from the private sector organizations. Each of the first two authors separately coded some of the transcripts in an open-ended manner. During the open coding process, for example, we noted things in the interviews that respondents (i.e., telecommuters, supervisors, and non-telecommuters) found to be an advantage, disadvantage, or challenge of telecommuting. Examples of these open codes appear in Appendix B. Next, we came together to discuss whether we found any common themes in the interview. For example, first, we had to determine whether we found any examples of professional isolation in the interviews and, if so, what the characteristics of this construct were. We both agreed that there were numerous indications of professional isolation in the interviews and that these were represented by the codes listed in Appendix B under 'professional isolation' such as 'Challenge: non-telecommuters don't think telecommuters work.' We determined that these codes represented professional isolation and agreed to continue using them and to look for similar incidences in subsequent interviews. After coding more interviews, we compared our codes again to ensure that we were coding similarly for incidences of professional isolation. This iterative process was repeated until the reliability of our coding was consistent and all of the transcripts collected up to that point were coded. The entire coding process uncovered common challenges and concerns about isolation those managers and employees experience.

After identifying trends in the data, we adapted our interview questions in subsequent interviews. We de-emphasized questions that no longer seemed relevant or that failed to lead to interesting insights. At the same time, we pursued topics that surfaced as more interesting and relevant to and for respondents. For example, we initially did not ask respondents about mentoring, yet several raised mentoring-related concerns on their own. In these and subsequent interviews, we probed them about their mentoring concerns. Similarly, we also added questions about informal communications such as the 'office grapevine'—asking how prevalent it was and whether telecommuters missed any information from the 'grapevine' while working at home. Conversely, in initial interviews we had also asked telecommuting respondents if there was anything that took the place of the social interaction that they missed at work. All respondents had very similar answers (e.g., family, close friends) which did not offer unique information. As such, we stopped asking that question in subsequent interviews. We used the same questions in interviewing employees in the public organizations as we did for employees in the private firms.

After we completed the interviews, we again separately and collectively coded and interpreted the remaining data. During the data analysis process, we generated ideas about the concepts discussed in some interviews and revisited other interviews to check the degree to which these relationships held.

Additionally, we analysed the data in three stages. First, we collated the interviews and, using Atlas, queried for issues such as professional isolation concerns. More specifically, referring back to Appendix B, Atlas allowed us to link all of the codes we believed to be related. For example, when looking at professional isolation concerns, we could associate all of the open codes related to that concept (e.g., Disadvantage: can't see telecommuters working, telecommuters feel more pressure to work). Therefore, when we wanted to read only those quotes that dealt with professional isolation, Atlas could pull those from all of the interviews and put them into one document. We could similarly query for informal interaction, informal learning, mentoring, and any other category of interest.

Next, after noting overall emergent trends with regards to professional isolation and developmental activities, we divided the interviews into triads (supervisor, telecommuter(s), and non-telecommuter(s) who worked together). We examined the degree to which the concepts we discerned from the aggregated data were present within the triads. For example, if a telecommuter did not believe that the non-telecommuting colleague was an important resource for learning about job-related issues, we asked if the non-telecommuter in question also believed this about the telecommuter? How did they both say they gained job-relevant skills or knowledge? If a telecommuter expressed concern about missing informal interactions in the workplace, did the non-telecommuting colleague or supervisor also contend that these interactions were valuable? Did the supervisor or non-telecommuter believe the telecommuter was actually missing anything by being away from the office?

Lastly, we compared whether these relationships held across both the public and private firms. Were employees in the public organizations more, less, or equally concerned about professional isolation of telecommuters in their organization? Why or why not? The entire coding process yielded distinct similarities and differences in the telecommuting tactics and concerns of the private and public organizations in the sample. We agreed that the data reflected the findings discussed in the next section.

Findings

Our basic finding is that both public and private employees perceive that professional isolation is inextricably linked to employee development activities. Employee development involves employee learning and overall skill growth. It differs from training in that development is not necessarily related to specific requirements of a present or future job (Nadler & Nadler, 1990). Professional isolation, by definition, occurs when telecommuters, because they are off-site and out-of-sight, miss important organizational rewards. More specifically, we found that telecommuters miss three types of developmental activities that occur frequently in a conventional workplace: (1) *interpersonal networking* with others in the organization; (2) *informal learning* that enhances work-related skills and information distribution; and (3) *mentoring* from colleagues and superiors. By working off-site for at least a portion of the work-week, telecommuters in the present study perceived that they did not have the same degree of access to these informal development opportunities.

Additionally, within triads, supervisors, telecommuters, and non-telecommuters agreed quite a bit regarding their perceptions of the opportunities for these developmental activities. However, we observed differences when we compared private and public perceptions of the same. Private organizational employees appeared much more concerned about telecommuters missing employee development opportunities than did public organizational employees. However, in either type of organization, if employees are professionally isolated, this isolation will undermine their potential professional development within their field and/or organization. We include representative quotations to clarify these concepts, illustrate the agreement we found in the perspectives of the three types of
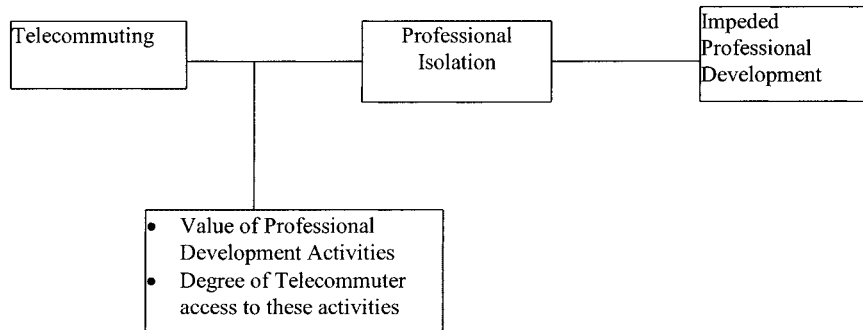
Figure 1. Relationship between telecommuting and employee professional development

respondents, and highlight the similarities and differences we found between public and private respondents. We illustrate these relationships in Figure 1.

Interpersonal networking

During the interviews, private sector managers commented frequently about the importance and utility of such interactions and noted that face-to-face contact was critical for creating familiarity and camaraderie (see Table 2).

Table 2. Interpersonal networking

Organizational type	% of informants expressing concern for telecommuters (re. interpersonal networking)	Illustration of informants discussing interpersonal networking
Private	82% of supervisors 50% of non-telecommuters 75% of telecommuters	*Intellidat manager*: 'There's . . . tremendous . . . value . . . in having people spend social time together. People will ultimately . . . [talk] about work. But [when people telecommute,] you don't have those idle conversations in the hallway, in the break room. It's harder for people to go and have lunch together or go out after work together . . . That [lack of] morale and camaraderie really impact[s] people's performance . . . .' *Corresponding Intellidat telecommuter*: 'You need that initial face-to-face. And when I first started working for IntelliDat, I spent my first full three months in the office everyday. . . . It was my choice [to stay in the office]'
Public	15% of supervisors 8% of non-telecommuters 15% of telecommuters	*WestCityGov telecommuter*: 'And I'm not sure, working for government, if it's the same as corporate. In corporate I think there's more of a ladder and more of a who-you-know, and I hate to say, brown nosing, but you know along that line . . . it's like [in WestCityGov] you wait for a position to open up and you go for it. It doesn't matter if your face is seen . . . . I don't think I'm losing out on my career [by telecommuting] *Corresponding WestCityGov non-telecommuter*: 'I don't think the office grapevine or anything like that plays a big part in who gets promoted. All the position openings in the city are posted on the internet and we simply put our name on the list. A telecommuter could do that just as easily as I could

To facilitate such interactions, one IntelliDat manager required her employees to go to their local office for monthly meetings, to chat with people, to pick up their mail, and so on, just to learn names and meet the other employees. Many other private sector managers found that reduced face-to-face interaction impeded camaraderie and that fractured camaraderie negatively affected productivity.

Private sector telecommuters also complained that they did not have ready access to people (to ask questions of), and to information, that they would otherwise have gained through casual conversations. Indeed, several telecommuters recommended against telecommuting if the employee was or wanted to be active politically and maintain high visibility.

By comparison, CalCityGov and WesCityGov supervisors and employees seemed less concerned that telecommuting might impede interpersonal networking opportunities. Two telecommuters in CalCityGov stated that they did not have access to the organizational grapevine and did not care. One telecommuter in WesCityGov believed that people in the office, generally, wasted time with too much 'chit chat', while another attested that information passed through the grapevine was usually wrong. A CalCityGov non-telecommuter who had recently been hired stated that he was not keyed in to the grapevine because he did not expect to be promoted in the short-term. Still others, telecommuters, non-telecommuters, and supervisors alike stated that the grapevine was not that important. Supervisors emphasized that they made sure their telecommuting employees did not miss pertinent information and that important news was disseminated formally. One WesCityGov supervisor held mandatory weekly meetings in order to provide a formal forum for face-to-face interaction between telecommuters and non-telecommuters. A non-telecommuter in that group believed these weekly meetings were as productive as after-work socializing for facilitating interaction within the work group.

But opinions did differ. In stark contrast to the previous comments, a CalCityGov non-telecommuter believed the grapevine helped her to be more productive. Two CalCityGov supervisors urged that people needed to have access to the grapevine in order to get ahead—although, one of these same supervisors believed that if one was working, then one was not talking. Four different interviewees from WesCityGov thought interpersonal networking was valuable, but that telecommuters were in the office enough that they did not miss out on these opportunities. A non-telecommuter elucidates: 'I don't think telecommuting should be so often, like more than one day a week. Because I think it's important to interact with your co-workers.'

Overall, though, supervisors and employees in the city government agencies perceived that the grapevine and interpersonal networking seemed to play a less vital role in employee advancement and organizational effectiveness than in the private sector companies. This difference is most attributable to the nature of the promotion processes within the two types of organizations. The public sector employees had more formal systems they had to use when seeking a job change or advancement.

Informal learning

Many comments from the interviews reflected that when telecommuters are not in the office, they run the risk of not receiving information that can support them in their professional tasks and development.

The public and private organizations were similar on this dimension in that they both acknowledged the importance of informal learning. However, differences between the public and private organizations emerged in relation to the extent to which they valued this type of learning, and how they perceived telecommuting in relation to informal learning (see Table 3). The private sector managers complained that telecommuters missed out on these learning opportunities because team members often learned from one another informally.

Table 3. Informal learning

Organizational type	% of informants expressing concern for telecommuters (re. informal learning)	Illustration of informants discussing informal learning
Private	53% of supervisors 75% of non-telecommuters 63% of telecommuters	*CompuDat non-telecommuter*: 'I find that if [telecommuters aren't] there just when I happen to be . . . [L]et's say we're in another building. We're working on a project and we need [my telecommuting co-worker] over here who's . . . a key part of this project and we look over [at his cubicle]—just to jump in on this two minute conversation—and he's not there and we've got a group of people gathered, I think that often that piece of the puzzle [that he would bring] gets left out' *Corresponding Compudat telecommuter*: ' . . . . We certainly share best practices in casual conversations that come up [in the office] and things will be mentioned . . . and you know that doesn't happen of course when you're at home, when you're isolated' *Intellidat supervisor*: '[M]ost communication here tends to be informal communication, not meetings, not memos, or things like that. Even if the telecommuters come to the weekly meetings that's not enough to make up for [missing the informal learning while they are at home]'
Public	8% of supervisors 15% of non-telecommuters 8% of telecommuters	*WestCityGov telecommuter*: 'Well, I don't know that telecommuting has affected [my learning] in any way. Journals and stuff like that are still all available and, in fact, I have a whole stack of them to look at . . . That mechanism for learning is still there and hasn't been affected in any way by telecommuting. . . . We're expected to . . . review regulations and that kind of thing. I just don't see that telecommuting affected [my learning] in any way other than the [informal type of learning] that you brought up, a co-worker saying 'oh, did you know that . . . ' But even that kind of information gets relayed in staff meetings and in the occasional one-on-one interactions that I do have. I don't know that [my learning has] changed at all' *CalCityGov supervisor*: 'But keep in mind that, at least in our organization, we only do it once a week . . . some people once every two weeks. So I would say even if there [are] some concerns in (terms of informal learning) it would be minimal, and they probably can make up for it by maybe attending other seminars or things of that nature'

Alternatively, individuals in the city government agencies did not perceive that their telecommuting employees missed enough interactions for it to have negative consequences. They reasoned that telecommuting only one day a week did not cause employees to become isolated in any way.

One reason public employees teleworked less frequently overall compared to private employees related to a structural constraint. Compared to IntelliDat and CompuDat, CalCityGov and WesCityGov relied on taxes to fund their activities. As a result, unlike the two high technology firms, CalCityGov could not purchase or reimburse its employees for home-based work-related equipment of any kind. Similarly, WesCityGov's telecommuting contract specified that the city would not provide phone lines,

office furniture, or 'installation, service or maintenance of personal equipment' for employees working at home. Although, the city would provide cellular phones or pagers to employees with certain job functions, as well as laptop computers that could be checked out from the city as necessary.

Additionally, employees in the public organizations were much more likely to cite formal sources as a means for learning work-related information. Individuals in both CalCityGov and WesCityGov mentioned learning through written materials such as magazines, trade journals, and newsletters. They also frequently mentioned searching the Internet and attending in-house or off-site training courses as a means of learning new skills or information. Two respondents even discussed scheduled meetings as a substitute for impromptu, informal learning. Moreover, one CalCityGov telecommuter believed that his co-workers were not at all important to his work-related learning and used more formal sources as his primary means of learning new information. Two other telecommuters from CalCityGov stated that they believed they learned more in their jobs since they began telecommuting, because they had more uninterrupted time in which to read relevant written materials.

Overall, private sector employees valued informal learning more highly and were more likely to perceive telecommuting as negatively affecting informal learning than were public sector ones. The interview data indicate that this difference can primarily be attributed to: (1) the greater reliance of public sector employees on formal sources of information and skill-development; and (2) the lower frequency of telecommuting by employees in the city government agencies.

Mentoring

Interview respondents, particularly supervisors, spoke candidly about mentoring challenges and alluded that the professional development and advancement of telecommuters may be inhibited by the absence of or reduction in mentoring activities (see Table 4). In particular, private sector managers commented that because they were unable to observe telecommuters in action, they were less able to coach and counsel these employees to develop them for longer-term organizational success.

Yet, compared to the private sector, CalCityGov and WesCityGov managers did not find mentoring telecommuters challenging for several reasons. First, employees did not telecommute frequently enough that remote mentoring became an issue. Rather fellow employees and supervisors continued to mentor when employees were on-site. For example, one CalCityGov employee stated that, 'Usually [my supervisor] will answer a question, or I'll wander around and get feedback from . . . [an] other 40 or 50 people, no one in particular though.' Another employee in the CalCityGov plan review department said that telecommuters and non-telecommuters alike learn a great deal simply by working with a more experienced staff member and implied that infrequent telecommuting did not hinder this learning. Two employees, one telecommuter and one non-telecommuter, from WesCityGov concurred and discussed how they were mentored by more experienced co-workers.

Second, supervisors mentored employees through formal communication channels. For example, one non-telecommuter in CalCityGov stated that her supervisor, who telecommuted, mentored her through e-mail by asking her to do something and telling her how to go about doing it. Others in both organizations found they were mentored through staff meetings or one on one meetings during which the supervisor would go over what everyone was doing and any problems they were experiencing. One WesCityGov supervisor also held a monthly meeting for all of his telecommuters and remote workers so that they could discuss any challenges or problems that had arisen from their work arrangements and advise each other on these problems. Another CalCityGov supervisor stated that he mentored by allowing individuals to attend professional and personal growth meetings.

Third, at CalCityGov the 'telecommute diary' required of all telecommuters facilitated communication between supervisors and telecommuting employees. Almost all telecommuting employees were

Table 4. Mentoring

Organizational type	% of informants expressing concern for telecommuters (re. mentoring)	Illustration of informants discussing mentoring
Private	53% of supervisors 3% of non-telecommuters 75% of telecommuters	*Intellidat supervisor*: 'In our business, it's probably true in a lot of people's business, the coaching and counselling that you do with people is really, really critical. And it's a constant process as a manager ... So that's one of the challenges. How do you develop your people? How do you have enough face to face, or enough time in a professional environment with them to be able to see the things they need to improve on? And to be able to then spend that coaching and counselling time with them? If you do everything remotely, it's really hard to get a sense at the end of the quarter, at the end of the half. How do you do somebody's review? And how do you assess their performance, skills ... ? It's easy to identify their performance based upon activity and, you know, the results. But how about those personal development, or [skill] development issues, that you really need to focus on? So there's got to be a balance there'
		Compudat supervisor: 'There are certain things that you just don't tend to talk about [on the phone] ... I was able to meet up with one of my employees and we just went out and spent the evening together just talking. And a whole bunch of stuff came out that he would've never told me on a phone call. You know, I asked him, 'Well are you happy here?' You know, 'What are some of the challenges you have? Do you feel like you have enough work?' And I suppose I could certainly ask those questions on the phone. But when we're on the phone we are so focused on day-to-day tasks and job opportunities that are coming up ... You know, when you're having casual conversation and you're relaxed and you have more time, you just start getting feelings out and thinking about things that otherwise you don't talk about on the phone because you're so regimented ...'
Public	0% of supervisors 15% of non-telecommuters 8% of telecommuters	*WestCityGov non-telecommuter*: 'You know, I guess I'd have to say then that I'm not [mentored] really ... I've been in several other jobs and they've all been fairly political, and I can say in other jobs that I've definitely been mentored. But I can't say that that's really going on here ... It's just not really the climate here—to groom or to mentor. ... I'm pretty sure that [the nature of the promotion and reward structure] has a lot to do with it. That [mentoring is] not a major focus for management because there's nowhere to go'
		CalCityGov supervisor: 'I try to keep all my people informed, but I really don't mentor them in the classic sense of taking someone aside and saying I'm going to train you'
		WestCityGov supervisor: 'My employees were hired because they are already professionals in their field. I have a responsibility to see that they meet the federal and state compliance guidelines for the work they do, but their work process is not something one can supervise very carefully'

required to turn in an agenda before their telecommuting day in which they outlined the tasks they would complete while telecommuting. Also, upon their return to the office, the telecommuters had to turn in another document stating exactly what they had accomplish and how long it had taken them. These formal reporting procedures existed so that CalCityGov could justify its operations to the tax-payers to which they remained accountable, and the supervisors took these requirements very ser-iously. Non-telecommuting employees have no equivalent written reporting requirements. For this reason, one CalCityGov employee expressed that telecommuting may actually improve mentoring relationships: '[Telecommuting] might even increase [mentoring] because, as I said, we tell the super-visor a day in advance what we are going to do and sometimes there may be some nurturing or mentoring there . . . ' The statement of one supervisor concurred with this telecommuter, regarding the benefits of mentoring through 'telecommute diary' meetings. When asked to describe how she mentored her telecommuting employees, she said:

> *'Well, mostly what I do is . . . give them more challenging assignments on their telecommute days. Then, we make it a point that within their first hour back the next day after they telecommute, they come see me. They bring their telecommute diary and if we need to we discuss it, we discuss the progress on a project and how they're doing, next steps, and we re-look at schedules if assignments have turnaround times and due dates. . . . The difference is the telecommuters turn in a written diary . . . and with the in-office employees, they don't turn in a diary, but I still meet and discuss their assignments with them.'*

WesCityGov employees did not have any equivalent reporting requirements.

Lastly, other supervisors and employees believed they did not mentor, were not mentored, or were generally unclear on what the process of mentoring meant. One WesCityGov supervisor who was, at first, unclear about the meaning of mentoring, then said that he mentored when it was necessary.

> *' . . . Whenever there is a question of mentoring or what have you, they can request it or I request it and then we discuss issues and problems, and we give advice . . . I give advice as and when that advice is required.'*

Yet, the non-telecommuting employee working under this supervisor not only believed she was not mentored but that the climate of WesCityGov did not encourage mentoring.

Employees seemed to concur that supervisors in their organizations did not actively mentor. Two WesCityGov employees said they were mentored if they asked questions of their supervisor, and three CalCityGov telecommuters believed they received no mentoring. Indeed, two of them believed that supervisors did not mentor unless someone was brand new at which time the person received some initial training. The third said he was not mentored because he had been working in his job for so long and acted more as a mentor to other employees. Moreover, in contrast to some of the earlier references, one non-telecommuter believed that employees had to come to the job with their own skills and, thus, should not expect to be mentored.

Other issues

When investigating employee isolation experiences in the interviews, we also conclude that distin-guishing between professional and social isolation is misleading. Social interaction involves elements of interpersonal networking, contributes to informal learning and mentoring, and, in general, helps build trusting relationships.

Finally, we found no general directional relationship between professional isolation and telecom-muting frequency. Rather, overall, non-telecommuters and supervisors believe that employees should

telecommute less to avoid any developmental hurdles, whereas telecommuters believed that they should telecommute less or else they would have less access to these development activities. In short, it appears that, for non-telecommuters and supervisors, telecommuting infrequency may limit professional isolation while, for telecommuters, a fear of professional isolation may limit telecommuting frequency.

Discussion, Limitations, and Future Research

The first two research questions asked whether and how professional isolation impacts employee demand for telecommuting. The telecommuting employees we spoke with seemed to limit their telecommuting frequency, because they feared becoming professionally isolated, implying that professional isolation has a distinct impact on telecommuting preferences. From the interviews, it appears that the amount of professional isolation telecommuters experience depends upon: (1) the extent to which developmental activities (i.e. mentoring, interpersonal networking, informal learning) are valued in the workplace; and (2) the degree to which telecommuters miss these opportunities when working from home. Moreover, if telecommuting causes employees to be isolated, it hinders their potential short-term and long-term professional development within their field and/or organization (see Figure 1).

Lastly, we were also interested in whether employees in public and private organizations experienced telecommuting in the same manner. The interviews implied that they do not. The contexts of these two types of organizations shape the experience of telecommuting differently for employees. The public sector employees who telecommuted appeared less likely to negatively affect their personal career development by doing so. This difference arose because CalCityGov and WesCityGov supervisors and employees were less likely to perceive that telecommuting negatively (or positively) affected informal learning, interpersonal networking, and mentoring than were IntelliDat and CompuDat supervisors and employees. In general, it seemed that the more formalized personnel processes of the public organizations in our sample shielded telecommuters, because they diminished the overall importance of developmental activities for all employees. To the extent that other public organizations have similar processes, telecommuters in these organizations should also experience less professional isolation. Although the private sector firms in our sample did not have similar formalized procedures, we can speculate that if a firm in the private sector did have such procedures, these would also function to insulate telecommuters from isolation.

Overall, public supervisors and employees perceived that the grapevine and interpersonal networking seemed to play a less vital role in employee advancement and organizational effectiveness than it did in the private sector companies. In part, we can attribute this difference to the promotion process in the two types of organizations. In the private sector, promotion seemed to depend, not only on individual performance, but also on the breadth of the employees' contacts throughout the organization. By contrast, the bureaucratic nature of the public organizations seemed to dictate who was promoted and who received which assignments more than did individual merit or interpersonal networking.

Noticeably, both types of organizations perceived informal learning as important. Yet, private organizational members seemed to value this type of learning more highly than individuals in the public organizations who, in addition to informal learning, frequently cited more formal sources for learning work-related skills and information. Since informal learning was more highly valued by the private sector firms, private organizational members perceived that telecommuting employees suffered because they missed this type of learning. Granted, this difference could be confounded by the fact

that public sector employees telecommuted less frequently. However, the fact that public sector employees rely more heavily on formal learning sources implies that informal learning would be more of a concern to the private sector employees even if the public organizations had the same level of telecommuting frequency.

Lastly, we might attribute the above differences in spontaneous learning between public and private employees to the nature of the work in each organization. The primary business of IntelliDat and CompuDat was very different from that of CalCityGov and WesCityGov. Therefore, future research should compare individuals in public and private firms that not only telecommuted at the same frequency, but were also involved in similar tasks.

We found stark differences between public and private managers' concerns about (career-related) mentoring. Specifically, private managers were more concerned than public managers when telecommuting precluded their ability to mentor. Only five public managers explicitly stated that they actively mentored their employees. They primarily mentored through task assignment and instruction designed to develop and empower the employees. By contrast, most private managers mentored their employees. Again, these differences can be attributable to either or both differences in the frequency of telecommuting between the two types of organizations and differences in the promotion processes of the public and private organizations.

Although we do not claim to provide conclusive evidence on the relationship between professional isolation and telecommuting in public and private organizations, these findings offer a rich description of: (1) how telecommuters tend to experience the new work form of telecommuting; and (2) how context plays an important role in determining the impact of professional isolation. To further advance knowledge on this topic, the model we have described and present in Figure 1 may be tested in a positivist framework. Therefore, we summarize our findings in the following five propositions:

Proposition 1. Telecommuting is positively related to professional isolation in telecommuters.

Proposition 2. The value of professional development activities moderates the impact of telecommuting on professional isolation. If activities such as these are not valued or valued little in an organization, it will mitigate the impact of telecommuting on professional isolation.

Proposition 3. The degree of telecommuter access to professional development activities moderates the impact of telecommuting on professional isolation. If telecommuters have access to these activities, it will mitigate the impact of telecommuting on professional isolation.

Proposition 4. Professional isolation of telecommuting employees impedes their professional development.

Proposition 5. The degree to which employees experience professional isolation will mediate the impact telecommuting has on employee professional.

Conclusions

As a relatively new work form, there is still much that academics and practitioners do not know about telecommuting, allowing the findings from this study to directly inform both theory and practice. For theorists, the results contribute to the burgeoning body of research on telecommuting and other new work practices, as well as complement the literature examining distinctions between public and private organizations. Regarding the telecommuting literature, to our knowledge, this is the first study to

empirically investigate the mechanisms underlying the professional isolation of telecommuters. Similarly, unlike much research exploring differences between public and private organizations, the present study investigates whether the two types of organizations differ and why these differences occur—a perspective which theorists have typically ignored (Perry & Rainey, 1988). Few studies comparing across the two types of organizations have taken such a 'microscopic' perspective (Meyer, 1982).

For practitioners, the results have immediate implications for the design of new telecommuting initiatives as well as the assessment of ongoing programmes. First, although telecommuting can be a valuable work option for both types of organizations, it appears that telecommuting has the potential to negatively impact private sector employees to a greater extent than public sector ones. Public sector firms typically have more formalized systems which negate the importance of informal interactions at work. More specifically, one driving force behind this finding is likely the nature of the promotion processes in the two types of organizations. They are inherently different between public and private organizations (Rainey, 1979; Rainey, 1983; Rainey et al., 1986). Yet, we acknowledge that this distinction could also be attributable to differences in the frequency of telecommuting and the nature of the industries and job tasks for the organizations in the sample. Future research should examine these factors in greater detail. However, from the results of this study, assuming that other public and private organizations similarly differ in their amount of rule-orientation, we prescribe that private-sector firms should be even more attuned than public sector ones to preventing professional isolation of their employees.

Second, the interviews indicated that telecommuters are not professionally isolated to the extent that they still have access to these informal, developmental activities. As such, organizations that want to adopt this work option should place more emphasis on training employees about the practice of telecommuting. By training not only the telecommuters, themselves, but also the managers and in-office employees that work with telecommuters, organizations can preempt many of the misperceptions and miscommunications that can occur as a result of telecommuting. Stemming from our findings, we would recommend that the training include: (1) how to maintain open communication between the telecommuter and in-office employees; (2) how the supervisor should try to maintain synergy between disparately located workers; (3) the need for formal channels of communication (e.g., weekly meetings); and (4) the importance of disseminating all necessary information to employees working at home.

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Author biographies

Nancy B. Kurland received her PhD from the University of Pittsburgh. She is, currently, a writer living in Los Angeles. Formerly, she taught at USC's Marshall School of Business and Pepperdine's Graziadio School of Business. She has published articles in the *Academy of Management Review*, *Human Relations*, *Journal of Public Administration Research and Theory*, *Organization Science*, *Organizational Dynamics*, and numerous other scholarly journals. Her research has centered on telecommuting and business ethics.

Cecily D. Cooper is a doctoral candidate in the Department of Management & Organization at the University of Southern California. Her research interests focus on interpersonal relationships in the workplace, leadership, and cross-cultural dynamics in organizations with much of her work combining aspects of these three areas.

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Appendix A

Partial interview protocol

The questions presented below guided interviews with telecommuters. Questions were altered appropriately for supervisors and non-telecommuters.

1. Tell me about your job, job title?
2. How often do you telecommute?
3. Are you happy you're telecommuting? Why or why not?
4. Describe some benefits you experience because you telecommute.
5. Describe some of the drawbacks of telecommuting.
6. Because you're telecommuting now, what expectations do you have with respect to your:

   7. performance?
   8. the amount and nature of your communication with your supervisor, colleagues, customers, and other work-related people?
   9. the type and amount of ongoing training you'll receive?
   10. opportunities for rewards and promotions?
   11. other expectations?

12. Have these changed since you started telecommuting? How?
13. Has your relationship with colleagues, supervisors, customers, etc., changed since you started telecommuting? How?
14. How do your (a) colleagues, (b) supervisor, and (c) work friends feel about you telecommuting?
15. Does telecommuting affect your ability to be creative in your work? If, so how?
16. Does telecommuting affect your intellectual activity? If so, how? For example, does it: engender freedom?, keep your thinking sharp?, dull your thinking because you don't have constant intellectual stimulation from those around you?
17. Do you feel you are learning as much in your job as you did before you began telecommuting? How do you learn new things?
18. How are you mentored? Is it any different from before?
19. Do you have colleagues and/or friends with whom you hash out ideas? If so, how often do you interact with these people? What type of communication media do you use (e-mail? telephone? face-to-face?)? Who do you communicate with mostly?
20. Did you volunteer to telecommute or were you assigned to it? If you volunteered, why? Is the option to telecommute a reward?
21. How has the nature of your communication with colleagues and your supervisor changed since you've started to telecommute?
22. How is your performance evaluated? Has this changed since you started telecommuting?
23. Do you believe that telecommuting has impeded the rewards you receive that you believe you deserve (e.g., promotions)? Why or why not?
24. Since you've been telecommuting, do you find it easier or more difficult to communicate with your supervisor and/or colleagues about issues that are important to you, both personal and work-related? Why or why not?
34. Do you work in groups or teams?
35. If you could change anything, what would you change to improve your telecommuting experience?
36. What about telecommuting do you find most challenging?
37. What did we miss?

Appendix B

Examples of codes used in analysis

I. Informal learning

Brainstorm: face-to-face
Brainstorm: over e-mail
Brainstorm: over phone
Disadvantage: telecommuting impedes intellectual activity
Informal learning (explicitly discussed by respondent)
Information: telecommuters don't miss information
Information: telecommuters miss information
Intellectual activity: benefits
Intellectual activity: hinders

Intellectual activity: no effect
Learning (any learning that's not informal with colleagues)

II. Informal interaction

Challenge: difficult to complete teamwork, challenge: impacts camaraderie of workgroup
Disadvantage: delay of work for in-office workers
Disadvantage: hard to contact telecommuter, disadvantage: lack of camaraderie
Disadvantage: no face to face with internal customers
Disadvantage: missed meetings
Disadvantage: not enough face-to-face
Disadvantage: telecommuter not immediately available
Informal interaction (discussed explicitly by respondent)

III. Professional isolation

Challenge: managers resist telecommuting
Challenge: non-telecommuters don't think telecommuters work
Challenge: non-telecommuters jealous of telecommuters
Challenge: people won't call home-office
Disadvantage: can't see telecommuters working
Disadvantage: don't know what telecommuters working on
Disadvantage: non-telecommuters carry workload
Professional isolation—yes (they believe it occurs/feel it)
Professional isolation—no (they don't believe it occurs/feel it)
Telecommuters feel more pressure to work