



Telework: *When Your Job is On the Line*

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Thomas Erickson, Jenny DeGroot, and Arnold Lund

Introduction

At first I [Jean Scholtz] became interested in the prospects of telecommuting when I worked as a usability engineer for a group developing a desktop video conferencing product. Although I saw many diverse uses for this product, I did not see it being used for telecommuting. Several years later, when I suggested that I use this product and be a telecommuter, my manager was firmly convinced that such an arrangement would not work and my request was denied. A short time later I moved to the East Coast and worked successfully on a large project in the Chicago area, taking only three airline flights in four months.

During the last two years I've met several long-distance telecommuters, most of whom contributed to this article. We put this panel together—remotely—to address the following issues:

1. Telework is a valuable way of allowing skilled people the flexibility to contribute to the workplace from wherever they feel they are best able to make that contribution. Why do so many of us still get in a car and drive to an office?

2. Many of us who have worked in large corporations have been supplied with laptops and remote access so that we can take work home and so that we can be in touch when we are traveling. We are encouraged to do this. But most large corporations do not encourage workers to stay at home during normal business hours. Are some kinds of telework better supported by the technical and social status quo than others? In particular, people who take work home with them are not so heavily penalized as those who work from home (see "Teleporters and Telepaths"). The former seek to escape from the social melee of office life, whereas the latter suffer from the loss of opportunities for informal communication and influence that it provides.

3. Far fewer people use their homes as a remote office than take their work home, and this may be because it is harder to "pull this off" as a successful career strategy. Current technical solutions are unlikely to overcome all of the problems experienced by home-based office workers. A good deal of social adaptation and further technological developments are also likely to be necessary before we see their numbers increase substantially.

KLR Consulting Inc.'s Web¹ site defines telework as

the concept of employees performing some portion of their regular job from a remote location. This remote location could be an employee's home, a corporate telework center, a shared telework center or any other remote location. In essence, telework uses basic telecommunications technology to

connect employees to their regular corporate office location.

¹<http://www.klr.com/klr/telefaq.htm>

The KLR Consulting Web site notes that the technology usually required is a personal computer with the necessary software, a

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About the Authors

JEAN SCHOLTZ is a researcher at the National Institute of Standards and Technology (NIST). She became interested in telework when she was involved in developing desktop video conferencing software at Intel. At the time, she and her spouse were working in jobs on opposite coasts. This gave her lots of time to speculate on why telework was not more widespread. She has since moved to the "other" coast, where she has a traditional commute each day to work.

VICTORIA BELLOTTI is a researcher at Xerox PARC. She is interested in designing systems to support information collaboration between remote colleagues. She conducted several studies of teleworkers as a researcher in the User Experience Research Group at Apple Computer. Victoria shares the findings from her studies and compares them with the experiences of the authors who are teleworkers.

LESLIE SCHIRRA works in Corporate Communications at Atlanta Gas Light Company. Her specialty is marketing communications. Her entire 14-person group became teleworkers during the Olympic Games last summer because of the difficulty of travel to downtown Atlanta.

THOMAS ERICKSON shares his experiences in this article as a researcher at Apple Computer. He became a teleworker when his wife's career took them to Minneapolis. Tom recently joined IBM's T.J. Watson Labs as a teleworker.

JENNY DEGROOT works in the Human Factors Group at Ameritech and was a part-time teleworker for 11 months. Because much of Jenny's job involves hands-on testing, she used a part-time "consultant" to carry out this aspect of her job.

ARNOLD LUND balances out our panel as the manager of a teleworker. He shares his experience as manager of the Human Factors Group at Ameritech, supervising Jenny's telework. Arnie currently works as a Distinguished Member of the Technical Staff at US West in Boulder, Colorado.

modem, a printer and several telephone lines. Yet current technology surpasses this. Faster modems, ISDN lines, less expensive personal computers, and more advanced options exist. Computer Supported Cooperative Work applications and desktop video conferencing hardware and software are available. Supposedly these tools should enable more and better telework. Do they?

An article by Andrew Bibby² outlines questions that a worker should consider when deciding if telecommuting is the right choice for her situation. Kraut [1] found that few full-time employees actually used their homes as a primary work site. Kraut concluded that home work was a compromise. He argued that home workers are not included in the day-to-day communication channels of an organization and, hence, may be less valuable to their companies than workers who are not remote. Margrethe Olson [2] addressed the types of work that could be successfully done (and managed) remotely. Participants in her survey had the following common job characteristics: well-defined deliverables, significant amount of concentration needed for job, well-defined milestones for job, and a relatively low need for communication with others in the organization. Is this still true? Are we able to take advantage of technology advances to make remote work of all sorts possible?

The information in this article does not come from a large study of teleworkers. Rather, it comes from in-depth insights and reflections of three telepaths and the manager of one of the telepaths. Our telepaths had different types of jobs and different experiences with remote working (see “Teleworker Profiles” sidebar). After several months of deliberations (see “Putting the Panel Together” sidebar), we decided to organize their experiences into the following two categories:

1. Consequences of working in a remote office
2. Effect of a long-term physical separation from colleagues

Arnie adds the manager’s perspective to each of these discussions, and Victoria contributes commentary based on the findings of her studies of teleworkers.

The Consequences of Working in a Remote Office

Leslie:

I found that working in a remote office made me the master of my time clock. While I still put in a full day’s work, I was able to shift my hours around. And because I spent less time preparing to go to work and commuting, I immediately gained a few extra hours in my day.

Being alone at home also greatly lowered distractions. With nobody stopping by my office to visit and fewer phone calls, I found I had more concentrated work time. Writing projects that had been almost impossible to concentrate on at the office were easily completed at home.

While the flexibility proved to be a plus, I found there was a gray line between work and leisure hours. I found myself mingling the two, even more than I usually do. I believe that with more practice and a more permanent home work station, I would be able to better separate work and leisure time.

Working at home did prove to be less expensive—no gasoline bills, no lunch bills, no dry cleaning bills. The biggest inconvenience, however, turned out to be the lack of office equipment.

Tom:

One of the most prominent features of my life as a teleworker is the rhythmic nature of my work. I travel to Cupertino and have a week of intense social interaction—both planned and spontaneous. This interaction results in a bunch of informal agreements: to read someone’s paper, critique a prototype, develop an idea that came up in discussion, or just talk more over the phone. When I return to Minneapolis I shift into focused work mode, in which I have time to read, reflect, write, and carry out other tasks. The informal agreements made during my social week now partly structure my remote time. I don’t mean to imply that remote work is calm and uninterrupted—far from it. Even at a distance I am still interrupted by phone or e-mail, I still experience radically rearranged priorities, and I still participate in the occasional bureaucratically induced “fire drill”; however, the degree of interruption is considerably less than when I am on site.

²http://www.eclipse.co.uk/pens/bibby/why_twk.html



Though it's not all-or-none, there is a real rhythm to my activity that I find extremely energizing and productive. This was something I had not anticipated before starting telework.

Tied in with this work rhythm—both as a cause and consequence—is that whatever location I'm at inhibits some activities and

facilitates others. And these inhibitions and facilitations are just what you'd expect: spontaneous conversations with colleagues are easier on site; time to write and think is easier to find at home or on the plane. And, naturally, the nature of many of my activities shifts to accommodate my work rhythm.

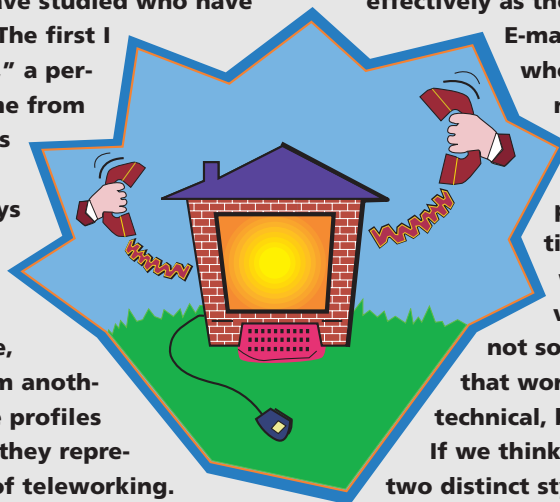
Teleporters and Telepaths

Victoria Bellotti

If we want to understand people's requirements for better computer and communications support for telework, it may be useful to think of telework in terms of various practices in different contexts rather than simply anything involving telecommunications technology. As a first step in that direction I want to introduce two very distinct types of teleworkers I have studied who have sharply differing needs. The first I shall call the "teleporter," a person who takes work home from the office in the evenings or on weekends, or even works at home 1 or 2 days a week. The second type I'll call the "telepath," a person who works with people in a remote office, either from home or from another office. Although these profiles may overlap somewhat, they represent very distinct kinds of teleworking.

Teleporters often assert that they work at home, not just to keep up, but also to escape from interruptions in the office. Being able to focus on one thing without having to go to meetings, answer the phone, respond to knocks on the door, or resist the temptation to chat with colleagues is a major benefit. My own research suggests that what teleporters typically want from technology is a seamless transition from the office to home. They want a portable or ubiquitously accessible information space without having to worry about bandwidth, synchronization, inconsistency, complexity, unreliability, and a host of other problems associated with dialing in to work, even using ISDN.

The advantages of solitude accrue only up to a certain point. If someone is separated from her colleagues for more than a couple of days a week, she begins to experience problems because of her isola-



tion from all the distractions in the remote office. This is the position of the telepaths, who must overcome the obstacles of being remote in order to try to be as influential and involved as their colleagues who share an office are with each other. What telepaths want from technology is the ability to get access to people and to interact as informally and effectively as they might if they were face to face.

E-mail is often ignored or overly blunt, whereas a physical encounter can be much more effective and subtle. The telephone doesn't really permit you to meet and get to know new people, or to judge when is a good time to talk to someone. The newest wave of teleworking technology, videoconferencing applications, does not solve these problems. It may also be that workable solutions cannot be purely technical, but must involve social changes too.

If we think of teleporting and telepathy as two distinct styles of teleworking, we can begin to see that different kinds of technological (and social) solutions are suited to different kinds of situations. Telepaths are a much rarer phenomenon than teleporters; this is hardly surprising since they are so poorly supported by technology. All of the contributors to this article have personal experience with telepathy, either as a telepath, a manager of a telepath, or, in my case, as a researcher studying telepaths. Telepaths exist because competing demands or constraints in their lives keep them away from the office, yet they are valued highly enough for employers to invest in them, despite the obvious difficulties. It would surely be advantageous to both employer and employee to realize the full potential of such people through appropriate work practices with the communications and collaboration software and hardware to make them more effective.

Probably the chief consequence of working from my home is the softening of the boundaries between work and home life. For years pundits have predicted the merging of work and leisure, home and office. But before I became a teleworker, when I worked full time at Apple in Cupertino, it felt to me like work was infiltrating leisure, but not the opposite. Now it feels balanced. A big part of this is that for the first time in my adult life, I live and work in the same place. I can shovel snow while a large file downloads, or go upstairs and work at midnight if I have insomnia. For me this is very pleasant; however, I can imagine situations—such as when work or home life is not going well—in which this could be a considerable drawback.

Putting the Panel Together

Jean Scholtz

Although all the panelists were contacted and submitted their position statements before the September deadline, the bulk of the work occurred between January 6 and March 22. During this period we decided how we wanted to organize the panel and we refined the issues that the panelists felt were important to address.

The geographical locations for the six of us involved were California, Georgia, Illinois, Maryland, and Minnesota.

Although both Jenny and Arnie were both located in Illinois, Jenny was on maternity leave during most of this time, so most of our collaboration was done remotely. During those 6 weeks I counted 40 group e-mail messages (which were also sent as faxes to several of the participants), a dozen phone calls, 2 face-to-face meetings, and 1 disk sent by FedEx.

Overall, I find that the rhythmic nature of my work life, the softer boundaries between work and home, and the ability to live and work in the same place, all conspire to increase my quality of life.

Jenny:

The biggest benefits of working at home were no surprise. I saved time and energy because my daily commute was just a flight of stairs instead of miles on a clogged tollway. Working at home also enabled me to keep a more flexible schedule, which made it easier to juggle work and personal errands.

Although I saved time, I ended up using

personal resources for work. This was largely because my telework arrangement was temporary, which led me to economize on behalf of the company in ways that wouldn't be worthwhile in the longer run. For example, I had a paperless office (i.e., no printer and no scanner), so I used my husband's office when I needed to print or fax a physical document. I used a telephone that I already owned, and I used my personal phone line as a second office line. In retrospect, these miserly measures were probably unnecessary, but at the time I thought they were prudent. I wanted to avoid the appearance that I was costing the company more than an on-site employee, because I didn't want anyone to challenge the telework arrangement that Arnie and I had agreed on.

As a teleworker, my biggest concern was that I would appear unprofessional and lose my coworkers' trust. Unlike the teleworker in a recent TV commercial, I never bragged that "I e-mail over oatmeal," or "I work out" during business hours. I tried to convey to teammates that I was working, just like them, but in another location.

Related to this, I appreciated technology that helped me appear more professional. For example, it felt unprofessional to tell people to call me before faxing so I could make sure the phone line and faxmodem were free; that seemed to highlight the fact that I wasn't in a "real" office. A fax mailbox solved this problem by letting people send me faxes any time, as if I were in a regular office.

Arnie:

What is it like to manage someone in a home or satellite office? The advantages are that it's cheaper than the alternatives. You get benefits from the diversity and you get a happy employee. Jenny was a valuable employee. We wanted to support this effort and not lose her. It seemed that trying to manage someone in a satellite office was cheaper than the alternative of hiring someone new and training her. We also wanted to keep her on a good career path. Having Jenny in California would also give us some access to expertise and information that would be helpful. So we started trying to figure out how she could work remotely.



The problems with managing someone in a home or satellite office are the cost of resources (capital, installation, and maintenance), the lack of standard resources for the employee, liability and other legal issues (e.g., intellectual property and security), and coping with flexibility and soft boundaries.

Our first hint of a problem was when we started trying to figure out how to support ourselves with interesting collaborative technologies, such as desktop videoconferencing. Would Jenny have the same platform in California as I had? What equipment would work on the computers, and could we find boards and software that would communicate? What did Jenny need to get the corporate e-mail system (an ancient relic of the 1970s)? Could we get ISDN? Could the company afford it? What about wiring in California? What about my office, which had a cement floor under the carpet? In short, we never were able to get the platforms synched, and I had an ISDN cable modem in my office that was used as a footrest.

All this was hampered by the fact that although there has been a fair amount of work on collaboration to accomplish tasks, and some tools have been developed to support that kind of sharing, there has been relatively little work on distance bonding and distance management.

There were also issues about security. We had spent some time working on a prototype for our emerging cable business that was strategically important. But the legal department would not have been happy to know that critical documents and materials were sitting outside the building. In the end, secure projects were not assigned to Jenny. But telecommuting could have precluded work on a key strategic project.

Having flexibility is nice. However, the more flexibility is used, the harder it is to reach a person. It is difficult enough to reach people when they are in the same building at the same time (as some of Bob Kraut's research at Bellcore has shown). To the extent that people take advantage of the flexibility of being at home to mix their personal life with their professional life, that would be expected to give rise to even more telephone tag.

Victoria:

The most obvious point on which our panelists concur is the convenience of being able to work from the home as what I would call a telepath (see sidebar "Teleporters and Telepaths"). Working from the home office saves time and energy and increases flexibility in being able to be with family, or to blend work with domestic chores and to do it at times when one feels most productive. There is an interesting nuance here, however, which is the blurring of work and leisure both from one's own perspective and from that of one's colleagues. Each of the three home-based workers touches upon this issue in one way or another.

Office workers define themselves as and are easily seen as "at work" when they are at the workplace. They may actually be gossiping or reading personal e-mail, but at the end of the day it is the hours spent in the building that they will most likely refer to when they talk



Audience Survey

During our panel session at CHI '97 we conducted an informal survey. The audience demographics were as follows.

- * **The majority of the audience had some telework experience. Of these, most did telework while employed by a company. Most of these teleworkers described themselves as "teleporters."**
- * **The audience felt that both employers and workers could benefit from workers doing primary work from home.**
- * **Although the majority of the audience did not think that women telepaths suffer more than men, most of those responding "no" were male.**
- * **There was no clear reason the audience could see for lack of tool use by teleworkers. Shaky technology got a few more votes than did wrong tools and wrong technology.**

about how much work they have done. It is not nearly so clear cut for the home worker, who is simply "at home" every moment he or she is not actively working. Although this duality makes it easy to optimize chores alongside paid work, as Tom describes, it may also make it difficult to separate chores and leisure from work in one's own mind and perhaps hard to convince oneself, let alone convince

others as Jenny had to do, that one is really at work at all in some cases.

Interestingly, Arnie, Jenny's manager, expresses no concern about how she balances her time. Presumably once a manager has reached the point where he is prepared to endorse a team member as a teleworker, he is probably already convinced that this employee is responsible enough to manage her own time effectively. Thus managers may be less of a problem than peers to home-based workers in convincing office-based colleagues that one works as hard as she does.

It is noteworthy that Jenny's desire not to appear more costly than her office-based colleagues is echoed by her manager Arnie's concerns. Even though he says that it seems cheaper to allow a valued employee to telework than it is to hire a new one, or to relocate someone, he is concerned about the extra equipment, time, and effort required to support teleworkers. How professional work groups are budgeted may help draw a manager's attention to the costs of maintaining a teleworker (since the extra equipment and ongoing expenses incurred come from his or her discretionary budget) and not to the costs of the new or relocated worker (the costs of hiring and relocating are often covered by the organization at large and can be forgotten on a day-to-day basis).



The Consequences of Extended Physical Separation from Colleagues

Leslie:

I was surprised at how quickly the advantages

and disadvantages of physical separation from colleagues became clear.

The advantages were mostly in saving time and in empowering the employee. Our corporate communications department is divided among focus areas: customer, educational, employee, financial, governmental and regulatory affairs, marketing, media communications. Sometimes, however, assignments drift from one focus area to another. Work assignments were more pinpointed while we telecommuted and workers more focused.

Separation from coworkers also was empowering. In order to keep projects moving forward, employees were required to make decisions alone that otherwise would have been made by a small group.

The separation made interruptions more controllable. Fellow employees couldn't just drop by, and the number of phone calls dropped off dramatically. Throughout the Olympics, we relied on voice mail to transmit messages and beepers to locate each other.

The disadvantages centered on the splintered aspects of company functions and the loss of contact with coworkers as friends. Multifaceted projects became more difficult to organize and proceed with the separation of the company's personnel and equipment. This lengthened the final approval process for projects going to print. There also were times when finding the answers to questions became difficult.

Atlanta Gas Light Company is a natural gas distribution company with more than 1.4 million customers. Often projects and media

TELEWORKER PROFILES

TOM ERICKSON

Telework factor

Distance from office: 1,500 miles

Nature of remote office: Home

Travel to office: 1 week a month, by plane

Length of telework: 4 years (2 managers, 3 work groups)

Length of transition: 6 months

Major work roles

Research with 4 people

Journal editing with 6 to 10 people

Communication modes

2 speaker phone meetings a week

2 screen sharing sessions a week

1 to 10 one-one-one phone calls a week

Hundreds of e-mails a week

Several snail mails a month

Several faxes a month

Infrastructure

Desktop Mac at home and office

Duo with docks at home and office

ISDN connection from home to Apple LAN

14.4/28.8 modems for home and road

Home near Kinkos, Mailbox Etc., and coffee houses

inquiries require obtaining information from several areas of the company. Throughout the Olympics, this became difficult because employees were not at their usual locations. However, we continued to have the same requests—if not even more—during this time.

Personally, I felt that the biggest disadvantage was the loss of contact of a group of people I have come to think of as a second family. My usual “sounding boards” were gone for approval or disapproval of how projects were handled. The further loss of anyone who understood my projects to “vent” to became frustrating.

Tom:

I’ll begin with a revealing story. I was on a speaker phone in a special meeting with about two dozen colleagues. Because it was such a large meeting, everybody got to say a little, but nobody got all their issues on the table. After 2 hours the meeting came to its scheduled end. Usually at this point I jump in and say thanks for calling and everyone says goodbye and I hang up. Or the leader of the meeting says goodbye. But in this instance, I missed my chance to jump in, the leader of the meeting forgot about me, and the meeting ended with me still “there” on the speaker phone.

What happened then was quite interesting. When the meeting “ended,” everyone burst into conversation. After all, the participants had been building up things to say for 2 hours. Now, my speaker phone was very

sophisticated, with directional microphones that tried to home in on the person speaking, and it was going crazy trying to focus on a conversation. I was getting a snatch of conversation from here, and a snatch from there—it was sort of like having an out-of-body experience at a cocktail party. Interestingly enough, because I knew all the people and issues, I could actually guess at a lot of what was going on: people were making meetings, clarifying positions, apologizing, and so on. It was a very interesting way to get a cross-section of my work community. It struck me that this “post-meeting” part of the meeting was incredibly productive—a lot of “conversation potential” had been built up during the meeting and only now was it being realized. And I was also struck, with considerable dismay, by the fact that I almost always miss this part of meetings.

This story illustrates a basic problem with working remotely: technology doesn’t capture the periphery well. Meetings don’t really have sharp temporal edges (there’s a “pre-meeting” part of the meeting too), but we often use technology as though they do. Similarly, space doesn’t have edges either—except when you’re using video technology.

Another problem illustrated in the story is loss of visibility and spontaneity. In the meeting, I became invisible locally. Not only was I literally not visible, but I was not a prominent participant in the conversation because it was difficult to signal for a turn or to verbally slip into a tiny gap in the rapid, unstructured give and take that characterizes large group conversations. My options were either to be silent



LESLIE SCHIRRA

Telework factor

Distance from office: 6 miles, but not accessible
20 miles to off-site location

Nature of remote office: Off-site location, home

Travel to office: once a week, by car

Length of telework: Length of Olympics plus
several weeks

Length of transition: 1 year

Major work roles

Corporate Communications (marketing)

14 people in group, on media team

Communication modes

Many telephone calls

Voice mail

E-mail

Fax

Beepers

Infrastructure

Duo with docks at home

Access to e-mail, fax, mainframe off-site

or to vocally interrupt the conversation—to speak until others fall silent—since using visual channels to negotiate the acceptability of an interruption is not possible. The issue of visibility also occurs at a more macro level: losing long-term, organizational visibility is also a danger. I am often not visibly present when my group's work is presented to management, other groups, or outside visitors. Even if I am present on the phone I will be less able to participate in the spontaneous banter, and I still often miss the pre- and post-meeting interactions. Although technology supports intentional direct interactions, it is much weaker at supporting spontaneous interactions—in part, because it doesn't capture the periphery where spontaneous interactions often occur.

At the moment, the solutions to these sorts of problems are, for me, primarily in the social realm: I get support from my colleagues, who, for example, may call me back if the post-meeting conversation heats up. Also, although spontaneous interactions are rarer for me, they're more intense and energizing because of that rarity. So, for example, during my week at Apple I have *lots* of hallway conversations, because both I and others know it's a rare opportunity. In fact, I take part in "planned spontaneity"—I wander the hallways on pur-

pose so I can bump into people. I also have a set of customs—people I regularly have breakfast with, for instance—which results in maintaining my social network. And, at home in Minneapolis, I have a local network of colleagues with whom to gossip, toss ideas around, and banter, and serve as a substitute for that aspect of workplace life.

Jenny:

Some colleagues in other work groups had a frustratingly wrong mental model of my situation. Because I was not physically present, they seemed to think I was on a sort of vacation or leave of absence. For example, they behaved as if I had no access to company information or e-mail. When I visited the main office periodically, they would fill me in on old news such as, "Guess what? Our division has been reorganized!" When I returned to the main office full time, I was sometimes asked, "Are you back at work now?" as if I hadn't been working all along. As a result, I made extra efforts to justify my telework during casual conversations, by mentioning the benefits of working without interruption, or of attending conferences in my area without travel expenses.

My social network changed when I left the main office. I no longer saw my cubicle neigh-



TELEWORKER PROFILES

JENNY DeGROOT

Telework factor

Distance from office: 2,000 miles

Nature of remote office: Home

Travel to office: No set schedule, about 1 week every 2 months

Length of telework : 11 months

Length of transition: 2 months in planning, no transition time

Major work roles

Designing user interfaces

Designing usability tests

Conducting tests (when visiting main office)

Evaluating existing products

Writing requirements for developers

Communication modes

120 e-mails a week

50 1-1 phone calls a week

3 conference calls a week

1 speaker phone meeting a week

10 faxes a month

2 US mail a month

Daily phone calls with avatar

Infrastructure

Mac Performa 630

Floptical drive for backup and archiving

1 home office phone line, voice mail, call waiting, 3-way calling

1 voice/fax mailbox at main office

Copy shop and postal station within walking distance

Accounts on 5 Ameritech systems

bors (the Human Factors group), and I spent more time chatting by phone with project teammates from other departments. After we talked business, I'd keep them on the phone a little longer to socialize. Those ties are now much stronger than before I teleworked—a major benefit.

A disappointing surprise was that the friendlier a group is, the harder it is to attend its meetings via speaker phone. For example, our weekly Human Factors group meetings are lively and interesting—for those in the meeting room. But via speaker phone they're frustrating. People talk at the same time, interrupt, crack jokes, rustle cookie bags. The very things that make the meeting fun in person make it difficult to simply hear what people are saying, let alone contribute, over the phone. In contrast, the less lively, more formal project team meetings ran pretty smoothly by phone: people were careful to speak one at a time, to explicitly ask for my comments if they hadn't heard from me, to describe what they were drawing on the blackboard, and so on.

Arnie:

There are a variety of costs. There is an aphorism that has more truth in it than we might like and that is supported by a fair amount of cognitive research: "out of sight, out of mind."

ARNIE LUND (manager of teleworker)

Telework factor

Distance from teleworker: 2,000 miles

Nature of teleworker's remote office:

Home (worker)

Teleworker's travel to office: 1 week every 2 months

Length of telework management: 11 months

Length of transition period: None

Major work roles

Manager of Human Factors group, 22 people

Communication modes

1 one-on-one phone conversation a month

Regular e-mails

Group meeting (speaker phone) every week

Regular exchange of diary

Visual reminders are effective in stimulating conversation that leads to a better understanding of what a person is doing. This helps in effective performance reviews, assigning interesting tasks, and so on. In teleworking, both the manager and the teleworker have a "cost." The remote manager who wants to manage effectively has to invest the energy to learn about a person's work, and the person working remotely has to invest the energy to educate her management.

Then there is the issue of serendipity and teamwork. We had some bonding experiences at Ameritech during the reorganization of its product development center and layoffs of much of the research and development center. Every time I came back from a meeting, I was surrounded by a crowd of people, ready to generate rumors, wanting to know the latest. I needed to be able to help move the emotions to a better place, so being able to see people as I talked with them and work the dynamics of the group in real time was important. I needed to be able to facilitate people's coming together, and they formed and re-formed spontaneous groups in real time according to overheard conversations, seeing who went where, and so on. People needed to be there on top of what was happening, to have a chance of personally working through their feelings.

Because the work was uncertain, I needed to be able to harness the team to brainstorm and decide on new directions and approaches. And that meant being able to move from one team member to another as I happened to see them being around, returning to people, forming dynamic groups, and so on. I just can't imagine that working at all as well if a significant number of people were remotely located.

Whether it is theoretically possible to make each conversation objectively take place over some mediated environment, the fact is that in the real world it is just unlikely to happen with the existing infrastructure. Although this example has to do with building or managing a team, there is a certain dynamic among people that also yields new product ideas, new project initiatives, new perspectives on activities that result in the "value added"



that exceeds the normal expectations of the job and that make an individual and/or group particularly successful. It is often the spontaneous face-to-face conversations around here that have been most productive in “accidentally” yielding new patent ideas, for example.

Victoria:

Drawing from my research, it seems that those whom I call teleporters seek to escape from the office and its social distractions. On the other hand, telepaths, the home-based workers, seem much more ambivalent about solitude. The telepaths reporting in this article enjoy the ability to concentrate and focus, but they all seem conscious of the problematic side effects of their minimized social contact with their co-workers.

In the short term our telepaths are conscious of the awkwardness of mediated interactions, especially in meetings, but also in their general use of the telephone. Arnie, the manager, notes that certain useful, spontaneous interactions are not possible with remote workers. Such problems detract from a remote worker’s ability to interact informally and frequently with others.

Over time, our telepaths also seem to learn that they are compromised in various subtle ways by their prolonged “invisibility,” but the picture is not all bad. Time seems to give people a chance to develop strategies to tackle some of the problems and, although the teleworker is highly motivated to make things work, it also seems from the examples given in this article that managers and colleagues can and do begin to learn how better to support their remote colleague.

So, just as new technologies are sorely needed to lower the boundaries to informal and opportunistic communication and mutual awareness, so new practices must be adopted by both telepaths themselves and their office-based colleagues. If telepathy is to become more feasible for a greater proportion of the work force, these new tools and prac-

tices will have to tackle the following issues raised by our telepaths and manager:

- ✘ Formal and informal meeting practices and support tools should enable remote participants to take part in pre- and post-meeting chat and must allow them to interact on a level footing with others who are present and share access to the same work objects.
- ✘ It must be possible for telepaths to interact spontaneously and informally with colleagues. Perhaps such interactions might be prompted by giving the remote worker the ability to see what their office colleagues are currently working on in some way and then to chat about it with them.
- ✘ Greater visibility of the telepath must be achieved in the office, both in terms of their existence and what they are doing. As the converse of the preceding issue, office-based workers should also be able to talk to their remote colleague about what they are up to.

If technology and practice improve for these three issues, some of the major setbacks to working at a distance from office-based colleagues are likely to be ameliorated. Without technological advances, however, telepaths and their colleagues will continue to have to adopt similar practices to those creatively evolved by the other authors of this article.

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