

Telework: Identifying a Personal Dimension to Work-Related Socio-Technical Theory

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This qualitative study uses socio-technical theory, which posits the interdependence of the social and the technical subsystems of work to view both the work and lives of managers in a Fortune 100 multinational corporation. The managers in the study were leading global virtual teams from their homes with no dedicated corporate office. We found that balancing across both the work and personal socio and technical systems, as well as across the systems in their integrated personal and professional lives, is very complex. The managers appeared to tolerate these difficulties for the flexibility they perceive teleworking provided.

The complexity and competitiveness of the global business environment has led organizations to look for every advantage and to expect “anytime, anywhere” work from their employees. Increasing this complexity is the fact that many organizations have relocated workers from offices located primarily in corporate edifices into home offices, thereby necessitating that the workers balance their life and work roles. Telecommuting in this study will be defined as using technology to allow employees to achieve their work-related tasks while located away from the confines of the organization (Cooper, 1996). Even though this type of “remote office work” (Olson, 1983: 182) has been studied since the mid-twentieth century it has been the confluence of the availability of sophisticated technology coupled with the global nature of the business environment that has led to an expansion of this trend.

The pervasive nature of technology coupled with the demands of 24/7 work has led to many recent studies concerning the impact of this ubiquitous technology on individuals. When the worker lacks the defined boundary that is provided by an office setting and works from home, this impact may overflow into the personal life of the individual, causing family conflict and contributing to the feeling of impossible work demands (Turel, Serenko, & Bontis, 2011). Perlow (2012) states, “Although these ubiquitous devices put the world at our fingertips, and seemingly free us from the shackles of the office, they also invade our lives and psyches” (2012, para. 1). She continues, “Together, we perpetuate and amplify expectations of each other and ourselves, making our own and our colleagues' lives more intense, more overwhelming, more demanding, and less fulfilling than they need to be” (2012, para. 6).

This qualitative study uses the lens of socio-technical theory, which posits the interdependence and balancing of the work social and the work technical subsystems within organizations (Trist, Higgin, Murray, & Pollock, 1963), to view the work and lives of managers in a Fortune 100 multinational corporation (MNC). These managers were leading a global virtual team from their “domestic workplace” and had no dedicated corporate office. The domestic workplace will be defined as “their home offices or any location made necessary by their work and life roles” (Tworoger, Ruppel, Gong, & Pohlman, 2012: 4). This study responds to a call for research on the long term effects of telework (Taskin & Bridoux, 2010). It also makes a contribution by proposing to expand the scope of socio-technical theory called for by Pasmore, Francis, Haldeman and Shani, who state that as new work arrangements evolve because of technology “new methods of analysis will be called for” (1982: 1199). Pasmore and colleagues, further, call for researchers “to pay closer attention to the development of technology and to better understand its impact on behavior” (p.1200).

Theory and Research Question

The use of the socio-technical system theory (STS) originated with a study of coal-mining methods by the Tavistock Institute researchers in the 1950's and 1960's in Great Britain. STS addressed the introduction of technology into the enterprise and recognized that both the human and the technical aspects of the enterprise needed to operate as interacting systems (Trist et al., 1963). The enterprise is comprised of two subsystems; the technical subsystem is “concerned with the processes, tasks, and technology needed to transform inputs into outputs” (Bostrom & Heinen, 1977: 17) while the social system is “concerned with the attributes of people (e.g. attitudes, skills, values), the relationships among people, reward systems, and authority structures” (Bostrom & Heinen, 1977: 17). Indeed, it is the interaction of these subsystems that results in the outcomes of the organization. A basic premise of STS thinking is that “organizations that ‘jointly optimize’ the two interdependent subsystems are more likely to obtain positive outcomes” (Patnayakuni & Ruppel, 2010: 220). Pasmore and colleagues (1982), stated that much of

the early work on the development of socio-technical systems theory was completed using “blue-collar industrial settings”; however, future evolution of the theory would reflect the “ever shifting demands of the environment” (1189), “white-collar populations” and “innovation in large systems” (1199).

More than three decades ago, Alvin Toffler, discussed the relationship between technology and humans and proposed the home-based workplace or the “electronic cottage” (1980: 10). Feldman and Gainey (1997) expanded the concept by developing dimensions of telecommuting which encompassed those who work either full-time or part time, either flexible or set schedules, by themselves at home or with others in an off-site location, and finally those who are telecommuting at the behest of the organization or at their own request.

Depending on which of these types of arrangements are implemented, telework has been heralded as advantageous both to the organization and to the employee. The organization frequently profits from an improved image, sees reduced costs for real estate, and benefits from a distributed workforce more able to respond to global demands. Correspondingly, the employee is frequently grateful for more control, autonomy and flexibility (Kurland & Bailey, 1999; Taskin & Bridoux, 2010; Pyoria, 2011).

The effect on workers’ quality of life was explored by Shamir and Salomon, who viewed the “work-at-home arrangement with some suspicion” (1985: 462). They point to the possibility of certain issues arising that are related to task: increased hours, lack of feedback, and lack of the feeling of task significance. On the social relations side of the equation they proposed that “social isolation,” “impaired socialization,” “impaired social reference base” and “reduced consideration” from leadership could be problematic (1988: 456). A study by Morganson, Major, Oborn, Verive, and Heelan found that teleworkers faced increased “social isolation” (2010: 589).

Taskin and Bridoux (2010) echoed the earlier concerns of Shamir and Salomon (1985) concerning telework stating that even though the benefits of flexibility and autonomy are heralded, they fear it will constrain knowledge sharing and transfer, social relationships, and shared values and goals within the organization. Similarly, De Sousa, Pellissier and Monteiro (2012, 47) defined business collaboration as a “...means [of] connecting people ideas and resources that would not bump into one another normally.” Thus, does a traditional office setting present more opportunities to interact and thus stimulate creativity and innovation through collaboration, knowledge sharing and transfer?

Additionally, Jaakson and Kallaste noted that telework alters the psychological contract between workers and their employers by shifting “responsibilities from employer to employee” and this shift is “somewhat asymmetrical” (2010: 205). Bryant (2000) probed gender issues related to telework and found that while the workers studied were able to configure their telework tasks to their personal situations, there were indications that control over the tasks, feelings of isolation and fragmentation were all still problematic. Similarly, Whittle and Mueller’s research subjects acknowledged the benefits of telework such as flexibility, they also spoke of “isolation, disconnection, disaffection and cynicism” (2009: 131). Hill, Miller, Weiner, and Colihan (1998) conducted qualitative and quantitative analysis of IBM employees, both teleworkers and office workers, to examine productivity, flexibility and work-life balance. Even though the results were mixed, implications were that organizations should select technology carefully, that training should encompass both the social and technical aspects of telework, and that teleworkers should focus on shutting down their work activities.

This inability of the teleworker to disengage from work was the subject of Turel et al.’s (2011) study. They found that the very technology that was to free workers from the confines of the organization, may now be leading to perceived work overload, addiction to technology and family conflict. Technology has facilitated this move to distributed work and by virtue of the remoteness of the workers renders technical tools vital, ever present, and ultimately ubiquitous. The popular press contains warnings of addiction (Richtel, 2012: B1), the blurring of work-life boundaries (Turkle & Coutu, 2003: 43), alienation (Turkle, 2007), stress (Perlow, 2012), and depression and anxiety (Dokoupil, 2012).

Similarly, emerging academic research also carries a cautionary tale about workers who are succumbing to “technostress” (Gendreau, 2007: 191), “addiction-driven use of organizational pervasive technologies” (Turel et al., 2011: 94), and “problematic” or “pathological” Internet use “associated with substantial distress and dysfunction” (Aboujaoude, Koran, Gamel, Large, & Serpe, 2006: 754).

Socio-technical theory was originally designed to frame the introduction of technology into an organizational setting (Trist et al., 1963). The two interactive subsystems of STS, technical and social, will provide a useful framework to explore this increased level of complexity as workers have moved from the organizational setting into the personal setting of the domestic workplace. The following research question will guide this inquiry:

Research Question: How do global virtual managers balance the social and technical systems while teleworking in the domestic workplace?

METHODOLOGY

The managers that served as the focus of this study were part of a high performing team within a Fortune 100 MNC. The managers were leading a global virtual team to initiate a project that subsequently led to a company-wide reorganization. Not only did the team receive recognition for this project, but the senior leader was recognized as one of the top managers in the organization. This team was comprised of one executive level manager who had led teams of as many as 16,000 employees, two senior level managers, one who had direct responsibility for the project and two mid-level managers. One of the managers suggested that we contact his spouse, who works for the same MNC, for a perspective of a dual teleworker home and we subsequently conducted that interview. All of the subjects had at least 10 years of experience with the company and three had been with the MNC for more than 20 years. All had previously worked in offices but had now made the transition solely to the “domestic workplace”.

Data Collection and Analysis

In compliance with the Human Subjects Review Board all notifications and protocols to protect the subjects and the organization were observed. The interviews were conducted using research procedures outlined by Miles and Huberman (1994) and using a discussion outline to guide the interviews. The recordings of the interviews with the managers were transcribed verbatim and reviewed by the researchers for accuracy. Subsequently the interviews were summarized and returned to each manager to verify our interpretation of their comments (Priest, 2002). Their positive feedback indicated that we had correctly interpreted their responses.

The data was then analyzed by the researchers and two trained research assistants using techniques suggested by Creswell (2007) and Miles and Huberman (1994). Coding schemes were developed from the frequency of key words and themes. The researchers agreed on categories to which over 545 passages were assigned by the researchers for further review. Two trained research assistants independently reviewed the 545 passages and assigned them to categories which were then used to develop a frame for the data.

In addition to the individual interviews with the managers, the research team observed the managers during meetings about their initiative at a regional headquarters office, attended an evening work-related dinner, and conducted subsequent follow-up emails regarding data and its analysis. Two additional validation steps were undertaken. First, the senior level manager in the study reviewed an early version of a paper and felt it accurately presented the situation. Second, two managers, one senior level and one executive level who worked for the MNC but external to this project, confirmed that our interpretation of the data accurately reflected their similar experiences working in the organization. Secondary data from multiple sources was collected including the MNC’s website and articles in the popular and academic press about this organization and used to validate the researcher’s interpretations of working in the MNC.

Findings

This MNC was among the early adopters of telecommuting at the corporate level. The organization decided to increase productivity by reducing real estate costs by over a period of time eliminating corporate offices and allowing workers to telework. We felt it was important to identify how these employees became global, virtual managers to contextualize their attitudes towards telework. They responded:

I started working from home because I had a handicapped child, and it was too hard ... it was just too stressful. So I asked them to allow me to move my office to my home.

The others had a less defining moment but they told a story similar to this one: It morphed - it really wasn’t a decision - it just kind of happened.

Workload

To examine the work system it is important to understand what the components of the current work system are and how they interact. The first one we examined is workload. The respondents felt the workload seemed to be never ending.

There have been periods in my life where it’s Thursday, and you’ve realized I haven’t even been outside since Monday, and it’s very unhealthy. I mean, you’ve got to really watch it, or you just work straight through.

I think everyone has much more work than can possibly get done, and demands on requesting more of our time, or demands, or requests coming in to help with something else - you know - constantly - so there's always things that are going on - there's the one where you have more work than you can possibly handle.

When I get back in [from client site and meetings] at ten o'clock at night, I've got 200 emails sitting there from - they've collected all day. No way to get it done. So you just do what you can. You work for a couple hours (you may work from ten to one). You go to bed, and you start it all over again the next day. After a while - you know, it's tough. And everybody works on the weekends, so - that is kind of tough.

You can literally work from anywhere, and so the work's always there at all the time. I could work 24 hours a day 7 days a week and I never would have caught up.

The combination of an anytime, anywhere ability to work, when combined with endless tasks to accomplish, resulted in making balancing the socio system and the technical system difficult for the managers as well as making them susceptible to techno-stress. When interviewing the wife in the dual teleworking couple we inquired about the manager. She stated he had taken the day off. However, what she said next was illustrative:

No, actually he took off today - he went turkey hunting... but he called - he actually pinged me because he brought his computer and was working from the car because it was raining - so, he was checking mail.

Even when taking a "day off" he took his computer with him making his technology ubiquitous. Another manager mentioned taking his computer on vacation with his family and getting up early to deal with email before the rest of the family awoke.

This constant workload resulted in some manager's exhibiting behavior similar to the manager identified by a respondent and described as follows:

Jimmy's online all the time. Jimmy never shuts down to say it's think time. And you can tell by the way he manages. He manages in react mode. He doesn't manage in a proactive way, and say, "Let's put a plan together, and what are we doing?" It's, "I'm always there to be called upon," and if you're always there, you're going to be called upon.

Clearly this makes it difficult if not impossible to maintain optimal systems balance. To avoid mimicking Jimmy's behavior, a majority of our respondents mentioned the importance of a conscious effort to prioritize tasks to deal with the constant workload, and thus lead to optimal balance of the work-related socio-technical system.

You need to know which balls you have that you're juggling that are rubber and which ones are glass - which things you have to take care of now. You have to be really good at prioritization.

I need to be able to be comfortable with what I'm getting done, and what's not important to get done today. So my point is there's always work to be done. When your office is 12 steps away from your kitchen, and I'm in the basement, it is extremely tempting and it took me a long time to get those boundaries defined that I'll be done. You know, "Debbie - I'm going to run downstairs just to take care of something." And then you get done (with) this, and while I'm here, I might as well do this, or I'll do this. It really can lend itself to becoming a workaholic easily because it's always there - your files are there - your computer is there.

You make appointments with yourself ... because you can work all the time from anywhere ... There were times in my life where I just worked all the time. I would fill up every single hour of every single day because I could, and I still could, literally work from anywhere. And so the work's always there all the time.

One manager summed it up by asking: Where does work begin and end?

The 24 hour nature of managing job tasks carried out by global team members, and their information-related needs also appeared to contribute to the difficulty of finding not only the optimal work socio-technical balance but also the optimal personal socio-technical balance. One respondent stated:

...I've had jobs where part of my responsibility was managing India. I could start a call at 4 o'clock in the morning, and you just do it. There's a tremendous amount of conference calls in this lifestyle.

Integration of Work/Life - the Need to Multitask

We found that as part of balancing all the activities that take place simultaneously in their lives, often 24/7, the global virtual managers reported engaging in a significant amount of multitasking across both roles. They appear to be integrating both work and life tasks.

Because people used to say, “There is no balance.” It’s infusion. So how do you essentially infuse work into life - life into work.

...right now I can drop them off at school, and I can be on a call before I drop them off or as soon as I leave the parking lot, and depending on my schedule, I can pick them up and bring them home.

You have to struggle about balance. I mean, you need to get outside, you need to get some fresh air, and you need to get to the gym. I mean, quite honestly, last year I bought an elliptical, and I have it in my basement so while I’m on these long, boring conference calls, I just jump on there and workout while I’m listening because that’s one of the ways I cope.

My wife and I just finished putting an addition on our house - on any given day, she could find me in the closet or wherever it was quiet to do the call. So you do have those environmental things you have to take into consideration, as well as - you know, you have a storm - knocks down the telephone line. You’re disconnected - you know, electricity goes out.

But, most people, when they leave the office, they leave the job - they come home - their family life is completely separate. But, it is different when you work from home. The two are much more integrated.

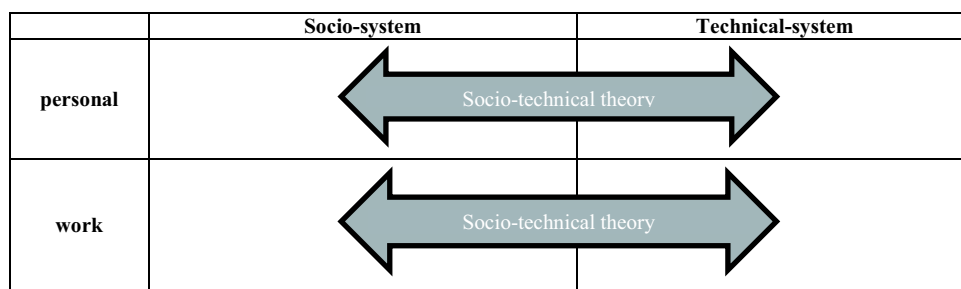
When interviewing the manager’s spouse over the phone, we found that the interviewee was providing us with an example of the extreme multitasking that takes place. While we were conducting the interview she excused herself to answer a call, answer the door and she subsequently told us she was on a conference call at the time we were conducting the interview. During the other interviews, which were face-to-face, no multitasking took place so this was an illustration of what occurs in their daily lives.

- 1) Hold on - I’ve got to tell - I’m (pause), just one second - I have to tell someone that I’m on a call.
- 2) ...home (doorbell - hold on just one second)... Okay, I’m sorry.
- 3) I’m in a meeting right now with over 40 people at the daily chat that we have regarding some testing that’s going on and there are people on the chat room all around the world.

Balancing Socio and Technical Systems

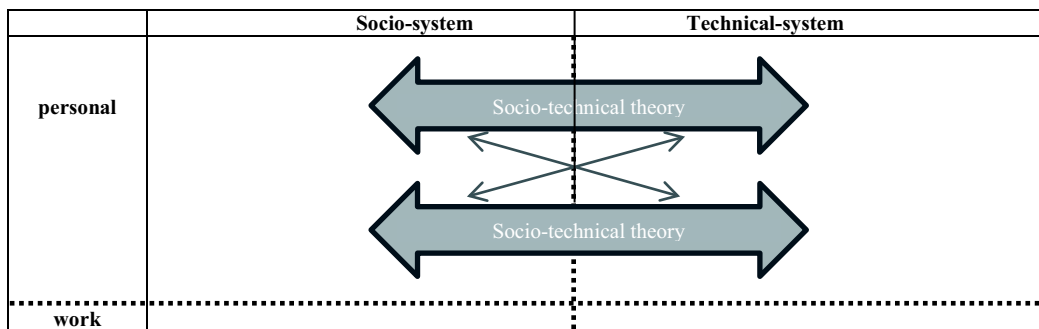
Despite the fact that we asked little about their personal lives and focused on working virtually/teleworking, since the managers had integrated/infused the two together, their responses made clear that they appear to link them tightly together, perhaps even unconsciously. We saw references in their answers to not only balancing the socio system and the technical system in their work lives, but also in balancing the socio and technical systems in their personal lives (see Figure 1).

Figure 1: Traditional Socio-Technical Systems



When analyzing the data we found it difficult to separate the personal systems from the technical systems due to the large amount of integration occurring. Traditionally, the boundary between the personal socio and technical systems, as well as the work socio and technical systems, has been relatively solid due to time (set work hours) and space boundaries (corporate offices). However, when working virtually these boundaries appeared to be becoming more permeable while moving towards nonexistence (Figure 2). Workers are now trying to balance the personal socio-technical system and the work socio-technical system as well as to balance across the two since the boundaries between work and personal has become permeable (indicated by broken dashed lines) due to integration/infusion. This shift is supported by a respondent's use of the term "work/life infusion" rather than integration.

Figure 2: Socio-Technical Systems identified in Virtual Workers



Socio System - Work Issues

...in person, not only do you speak words, but your body speaks language, your face shows expressions - you lose all that when you're working virtually.

Remotely, they can be in a terrible mood, and they can just say, "Hey, I'm sorry, but I've got too much going on," or whatever, but it's different in person.

...yesterday I was in Atlanta teaching a group of people about what we do, and I met one gentleman for the first time face-to-face - he's worked with me for five years.

One of my best friends, we didn't meet for the first five years of our friendship, and she lives a town away from me Yeah - we became best friends over instant messaging. You know, we worked together every day - we talked every day - and before you knew it, five years had gone by, and I still had never met her in person.

You still form, umm, the relationship, but you're just - I don't think it takes you to the part where you're friends outside of the office. You kind of don't - at least I haven't experienced that. You might say, hey, let's get together sometime, or whatever - and I have this one guy that I work with too, and I'm like, you know, we keep saying, we've got to get together, you know - umm, he loves dogs, and I'm like, you've got to meet my Mudge - Mudge would love you - and it just never happens. But we still, you know, I mean, I still consider him a friend - just a work friend that we wouldn't necessarily become personal friends.

While patterns of interaction have changed, there is also a limiting effect on interactions resulting in a sense of isolation:

CNBC, CNN, MSNBC - honestly, I think it's my interaction now. It's not so much with other [company employees] - with the media - what's going on in the world. So, I may have a TV going on, you know, in the background at low levels, and I'm doing this, and if I've got some down town - I'm, well, what's going on in the world type of socialization.

Another agreed: I have a TV downstairs [where office is located], and I'll just throw on CNN because it's just another voice, or just some - because it can get really lonely.

Working from home was very difficult for me for a lot of reasons. Number one it's very lonely - I mean you feel very disconnected.

A sense of isolation is not the only reason for at least some amount of face-to-face contact. Short timelines, increased synergy, increased collaboration and increased efficiency are also reasons to replace at least some amount of teleworking with face-to-face meetings.

...none of us are distracted because we are in the room together, and we are just much more efficient that way, and there are times, and last year in some of the task forces that I was running, we insisted - even if we had a travel freeze - we had special permission to get together and just get it done - because we had to continue and we had so much to do, it was very difficult to do virtually. But that's a tough one because the people I work with are all over the world, so the odds of us being able to get into an office - we have to make it happen and travel to make it happen.

If we were all in the same office with the group we're working with, we could have just plugged through what we needed to get done. And now, we're ending up scheduling additional calls and working more on it than I think we probably should - but it's more about getting buy in from some of the pricing team that doesn't agree with things.

I enjoy being around people. I get very energized being around people; it's fun - you know - the give and take - the brainstorming that can go on in a room and the energy - I loved all that. I enjoy being around people.

I missed the people and the energy being around them.

Technical System - Work Issues

To sit on a conference call for five hours, it's deadly. And especially - and then somebody invariably will start writing things on a board, and you're going, "Hello - can't see it - you know," or the phone's down at that end, and you can't hear them - that's challenging.

I think executives especially are reluctant to use that tool [instant messaging] just because you can get so much going at one time so you lose control of your ability to manage your time. I know some people really like it. It's just different styles. We all adapt to our different styles. I personally - you know, most people know if I get on the system then I'll soon get a note, "Hey, surprised to see you on [instant messaging]," "Yeah, (laughs) you're right, and I'm not going to be on here long.

That's a big problem for - with instant messaging and the phone right there and the cell phone, the land line, and instant messaging - all these vehicles with which they can interrupt, and that's where I do on my calendar is go in and block sections of a day. I go and block two or three hours, and I shut down, you know, communication with the world so I have some think time.

...there's no need to explain and no need to see the emotions on each other's faces. It's just so much easier. It does take a lot of the stresses out of the equation. I rather enjoy it.

Technical System - Life Issues

And we use all of it - we even, you know, home numbers.

Every time I walk by the kitchen table because that's where my PC sits (remember), there's email always available. You end up just knowing that you're never going to keep up with it.

When you're in an office, no one thinks anything of you taking a break, or going to get a cup of coffee and sitting in the cafeteria and chit-chatting - those same things happen at home, and I don't ever expect someone to be sitting at their desk every minute of every day.

Socio System - life issues including family

You know, an interesting point for me is my wife also works for [same company] and also works from home. So she's in the kitchen - I'm in the office. And honest to god folks, we do instant messaging - Do you want to have lunch? Let's meet in the kitchen for lunch type of thing (laughs).

Mommy's on the phone - they don't ... recognize that I have a phone up to my ear and they just start talking to me, because it can be constant - so I have to work hard to separate it when they're there. I can't always do that, but I try to just focus and not be online at dinner time ... So I think they just view it as ...a natural part of what I do - a natural part of their life.

...the disadvantage I would say is, to be able to put the boundaries around and say, now I'm finished working, and now I'm going to go focus on my family.

But that's very important because I've seen what it's [burnout] done to people. More importantly, I've seen what it's done to families.

For the people that can master it, they love it because - you know, my wife can go out, and I can be home while the baby's sleeping, it gives her more independence. Or she can take a part-time job or whatever it is, I can be, and in fact, if you do it right, I can be more present. I can be more present to them in their life now. It also takes some guts because sometimes you have to say no to people who don't want to hear it (like your manager), and say, "I can't make that meeting."

If I get on a plane and go away for two or three days, you know, she gets some time alone - I get some time alone, and we come back together for the better, so - we had to do some adjustments in our marriage - in our personal lives - in our relationship - because we're on top of each other all the time. He went on to say: [it] developed into a - these are my chores that are related to the personal life - these are her chores every day, and we've kind of matured into that kind of - evolved into that kind of relationship.

I think first and foremost, having nothing to do with business, you need to know yourself. You need to know what's important to you. For me, umm, I am very devoted to my family.

They've [agreements] just emerged. And it's not something we've ever really sat down and talked about. I mean, we do ask each during the day, "What does your day look like," - you know, if he's got calls all day then I know he's going to be in his office all day. But I don't think of it that way. It's really more of a question of, "What's your day look like?" (pause) And then, there are times when I'm just swamped, and we will have to - sometimes he's got to go get our son from school if I can't - If I've got a call and I have to be at my desk, he'll go get our son - and vice versa. It's just across the street, so it's not a big deal.

Alternately a respondent, who is single, felt that while she did not have to balance family activities she had difficulties optimally balancing the systems by shifting activities to a partner.

I'm single, and I don't have another person that can go and do all that other stuff that still has to get done.

When analyzing the data we found it difficult to separate the personal systems from the work systems due to the large degree of integration occurring. Traditionally the line between the personal socio and technical systems and the work socio and technical systems has been relatively solid due to time (set work hours) and space (corporate offices) boundaries. However when working virtually, these boundaries appeared to be highly permeable (Figure 2).

Organizational Support

Another issue which impacts a teleworker's ability to balance the socio and technical systems of work is the lack of support received relative to what is available on-site in an organization. This issue was mentioned by a majority of the subjects without prompting. It appears that the burdens of maintaining balance, including cost considerations, have been moved from the organization to the employee. A wide range of issues were mentioned:

... there are some things in the office environment that - you know - you don't have to clean the office. ... It doesn't happen at home that way. ... I've got to empty my own trash.

When I worked from the office, you can get up and turn the air-conditioner down or way up so it wasn't running all day long while you weren't there, and you can turn the lights off so part of that cost [the company] pushed away, landed in my lap.

They were laggards ... it's only been in the last year and a half that they actually - kind of, begrudgingly - had help desk support - you could call help desk numbers.

... up until a year and a half, if you had wireless at home, we don't support that ... they were certainly organized to support the office -- not necessarily to support the home.

So if I'm home now, and I am working on my printer (and I am not technical at all) - and that printer breaks. For a lot of us that was tough. I mean, that was a real pain in the neck because like, where do you take it? ... So even from the technical standpoint, it was a pain in the neck getting your phone line set up at home and making sure they go into a phone mailbox working with AT&T - it was all that "tactical" stuff I'll call it. Umm, eventually you start to find different ways to cope or to deal with it.

Optimized Outcomes? - Perceptions of Productivity

Since socio-technical theory is concerned with jointly balancing the socio and technical systems to produce the optimized outcomes, we examined the outcome of productivity since it is the one mentioned most frequently regarding telework. Relative to an office setting, one respondent's view of productivity was: I'm probably more productive because I'm much happier; while others suggested:

I think that the company benefits greatly. I think they get more out of us than they would if we were sitting in an office because you know that time spent - when you need to go take a break and sit in the cafeteria and chit-chat - you know, either you stay late to make up that time or you leave, and most people would leave at the same time every day. So, you've lost that time.

But there are still a handful of executives who still believe we lost a tremendous amount of productivity. I don't think it's a productivity issues as much as I think it's a loyalty issue. I think it's a connectivity - [Why do they think you've lost productivity?] Because they're the old school, and they think if you're not sitting next door to me, I don't know what you're doing. [They have no - no - no actual quantitative proof] It's gut, it's all gut.

One source of increased productivity, which is not the result of joint optimization, surfaced when we inquired concerning how the commuting time employees saved was allocated. We were told:

Yes, those three hours went back to [the company name].

Flexibility

Despite the fact that the commuting time gained, the real estate cost savings and the cost of providing support services have all benefitted the organization rather than the teleworker, the managers do not wish to return to the office environment.

If somebody said, "You can work from the office or you can work from home," I wouldn't go back to an office.

It's so second hand to me - it's just natural; it's so natural for me now I can't imagine doing anything else.

I'm a big fan of working from home.

Another when asked about returning to a corporate office stated clearly: I would hate it.

So, it would be very tough to have to go into an office, and that's one of the things I think about - if I were ever offered a job in industry - to have to get up, get dressed and go to the office - the same office every day, without having a lot more flexibility or just different types of things that I do every day or places I need to be - it would be tough for me to do now.

It appears that these teleworkers felt that working from home gives them greater flexibility both in balancing work life and personal life, as well as in balancing the work-related social and technical systems. We relate the flexibility described to the autonomy that Pasmore et al. (1982) found often occurs in sociotechnical systems experiments.

So, working from home is interesting because it does offer you flexibility - which is great, and I'm used to it now. Actually, I prefer it now.

And so, just by the fact that I'm home, I can, you know, at 11 o'clock, if I'm like - oh my god, I'm running out of bread and milk - you know, I can do a quick run.

I can block my calendar from 12 to 1 because I'm going to my daughter's kindergarten class and read a book to her class. ... I can go to soccer at 3 o'clock, and I can do my work at night. So, that flexibility is phenomenal in terms of - and that's one of the best things about [working virtually].

But, I'm so used to the flexibility, and you know, you go wherever you need to go, but if you don't need to go anywhere, I go five feet to my kitchen counter to work.

DISCUSSION

We found that the respondents were balancing their personal socio and technical systems as well as their work socio and technical systems from the same place and often at the same time. This integration of work life and personal life resulted in the managers also balancing across both the personal and work socio and technical systems results in a very complex set of interrelated systems to be balanced. The managers appeared to accept these difficulties in exchange for the perceived flexibility they believed teleworking provided. We propose that what is perceived as "flexibility" is actually the ability to balance across the personal socio technical systems and the work socio technical systems. This is achieved through the integration of activities in these systems by the managers. Thus, the research question, "How do global virtual managers balance the social and technical systems while teleworking in the domestic workplace?" has a complex and somewhat person-specific answer represented in Figure 2. For each person there is a personal comfort level of what "balance" and "joint optimization" entails.

Workers may now work along a continuum ranging from working only in an office setting, to rarely or never working in a traditional office, substituting other locations ranging from clients sites to homes. We have studied workers near the high endpoint of this virtuality continuum, those who work in the domestic workplace and have no formal corporate office. While some of our findings are common to other teleworkers depending upon their point along the continuum, these finding led us to develop a formal definition for the 'domestic workplace' beyond simply a location that is not the organization's formal office site. We can now define it as work locations where boundaries are permeable and work and personal activities are, or can, be integrated. This includes not only locations in their homes and client sites, but also locations such as a child's school, sports fields, vacation locations, or hunting sites, all of which became "work" locations as described by our respondents.

In addition, the global nature of the teams our respondents managed meant that the work flow continued and often required the attention of the manager 24/7. This is difficult to accomplish in a corporate office setting. Our results suggest that at this low endpoint of the virtuality continuum, attaining optimal balance is nearly impossible without integrating both personal and work activities.

This integration of the systems, particularly when not balanced optimally, leads to the type of impacts cited in both the popular and academic literature previously discussed such as addiction. According to Turkle, we need to "separate from our technology" and this "means turning off our devices, disengaging from our always-on culture. However, this is not a simple proposition, since our devices have become more closely coupled to our sense of our bodies and increasingly feel like extensions of our minds" (2007, para.10). These managers felt the need to have work technology ever present, even on hunting trips. Given the respondents' workloads, anything which encourages addictive behavior exacerbates the issue.

Our respondents were educated, high performing managers who would appear to be equipped to cope. Yet, we wonder if these individuals, while appearing to cope, are achieving their full potential? Alternatively, will they "burnout" over time, making them ultimately less productive and contribute to an organizational loss of intellectual capital? Future research should attempt to predict whether these issues will be recognized and minimized. Organizations need to recognize the issues, raise awareness and take proactive steps to avoid these outcomes. Longitudinal studies of virtual workers and ways to support them should be a priority as this trend increases.

At the time of data collection the majority of our respondents were positive inclined towards telework due to its perceived "flexibility", without fully and consciously recognizing the impacts of teleworking from home. Thus, they were not willing to return to the office. We heard "You know, umm, and that's interesting" and "You know, an interesting point for me", "you know, it's interesting because", and "That's an interesting point" in some form 61 times across all respondents. This suggests that in their busy, integrated lives they had not reflected upon the reality of what was occurring as they juggled seemingly endless commitments. As researchers we had to ask ourselves

whether: when a manager has to be reminded that they should stop working while at the deathbed of a parent, when workers look up from work only to notice four days have gone by and they have not been outside, when they exercise while on conference calls, when they forget to shower because of work demands, and when they look to the TV for companionship, have their boundaries become too permeable and does the necessary socio-technical balance exist to facilitate optimum performance?

It is time to revisit the assumptions that underlie socio-technical theory as suggested by Pasmore et al (1982). No longer are workers in coal mines (Trist et al., 1963) or office settings, where the organization can control the socio-technical aspects of work. Now it falls to the individual with appropriate organizational support to shape his/her integrated personal life and work life.

Our proposed model suggests that in highly virtual work the traditionally distinct dimensions of work and life are merging, yet both require their socio-technical systems be balanced to be optimized. Due to the level of integration of life and work these managers experienced, it made it difficult for us to separate the data cleanly as belonging to the personal socio and technical systems and the work socio and technical systems.

Given the workload pressure and the comfort level the managers had developed for using technology, as well as multitasking constantly and not wanting others to know they are multitasking, several respondents indicated that using video conferencing was not desirable. They felt this would interfere with their ability to balance the systems to personally optimize them. Will being forced to use technology for working virtually, and then integrating life at the same time, suggest that these work habits will become indistinguishable from personal habits? We have some anecdotal evidence suggesting this possibility requires further study. Further, the impact of the reduced ability to easily collaborate on future creativity and innovation should be examined.

We have identified socio-technical theory as an appropriate lens through which to view work/life balance, illustrating that when work and life are integrated the system as a whole becomes increasingly complex and more difficult to consciously balance and optimize. This new approach takes into account the reality of the increasing role technology plays in our personal and work lives today.

Implications for Practice

When organizations employ highly virtual workers, the organization no longer directly controls or facilitates optimal joint systems balance attainment and thus the system outcomes. Our respondents indicated a lack of support and training being provided to them by the company. This included the additional managers from the same organization, who while not part of the team interviewed, were those who validated our findings. These managers substantiated the lack of support and training in their comments.

A manager quoted her mentor who said, "Each person's definition of work/life balance is different, but it's the right definition for them." Thus, it would be difficult for an organization to provide individuals with specific personal guidelines, despite their vested interest in the maximizing outcomes. Virtual workers require support and training which should include increasing situational awareness and consciously making choices concerning a personal definition of balance. Also included should be how to avoid pitfalls such as technostress and other adverse health effects.

As discussed in Perlow's (2012) research, organizations and workers can first recognize the issue, and then begin facilitating discussions among teams and work groups to make it possible for workers to be "off" and to make conscious choices about how they work. Further, organizations need to realize that mixed messages are given. Despite espoused organizational calls for maintaining work-life balance, the 24/7 work demands are often greater than can reasonably be expected and ubiquitous technology provides an opportunity to overwork. This makes optimally balancing the systems increasingly complex and reduces the chances of positive outcomes such as high productivity levels.

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