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## Full-Time Teleworkers Sensemaking Process for Informal Communication

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Full-Time Teleworkers Sensemaking Process for Informal Communication

by

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A dissertation submitted in partial fulfillment  
Of the requirements for the degree of  
Doctor of Philosophy  
Department of Communication  
College of Arts and Sciences  
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learning

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## **DEDICATION**

For my husband, Jeffrey Ryan, Ph.D., who insists I do what makes me happy. He started that process by sharing his life with me.

For my family, who have inspired and supported me in many ways. I walked a path made possible by my grandparents, Richard and Florence Kehoe, who did not get far in school but made sure an education became the norm in our family. And to my nieces and nephews, the people you are all becoming inspire me to make a difference.

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## **Abstract**

Organizations have traditionally accomplished connectivity among their workers by co-locating them in shared organizational workplaces. However, information and communication technologies (ICTs) are offering alternative ways to accomplish this kind of connection. This change raises important questions about what it is possible to accomplish through such mediated communicative connections, and if there are work activities that are best accomplished face-to-face. Practitioners and researchers have historically identified informal communication as a process essential to organizational success that is difficult or impossible to accomplish outside of shared physical environments. This study documents the ways full-time teleworkers are accomplishing informal communication without being in shared work environments. In doing this, this work also identifies for what purposes these participants find shared organizational workplaces important and/or essential for successful informal communication.

To complete this study required that two additional questions needed to be addressed: 1) defining full-time telework in the context of modern ICT-mediated corporate work environments, and 2) a re-examination of the parameters of telework to define them for modern workplace environments, so as be able to use effectively to examine past and present telework research efforts. In order to document the context of each of the participants as fully as possible, a narrative case study based research protocol was used. Participants were engaged through two active interviews and a journaling exercise so as to identify and document instances of informal communication and their purposes or roles in their workdays.

This study's key finding is that among this group of full-time teleworkers, all were engaging in informal communication to accomplish bonding and learning, both in ways that paralleled those communicative practices commonly accomplished in shared environments, but also in new ways that were made possible because of emergent sociomaterial practices supported by new information and communication technology affordances. While all the study's participants indicated that their work processes, including informal communication, could be entirely accomplished virtually, nearly all noted the importance of face-to-face communication for key aspects of bonding and learning. Additionally, the successful work practices of these teleworkers were strongly dependent on the ubiquitous adoption of ICT tools and platforms throughout these participants' organizations, and by the distribution and mobility of increasing numbers of workers, in these organizations and others, that are using these technologies as a routine part of their daily work practices.

## **Chapter 1: Introduction**

The introduction and continued advances of information and communication technologies (ICTs) have made it possible to connect coworkers across geographic divides, bringing into question the need for organizations to invest in and maintain significant portfolios of workplaces for organizational white collar workers. In investigating the need and purpose for this type of place, I have found that informal communication is frequently identified as a reason for workers to be co-located, as this essential communication is believed by many to be difficult or impossible to accomplish through mediated communication platforms.

Much of the research on mediated informal communication has examined a specific ICT platform or application as a resource to support informal communication (Fish, Kraut, & Chalfonte, 1990; Isaacs, Whittaker, Frohlich, & O'Conail, 1997; Kraut, Fish, Root, & Chalfonte, 1990). This study has taken a different approach: I identified successful workers who are not co-located or even in organizational workplaces – employees who described themselves as full-time teleworkers - and discussed and documented with them their engagement in and accomplishment of informal communication. However, even these workers, who were assigned to work full-time outside of their organization's workplaces, did spend some of their time in those places. Therefore, to understand the accomplishment of informal communication in their work lives, it became important to document their engagement in informal communication within the contexts in which they worked. In order to do this, it became necessary to understand the defining parameters that have been used to characterize telework in past studies, to be able to place what I saw in the context of past research on this phenomenon. This need led me to several important

subsidiary questions, focused on the significance of traditional telework parameterizations, and on the definition of full-time telework.

### **The Significance of Informal Communication**

Past researchers have identified informal communication as essential to successfully accomplishing work within organizations (Isaacs, Whittaker, Frohlich, & O'Conail, 1997; Kraut, Fish, Root, & Chalfonte, 1990; Mintzberg, 1979). Mintzberg (1979) stated, "Most work just cannot get done without some informal communication" (p. 49). Among other things, this type of communication is important for the development and maintenance of relationships (Mintzberg, 1979), and for a large fraction of the learning that employees do within organizations (Isaacs, Whittaker, Frohlich, & O'Conaill, 1997; Kraut, Fish, Root, & Chalfonte, 1990; Nardi, Whittaker, & Bradner, 2000). Most informal communication interactions are identified as occurring opportunistically (Isaacs, Whittaker, Frohlich, & O'Conaill, 1997; Kraut, Fish, Root, & Chalfonte, 1990), and are largely associated with face-to-face interaction. For this reason, as ICTs make it possible to connect workers without co-location, developers have sought out ways to make opportunistic interaction possible in mediated interactions in the same ways they are in face-to-face interactions, and researchers have investigated ICT-mediated communication in this context (Fish, Kraut, Root, & Rice, 1992; Isaacs, Whittaker, Frohlich, & O'Conaill, 1997). These past efforts have not documented successes in mediated informal communication, reinforcing the belief that face-to-face interaction is required for informal communication.

The belief that there is a need for face-to-face interaction for informal communication has influenced the thinking of decision makers and managers in organizations who make decisions about telework (Karia & Assari, 2001; Kraut, 1987). The inability to accomplish those essential work practices that informal communication supports is often cited as a reason that organizations

do not permit telework by new employees, or that they preclude teleworking full-time (Campbell, 2011). Yet, many aspects of sociotechnical organizational systems are rapidly changing: ICT options are expanding, ICT adoption is increasing, and those in the workforce who are comfortable with technology are growing in number. All of these trends interconnect to enable possibilities for more and different ways of working. Many teleworkers and organizations that support them believe in the potential of new ways of working via mediated communication channels, and others are moving forward without waiting for studies that seek to document best practices for telework. Some teleworkers are working remotely full-time, and accomplishing all the elements of work needed to succeed, including informal communication. These employees are developing new ways of working that are enabling successful telework, and their learning in action is a valuable resource for other teleworkers and for researchers trying to understand telework as a phenomenon. Observing these teleworkers, within the context of their organizational systems, can provide insight on the sociomaterial possibilities for informal communication within our continuously evolving sociotechnical organizations.

### **The Significance of Telework**

Research on telework matters for a number of reasons: the current and future magnitude of telework, the number of organizations involved in teleworking, and the economic significance of teleworkers. Additionally, some researchers suggest that telework benefits workers (Gajendran & Harrison, 2007; Greer & Payne, 2014), organizations (Lister & Harnish, 2011a; Morgan, 2004), and communities (Lister & Harnish, 2011a).

**Magnitude, distribution, and adoption of telework.** Telework adoption is increasing in terms of the numbers of people teleworking (Gajendran & Harrison, 2007; Weiz & Wolf, 2010), the numbers of organizations using telework (WorldatWork, 2013), and the geographic



distribution of teleworkers. While researchers indicate there was a dip in the number of teleworkers during the global recession that started in 2009 (Lister & Harnish, 2011b; WorldatWork, 2013; WorldatWork, 2011), WorldatWork's *Telework 2011* (2011), suggested the lower numbers only reflect the decrease in workforce size, rather than a decrease in the desire and intent to telework. As the recession ended, Lister and Harnish (2011b) suggested telework numbers would continue to increase. Numerous organizations allow or promote telework; as can be seen in a study done by The WorldatWork (2013), an international human resources organization showing 88% of their member organizations offer some form of telework. Finally, research also indicates the presence of obstacles to telework, including infrastructure (Olorunfemi, 2013) and "availability of office space at home" (Scott, Dam, Paez, & Wilton, 2012, p. 1024), but also notes that the development of increasingly sophisticated technology and the "proliferation of high-speed connectivity" (WorldatWork, 2009, p. 3) have been essential to the expansion of telework.

While much telework and research on it originates in the "developed world", it is a global phenomenon. Researchers have identified and followed telework occurring in countries on every inhabited continent: Africa (Baard & Thomas, 2010; Haddon & Brynin, 2005), Asia (Higa & Wijayanayake, 1998; Long, Kuang & Buzzanell, 2013;), Australia and New Zealand (Schoeffel, Loveridge, & Davidson, 1993; van den Broek & Keating, 2011), Europe (Weiz & Wolf, 2010); North America (Chalmer, 2008; Lister & Harnish, 2011a; Lister & Harnish, 2011b), and South America (Lavieri, Alves & Strambi, 2013; Llubere Azofeifa, 2011). In some countries where telework is rare, or is not currently identified as occurring, researchers are actively investigating why it is not occurring, as well as how to promote telework (Karia & Asaari, 2000; Quoquab, Seong & Malik, 2013).

Identifying the current numbers of teleworkers is a difficult task because of a wide range in criteria used to define who is a teleworker (Weiz & Wolf, 2010). Research studies that have examined the numbers of teleworkers acknowledge that while the percentage of teleworkers is still small, these numbers are increasing (Weiz & Wolf, 2010).

**The economic value of teleworkers.** Much of the data on telework indicates that the largest numbers of teleworkers are professionals, well educated, and high income. Recent data from the Telework Research Network indicated that in the United Kingdom professionals were the largest segment of workers working from home with a computer (at over 15%; Lister & Harnish, 2011a), while a study based in the United States indicated that 21% of teleworkers are “knowledge workers” and 17% are “management” (Bednarz, 2005). European Union data showed that “higher skilled workers are more likely to use telework” (Weiz & Wolf, 2010, p. 7).

As our economy moves from the industrial to the digital age, this category of worker is particularly important to the overall economy, making the success of these workers within organizations economically significant to both the organizations and to the societies in which they live and work. Hendarman and Tjakraatmadja, (2012) indicate that the:

Knowledge economy is [an] economy based on creating, evaluating, and trading knowledge. In a knowledge economy, labour costs become progressively less important and traditional economic concepts such as scarcity of resources and economies of scale of economy cease to apply. The most valuable asset of the 21st-century institution, either business or non-business, will be its knowledge workers and their productivity (p. 35).

The success of these workers, and the ability to retain them, are critical to the success of organizations, and to the communities in which these organizations and workers reside.

**Benefits of telework.** Data suggests there are many benefits to telework (Bailey & Kurland, 2002; Gajendran & Harrison, 2007; Lister & Harnish, 2001a). A number of these proposed benefits have motivated workers, organizations, and communities to experiment with this new way of working.

***Individual workers.*** For individual workers, telework offers the promise of a better work/life balance, more time, increased productivity, geographic flexibility in choice of place to live, and job access for people with physical or cultural limitations. As increasing numbers of well educated women enter the workforce (Judy & D'Amico, 1997), work/life balance is often seen as a nice name for women in the work force finding a way to 'have it all' with both a family and career. However, statistics still show the majority of teleworkers are men (Welz & Wolf, 2010; WorldatWork, 2013). Even for male teleworkers the work/life balance issue may be underreported, as telework policies often demand that workers have plans in place to keep family demands outside their work-time commitments, and teleworkers often feel the need to justify that they are very hard working, especially while out of the office. Another driver, the significantly higher costs of residential property near city centers, has pushed many families further and further away from downtown, increasing traffic and making commute times longer. For these workers telework can save significant time by minimizing or eliminating commuting (Olorunfemi, 2013; Scott, Antonio Páez, & Wilton, 2012; Tremblay & Thomsin, 2012). Likewise, telework can provide access to jobs without the need to be within commuting distance to a place of business (Mitchell, Holtom, & Lee, 2001; Office of Personnel Management (OMP) and Government Services Agency (GSA), n.d.). There are also claims that decreased interruptions increase teleworker productivity (Gajendran & Harrison, 2007). Workers themselves have identified a range of benefits including: the ability to be more productive

working at home by reducing interruptions (Baruch, 2000), and increased flexibility (Tremblay & Thomsin, 2012). Finally, telework can provide employment options for workers with disabilities or other health issues (Mello, 2007) and may also, provide work options in cultures that segregate parts of the population from each other (such as women in parts of the Middle East (El Louadi & Everard, 2003)).

**Employers.** From the employers' side, the availability of employees, the cost of employees in various markets, the cost of commercial real estate, the sizes of homes, the availability of infrastructure, and the influence of increased knowledge products on management styles are all pushing organizations towards an increased use of telework and other forms of distributed work. Globalization, a phenomenon strongly facilitated by ICTs, has increased competition (Horgen, Joroff, Porter, & Schon, 1999; Robertson, 2000) and driven a desire to hold on to skilled employees (Olorunfemi, 2013; Robertson, 2000), while at the same time mandating a need to reduce costs and therefore the pricing of services and products (Karia & Assari, 2000). Having the most skilled employees (Horgen, Joroff, Porter, & Schon, 1999), regardless of geography, can provide significant advantages for businesses, which has driven some organizations to hire or maintain the employment of workers who are not proximal to the organizational locations where they would normally work (Office of Personnel Management (OMP) and Government Services Agency (GSA), n.d.). For organizations, employees are generally the most significant cost (Brill, Weidemann, & Associates, 2001; Steiner, 2005), while real estate is generally the third highest cost, after technology (Brill, Weidemann, & Associates, 2001). If organizations can hire workers in lower priced markets, the savings can, at least for a period of time, be considerable (Judy & D'Amico, 1997). In addition, if organizations can reduce the amount of real estate they require (Robertson, 2000) and/or move offices to less

expensive locations, while maintaining productivity, it is an additional way to reduce costs. To accomplish this, employers need to have reasonable alternatives for where people can work. Considerations that come into this are the availability of space in the home for work (Baruch, 2000), safety (B. K. Ferguson, personal communication, 2000), and infrastructure (Dunn & Minto-Coy, 2010; Olorunfemi, 2013) to support work in residential areas. Lastly, it becomes necessary for employers to move away from management-by-presence, or management based on the production of a target number of widgets. Managers are being challenged not simply because of telework, but also because of the increase in knowledge work, to develop different ways of managing employees, particularly those producing non-standardized product, without being able to watch them at work (Judy & D'Amico, 1997).

***Community and governmental.*** Finally, several larger societal discussions have driven the public desire to support working remotely. These include: reducing transportation infrastructure needs, reducing the production of greenhouse gasses (Nilles, 2007), reducing consumption of non-renewable resources (Nilles, 2007; Noonan & Glass, 2012), and reducing energy demand (Nilles, 2007). While there is some push-back on the latter of these claims, in particular (Mokhtarian, Handy, & Salomon, 1995) they have all been regularly put forth as benefits of telework. The U.S. Federal Government, among others, has proposed implementation of telework as a way to address some societal challenges (United States Office of Personnel Management, 2012).

**Disadvantages and challenges of telework.** So why, if there are so many advantages is telework not already the main way of working? For workers, organizations, and communities, the possibility to telework poses challenges and questions. For employees, removing the physical divide between work and home requires other forms of boundary making, that may

include rethinking how their home is used by all family members. It also generally requires that workers can have a dedicated place for working with the furnishings and technologies required to do their job, and connectivity for ICTs utilized by their organizations (Scott, Antonio Páez, & Wilton, 2012). While this workplace may be located in a worker's home, for some this may neither be desirable or feasible, and then they would need to find, furnish, and pay for other workspace near their home. For organizations, much of the activity of management has become dependent on measuring employees' value and productivity through presence in the workplace, supported by a belief that organizations "own" their employees' time, at least for a certain number of hours a week. New styles of management are necessary when employees are not visible, and as this coincides with a shift to non-standardized knowledge production as a primary "product" of organizations, it becomes difficult to quantify the value of work products and thereby employee effort (Blair & Wallman, 2001). Finally, governments and the communities they support must address what becomes necessary at the community and/or societal level if or when new ways of working are implemented. Additional space requirements in the home to support work push homeowners toward larger homes (Ahluwalia, 2007), and often into the suburbs outside the metropolitan locations of many businesses, at a time when many of those looking at our societal future suggest a need for urban densification. Such a shift would increase the infrastructure and utilities requirements in areas beyond our major metropolitan areas.

**Governmental support of telework.** While the numbers remain small, many governments have seen telework as important to promote or regulate, including the United States, the European Union and 21 of its member countries, and Brazil. In the United States, the Federal government has legislated that "each executive agency shall establish a policy under which eligible employees of the agency may participate in telecommuting to the maximum extent

possible without diminished employee performance” (OPM & GSA, n.d., 102-74.585). The Federal government is the largest employer in the United States, and there has been an effort to promote increasing the numbers of teleworkers since the implementation of this law in 2000. As of 2012, the federal government has 267,227 teleworkers (United States Office of Personnel Management, 2013). The European Union “peak social partners” (Weiz & Wolf, 2010) signed *The European Framework Agreement of Telework*. The document was broadly written, to allow it to fit into the governance of many countries while intending to address “employment and working conditions of teleworkers—such as health and safety, data protection, access to training and the voluntary nature of telework” (Weiz & Wolf, 2010, p. 2). Weiz and Wolf (2010) indicate that 21 countries have implemented national agreements. Lavieri, Alves, and Strambi (2013), in a review on telework in Brazil, indicated that “in December 2011, the Brazilian Labor Legislations (CLT) was modified to allow for employees that work remotely to have the same labor rights as those working at the company’s workplace (in-office)” (p. 3). One significant advantage of the legislation of telework is the increase in needed documentation on telework, which becomes available to support research into the practice.

**Status of and opportunity for research on telework.** This project has been built on past research into informal communication and telework. The research on informal communication emerging since ICTs have become important to work processes has often focused on a single type of technology and its ability to support opportunistic informal communication, as if it was happening face-to-face (Fish, Kraut, & Chalfonte, 1990; Isaacs, Whittaker, Frohlich, & O’Conail, 1997; Kraut, Fish, Root, & Chalfonte, 1990). While this work is important for testing the possibilities of various technologies, it does not provide the opportunity to observe informal communication when and how it occurs, through multiple ICT

tools and platforms in the same work process. Other research that has looked at the informal communication of teleworkers has provided few details on the salient parameters of the telework experience (Fay, 2011; Fay & Kline, 2011; Fay & Kline, 2012), making it impossible to draw sensible comparisons between past research and new investigations. To address these two challenges, this study has chosen to document the work of participating teleworkers holistically as sociomaterial practices, by presenting the context and activities of each participant as a case study.

Research has been conducted on telework for several decades, (Nilles, 1991). Through the years several authors have reviewed the scope of research done on telework (Bailey & Kurland, 2002; Raghuram, Tuertscher, & Garud, 2010; Shin, Sawy, Liu Sheing, & Higa, 2000). A co-citational analysis completed in 2010 identified the major clusters of telework research (Raghuram, Tuertscher, & Garud, 2010). While elements of many contribute to this study, the work on computer mediated communication, and into the theory base for remote work are the two most important.

Investigations into computer mediated communication, while it has evolved into a research area that focuses on technology in practice, emerged out of socio-technical systems theory. The early socio-technical systems work (Trist, 1981) and the work on sociomateriality (Leonardi, 2012) provide a foundation for considering telework as a process within organizations rather than as a stand alone way of working of individuals. I believe this move back towards a more holistic viewing of telework is essential, particularly in a qualitative study like mine, to enable description of the system of influences that support or make it difficult for teleworkers to succeed. Additionally, I believe it is important to recognize that different industries (O'Mara, 1999), different organizational cultures, and different organizational policies in addition to



different jobs, different managers, different teams, and different individuals as well as technologies available are all influential on telework within an organization.

Studies into the theory base for remote work provide important foundations for specific aspects of virtual work. The challenge that I see this study as a qualitative approach trying to address is that this body of work looks to face-to-face ways of working as an ideal, to be emulated in some way in telework. Here I would like to be open to the possibility of different specific ways of working emerging, and to the possibilities that mediated communication may be more effective than face-to-face in some ways, if we focus on what it affords.

### **Scope of the Dissertation**

This dissertation documents a qualitative, case-based investigation into the informal communication done by teleworkers. The research engaged self identified ‘full-time’ teleworkers to document their perspectives on how they accomplish informal communication within the context of the organization in which they work, and why they choose the approaches they take. The overarching question this research addresses emerges in no small part from my practice experience in corporate settings. So while this study was completed within an academic frame and for academic purposes, I have chosen to move between practice and research in the work I have completed.

**Chapters.** This document includes seven chapters, which are: the introduction, the literature review; the methods section; the case studies; parameters of telework findings; informal communication findings; discussion, conclusion, limitations, and future research. This introduction discusses the importance of informal communication in organizations, the importance of telework, the scope of this document, and finally, a description of the research questions I address in this dissertation. The literature review

addresses the specific bodies of research that have laid the foundation for this work: telework, informal communication and sociotechnical systems and sociomaterial process. The methods section lays out the cross-case case study analysis research strategy I used for this project. This case study approach along with the choice for active interviews and diaries provided layers of sensemaking with participants. In addition to providing the foundation to this work, several participants indicated aspects of the discussion and documentation made them more aware of the choices they can make to work successfully in their organizations. Case studies for each participant are presented in Chapter 4. The purpose of presenting these as cases was to see and present each participant as a worker navigating their work processes within the evolving context of their organizations. Findings are presented in two chapters, one for each major research question: Chapter 5 presents findings on the parameters of telework; and Chapter 6 presents the findings on the informal communication practices of the full-time teleworkers participating in this study. Chapter 7 presents the analysis of these results related to both research questions, the major conclusions from this work, limitations, and emerging directions for potential future research.

### **The Research Question**

The research questions I addressed in this work emerged out of an essential interweaving of my professional experience and my academic coursework. I believe my professional background drives me to this research area with a different overarching interest, and so I will start by explaining that. When doing my Master's work in Interdisciplinary Social Sciences, it became clear that Communication was central to the future research I was interested in pursuing.

My Ph.D. coursework was indispensable in that it exposed me to foundational materials and bodies of knowledge that addressed concerns that I had no name for at the time.

**A practice overlay.** My years of professional experience working on the design and strategic planning of organizational workplaces gives me a unique perspective on telework research. During the course of my career, I have seen information and communication technologies expand from being a thing to be accommodated in a physical space to being another resource, in addition to or in combination with physical space, for connectivity. I believe it is increasingly important to be able to address both these resources for connection, as a spectrum of available resources from which organizations and their employees can select to accomplish the business of the organization, while supporting the work/life balance needs of employees. However, most often I still see the responsibility for the management of workplace and of ICT tools siloed in two distinct organizational functions: that of information technology and real estate/facilities management; and each area generally is overseen by their own set of functional experts. It is my long-term objective to develop approaches that bring together planning and management of ICTs and physical space in efforts that are planning for and using these organizational resources.

My work has also engaged me to discussions with organizational leadership and employees dealing with alternative officeing options, including telework. These employees are generally in the human resources (HR) area of the organization. The most progressive organizational planners (often facilities management, design or real estate professionals) have worked to challenge the obstacles to teleworking. One of the most challenging obstacles is the HR belief that for teleworkers to be successful, they need a time period working in the office with coworkers to get to know the organization overall, and/or their new role in the organization,

or a new work group. The implication in this is that there are tacit elements of work, including relationship building, that require face-to-face communication (Richert, personal communication, 2011). This need is then often codified into requirements to have a period of working ‘in the office’ before teleworking is allowed (Campbell, 2011). While significant research has been done on looking at successful mediation of formal work activities, such as meetings (Fulk & Collins-Jarvis, 2001), much less work has been done on informal communication through ICTs, and what has been done often focuses on the adoption and/or use of specific technologies.

Additionally, I was also driven to this research in part because I was a teleworker for a period of time, in an organization that did not formally support telework, and that experience was for many reasons an unsuccessful one. My telework experience presented the challenge of separating my own experiences from my data collection and analysis process. Early in my graduate work, I found that my own negative experience as a teleworker influenced a desire to see telework negatively. However, as I have spoken to more teleworkers I have become aware of how different the experiences of teleworkers can be, and have learned the importance of being open to hearing their unique experience in different organizational contexts. This evolution in my thinking provided me with the insight to recognize I needed to be open to telework as a varied sociomaterial practice in individual sociotechnical systems.

**Research informed by practice.** Having seen teleworkers who worked in new ways, with tools and resources to overcome many of the obstacles I had encountered as an earlier generation teleworker, motivated me to move forward in studying how such workers are developing their new ways of working in the midst of the ongoing evolution of ICTs, and their organization’s adoption and responses to the approaches that use of these ICTs make possible or necessary. However, it is also clear from earlier communication research and thinking that what

I was also looking at was the ability of their coworkers to communicate with their teleworking colleagues in ways that allow for successful teleworking within their organizations. While I started to develop my research with the language and research foundation of informal communication, it was ultimately an extended journey through many different communication concepts to find those that aligned with what those practitioners I was interviewing were describing to me. Also important was my recognition that what I wanted to get from my research participants, and how to access that.

**The research problem.** Organizational leaders involved with telework have identified the lack of opportunities for informal communication as an important limiting factor to employees' ability to telework in a new job, and/or to telework successfully full time. While there has been some research on informal communication through mediated communication connections, much of this was done during earlier generations of ICT development, and was founded in what we know about face-to-face informal communication (Fish, Kraut, Root, & Rice, 1992; Isaacs, Whittaker, Frohlich, & O'Conail, 1997; Kraut, Fish, Root, & Chalfonte, 1990). In assuming that telework and other types of virtual work must seek to emulate face-to-face work, we choose not to see the possibilities for connection that mediated communication may offer, specific to each technology and platform. Therefore, my research has sought to identify the sociomaterial work processes of successful, full-time teleworkers who are accomplishing informal communication mediated with ICTs. My participants had moderate to high levels of interaction with their coworkers, covered a range of professions (although all were professionals with college educations), a range of ages, and a range of organizational sizes. I believe this study offers both an important resource to practitioners, and opens new research directions into understanding work processes of teleworkers.

**The research questions.** The primary issue addressed in this research was understanding how workers accomplish informal communication when they are not co-located and why they chose the approaches they took. In examining this question I sought to bring more understanding to how workers are using ICTs without being co-located in organizational space, to accomplish their work successfully. I also hope to help build an understanding of why we need shared organizational spaces, as mediated connections among workers becomes richer and more routine.

In order to examine questions about how teleworkers are communicating, informally or otherwise, it is important to understand the traditional parameters of telework as used by employers and as a basis of past investigations, and how these have impacted the accomplishment of work in organizations today. Therefore, this research will first examine and re-evaluate the parameters of telework, both in terms of how and if these distinguish full-time telework as it currently occurs, and also, in terms of how these constraints either enable or challenge that way employees are working.

## **Chapter 2: Literature Review**

This literature review will examine the foundational publications in three areas of thinking critical to this research: full-time telework, informal communication, and socio material processes in sociotechnical systems. In the section on telework I have examined telework literature on the characteristics that are used to delimit who is and who is not a teleworker, and characteristics that can further specify types of teleworkers. This information is used to identify the ‘type’ of teleworker I intend to solicit and why that teleworker is best for my research question.

### **Full-Time Telework**

Full-Time teleworkers are a category of teleworkers, and teleworkers are a category of virtual workers. While many articles reference full-time telework, few attempt to define it. The definition of full-time telework most suitable to this study was provided by Vega (2011), who indicated full-time teleworkers are “Employees utilizing full-time telecommuting programs work away from a centralized work location as their primary work location” (p. 7). He continues this definition to say that these workers only come to the office for things that cannot be handled remotely.

**Virtual work.** Virtual work is the largest overarching category of work accomplished through information and communication technologies (ICTs). Webster and Randle (2016) define virtual work as “work that is mediated by online technologies that are used to organize work in ways which dislocate, redistribute, and relocate it in new work spaces: in virtual teams, in distributed workplaces, in offshore facilities, in restructured global value chains, and in

outsourced functions”(p. 5). Other authors recognize that virtual work extends beyond the parameters of formal organizations and paid labor (Holts, 2013; Huws, 2012). However, even Webster and Randles’s (2016) definition, narrowed to a formal business framework, is so broad as to be problematic in identifying what this work is. Watson-Manheim, Chudoba, and Crowston (2002), state:

Dramatic changes in work environments are evidenced as boundaries of time, space, and even organization are transcended. The word ‘virtual’ has become a compelling catchphrase to describe these changes and, as such, is freely applied to many situations, with many meanings. As a result, it is in danger of meaning nothing (p. 191).

This category of work, unlike its subcategory, telework, is generally discussed in research at the organizational or group level. In addition to telework, two other categories of virtual work are relevant to this study: virtual teams and distributed work.

***Virtual teams.*** While not only occurring within organizations, virtual teams are becoming increasingly important to organizations. In an online presentation from 2012, the Society for Human Resource Management shared results on the use of virtual teams from an internal survey. This survey found “Nearly one-half of organizations (46%) use virtual teams in their workplace. Roughly one-quarter of the organizations using virtual teams are U.S.-based operations (28%), while organizations with multinational operations are more than twice as likely (66%) to use virtual teams” (Society for Human Resource Management, 2012). White (2014) provided the following definition of a virtual team: “A virtual team exists where one or more members of the team make some or all of their contributions from a different location and/or a different time zone and/or



a different national culture than other members of the team” (p. 111). This definition with its “and/or’s” provides an example of the breadth of types of groups, and group advantages and challenges that are encompassed by the descriptor ‘virtual team’. Cohen & Gibson (2003) discuss the range of differences that may be found among groups describing themselves as virtual teams, including: interaction or interdependence, geographic and time distribution, cultural heterogeneity or homogeneity, or time spent together. Other differences may also exist including: location of team members in or out of organizational workplaces, duration of the team (Nemiro, 2002), inter- or intra-organizational team structures, and type of work. The variety of potential differences in such teams, while not exhaustive, indicates that identifying a team as virtual is inadequate in order to determine whether research findings on any particular team is comparable to findings on any other, as this term is currently applied “to a wide variety of social and organizational phenomena” (Cohen & Gibson, 2003, p. 3).

### **Telework**

“*Tele* means at a distance or from afar...*telework*, working from afar or at a distance” (Kraut, 1987, p. 114)

Telework is defined by two important elements: first, it is work remote from a central place of business; and second, it is mediated by information and communication technology (Garrett & Danziger, 2007; Sullivan, 2003). However, this definition encompasses a large number of workers with a wide range of ways of working. This limitation of the definition may be connected to the origins of the research on telework, which emerged from the transportation research of Nilles (Nilles, 1991). Past workers have recognized that the overly broad definition of the term is problematic (Felstead, 1996; Huws, Korte & Robinson, 1990; Qvortrup, 1998), and

that the differences in the types of workers studied under the term ‘telework’ make comparisons among studies difficult (Baruch, 2000; Huws, Korte and Robinson, 1990). In order to address this range of ways of working, past researchers identified a suite of telework variables that include: relationship to employer, time, location, and technology (Haddon & Brynin, 2005; Sullivan, 2003).

*A teleworker’s relationship to his/her employer.* Many categorizations of telework make distinctions between employees, contractors, and self-employed people. Some organizations that track telework do not choose to consider contractors and/or self-employed people teleworkers (United States Office of Personnel Management, 2011), while others do (Welz & Wolf, 2010). Lister and Harnish (2011b) indicate that self-employed workers’ “motivation, and their demographics are very different from those of the employee WAH [work at home] population” (p. 15). Recent data suggests that full-time employees will remain the dominant workforce in the economy over the short term (Judy & D’Amico, 1997). While much has been written about the increasing numbers of part-time employees (McRae, 1994; Reich, 2000), contract workers (McRae, 1994), and temporary workers (Judy & D’Amico, 1997); Judy and D’Amico (1997) expect these categories to comprise at most 25 percent of the employed workforce by 2020, so ~75 percent or more of the workforce will identify as full-time employees.

*Time.* Different organizations have delimited who is and who is not a teleworker based on different parameters of work time. Time is significant for identifying teleworkers in these three ways: ‘regularity’ of work hours (i.e. within regular working hours); percent of work time, or how many hours worked remotely; and how regularly the worker teleworks. If an employee works only non-routine work hours (i.e. evenings and weekends) from home, they are not considered teleworkers. Thus, a significant amount of the time worked remotely must be during

‘normal business hours’ (United States Office of Personnel Management (US OPM), 2011).

Additional concerns are the amount of time worked remotely, and the regularity of that remote work. Some organizations delimit who is a teleworker based on a minimum amount of regular scheduled time teleworking<sup>1</sup>. These two distinctions are exemplified by the U.S. Federal Government definition, as documented by the United States Office of Personnel Management (2011):

1) routine telework in which telework occurs as part of an ongoing, regular schedule and 2) situational telework that is approved on a case-by-case basis, where the hours worked were NOT part of a previously approved, ongoing and regular telework schedule (p. 4).

Situational or “ad hoc” (WorldatWork, 2013) telework is becoming an important tool for employers to prepare employees ahead of time to work at home in cases of weather, public health or other emergencies, where coming to the office is not possible. “Routine” teleworkers can be part time or full-time, and for part-time teleworkers the hours worked remotely can vary in ways that substantially impact their work processes. In examining stories of teleworkers, part-time teleworkers identified a segmentation in the way they worked - ‘heads-down’ work at home, and more interactive work at the office (Strawn, 2008). Teleworkers working ‘full’ time from home do not have the opportunity to segment their work in this way.

Another implication of time as a parameter is that the research indicates that the amount of time a person teleworks influences how they experience telework (Golden, 2006). A study by Golden and Veiga (2005) indicated that teleworkers working over 15.1 hours a week at home experienced a leveling off and slight decrease in job satisfaction. Other studies have indicated

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<sup>1</sup> This minimal time can range from a minimal weekly time to as little as minimum annual time. (US OPM, 2011; Welz & Wolf, 2010)

that as the length of time spent teleworking increased, workers were more likely to discover problems such as “inability to get timely feedback from people, or difficulties working with technology” (Bélanger, Watson-Manheim, & Swan, 2013, p. 1267). Gajendran and Harrison (2007) describe a time delineation of high and low intensity teleworkers. Low intensity teleworkers spend the majority of their work time in the office and high intensity teleworkers spend more time away from the office, up to and including workers who work remotely full-time. However, EU data indicates that 1.7% of workers in 2005 indicated they telework “almost all the time” (Weiz & Wolf, 2010, pp. 4-5) and in the US 2.3% of workers, or “2.9 million consider home their primary place of work” (Lister & Harnish, 2011b, p. 4). Full-time teleworkers, because they must find a way to do all elements of work remotely, become an important group for examining how the various aspects of work are accomplished without co-location.

***Location.*** The literature identifies a number of places that workers can work: central shared organizational space, organizational telework centers, client sites, travel spaces, cowork centers, and home. These various workspaces provide different resources for workers, including physical access to coworkers; visibility of coworker availability (Appel-Meulenbroek, 2010), organizational messaging, both direct (e.g. bulletin boards) and indirect (e.g. workspace use and appearance); and physical resources. Many of these resources are conscious formal communication tools; they also convey and support informal communication as well. While an analysis of co-located workplace is not part of a discussion of telework characteristics, regular comparisons back to this way of working have been common in past studies, and are thus important to this work.

***Shared workplace.*** The location of work, raw materials, equipment, and workers together has a long history that until the industrial revolution also often involved placing these

where workers lived (Zelinsky, 1998). The industrial revolution brought with it the need to centralize workers around equipment and a production process in dedicated workplaces, and later the need for organizational structure and the white-collar jobs that involved the required oversight and management of these processes (Zelinsky, 1998). As large white-collar workplaces became necessary and possible, organizations started using shared workplace as a resource for management, work processes, employee commitment, access to work resources, and organizational messaging<sup>2</sup>. Some of the best workplace designers recognized the significance of place beyond holding organizational resources and worked to develop research, design processes, and workplace models that enabled workplaces to enhance the work processes of the organizations they were designed for. Duffy recognized the ways space can do this (1998) when he wrote:

Gutman has listed eight properties of the physical environment, which may have some significance for behavior. These are the location of facilities and structures (spatial organization), circulations and communication systems (circulation and communication), whatever environmental features maintain the physiological and psychological functions of the human organism (ambient properties), the environment as it is perceived (visual properties), facilities which are built into the environment (amenities), the social values, attitudes, statuses, and cultural norms which are represented or expressed by the

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<sup>2</sup> Work like that of researcher Mahbub Rashind (2013) recognizes that space provides the opportunity for interaction, but does not guarantee it.

environment (symbolic properties), and finally the peculiar sensory and aesthetic properties of the environment (architectural properties). (pp. 33-34)<sup>3</sup>

More recently, the creation of workplaces has become a process that can “improve work practice and transform organizations” by involving the knowledge of multiple fields in the processes of their creation (Horgen, Joroff, Porter, & Schon, 1999). As a designer, I have programmed space to support, enhance and promote work processes; this included: informal interaction spaces to improve collaboration (Horgen, Joroff, Porter, & Schon, 1999; McCoy, 2002), project rooms to support project-based teams (Becker & Steele, 1995), and reconfigurable open offices to support both heads-down work and team interactions (Becker & Steele, 1995; Horgen, Joroff, Porter, & Schon, 1999). For anyone who has worked in an office space, the company bulletin boards, often in the coffee room, are places to post government documents, company information and sometimes employee information as well (i.e. promotions to join the company baseball team, etc.). Workplaces have also been the place where the ‘tools of the trade’ are located; these include computers, printers, copiers and documents. Finally, ‘branding’ formalizes a corporate image symbolically to clients and employees through the decisions made about space use and décor. The messages carried in the use of space tell employees what is valued in the organization (i.e. who gets the corner office (if there is one), how the organization views various employees (i.e. who is important enough for daylight, and does their space support the work they are doing), and how the organization views its status in its industry and society, as a cue for employees on how to project the organization and their role in it. Bartel, Wrzensniewski and Wiesenfeld (2007) state:

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<sup>3</sup> Duffy credited this to a working paper by R. Gutman titled “The social effects of the urban environment” which I cannot identify as having been published.

The physical context of work provides the backdrop for employees workplace activities, yet it is not often noticed or addressed. Nonetheless, it affects how employees' perceive and enacts their tasks and interact with others. As such, organizational research increasingly has recognized the symbolic role that the physical work context serves in shaping employees' self-perceptions as organizational members (p. 128).

All of these functions of organizational space, when planned well, are integral to the function of organizations; thus many questions arise as these resources are removed from increasing numbers of organizational members and participants.

*Home as a place of work.* Research studies on home as a place of work have indicated that there are significant benefits and challenges to this ways of working. Among the challenges identified are several that are of particular importance to the work in this study, as informal communication and the activities it enables are impacted. Most directly, in a report completed by the Technology and Telecommuting: Issues and Impacts Committee (1994) of the National Research Council, it is stated: "When members of a work group are physically separated from each other or from a supporting organizational structure, tacit and informal processes no longer suffice to support group work and organizational effectiveness. Groups need different strategies for handling group formations, operations, external relations, and reorganization" (p. 38). Other research has shown that workers had less contact with office friends and colleagues over time (Collins, Hislop, & Carwright, 2016), less interaction when remote (Duxbury & Neufeld, 2000), and had less engagement in organizational practices (Bartel, Wrzesniewski, & Wiesenfeld, 2007).

## **Technology**

“Despite the availability of media-rich technologies such a video, it is generally believed that such devices have social, as well as technological, constraints and that ‘no technology can duplicate the experience of working onsite together’”  
(Golden & Veiga, 2005, p. 303)

Technology is defined in a number of different ways, that range from very broad definitions encompassing much of what exists and happens in organizations, to very narrow, specific, object-oriented definitions (Miller, 1959; Orlidowski & Scott, 2008). Orlidowski & Scott (2008) suggest alternative uses of the term “technology as machines and devices, technology as technique..., and technology as organization (specific arrangement of tools, people and tasks)” (p. 452). They continue by presenting the idea that “equating technology with social elements is conceptually confusing: ‘when technology and organization are allowed to share the same semantic domain, it often becomes difficult to decide where technology stops and organization begins’” (p. 452, credited Barley, 1988, p. 46). In this study, technology was seen as evolving, enabling, constraining, and as an active (rather than fixed) participant in work processes. As such, technology was used to refer to ‘thing-ness’, recognizing it as an element in the human social system. Therefore, the understanding of technology as machines and devices was the departure point for this work.

**Telework and technology.** Considerations of technology in telework research has most often been addressed from a media richness perspective, which suggests that the more complex the communication requirements, the richer the communication required (Daft & Lengel, 1986; Daft, Lengel, & Trevino, 1987). While some recognize that there might be a value for a less rich communication process (Nardi, Whittaker, & Bradner, 2000), most often examinations of



technology have positioned face-to-face communication as the ideal way to communicate, which other media channels need to emulate to be effective (Fish, Kraut, & Chalfonte, 1990; Isaacs, Whittaker, Frohlich, & O'Conaill, 1997; Kraut, Fish, Root, & Chalfonte, 1990). This approach does not adequately recognize the value of differences in communicative processes or the ability of users to adapt their work processes to match their work needs with the affordances that the range of available technologies may avail them of.

Additionally, until recently few researchers had discussed the role of technology availability, organizational technology policies, and technology adoption in organizations as an important factor in telework. Garrett and Danziger (2007) defined and evaluated three categories of teleworkers asking, in addition to other questions, about their view of their organization's level of technical sophistication. They identified that 'fixed-site teleworkers' found their organizations on the leading edge of technology (Garrett & Danziger, 2007). If teleworkers are able to access coworkers and managers or subordinates, because their way of communicating, particularly informal communication, is normal within their organizations, is that more likely to make them successful?

**Question 1:** What is the significance of the three parameters of telework considered in this study—place, technology (ICTs), and time?

### **Information and Communication Technology and Organizational Work**

*“Advanced Western societies are on the threshold of a profound change in the texture of their socio-technical relations. This entails a change not only in quantity but in quality. It represents a discontinuity, as witness the opportunities for scaling down rather than up, dispersal rather than concentration, and self-management rather than external control”*  
(Trist, 1981, p. 51)

Theoretical frameworks that examine systems of organizing, which involve both social systems and technologies, have evolved as technology use has expanded from industrial technologies to information and communication technologies. These frameworks include: sociotechnical systems, affordances, and sociomateriality. Early socio-technical systems thinking provides important foundational forms for examining those social systems that involve significant technological processes. While this framework can provide context for thinking about technologically influenced systems, socio-technical systems theory has largely been applied in ways that focused on the best use of technologies. It was first used to examine industrial plants (Trist, 1981), and more recently for “...the interdisciplinary study of the design, uses and consequences of information technologies that takes into account their interaction with institutional and cultural contexts” (Lamb, Sawyer, & King, 2000, p. 1614). While Trist (1981) suggests that the use of sociotechnical systems theory has value for “transforming existing work establishments” (50), the movement of these concepts toward examining how to make technologies and technology processes operated by humans more effective may have prompted the development of alternative structures for forefronting social systems processes with integral technological elements.

### **Informal Communication**

The concept of informal communication is closely related to the concept of informal structure, which originated from work on the Western Electric Hawthorne plant research of Roethlisberger and Dickson in 1939 (Mintzberg, 1983). In this work, the researchers observed “the presence of *informal structure*—unofficial relationships within the work group” (Mintzberg, 1983, p. 8). Roethlisberger and Dickson (1939) defined both formal and informal structure. They noted: “The term ‘formal organization’ will refer to those patterns of interaction prescribed

by the rules and regulations of the company as well as the policies which prescribe the relations that obtain, or are supposed to obtain, within the human organization and between the human organization and the technical organization” (Roethlisberger & Dickson, 1939, p. 406). They indicated that: “The term ‘informal organization’ will refer to the actual personal interrelations existing among the members of the organization which are not represented by, or are inadequately represented by, the formal organization” (Roethlisberger & Dickson, 1939, p. 406). These definitions leave space for interpretation between these two concepts that also remains between the concepts of formal and informal communication as well. Mintzberg (1983) suggests that this is because “...studies have demonstrated that formal and informal structures are intertwined and often indistinguishable.” (p. 9).

Human relations theorists have moved forward with these concepts, and have worked to document the significance of informal structure in organizations (Mintzberg, 1983). Mintzberg (1979) provided a key description of informal communication, stating:

In effect, considerable activity outside the systems of formal authority and regulated flow processes has been uncovered in the research. Centers of power exist that are not officially recognized; rich networks of informal communication supplement and sometimes circumvent the regulated channels; and decision processes flow through the organization independent of the regulated system.” (p. 46).

The idea that informal communication occurs outside of regulated channels has been reinforced by subsequent researchers, including Fish, Kraut, Root, and Rice (1992) who stated:

Formal communication goes through organizational channels following the hierarchy of an organization's structure. In contrast, informal communication cuts across these organizational boundaries. Operationally, informal communication differs from formal communication in its greater frequency, expressiveness and interactivity. These attributes give organizational members the flexibility to deal with highly uncertain and ambiguous topics, tasks, and decisions (p. 37).

In this description they also tell us that this form of communication deals with topics of high uncertainty, in addition to being outside the formal structure of the organization. Fay (2011) indicates that this communication may be work related or not. As with formal and informal structures, it is reasonable then to say that formal and informal communications are likely to be "intertwined and often indistinguishable" (Mintzberg, 1983, 9). Thus, there is not a firm line between formal and informal communication.

**The role of informal communication in organizations.** Researchers have long recognized informal communication as an important communicative process in organizations (Kraut, 1987; Mintzberg, 1983). Specifically, researchers recognize this type of communication as important to particular work activities, including: bonding (Kraut, Fish, Root, & Chalfonte, 1990; Nardi, Whittaker, & Bradner, 2000), learning (Nardi, Whittaker, & Bradner, 2000), and "understand[ing], adapt[ing], and apply[ing] formal procedures and processes" (Fish, Kraut, Root, & Rice, 1992; Isaacs, Whittaker, Frohlich, & O'Conaill, 1997). However, as workers and organizations are challenged, with increasing frequency, to adapt to the emergent needs of changing work processes, the support of "both production work and the social relations that

underlie it” (Kraut, Fish, Root, & Chalfonte, 1990) provided by informal communication, important already, will become more essential.

### ***Learning.***

There is a disjunction between the reality an organization faces and the words used to represent that reality as organization members communicate with each other. Learning has to bridge this disjunction. And its success in doing so is heavily dependent on the adequacy with which discrete communications approximate the continuity that ultimately validates or invalidates the learning. (Weick & Ashford, 2001, p. 716)

*Importance of learning in organizations.* As Weick and Ashford (2001) suggest above, learning is essential to organizations. Brown and Duguid (2000) state: “It is learning that makes intellectual property, capital, and assets usable” (p. 124). Marsick and Watkins (1990) define learning “as the way in which individuals or groups acquire, interpret, reorganize, change or assimilate a related cluster of information, skill, and feelings” (p. 4). Thus learning is central to the ability of organizations to accomplish work. This definition makes clear that knowledge sharing, and understanding, adapting, and applying procedures and processes are types of learning.

*Types of learning.* Researchers categorize learning in organizations as two primary types and at three different levels. The two main types are formal and informal learning. Formal learning is what we think of as classroom learning: a formal, organized class often with multiple participants (Marsick & Watkins, 2001). In current organizational settings this may manifest as a virtual class that may be accessed by multiple participants at one time or individually by one participant at a time (Johnson, Aragon, Shaik, & Palma-Rivas, 2000). Informal learning by

contrast is often unplanned, outside of a classroom setting (Marsick & Watkins, 2001), and is seen as more effective as it is a form of ‘learning when needed’: that is, it is focused on the learner(s)’ need(s) (Ellinger, 2005; Hager & Johnsson, 2012). A specific sub-category of this type of learning that is of particular importance is referred to as ‘incidental’ learning, where people learn in the process of working (Marsick & Watkins, 1990).

Crossan, Lane and White (1999) developed a framework for organizational learning that involves four sub-processes that happen at all three levels of learning in organizations: individual, group, and organizational. These sub-processes are: intuiting, interpreting, integrating, and institutionalizing. In the context of this study, it is learning at the group level, otherwise known as interpersonal learning, which is important. Crossan, Lane and White (1999) indicate that for this kind of learning the sub-processes people engage in are interpreting and integrating. Interpreting can happen in conversation, while integrating is about developing shared understanding and mutual adjustment (Crossan, Lane, & White, 1999). It is out of this latter process of integrating that knowledge creation, the development of shared understanding, and changes in processes and procedures emerge as learning processes. Hinds and Weisband (2003) reinforce this idea, stating:

To develop a shared understanding among members of a team, people need to learn together, relate to one another, and develop mutual expectations along several dimensions, including the nature of their goals, their job or task, the processes required to perform their task, the team interaction that support task accomplishment and information about the characteristics and activities of team members themselves” (p. 23).

*Learning and place.* Learning in organizations has a long history of dependency on physical co-presence, originating in practices such as apprenticeship (Lave & Wenger, 1991). Being in a shared environment affords the possibility for learning from the observation of other workers and their work processes, and offers environmental cues that are often more tacit than explicit. Researchers have suggested that the removal of workers from their shared physical environments makes learning difficult or even unachievable (Olson & Olson, 2000; Olsen, Teasley, Covi, & Olson, 2002). Co-located workers can see someone is confused or struggling, or when someone is present and appears to be ‘available’ for a question. When workers are working physically together one can observe something he/she can learn from. A worker overhears a discussion and learns how something should be done. All of these examples confirm Weick and Ashford’s (2001) statement that “individual learning is also dependent on cues and it is this dependency that brings communication into discussions of learning” (p. 712). So the removal of these cues that workers access in a shared physical work environments presents the question - can workers learn without shared workplaces?

*Shared understanding.* Hinds and Weisband (2003) define shared understanding as “a collective way of organizing relevant knowledge, as a way of collaborating” (p. 23). However, they adopt a definition by Schrage of collaboration as: “(t)wo or more individuals with complementary skills interacting to create a shared understanding that none had previously possessed or could have come to on their own” (Schrage, 1995, p. 33). This second definition helps to clarify the idea that this is an important way of coming to a common way of thinking about something. Some research has suggested physical proximity is an essential environmental factor for developing shared understanding (Bittner & Leimeister, 2013). Other researchers have

recognized shared understanding as a challenge for virtual teams (Berry, 2011; Hinds & Weisband, 2003) and for teleworkers (Boell, Cecez-Kecmanovic & Campbell, 2016).

Hinds and Weisband (2003) describe what a shared understanding provides virtual teams, the factors that are known to enhance the development of shared understanding, those things that present challenges to creating shared understanding, and what happens when there is a lack of shared understanding. While virtual teams often have the advantage of working in organizational spaces, they share with teleworkers the challenge of communicating with at least some of their team in a significant way through mediated communication. Hinds and Weisband (2003) identify five ways in which shared understanding is beneficial to teams:

- Enables people to predict the behaviors of team members
- Facilitates efficient use of resources and effort
- Reduces implementation problems and errors
- Increase satisfaction and motivation of team members
- Reduces frustration and conflict among team members (p. 23)

*Adapting processes and procedures.* Informal communication for adopting formal processes and procedures, is a process for using informal communication to make changes toward producing better work results (Salem, 1999). This is what Salem (1999) identifies as “first-order change” or “simple learning” (p. 5). Change, even when small, involves risk. March (1991) states: “(a) central concern of studies of adaptive processes is the relation between the exploration of new possibilities and the exploitation of old certainties” (p. 71). Thus this process requires the sharing of new information or options among those involved in making changes (March, 1991).



**How workers do informal communication.** “Informal communication is that which remains when rules and hierarchies, as ways of coordinating activities, are eliminated” (Kraut, Fish, Root, & Chalfonte, 1990, p. 148). In 1990 Fish, Kraut, and Chalfonte published a list of the characteristics of informal communication, which included: unscheduled, random participants, unarranged agenda, interactive, rich content, informal language and speech register (p. 2). Hrastinski modified this list of characteristics in 2010 to reflect the results of more recent research studies, so this list now includes: unscheduled, interactive, emergent agenda, optional, participant-organized, experience focus, informal language, and low cost (Hrastinski, 2010, p. 26). Rich content was removed from the list because “recent research suggests that text-based or ‘impoverished’ communication (e.g., IM) may enable informal communication” (Hrastinski, 2010, p. 27). ‘Unarranged agenda’ was changed to ‘emergent agenda’ to emphasize that in his work Hrastinski found that while participants sometimes started the interaction with a sense of what they would talk about, the actual topic of the conversation generally arose during the conversation itself (Hrastinski, 2010). ‘Random participants’ was changed to ‘optional participants’ to reflect his observation that communicants were choosing to participate (Hrastinski, 2010). Reviewing the body of research, Hrastinski found the content to be more experience-focused than content oriented (Hrastinski, 2010). These two articles, and the changes reflected in them provide a part of the structure for the examination I will seek to complete.

The ostensible need for rich communication content during informal communication has influenced approaches to past research studies informal communication significantly. However, Hrastinski (2010) did not find support for the necessity of rich communication in his work. There is, however, a historically significant body of informal communication research, based on

media richness theory<sup>4</sup>, that presumes informal communication requires face-to-face interaction and therefore, tries to create ICT tools that can function as if people are together (Fish, Kraut, & Chalfonte, 1990; Fish, Kraut, Root, & Rice, 1992; Isaacs, Whittaker, Frohlich, & O'Conaill, 1997). This strand of informal communication research continues today (Ogi & Sakuma, 2015). However, there is also recent work that has sought to examine the successful accomplishment of informal communication via communication technologies that are less rich and less formal — instant messaging (Nardi, Whittaker, & Bradner, 2000; Hrastinski, 2010), chat (Handel & Herbsleb, 2002; Hrastinski, 2010), and Twitter (Zhao & Rosson, 2009). The effective use of these technological tools points in a direction for understanding mediated work that seeks to discover the emergent, unexpected practices of workers. Hrastinski (2010) stated: “the most important influence on the degree of formality was the task and how the medium was used, rather than the medium itself” (p. 23), suggesting that a systemic approach to understanding informal communication is necessary. Bélanger, Watson-Manheim and Swan (2013) insist: “telecommuting impacts cannot be considered solely from the point of view of the ICT usage. Rather, telecommuting involves complex inter-relationships between telecommuting work environments, individual motivations, management and work practices, as well as ICT use” (p. 1258). Therefore, as emergent uses of technology occur, a richer understanding of communication practices needs to be pursued.

**Question 2:** How do full-time teleworkers make sense of their sociomaterial practice for achieving informal communication?

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<sup>4</sup> Media richness theory suggests that the more complex the ideas being communicated the more communication resources need to be employed (e.g. verbal, auditory, and visual) (Daft & Lengel, 1986; Daft, Lengel, & Trevino, 1987). Many have understood the opportunistic and tacit elements of informal communication as needing rich communication.

*Question 2a:* How do full-time teleworkers accomplish bonding with informal communication? Why do they do it this way?

*Question 2b:* How do full-time teleworkers accomplish learning with informal communication? Why do they do it this way?

*Question 2b1:* How do full-time teleworkers accomplish shared understanding with informal communication? Why do they do it this way?

### **Telework As A Sociomaterial process In a Sociotechnical System**

Organizations are complex systems, with wide ranging social structures. Evolving information and communication technologies afford ever-new possibilities that may only be recognized as they are enacted. I realized, as I started interacting with teleworkers, that their ability to succeed often had to do with aspects of their work that were not entirely in their control, such as the adoption of information and communication technologies as a routine way of working rather than a restricted resource. I recognized that a teleworker works within an organizational system, which involves a range of social and material elements that interact as an ongoing work process. It was clear to me that if I tried to consider telework outside of this systemic view, I would be limiting my understanding of what was possible for telework and teleworkers.

While organizations often recognize the advantages accrued to the organization by their employees' desire to telework, telework policies generally place the responsibility for success of telework on the individual worker, if and when the supervisor is willing to work in this way. In practice, if teleworkers are isolated from routine work practices and communication channels, working may become more challenging for them (Hanson, Engle, Gobes, 2010). As with other workers in organizations, most full-time teleworkers do not work in isolation, and are dependent

on work processes and material support that enables them to participate fully in the work processes of their organizations.

It is for this reason that I have sought a perspective from which to examine telework that does not see the teleworker as successful or not on their own, but as part of an organizational system with imbricated (Leonardi, 2012) social and technical aspects. Socialmateriality, from the more recent critical realism perspective, provides this frame for seeing telework. It allows for the material existence of technologies, not as determinant, but as elements with which social elements of the organization will interact as affordances or constraints. While sociotechnical systems are an important foundation for thinking in this way, ICTs have made it more complex to think through these interactions. Materiality, the enduring physical and material forms of technology (Leonardi, 2012), provides the frame for examining ICTs potential.

Telework is a process of working that is happening because of interrelated work practice and technology changes. As I have gotten involved in talking to teleworkers about their work, adding to my own personal experience, for me it became impossible to understand telework without a frame that not only considers these two elements but also focuses on their relationships in a work process. Researching telework as a sociomaterial practice from a critical realism perspective provides this important frame for viewing telework.

Reviewing the documentation of telework in telework policies reveals that while organizations recognize the organizational advantages, it is generally seen as the responsibility of the teleworker and to some extent their supervisor to make telework successful. This view is problematic, as workers are generally part of a process of doing work that involves others doing work with shared information and knowledge. If a teleworker is not part of the normal process

of doing work, they will find it difficult (without a mitigating factor like authority over other workers) to achieve in their jobs.

Leonardi (2012) defines sociomateriality as a process that “represents that enactment of a particular set of activities that meld materiality with institutions, norms, discourses, and all other phenomena we typically define as ‘social’” (p. 34). This definition provides perhaps a wider perspective for understanding the experiences recorded in this research than might otherwise be expected.

**Summary.** The investigation described and discussed in this dissertation was developed to be a piece in the larger question about what white collar workspaces will be 15-20 years from now, based on how shared physical places and ICT’s will evolve together as connectors for white collar workers. This overarching interest I have has influenced my need to see work processes holistically, as part of an organizational system, and thus a sociomaterial approach provided this frame. I also need to understand how ICT possibilities act to enable work, both with and without shared space; because full-time telework, as a way of working where workers do not utilize shared work environments as much as is typical in our generation, provides an opportunity for doing this. Finally, informal communication, which has been a primary rationale among practitioners for contending that telework is not desirable, a contention also implied in much informal communication research; allows me to examine if this practice is really as dependent on shared work environments as many have assumed it is.

## **Research Questions**

**Question 1:** What is the significance of the three parameters of telework considered in this study—place, technology (ICTs), and time?

**Question 2:** How do full-time teleworkers make sense of their sociomaterial practice for achieving informal communication?

**Question 2a:** How do full-time teleworkers accomplish bonding with informal communication? Why do they do it this way?

**Question 2b:** How do full-time teleworkers accomplish learning with informal communication? Why do they do it this way?

**Question 2b1:** How do full-time teleworkers accomplish shared understanding with informal communication? Why do they do it this way?

**Question 2b2:** How do full-time teleworkers accomplish adapting processes and procedures with informal communication? Why do they do it this way?

### **Chapter 3: Methods**

In this chapter I will present background on my choice of methods, and document my research strategy, data collection, evidence sought, and analysis approach. These methods were chosen to best address the questions being asked; specifically to allow a discussion of the concepts I engaged in with my participants and to provide room for them to make sense of their work processes. Three considerations were important: first, to provide an interactive opportunity for the participants to engage with the concept being studied; and second, to provide the participants the opportunity to return to their work process and ‘see’ their informal communication occurring in ways they might not have been conscious of earlier. The final consideration was to have enough context from each participant to be able to place their work experiences within the ways of working of each of their organizations and work units.

#### **Background on Methods Choice**

The methods selected for this study were determined by the type of questions I had and the scope of data I wanted to collect. First, my questions were focused on what is possible, with importance placed on trying to find the unexpected. As well, this study sought to understand why certain practices were emerging. The best approach to ‘what’ would be an observation or recording of the occurrence itself; however, this would not provide insight into ‘why’. In order to understand ‘why’, I needed those engaging in the behavior to make sense of the processes they were engaging in, and to explain why they made the particular choices they made in engaging in them. In doing this, I recognize that the method steps away from seeing the thing itself, in order

to collect information on the participants' sensemaking on the 'what' questions as well as the 'why' questions.

The second important consideration in the methods used in this study was a desire to preserve the rich data of the context that participants shared with me. I believe the practice of telework is one that is not accomplished in isolation, but is part of a larger socio-technical system in which all elements play a role in what is possible for workers – particularly teleworkers, their coworkers and their organizations. Yin (2014) states “a case study allows investigators to focus on a ‘case’ and retain a holistic and real-world perspective” (p. 4). For this reason the input of each participant is presented as a case study.

Before outlining my research methods, it is important to recognize aspects of past research and practice that provide its foundation.

**Research.** While theories such as media richness theory recognize that different media may provide better fits to different communication needs (Daft & Lengel, 1986; Daft, Lengel, & Trevino, 1987), much of the past research literature in this area still includes an underlying assumption that face-to-face interactions are best (Kraut, 1989). In particular research on technologies that mediate communication often seem to presume that said technologies will be most effective when they meet (or exceed) what is possible in face-to-face interactions (Fish, Kraut, & Chalfonte, 1990; Isaacs, Whittaker, Frohlich, & O'Conail, 1997; Kraut, 1989; Ogi & Sakuma, 2015). What this may make us overlook, as researchers, is the possibility that the affordances of these various technologies may offer structures that are different and better than face-to-face interaction for some practices. After having completed this study, I now believe that opening up mediated resources to this kind of thinking is important to understanding how they interact with workers to enable work.



**Practice.** The practice of telework is often seen as a benefit provided to well-behaved, high performing workers, which they are then tasked with the responsibility to accomplish successfully (Schawbel, 2012; Webb, 2012). While it is recognized that managers play a role in the success of teleworkers, and that organizations make their attitudes about telework known in their policies, the systemic environment of the organization is rarely brought into discussions of the process of telework, in particular at the individual and project-team level. I believe this level of consideration is critical, particularly as technology usage becomes more ubiquitous in organizations, organizations' workers become more distributed, and employment arrangements, including mobile and remote arrangements, become more diverse. As this has happened ICTs have been adopted into work processes as the routine way of doing business, and in doing so their possibilities have changed the way we work (Orlikowski, 2007).

**Research need.** Telework is a mode of working that is relatively new and rapidly changing. While there is research on telework dating back to the 1970's (Nilles, Carlson, Gray, & Hanneman, 1974), the socio- (the people side of business) and technical (here primarily ICTs) systems in which it exists have changed significantly since then and continue to change today. Based on this changed and changing environment, I have asked two questions: the first is a question of research framing, and the second a question of the accomplishment of a specific communicative practice. The first question looks at the widely used and accepted parameters of telework to ask: how can we use these parameters more successfully as a foundational framing for the wide range of directions taken in telework research, to make the findings of these efforts more comparable across studies and through time? This question emerged out of my frustration at consistently finding I had too little specific detail on the telework processes being examined in most of the studies I have found to be able to effectively assess if they were comparable to what I

was doing, or were different in ways that might be informative to my work. The second question is about a particular communicative process that has historically been thought to be difficult or impossible to accomplish by workers who are not physically collocated, but is recognized as being essential to organizational success—informal communication.

**Preliminary study.** I was originally interested in using a direct observation method for this study. Toward this end, I completed and documented an observation of a teleworker in her home work environment. This study, while providing interesting information, highlighted several problems with using this approach for my dissertation work. First, while I intended this to be an observation process that did not interrupt the work day of the person I observed, my subject quickly became aware that I could see the technology she interfaced with, but not the work she was doing, and that while I could hear her side of audio interactions, I could not understand what was going on. She thus proceeded to provide a running commentary on what she was doing, why she was doing it that way, and why she found it useful. By the end of the day, I was able to ‘see’ things about how she did her telework that I would never have thought to ask about in an interview scenario alone, which provided foundational information for the interviews in this study.

I also realized that to “see” the communicative processes she engaged in would be better accomplished in a study focused on one teleworker immersed in his or her extended communication networks within his or her organization, documenting all the interactions that person had through all ICTs and face-to-face. Simple observation or survey work would not have provided access to the range of practices I was ultimately able to document by taking a different approach.

## Methods

**Recruitment of participants.** The participants I sought for this study had to be self-described full-time teleworkers currently working as such. They had to be employees of the organizations they worked for, and working in the United States. It was important to me that they are full-time teleworkers, as I wanted to research a category of workers whose work processes were as removed from co-located work processes as possible. They needed to be currently employed as teleworkers because I wanted them to be talking about the way they were currently working. I wanted as much as possible to exclude cultural differences and employee-employer relationships from influencing the answers I got, and so I restricted my pool to employees in the U.S. only. Within these primary constraints, I also sought to have a range of industries, professional diversity, age range, and some men and women. Of these secondary demographics I was able to obtain some professional diversity, and some men and women. All the participants were college graduates with professional level jobs, across a range of professions. However, the ages of the participants skewed older, and technology was overrepresented in the industries, (I will talk more about these issues below).

IRB requirements prevented me from distributing my solicitation information directly to potential participants who were identified to me by my personal and professional contacts. I was required to have those contacts distribute this information for me. I was also allowed to post a request for participants on two LinkedIn telework groups. I had contacted the moderators of these pages to discuss this possibility before developing my project. After receiving IRB approval I distributed a letter requesting assistance finding participants, to friends, professional contacts, and family. These people identified those they knew who might meet my requirements and distributed a letter I provided introducing my research and the informed consent document to

potential participants. Ultimately I had seven potential participants contacted me through my personal and professional connections; one of these had been a full-time teleworker, but no longer was, and thus was not included in the study. No potential participants resulted from my postings on the LinkedIn telework sites. I ultimately obtained agreement to participate from six full-time teleworkers, representing some range in demographics, experience level and organization type (see below).

**Data collection and analysis.** For this study I conducted two interviews and had participants maintain a diary for five days between the two interviews. Five participants completed this process, and one completed the first interview before having to withdraw for family reasons. The analysis process involved transcription, coding, development of cases; iterative processes of writing reviewing coding, and reviewing transcripts; cross cases analysis and writing.

***Development and testing of the interview protocol.*** As I needed to be able to complete interviews with participants from anywhere in the U.S. with the minimal disruption to their schedules, I decided to complete the interviews using Skype, to accomplish a mediated interview with a video component. Deakin & Wakefield (2013) indicated that this medium can address several logistical issues of completing interviews, but also has some potential drawbacks. The first of these issues was eliminating costs associated with interviewing study participants not local to the researcher (Deakin & Wakefield, 2013; Hanna, 2012), which was helpful, as four of the six participants did not live near me. Additionally, as the participants in the study were all involved because of an aspect of their professional lives, this method allowed for rescheduling of interviews with little impact, an advantage documented by other researchers (Deakin & Wakefield, 2013; Hanna, 2012). This also proved beneficial, as two participants rescheduled

interviews: one due to a work issue and the other due to a family issue. Another benefit was the use of this medium for one-to-one interaction allowed for visual cues, which although I was not explicitly using these cues as data, I found helpful with the interview process, as it enabled me to better judge when participants were pausing to think, or did not understand what I was asking. Finally, Hanna (2012) discussed using Skype as an internet platform that would be closer to the internet based activity he was researching. For my research, using a web-meeting platform was engaging participants in a medium they used for work, (although in the process I discovered few used the video resource of their web meeting platforms, they were at least familiar with this medium.) Drawbacks that Deakin and Wakefield (2013) suggested, that I might encounter were participants not having the specific software, and participants not being comfortable with video mediated interaction. Several participants did not have Skype or did not have Skype on the computers they used for work (all but one completed their interviews during normal business hours). As all were very technology literate this was addressed by all of them easily. In terms of the second issue one participant was not comfortable with the video component of the interview and accommodating her preference meant that the interview process and thus the data for this participant were different from that for the others. However, making the participant comfortable with the interview process was more important than any differences that might have been incurred because of the lack of video in this one interview. One important difference I noted was that I spoke over this participant more often, as I was not able to distinguish a long pause from the end of her comment. However, I picked up on this early in the interview and made a conscious effort to allow more time for pauses before proceeding with questions. Another issue that arose was comfort with allowing me as the researcher to control a video file of the participant. One participant wanted to maintain that control and had me complete the interview on her system,

which she recorded and provided me access to on her system to transcribe. Other than being concerned that something would happen to the file before I finished transcription (which did not happen) there was minimal difference in this process. This circumstance also led to one positive and one negative difference worth mentioning. The advantage was that she was able to share her desktop with me and show me examples of how she used this feature in her work. The disadvantage was not being able to go back and review several visual aspects of the interview, particularly related to the space she was working in and the physical presence of the ICTs she was working with to confirm that I had understood some conversations accurately. In order to accomplish the recording of interviews, I obtained recording software that Skype personnel recommended as interfacing well with their platform.

I developed a set of questions that were geared at getting demographic information on the interviewees, context on the sociotechnical and organizational systems in which they worked, and questions about five categories of things they might do with informal communication (four of these were identified in informal communication literature, and the fifth seemed possible to me, so I included it). These categories included: bonding, learning, developing a shared understanding, adaption of processes or procedures, and mentoring (the category not found in the literature). I developed a description to present the concept of informal communication to the participants prior to starting the part of the interview that focused on this content. A teleworking friend did the interview process with me to review questions for clarity and content, and allowed me to verify that the Skype process and recording system I intended to use worked as I planned. After getting feedback on the questions, I made some modifications, resulting in the questions for the first interview. (These questions are included in the Appendix.)

***Initial interview.*** Each participant took part in an initial interview with me that used an active interview approach. In taking this approach I recognized that “like all other speech events, interviews fundamentally, not incidentally, shape the form and content of what is said” (Holstein & Gubrium, 1997, p. 114), and that my participants were engaging in a sensemaking exercise within the interview process (Holstein & Gubrium, 1997). In using this approach there were times that the interview was completed out of order, and/or including questions that were not in the original interview protocol. This deviation was to allow participants to follow their sensemaking process, and often resulted in their bringing additional questions to my mind for clarification or further input.

I asked participants if it was okay to record the interview and if they were comfortable with completing the interviews in a web based video conferencing environment. Two participants requested a variance from using the Skype videoconference I planned on using, and we proceeded in the way each was comfortable with. Ninassi did not want a video component to her interview, so I used a Skype audio only connection (which allowed me to make an audio recording of the interview using the same software as I used for the video recordings). McCoy wanted to maintain control of the video, so we used her company web-meeting platform, and she arranged for the interaction to have a video file that I was able to access after the interview for transcription. After I completed the transcription, she erased the file. One of the benefits of active interviewing is the ability to create the interactive space to discuss primary concepts so as to help the interviewee become comfortable with the topics under discussion (Holstein & Gubrium, 1997). Therefore, during the interview I presented information on informal communication and what is done with it, and allowed space for discussion of this concept with the interviewees. The Interviews ranged from 54 minutes to 1 hour and 45 minutes. At the end

of the first interview we discussed the diary exercise, to make sure participants were comfortable with it and understood what I was wanted them to document.

**Diary.** I asked each participant to complete a five day diary, in which they were to document incidents of informal communication in their workdays in terms of the following: what the activity was, who it was with, what ICTs were used and why, and what they were communicating about. As all my participants were professionals with very busy work schedules, so it took a very long time for several participants to complete their diaries, and overall this exercise provided me much less data than I had hoped to get. However, some important data came out of these, and more importantly the exercise appeared to increase the participants' level of engagement with the concept of informal communication, which impacted their second interviews with me significantly. One participant, McCoy, did not do a diary; a family issue emerged that required her to step out of the research at this point.

**Review.** I waited until all diaries were returned, and reviewed before developing my second round of interview questions. The questions that were asked were based on questions that emerged either in areas in which I had not gone deep enough in questioning in the first interview, topics that I had not asked about in the first interview, or that emerged as questions for me as I did the transcripts and completed coding. For each participant there was a standard group of questions, and also a few specific questions to fill in areas that I felt I had not completely addressed, due to the natural flow of the first interview with each participant. The core questions asked of all participants are attached in the Appendix.

**Second interview.** Second interviews were completed with five participants (McCoy's family issue kept her from participating in this final data collection phase.) These interviews benefitted from the diary exercise, in that the participants were more aware of their informal



communication practices than they were in the first round of interviews. While one interview was only 27 minutes due to participant's time constraints, the remaining four interviews were between 46 to 59 minutes.

***Transcription:*** I transcribed each interview myself, as I wanted the opportunity to give this focused attention to my data. Initially, I transcribed interviews with all vocal irregularities (stutters and involuntary vocalizations) included. It was at this point that I developed and integrated pseudonyms for the participants and their organizations; from this point forward, unless I was in direct communication with a participant, I used pseudonyms. I found this quickly developed into me thinking only of the pseudonyms, and it made me more comfortable that I would not accidentally use actual names of people or organizations in something to be published or presented.

After completing the first several transcripts I became uncomfortable with how these transcriptions made my participants sound, in that it drew attention away from the content of the conversations. As well, in these transcriptions the participants sounded less professional, and I came to feel that this did not honor the trust they had placed in me in agreeing to participate. I realized that in much of the reading I had done, what professionals had said had been 'cleaned up' to be grammatically correct in the writing, as they themselves likely would have done if they had provided a written document for publication. Additionally, as what was important as data in this study was the sense being made, the use of denaturalized transcripts was more appropriate for this study. Oliver, Serovick, and Mason (2005) state: "denaturalism has less to do with depicting accents or involuntary vocalization. Rather, accuracy concerns the substance of the interview, that is, the meanings and perceptions created and shared during a conversation" (p. 1277). I thus re-transcribed the first interviews into denaturalized language for analysis. The second

interviews were transcribed directly into denaturalized language. While this slowed down the initial transcription it was less time consuming than the two step transcription process used for the first interviews

***Protection of human subjects' anonymity.*** It is ethically essential to maintain the anonymity of my participants. To this end I have done several things in this study. First, all participant were assigned pseudonyms. (To assure I did not inadvertently hint at the person's identity with the choice of pseudonyms, I used first or last names of other professional colleagues who I respect.) The companies my participants worked for were also assigned pseudonyms. I omitted any information I thought might be identifying of the participant or their organization, including city names or organizationally proprietary software platforms participants referred to. Where it might be significant to the context of a case, locations were described by significance of the location, travel time between locations or by time zone differences. Software identification has been pulled back to generic types where these systems were proprietary. I discussed these protections with each participant, with a statement about my commitment to him or her to maintain his or her anonymity, and how I intended to do this.

***Coding.*** As I finished transcribing the first interviews, I began my process of coding them. Coding continued after the diaries were received, and I coded the transcripts from the second interviews after these were completed. Because I was trying to answer two questions for which frameworks for examination existed, I used a directed content analysis approach. Hsieh and Shannon (2005) indicate that among the goals of a directed content analysis approach is to “extend conceptually a theoretical framework” (p.1281). The use of this approach indicates that the initial codes be from the frameworks I am working with: telework parameters: place, technology and time, and what is done with informal communication: bonding, mentoring,

learning, shared understanding, and adapting processes and procedures. Sub-codes for each primary coding category emerged during the coding process.

***Case initiation.*** While waiting for the return of the diaries I worked through several potential structures for presenting the cases before settling on the one used. The first part of each case focused on presenting the teleworkers and the organizational environment in which the teleworker worked, and the latter part on how the participant accomplished bonding and learning with informal communication. Working and reworking the cases helped me to identify holes in the data I wanted from participants in order for the cases to feel adequate to the questions being asked in the second interview. Although, adding data from the diaries and then the second interviews required some rewriting of each case, the writing at each step, along with the ongoing coding as data was added, were important to understanding each case and starting to understand what the similarities and differences in the cases were.

***Analysis.*** Data analysis of this project involved two major processes: first, a documentation of the cases; and second, comparisons of the cases. At each stage the analysis took an explanation building approach (Yin, 2014). Yin (2014) describes this process as explaining, “‘how’ or ‘why’ something happened” (p. 147). What I looked for was the significance of the parameters of telework in the participants’ ways of working, how these teleworkers informally communicated to accomplish bonding and learning, and why they chose the approaches they did.

Several scholars recommend that during data collection the researcher keep notes about ideas for data analysis as they occurred (Agar, 2006; Yin, 2003). I did this, and I believe that this was an important way for me to keep track of my own thinking during the process. The results of this thinking were integrated into the cases, findings, discussion and conclusions.

*Case analysis.* The individual cases were organized to accomplish two things: first to acknowledge the significance of the context of each teleworker's process, by recognizing the systems in which they worked; and second, to document how and why these teleworkers engage in a sociomaterial practice of informal communication as it occurs in their socio-technical organizational system.

*Cross-case analysis.* Stake (2006) discusses a problem with cross-case analysis stating: "The main reason for doing single-case study research often gets mangled in a cross-case analysis" (p. 39). In his writing he suggests several things to address this: first, is to include the individual cases in the final product; and second, to address differences in addition to similarities (Stake, 2006). In order to address the suggestions made in Stake (2006), I have tried to do several things in my Findings and Discussion to maintain the contextual factors in the participants' sociomaterial practices, and to continue to address, to the extent discovered, why those choices were made. Additionally, while there were more similarities than I expected across my participants, I have also tried to recognize where different practices existed and why the participants developed different practices. While I believe the ICTs will continue to evolve and ways of working will continue to change, making the 'what' answers people might give to my questions vary in detail, I hope the 'why' questions may thus be more enduring. I have also worked hard to integrate a wide range of past study findings on the practices these participants were accomplishing, as well as on the communicative process they were using to accomplish this, to the extent that I felt could inform this discussion.

## **Chapter 4: Case Studies**

### **Introduction**

Work practices of full-time teleworkers may be situated in a separate physical work environment, and still happen within the work system of an organization, while at the same time being physically part of the workers home life. For this reason examining participants work practice in the context of how they make sense of telework in their own situation is important to understanding what makes this way of working successful or not. Therefore, each participant in this study will be presented as a case to capture the context in which they work as well as how they do informal communication as full-time teleworkers. Each study will start with a description of the participants work history becoming and as a teleworker, the work they do, the technology they use, and information on their organizations, and their organizations' telework attitudes and practices as the participants understand them. It is followed by a description of how each teleworker accomplishes informal communication.

While limited in number, the cases cover a wide demographic of employed teleworkers. All of the participants live and are based in the United States; however one of them is originally from the UK. The teleworkers range from 24 to 65. Statistics indicate the average age for teleworkers in the US is 49 (Lister and Harnish, 2011b), so this study is above this average. Four are female, and two male. While five of the six have children, three have some or all their children grown and out of the house, two have children in college, two have school age children not living in their home because of divorce, one has a child of secondary school age living in the household, two have children of secondary school age not in the household, and one has no

children. Four are married, one is divorced, and one is single. All participants have a college education and work in professional, managerial, or sales roles. While statistics do show other occupations teleworking, they show that about 70% of US teleworkers are in these three categories. All but one of the participants completed a beginning and ending interview and a journal. That one participant completed only the first interview and dropped out due to a family crisis. As the information provided in this last participants interview was distinct in terms of technology use, the information is included in these cases.

The organizations of the participants range from just under 100 people and locally based, to over 100,000 and international; most are on the larger side. This coincides with the findings “larger companies are more likely to allow telecommuting than smaller ones” (Lister and Harnish, 2011b, p. 5). All the organizations are based in the United States; however, three do substantial international work and one other does some international work. One organization is a government agency, one is privately held and three are publically traded. Of the organizations, three are in the technology field, one in the insurance industry, and one in the regulation of the legal profession.

Two of the six participants work for the same division of the same organization and will be presented first and one after the other. As there were similarities and differences between the cases that would suggest a variety of organizations, I did not want to focus on one issue over others, so have organized the cases from the largest organization down to the smallest.

### **Case 1 – Valerie Ninassi**

**Teleworker.** Valerie Ninassi is a 65-year-old senior network design engineer for WorkSyn, a multinational American telecommunications company. She was an early adopter of telework as her highly mobile early career had her using technology to complete and submit

paperwork at home starting in 1984. This early work enabled her to travel to and work at other office locations where she met many people she is still working with today. She started officially teleworking 2-3 days a week in 1995 as part of an agreement to move to WorkSyn during a merger; she moved to full-time telework in 1999. The ability to telework saved her 2.5 hours of commuting daily.

Ninassi is the most senior network design engineer on a team of eight that comprise a distributed work team. Her roles are in four distinct areas: technical design, guidance of others, strategizing or doing technical network design, and product oversight and product management. All of Ninassi's work is dependent on her years of accumulated knowledge and expertise as a network design engineer. In her first role, Ninassi works on design of networks for customers in three specific product area; she works on two to eight projects at a time that last from six months to several years. For this work, she interfaces with a broad range of sales people in the organization. In her second role, she moderates solutions calls, technical sellers calls, and a monthly training session. The solution call is a twice weekly conference call for others doing technical design to get help with any aspect of projects they are having difficulty with. For the technical sellers call Ninassi's contribution is to elaborate how to best leverage WorkSyn capabilities. All of these formal activities contribute to Ninassi being a 'go-to' technical person answering questions for a range of people in the organization at large. In her third role, she is the technical design reviewer for proposed designs of other network design engineers. Finally, she has been engaged in a long-term product management team. Her roles require that she interact and develop solutions with people in her work group and people in other parts of the organization, this results in 60-70% of her time being spent interacting with others.

The communication technologies that Ninassi utilizes to complete her work are wireless internet, cell phone, and an internal web meeting software with document sharing capabilities. While the web-meeting platform has video capability, which would allow her to see others she is on calls with, she never uses this capability. Additionally, she indicates that many people in the organization use instant messaging but she does not, as she finds it confusing to keep track of the multiple conversation streams that often happened and she prefers to edit communication prior to sending it. She describes company technology as dependable both within the US and internationally. The only technology challenge she mentions is a bad audio connection that may require some participants to call in to conference calls on a different device. As she rarely travels, ease of mobility is not a consideration in the laptop she is assigned; it is heavier than those assigned to workers that travel.

Of the participants in this study, Ninassi is the one who works at home the most. However, she also discussed occasionally going to organizational workplaces

Ninassi started teleworking from a single-family home in the suburbs and has since moved into a one-bedroom condominium in a major metropolitan area. Her current workspace is a part of the bedroom in the condominium she shares with her husband. On occasion, she brings her laptop to the dining room table to answer emails at night. As her work is paperless, once she turns her computer off there are no security or storage issues.

When Ninassi moved she was reassigned to an office close to her in the city. No one she works with is in this location, and the only rare occasions she goes to the office are for technology support. She feels strongly enough about the potential to telework successfully that she thinks all organizational real estate could be sold and all workers work from home.



**About her organization - WorkSyn.** WorkSyn is a multinational telecommunications company based in the United States. It is a large enterprise with over 100,000 employees. Employees are distributed in many countries and, in Ninassi's part of the company there are many distributed work teams.

Ninassi describes a reduction in peers in the organization, which, although still large, has significantly reduced the number of employees through retirement and rounds of layoffs. This has had a result of a core group of employees that are familiar with one another. She is currently the only senior network design engineer remaining in her group.

While WorkSyn has allowed teleworking for years, executive support for the program has varied, where at one point the company announced they would call back all teleworkers into the office, but it did not end up happening. The company has a confidential telework policy and they have been tracking telework statistics for years with an annual telework survey. The results of the survey are available within the company, but Ninassi does not follow them as the data collected focuses on documenting telework as an effective way to work and does not provide her helpful information.

WorkSyn has requirements for the type of workspace teleworkers work in, it must be: private, secure, safe and meet ergonomic requirements. These requirements are specific enough that teleworkers are required to have a fire extinguisher in their workspace. Teleworkers must verify every year they are meeting these requirements when completing their annual telework survey. Additionally, when she moved, she had to verify compliance of her new space.

Her managers have always been supportive of her teleworking arrangement as many of them have been teleworkers themselves. Her current manager and his boss are teleworkers, as are most of the people she regularly works with.

**Informal communication.** Ninassi discussed how she used informal communication practices for a range of activities including: bonding, learning and teaching, mentoring and being mentored, developing a shared understanding, and adapting processes.

Ninassi describes her bonding with coworkers as something that happened over time with broad ranging interactions, and most often around and during formal activities, almost entirely virtually. She indicates that her long-term interaction with coworkers is the biggest factor in her relationships with them. She stated:

I think it is more the years and working together and people, the kind of work they do, supporting each other, being on the same side, being on the same team, all working through difficult issues and just developing that relationship over the years.

Some of these relationships were initiated early in her career when she traveled regularly to other office locations and worked face-to-face with people she still works with today. However, she also discussed equally strong work relationships with coworkers over seas with whom she has worked for years but has never met face-to-face. Bonding interaction most often happens during small group, routine conference calls, and not in larger, more project specific calls. She described it as often emerging around missing a scheduled call and explaining why it will be missed. One example she provided of this type of interaction was:

So, over time somebody says, “Oh I will not be on the call next week, I am going on vacation”.

And I will ask, “Oh, where are you going?”

And they say, “Oh, I am going to blah, blah”.

“Oh that is cool, anything special?”.

“Oh, my three daughters are swimmers and it is for a national contest.”

And, so now I know that he has three daughters, and they are competitive swimmers, so the next time he comes back, I ask, “How did the swim meet go?”

She explained that little-by-little over time coworkers come to know a lot about one another.

Another interesting aspect of the interactions is that in her work she does not use videoconference platforms; documents are shared to work on, but she does not think there is any benefit to seeing a “talking head”. As they use the document-sharing platform, they will on occasion share personal pictures from recent events that had been discussed. Unlike the rest of the research participants, Ninassi does not use text messaging, which she describes as distracting, and unfocused. She prefers to engage in one conversation at a time, and to have the opportunity to carefully edit what she puts in writing.

Ninassi did indicate three rare opportunities during which she would have similar opportunity for bonding with coworkers: team meeting, professional meetings and lunch meetings. She indicated that once every 1-3 years her group will get together at one location for a day or two of meetings. Additionally, she periodically goes to professional meetings and generally sees coworkers at these. Finally, if someone she has a work relationship with travels to her area, she will meet them for lunch, which happens about 3-4 times a year. However, all of these activities are rare and not her primary way of bonding with coworkers.

Teaching is a formal part of Ninassi’s work assignment; she runs a twice a week solution call and a once a month training session. Ninassi leads two solutions calls a week in her role as senior design engineer. The calls are unstructured and available to anyone who wants help thinking through a design. In the past, several senior design engineers would host the call, which

she felt resulted in better feedback for callers. She is now the only senior design engineer remaining in her group. These calls formalize into her schedule what other interviewees do in an as needed basis as informal teaching. She also presents a standard training program once a month.

Both of these types of calls result in occasional emails seeking help from her, which she describes as primarily looking for technical documentation. She will email them back, connect them with the appropriate person, share a link to the information they need, or recommend they participate in a future call. On occasion, where it is a complex and immediate question she may call them back to discuss the answer verbally.

As she is close to retirement, Ninassi does not seek mentoring relationships. Additionally, as there are many women in the organization, she has not been sought out to mentor others. While she would be happy to share thinking about juggling work and childcare, people look to her more for her technical expertise.

Ninassi describes developing a shared understanding as an extension to the teaching she does, in that it is generally around approaches to technical problems. She accomplishes this through email when possible and if needed moves to a conference call.

Ninassi connects adapting procedures and processes to her status as a senior network design engineer. As she does in other situations she will start this interaction through email and if needed continue with a telephone or conference call.

## **Case 2 – Maria Augustin**

**Teleworker.** Maria Augustin is a 48 year-old manager at WorkSyn. Augustin was hired out of college to work in a business unit of one organization that was spun off and then sold to

another company. So while she is with a different organization than she started with, she still works with some of the same people she started with years ago.

While Augustin started working in a company location, she has been a teleworker for nineteen years, always teleworking full-time. While teleworking required that she work harder to prove herself in the beginning, she felt it was essential to balancing her work and family life, she said:

It was crucial in raising my three kids, even though I always had full-time help. It is important to be here, to be able to run out to the bus stop, to be able to help with a homework problem, to just be here and run there. It provides just the flexibility of being able to run out and do certain things; that you do not get being physically in an office.

Augustin's use of time during the day reflects this, she often starts and ends her day outside of regular business hours, while weaving in family life activities as they arise. As Augustin is bi-cultural and tri-lingual she brings to the table a wide range of skills that enable her to perform well in a global organization. To assure her value continues to increase for the organization she has pursued additional education, first, obtaining her project management certification and now working on her MBA.

Augustin works at the management level. Her position has changed every two to three years for the last decade as she has advanced in her career, and moved due to reorganizations after layoffs. Her current position, which she took on recently, has her doing three different things: first, she manages a team; second, she completes process improvement projects; and third she works on quality defect reporting projects.

When she started teleworking 19 years ago, both technology and business practices were very different, and she worked hard to make her teleworking invisible. Now, technology and cloud based digital work products have combined with a globally distributed workforce working together across locations to make the work practices of teleworkers fit within normal business practices.

Augustin's current work is highly collaborative, so she spends much of her day on web meetings or conference calls. In her role as manager, she took over an already functioning team of 8 globally distributed network engineers, who as a team work on up to fifteen projects at a time that last from a week up to a year. The team is comprised of predominantly very experienced network engineers and therefore is self-organizing to an extent, dividing work amongst themselves based on workload and project experience. The non-managerial part of her work requires her understanding of the subject matter of the technical work combined with her project process and management skills.

Augustin has a laptop, and company cell phone. In addition she has a microcell, to enhance the weak cell signal she gets at her home. Her communication platforms include instant messaging, email, cell phone, and a proprietary teleconference platform. Most of her communication is audio or text based. She is not required to use video and rarely does so; this means she does not need to worry about her appearance while working. Additionally, the conference call platform has a list of participants and the speaker's name light up, so you know who is talking.

Instant messaging is a heavily used communication platform and gatekeeper for other communication platforms; it does this for several reasons. Employees in Augustin's part of the business spend a considerable part of their day collaborating on conference platforms or the

telephone, making it difficult to connect with someone via telephone. In addition, instant messaging provides information on the status of anyone listed on her IM contact list, making it possible to know the status of the person she wants to contact. Finally, instant messaging allows for communication underneath another active communication event; Augustin can ask a quick question of someone who could be present or not at the meeting.

Augustin feels that being together in a physical space has important benefits to working relationships; however she also believes that it is possible to do her job almost as well without working together with people. While she works primarily from home she also works from organizational workplaces.

Augustin has a dedicated office in her home. When she started as a teleworker this space was located in her bedroom, but she later built a significant addition onto her home that included an office space. The room has two workstations set up in the work surface arrangement. Her husband tried working from this space with her on days he works from home, however they found this did not work, as they both spend considerable time on meeting calls. He now has a workspace in a different room. The space has a door that allows her to close off the room from the rest of the house. As one might see at an employee's desk in organizational space, Augustin has mementos and photographs at her desk that you might say is in the coveted corner office with two windows looking behind her house into the nature preserve her property abuts. She indicates she needs her stuff to work so is rarely outside her office. If she is working sick, she might lay down in the family room to work. When she is on a telephone call and does not need to look at documents she will walk around her back porch. In the past, when her children were younger, she would sometimes pick them up or drive them somewhere while on conference calls.

At the beginning of her career she worked in an organizational workplace with three people who still work for the company, one of whom is now a peer. More recently, she spent time in organizational workplaces, generally not the local one, for annual meetings of teams she worked on; the company no longer makes funds available for these types of meetings, so while she would like to still have them, she does not. In her current role she travels periodically to the headquarters office for meetings with her superiors; this is a three-hour air flight for her. The space where she works while in the office is a collaboration floor, with tables, white boards, coffee and hot chocolate. It is a very busy space with many people working and visiting. She indicated she does not mind the distraction, as she indicated she “can work in the middle of a hurricane”.

The organization does have a local office that Augustin could work in, but there is no one she works with there, so she rarely goes there. The space that is available for workers without assigned workspace is the collaboration area, which is half a floor with tables for group work. She indicated the collaborative space in this office is not used by many workers. Additionally, as she is not assigned to that office she cannot use the Wi-Fi and must hardwire herself into the LAN.

**About her organization - Worksyn.** WorkSyn is a multinational telecommunications company based in the United States. It is a large enterprise with over 100,000 employees. Augustin works in a division of the company that while profitable, is not viewed by the organization as a growth market. Augustin feels this contributes to the rounds of layoffs going on for years now, including three in the last year. In addition, retirees are often not replaced or positions are moved to contractor status. In addition to the ax hanging over workers heads for years, workloads continue to increase with each round of layoffs, Augustin stated, “we are



beyond the point of being slammed; we have an ungodly amount of work for the people that we have and we keep getting squeezed.”

While WorkSyn has allowed teleworking for years, executive support for the program has varied, where at one point the company announced they would call back all teleworkers into the office, but it did not end up happening. The company has a confidential telework policy and they do a survey of telework to track this way of working in the organization, displaying an interest in understanding this way of working.

Teleworkers, along with all employees have to take classes on both office ergonomics and office safety. Part of their approval to telework is being able to document compliance with the best practices outlined in both of these training packages. As they need to assure the company their workspace is compliant and a good space to work in Augustin finds, unless they live alone, most teleworkers she interfaces with have a dedicated workspace.

**Informal communication.** During her two interviews and in her diary Augustin discussed her use of informal communication for bonding, learning and teaching, mentoring and being mentored, developing a shared understanding and adapting procedures and processes.

While Augustin describes herself as a people person, inclined to interact with others, she also invests significant thought and energy in developing and maintaining relationships. She believes these relationships are critical to her ongoing professional success and her ability to support those working for her. She also believes these relationships must be maintained over time to have them in place when you need them. Specifically, these relationships enable her to seek help from someone in a particular office location or job, keep herself current on organizational politics, keep tabs on company opportunities, and have enabled her to find internal placement for herself and subordinates when they were scheduled for layoff.

To accomplish these relationships Augustin takes advantage of a wide range of work and personal activities, uses a range of technology tools, recognizes time differences among globally distributed workers, and keeps tracks life events of her work relationships. While relationship maintenance initially focused on finding virtual ‘water-cooler’ opportunities, she also uses time in office locations, particularly when she is traveling to other locations, and even uses family vacation time to get together with coworkers. She makes an effort to get on line earlier than her normal business hours because she works with people in Europe; this time also tends to have few scheduled meetings. Additionally, when downtime occurs during the day she uses it to reach out to people. Reaching out is most frequently with instant messaging, but may be on-line chat or telephone calls. She uses her friends list on instant messaging to track the availability of many acquaintances; people she is not currently working with get a “zz” before their names so they drop the bottom of the friends list together, making them easy to reference. She also takes advantage of coworker’s events or challenges to take time to reach out, providing two recent calls as examples: one, where she reached out to someone who was sick, and another where she called a former boss whose son had just died, to see how he was doing. Additionally, she will use holidays as a reason to reach out to many people, scheduling a few calls a day for holiday greetings. Augustin mentioned two bonding opportunities around scheduled calls: first personal conversation around the edge of calls, which on rare occasions may include sharing a photograph from a recent vacation. The second, is when she sees someone she has not talked to in a while on a conference call or web meeting, and they are not active in the conversation she might start an instant message conversation. When there is time, she will use her lunchtime to instant message people or have ‘virtual lunch together’ scheduling a call with someone she wants to

catch up with. These lunchtime opportunities are rare however, due to the constant schedule of her global workplace.

While Augustin has succeeded at developing virtual relationships, she still feels face-to-face interactions are incrementally better for developing relationships. In the past, Augustin would get together with her work teams in a company location once a year. She feels these types of meetings are very helpful in developing relationships but funds are not available for these types of meetings any more. She also travels periodically to company locations for internal and client meetings and will generally go out to dinner with coworkers. Additionally, because she believes in the importance of face-to-face interaction, when Augustin and her family travel she will arrange time with people who live near her destination. This has included events such as she and her family going to a former colleague's Central American home for dinner, having another former colleague go skiing with her family, and going out for drinks with another. She has also had several people to her home for dinner when they were visiting her city.

Augustin indicated that with her seasoned team there is not as much teaching to do, however, they do have to get contractors up to speed on occasion. She indicated it would be ideal to be able to put new people together physically with someone to train them but funds are not available for this. So, she will use teleconference, telephone or email, depending on the particular situation. Her team and the contractors that work with them also teach each other in the same ways. She also has more senior people do peer reviews of team members' work as a way for less experienced workers to learn from those with more experience.

In addition to her official management role Augustin also participates in a mentoring program developed to help other employees get their project management certification. While the organization has a formal training class for this, they asked for mentors to help groups of

coworkers with issues beyond the class. Augustin participates in this and as with teaching, she uses email, phone and the teleconferencing platforms. She makes time and resources available and her mentees determine how much they want to participate. While she generally finds out that they have passed the exam and gets a thank you for her time, this is not an ongoing mentoring role for her.

Augustin maintains her own circle of mentors, all of who are relationships she has developed outside of any formal mentoring programs. She tries to maintain three to four within the company and others outside of it. Her most frequent communication with them is via telephone conversations, these are always scheduled through emails, text messages or with one through LinkedIn. She would never call them without scheduling it first. She makes an effort to meet with them in person when she travels to where they are located. Most of her mentors are very senior and so she uses their time well as she is generally squeezing in between other activities and rarely gets more than thirty minutes of their time.

Augustin described two ways that developing a shared understanding occurs in her work. The first need to develop a shared understanding is when there is a new employee or project. When this happens she will set up a web meeting to talk and share documents. She may provide an outline of the things to be accomplished, a web meeting set up for another person with expertise required, and often will set a follow up web meeting, to be sure that the work is proceeding as she wants. A second need for developing a shared understanding would be when a question arises during work in progress. Then this generally starts with an instant message to the person that can provide clarification asking for a time to talk. If possible, they will set up time to talk. But if the person they are texting is busy they will try to either address the issue on instant messaging or set a time to talk as soon as the person is available. They will use any tool they

have available—Skype, Web Meeting, instant messaging. They will do what they need to come to an understanding, including drawing on a shared screen.

Augustin indicated that at WorkSyn there are very structured process and procedures to follow. However, there are some internal team processes that she has authority over. This was something she has done with care as the team she manages was working together before she became their manager. So, she reviewed how work was accomplished, to determine what made sense and left it in place. Then, when possible gets her team on a web meeting call to brainstorm how to best approach something. However, if it is a decision she feels she must make alone she will send an email to the team to tell them how she wants it done.

### **Case 3 – Ellen McCoy**

**Teleworker.** Ellen McCoy is a 53-year-old senior manager at Quney Technology an American multinational technology company. While McCoy started her career working in organizational workplaces she has been a full-time teleworker since she started with Quney in 2000; it was her first time as a teleworker. For her this has enabled her to take this job, as her family lives on the opposite coast of the United States from the company headquarters location, where she would otherwise work.

McCoy is the supply chain finance controller, which is a senior manager position in the organization. Her high level reporting places her in critical positions within financial evaluation and reporting, and at a functionally critical place in the implementation of new technologies. She reports to a Director and works directly with the Legal Vice Presidents. She has a significant number of direct reports and works with a wide range of employees globally in a leadership role. While some of the work she manages is within expertise areas, much of it is cross-functional.

She currently fills a number of distinct roles. First, she manages the audit for worldwide soft compliance for supply chain at Quney. Second, she manages supply chain budgets for all acquisition integrations and divestitures. Third, she is the worldwide legal team controller, where she provides financial analysis. Finally, she manages a project team that helps in the implementation of new systems to assure supply chain financial reporting requirements are operational and compliant. Additionally, McCoy indicates that she seeks to take on new challenges regularly, so her specific responsibilities are generally modified and/or expanded annually.

Of the people that participated in this research McCoy had the most elaborate technology support. She has a cell phone with video conferencing capability, a computer with an IP phone with video capability, and a telepresence system. The telepresence system is something that enables more of a “being together feel” as you can see more detail of human expressions and body movements. The video capability on her laptop provides a less detailed image. She also has the ability to take audio on a headset or through speakers on any of her systems.

Software that is particularly important for interaction is instant messaging, WebEx and Jabber. Most of her communication is done with a video component. Her work products are created, saved, and distributed electronically through a company cloud system. McCoy has instant messaging on her laptop and her cell phone, and has it set up to go automatically to video if it is available at the other end. Additionally, instant messaging provides a notification of the status of other people with whom she is connected. WebEx is also on her laptop and cell phone, and has some difference in capability between the two. Her WebEx set up can do group meetings, and share documents on both devices, but it can only do video connections on her laptop not on her cell phone. Finally, she has Jabber on her cell phone, which has the video

meeting and document sharing capability, and also has a feature to allow her to know the status of people that she is connected to.

McCoy uses the various technology platforms along with face-to-face interaction strategically, being aware both of the capabilities and limits of technologies and the preferences and comfort level with various technology platforms of people she works for, with and work for her. An example she provided of the limits of technology is that if she is presenting to a large group with a video based platform, even her telepresence system, she cannot make out the facial expressions of group members over the video connection, so she will often have a local subordinate go into the room to provide her feedback on how key people are responding to what she is saying. She is also aware that outside of the US many people are less comfortable with being on a videoconference and will adjust her communication platform choices when those adjustments to less rich channels can support the interaction needed.

McCoy wishes she could maintain a constant video presence in a dedicated place in the headquarters office where most of the people that work for her are located. She envisions being able to accomplish this in the following way:

Have you ever seen when you go into a hotel and they do not really have a concierge there, they just have a computer and a person that pops up? So sometimes I will tell my boss, “why do not you just put me in a certain location, and I will be like the concierge and you always would know where to find me. I will be sitting in this area with my team, and I will just be there, like you and I, just working away.

McCoy’s high-level management position has made several resources available to her: first, being provided an expensive telepresence system in her home, which is not made available

for lower level teleworkers. McCoy indicated her employment with Quney started as a full-time teleworker, a still rare occurrence for a corporate employee, and indicative that she was seen as exceptional at the time of her hire, and has maintained that status with regular added responsibilities. Finally, she indicated in our conversation that travel is constrained by budget, yet she is able to travel routinely to the company headquarters. While she indicates that she tries to arrange this in conjunction with significant reporting or meetings, it is not required to be for that purpose.

McCoy also works primarily from home, but also works in the organization's headquarters location, where most of her subordinates and superiors work. She occasionally travels to other organizational workplaces.

McCoy mentioned several aspects of her workspace she is concerned about in terms of it being a supportive place to work. First, as she has a significant amount of technology, some of which is expensive, she has a dedicated workspace. Second, the space must be quiet without distraction from her family in other parts of the house; for this reason, she had a door into the space put up. Third, as she has a video component to most of her communication, she is concerned that she appears professional and the wall behind her "is more like an office setting than an extra bedroom in her house." She indicated she generally wears a button down shirt, fixes her hair and wears make-up when working at home and I could see a framed piece of art behind her. Finally, she has occasional power outages caused by weather interrupting power in her neighborhood. While this was not an issue that could be addressed prior to it occurring, McCoy had a backup plan, to use her cell phone, if needed.

While McCoy is considered a full-time teleworker by her company, and is concerned about her home work environment, she still considers shared organizational workplaces an



important resource for accomplishing her job. McCoy travels every 4 to 6 weeks to the company headquarters, which itself is a considerable amount of space spread across a number of office buildings. She says these trips allow her face-time for four things: first to spend time with her team; second, to meet with peers; third, to meet with key business partners, and finally, to attend key meetings. McCoy indicates that she determines when to visit the office but plans this travel strategically indicating, “my director does want me to coordinate it to be there if he has an all hands meeting, or sometimes when we have quarterly reviews with executives.” Additionally, her work has her interfacing globally with people in other areas of the company across the full range of company locations, which occasionally requires visiting other office locations.

McCoy prefers to accomplish several things face-to-face. She indicates making an effort to be at all-hands and quarterly reporting meetings. She discussed being able to see their reaction to things she says. In terms of people on her teams she says “It is that person-to-person contacts and often more casual meetings....I might just reach out to someone and say, ‘hey I am here, why not meet for coffee?’” She indicates that seeing each other is particularly important for difficult conversations with subordinates.

**About her organization - Quney Technology.** The company is a multinational technology company with more than 50,000 employees in over 150 countries. As a technology company they have taken a technology forward approach to business. This is seen in their approach to employees, workplaces and technology made available. Employees maybe full-time teleworkers, working at home full-time; hybrid teleworkers, splitting their time between an office location and home office; or mobile workers, working in an office location, but with no assigned seating. Wide ranges of technologies are available for both in office and teleworking employees. A detailed deployment package is available for teleworkers starting up their home office.

Given the business they are in Quney Technology is able to utilize its own products to enable the telework program they have had in place for over 20 years. They have fine tuned their program enough to have varying sets of supports based on the work employees are doing and their level of telework: executives and full-time teleworkers, hybrid teleworkers, and mobile workers. They have tracked telework and found benefits for workers and the organization, including: increased productivity, increased time in workers days, flexible work schedules to enhance work-life balance, reduced turnover and lowered real estate costs. This has also extended into their use of real estate and technology as all workers are considered mobile and those who work primarily in a particular office location, hotel – having no permanent workspace assignment. An additional benefit to both these approaches is the organization’s ability to continue work uninterrupted by natural or other events, as all employees are resourced to be able to work in alternative locations.

The organization earlier had a large push toward telepresence as a way to reduce travel, but the organization has since backed off of that. It now has a more moderate position, where there is a recognition that there is nothing like face-to-face interaction with everyone in the same place and the informal interaction that goes on around those meetings.

Of the people in the organization McCoy routinely works with about twenty percent of them telework, and all of these coworkers telework full-time. The remaining people she works with work in company office locations with the majority of them located in the company’s headquarters on the opposite U.S. coast from where she lives and works. While they have no assigned seating those working together typically sit in the same area together.

**Informal communication.** In the interview I had with her McCoy talked about how she used informal communication to accomplish bonding, learning and teaching, mentoring and being mentored, developing a shared understanding and adapting procedures and processes.

McCoy makes an effort to maintain work relationships from her home workspace. Instant messaging is an important resource for this, and it is something McCoy uses opportunistically to initiate conversations. It sometime originates with something that is going on personally or at work that will make her think of someone. Or it might be that she is in a meeting with someone where neither is currently engaged. McCoy was clear that this kind of interaction is something she would only do with people with whom she has ongoing relationships, not with superiors or people with whom she was just acquainted. On occasion she may need to have a more intense conversation or meet with a peer or superior she does not have a close working relationship with. For these, if she is in a different location than the person she is talking to, she will use video connections on her cell phone, computer or telepresence system.

While not as frequent, McCoy sees the opportunity to maintain relationships in face-to-face settings as important, particularly during her trips to the corporate headquarters. During these visits she makes efforts to have informal interaction with people on her teams, peers and key business partners. If it is a relaxed situation she mentions getting coffee or lunch in an adjacent building.

McCoy describes WebEx as being central to her ability to teach and learn. At one point during the interview she pulled up a document and shared it to show me not only that she can share but also that she has the ability to work with the document in a way that I, standing in for a learner, could see.

She also indicated that for starting up people working for her, she prefers that the trainer and learner be side-by-side for the days that active training is needed. If this is not financially feasible, she will make sure that there is a person co-located with the new person who can answer questions.

McCoy aims to always have interaction with her mentor when she is in the office. However, if there is something she needs immediate guidance with she will set up a video call. Having the visual cues the video provides is important to her for this interaction, and she feels it makes it more personal.

McCoy indicated she mentors a lot of people in the organization on virtual work using the same approach as with her mentor.

She is aware of not only her communication needs but also those of the people she works for and that work for and with her. This includes being aware of others comfort level with technology, particularly with video communication, desire for access, a need for others to be able to see her facial expressions and gestures, need to access their response to her, and the need for different types of communications for different situations.

McCoy generally gets to a shared understanding using phone calls set up through IM. If they are on a VOIP phone then they will have personal visual automatically. This will not happen if they are on their own cell phone and often visuals are not used outside of normal business hours. However, if it is a tough conversation she will always make sure to have the visual channel active. Then there are some interactions she will only do face-to-face when in the office. This may be to provide the comfort level for the person she is speaking with - a habit of how people are comfortable communicating.

There are other instances where a need for shared understanding may emerge during a meeting where she is using mediated connection. McCoy discussed having instant messaging conversations with others in the meetings with her when there was something new being presented she was unfamiliar with. Through these messages in the background of a meeting, it is possible for her to get context on something new to her. Another situation is when she is presenting through telepresence or videoconference platforms, which do not provide the desired visual cues for her to see the response of members of the audience, as what she will see is only a small view of the audience. In these cases she may have a local subordinate go into the meeting and instant message the responses or certain people to what she is saying based on their facial expressions and movements.

Working in small groups is the most important element for McCoy to assure success. After a small team develops a framework, they will schedule a web meeting to get input from the broader team to try to get traction. If, particularly in cross-functional process modification, they do not get feedback they will escalate the issue to get management support, which gets the issue the attention it needs. If the change is a big one then it becomes formal very quickly.

#### **Case 4 – Christopher Ferguson**

**Teleworker.** Christopher Ferguson is a 50-year-old Sales Prime for the equipment maintenance division of GBCE. He has been with this company five years, having started with them as part of an acquisition of his previous firm where he worked for twenty years.

Ferguson started teleworking at his previous company and has been a full-time teleworker for the entire time he has been with GBCE. Two things drove him to start teleworking. The first, was that the company he was working for previously was having difficulty and the office environment was not a pleasant place to be and, the second was that the

cost of gas had gone up and working from home saved money. While he did not like teleworking at first, due to the need to be very self-regulated, he now prefers working at home. One of the things Ferguson believes makes his teleworking successful is that he has been working with some of the people he interacts with for over twenty years.

Ferguson is one of five Sales Primes in the Product Maintenance Division of his company, with responsibility for selling, closing, and renewing maintenance contracts for more than 500 customers. Each Sales Prime is assigned a different geographic area; Ferguson recently started covering the Asia-Pacific area, with clients in the U.S., Australia, New Zealand, and Asia.

Ferguson's job requires both a high level of interaction with others in his organization and documentation of contracts in their customer relationship management system. Ferguson described three types of interpersonal interactions: with the front line sales forces, his coworkers, and the approval chain he must work through to get pricing approvals. In the first category, he interacts with two types of front line sales people-- Sales Engineers and Customer Service Contacts--with whom he has significant time, language, and culture differences. Unlike the Sales Primes, these sales people are assigned specific clients to work with across all company products and services, resulting in Ferguson working with a number of different people to complete his work. Time difference with his front line sales people ranges from three to fourteen hours. In addition, because of his relatively recent assignment to cover this region, these are the company members he is least likely to have met or ever have had any social interaction with. In this case, he is more likely to depend on asynchronous communication methods-- email and instant messaging--to compensate for time differences and misunderstandings due to language miscommunications. If he does have telephone or conference calls, he will ask the partners to follow up in writing to assure him they are communicating accurately, finding written

communication more dependable than spoken. Closer to home, Ferguson indicated that he interacts with other Sales Primes on his team and with his manager daily. All of the team members are in the same time zone except one person who is in the Middle East, which makes it easy to communicate synchronously. The communication platforms Ferguson and his coworkers use include: VOIP telephone, email, instant messaging, and Adobe Connect. They get together as a team in one location once a year for two days of meetings to review sales volume, discuss new services, and trouble-shooting problems or obstacles. Finally, some pricing requires presenting information to and getting approvals from Vice Presidents or the CEO. While they would like to use synchronous communication for this, availability of leaders may require another approach.

While there is a significant amount of change in the client needs, products, and service fees that require the frequent interaction, the type of input, and format of the documents in the customer relationship management system are fairly constant. His ability to complete input into the system requires a moderate level of technical product knowledge and high level of services knowledge. Ferguson is dependent on the front line sales people completing paperwork to initiate contracts before he can do his work.

Ferguson has a laptop computer with VOIP telephone to complete his work. His new boss is a user of text messaging, for which he expects the Sales Primes to use their own cell phones. Additionally, Ferguson needs to provide his own internet service and wireless modem which he uses for work and his family uses for personal purposes. During the course of our interaction the organization started using a web-based conference call system with video that they are using now for their Sales Prime team calls. He described using Adobe Connect for many types of group interactions: client presentations, team meetings, account communication,

and supporting the start up of new employees. Additionally, he uses internal instant messaging and email systems to communicate. His selection of communication platform is based on the time difference between himself and whom he is communicating with and language differences. Ferguson works with an on-line customer relationship management platform (CRM) to document service contracts. This is a system of software and cloud space that the company purchases which has a secure customized organization specific set-up. This makes it possible to accomplish the same work in his home office as when he occasionally travels.

Ferguson works the majority of his time from his home office, but, on occasion visits a local company office location. Earlier in his career, Ferguson used to travel regularly for work, but now it is very rare. He believes technology has made it possible to work this way. If he travels now it is for a face-to-face meeting with an external customer or internal client; however he had not traveled to Asia.

GBCE has no requirements for the space Ferguson works in. However, for his own ability to work undisturbed he has a dedicated room in his home. He takes his breakfast into the room with him at 6 am, eats lunch at his desk and works until 5:30 pm each day; he does not work in other parts of his house. The office door is closed to keep out distraction from his dogs. When we first talked his wife was looking for a job, and having the door closed also kept him from hearing her work around the house. He provides his own chair, desk, file cabinet, and scanner/copier in the space. Other furniture they have that is in the office includes a small bookcase, two lounge chairs and a lamp.

Ferguson has two reasons for going to an organizational workspace. The first is that he attends an annual two-day meeting of his work team held in an office location. This is a busy, scheduled two days of interacting in a meeting space. Second, he goes into support new



employees that are starting up in his area. During this time, Ferguson is also accomplishing his own work, and he indicated that while he likes to see people in the office he now finds the interruptions of the office annoying.

Ferguson used to participate in the company wide annual sales meeting, but has not been included in this the last three years.

He discussed traveling for sales meetings as an annual event early in his career, an event that still occurs but with a much smaller group of employees and he is no longer invited to participate. He feels this has eliminated the opportunity for him to develop a better relationship with the front-line sales forces in the Asia Pacific region he supports.

**About his organization - GBCE.** GBCE is a manufacture of software and infrastructure products in the telecommunications industry. With over 1,500 employees, it is an American based privately owned company with offices in Europe, Asia, the Middle East, and Central American as well as the U.S. In addition to products sales the company has a product maintenance division, for which Ferguson works. Ferguson indicated that once people are hired they do not tend to leave, although they have periodic layoffs, which have brought some new people into the organization.

GBCE has no formal telework policy, however the company recognizes that it can save money on real estate costs when employees work at home, and thus allows telework. Ferguson indicated that there are roles, types of employees, and units that tend not to telework, this includes: younger employees, executives, and technical support. This last group is highly collaborative in solving client problems, so work best in a shared face-to-face environment. Additionally, it is understood that employees new to the company will work in an office location for 18 months to two years. In the other direction, no one is required to work remotely, so one of

Ferguson's team coworkers chooses to work in the office full-time, while the rest, including his boss work from home.

At least in Ferguson's part of the company there are a significant number of teleworkers. Ferguson indicated his boss thinks having this high percentage of teleworkers is negatively impacting their ability to hold on to new hires, particularly college graduates; he feels that with so many people teleworking there is a lack of a team environment for new hires to experience.

**Informal communication.** In both his interviews and his work diary Ferguson discussed his use of informal communication for bonding, learning and teaching, developing a shared understanding, and adapting processes and procedures. Ferguson indicated he does not get or give mentoring.

Ferguson believes his relationships with coworkers are built through daily interactions that occur as he does his job successfully over time. However, reduction of people allocated to do the same amount of work, has resulted in less time for 'small talk'. On occasion there is time for questions like 'how was your weekend?' which when these conversations happen, they are brief. Most conversations are straight to work.

Ferguson describes his interaction with these employees, particularly ones in distinctly different cultures, as focused on the challenge of getting needed work communication accomplished due to the difference in cultural expectations around work practices and language barriers. He indicated he does not have any bonding type activity with these coworkers. In the past Ferguson indicated he would meet these people at the company's annual sales meeting and have a chance to spend time having a drink together; He believes this was an important step in developing relationships, particularly with people from other cultures and that it would have laid the foundation for further bonding virtually now not occurring.

Closer to home, Ferguson indicated that he interacts with other sales primes in his area and with his manager daily, all of whom are in the same time zone, except one coworker in the Middle East. These are coworkers he sees at least once a year, for a two-day Maintenance Sales Prime team meeting. The night after the first day of meetings is an important time for bonding with his coworkers when they go out to dinner together. In addition, many of these coworkers are people he has a long-term relationship with. Though he describes it as sporadic and minimal, he bonds with coworkers and his boss during telephone and conference call communication. Generally, this is brief interaction during the sign on process of a meeting or at the end of a call. He described one call saying:

While waiting on 2 other participants to join the call, I had an informal conversation with the sales Vice President. Both of us were returning from a week's vacation. It turned out we had both spent the time with extended family and we discussed the importance of family time, the difficulties of being away from the office for an extended period, and especially how hard it is getting "back in the saddle.

Ferguson described most of his learning as formal training of two types: first webinars where they sign in at the time it is offered and can ask the instructor questions, or second, self-paced courses available to take on-line alone as they have time. He noted that this is a complete change from ten years ago when training was done in classroom settings. He does not like the change, particularly as he feels the training is geared to the engineers in the organization and generally does not explain things in a way he can clearly understand. It also often does not provide some of the types of information he needs. He also indicated that while in webinars questions can be asked, there is limited time so he cannot ask many. Information he needs he can often find in the company intranet, however, there is no one to ask questions to. In terms of

informal learning, the closest Ferguson gets to this is the time that they set aside in their annual sales meetings for working together to think through challenges and obstacles.

In terms of teaching, Ferguson has been doing his job long enough that he and his boss are comfortable having him responsible for training new hires in the city in which he lives. This is accomplished in a hybrid way, starting with Ferguson working in the office to work one-on-one with the new hire until they are comfortable. When that is accomplished he moves to coming into the office less frequently, but is close enough to go to the office if needed. During this time he describes providing electronic training exercises for the new employee and evaluating them when they are completed. And eventually, he is available for questions as the new employee encounters unfamiliar challenges. This is largely handled with telephone calls.

One additional type of teaching, Ferguson does he believes is based on his seniority, proximity and approachability. He will on occasion get an IM from someone in the local office needing help and they will get on the telephone together so he can help them with what they need. It is something he feels technology has made easy for people.

Ferguson talks about coming to shared understanding as something he deals with primarily in reference to cultural issues around how business is done, which varies across the countries he deals with. He had previously done work in South America, where things are done differently than would be considered appropriate in the United States. Now he indicated that he has the same issue in Asia. Korea is the most difficult for him as he frequently hears, “you do not understand how it is done.” When working with front-line sales in Japan, Taiwan, and Korea communication is usually handled asynchronously through emails and instant messaging. This allows for the time difference and, Ferguson finds written communication more effective. If he gets on telephone or conference calls, he finds the language barrier is an obstacle, so he avoids

using the telephone. When telephone calls are needed he will have the front-line sales people confirm the results of their conversation in writing, to make sure they are all on the same page.

Ferguson identified two causes of process adaptations: a new trend or an issue arising consistently in their process. Discussion will start among their team on calls. If it needs to go to his boss and above, it gets formal immediately, as changes to the customer management relationship system require contracting with the service provider and involve cost.

### **Case 5 – Carolinn Messer**

**Teleworker.** Carolinn Messer is a twenty-four year old recent college graduate who has worked at CareFull Insurance as a Data Analyst for eighteen months. She is unique in this study in that the organization advertised this position as one where the person hired would work as a full-time teleworker, without the possibility of working in the office. Messer was told this was because of a shortage of space in the location in which the position's manager works; although she did not find that to be true.

Messer has been with the company for eighteen months and spent her first two weeks as an employee working in the office at the headquarters location in a city several hours from where she lives. After those two weeks, she went to the office once or twice a week for the next three months; and currently she tries to get to the corporate headquarters office once a month.

Messer is a Data Analyst in informatics, who assembles and runs claims data to document areas in which the organization can save money. She works on about three projects at a time. Her reporting structure is through her expertise, while she works on project teams that need her expertise. She is assigned projects in one of three ways: projects she works on with her boss, eight teams she supports in other parts of the company, and ad hoc projects. The people she interacts with are fairly consistent; she indicated there is generally a new person on one of

the teams about once every six months. However due to number of people she interacts with, she does not get to know most of them well, even professionally. Around the time of our second interview, Messer was promoted to work with a new boss, an indication she was succeeding as a teleworker.

Messer's work requires knowledge of company databases, ability define a question and develop a statistical analysis to answer the question, the ability to do the analysis – coding and statistical analysis – and the ability to present her results convincingly. She has had to learn and be able to navigate the organization's various databases or know who to ask about where to find information. As she works on a number of projects at any given time, she needs to be able compartmentalize her work on each project, and move between heads down analysis and interaction with a wide range of people from several parts of the company. Much of her interaction is with people who have more experience than she does, and she must present her results in a way that, even when the answer is not what they want, they are confident in her work. She indicated this might require her to explain and justify her method of analysis.

CareFull provides Messer with a computer and a VOIP telephone. In addition she uses Microsoft access to retrieve data from company claims information, and Citrix to connect to company systems. She uses internal instant messaging, WebEx, VOIP telephone, and email to communicate. Both WebEx and the telephone system have video capability. The WebEx system can support sharing documents and the instant messaging system can share screens. Their instant messaging system has an audio component in addition to the more typical text capabilities.

Messer herself is very comfortable with her electronic communication, which is entirely audio or text based, even though the organization has videoconference capabilities. They do,

however, share documents on WebEx, for more scheduled meetings, and share screens on IM for less planned interaction

Messer's job does not require her to be mobile or travel regularly; therefore she spends the majority of her time working from her home office. However, she still sees being together in organizational space as an important resource and has communication expectations from this resource that differ from what she does virtually.

CareFull did not provide Messer any requirements for her home office. However, she did have to take online training on ergonomics of workspace. Additionally, the company provided her an ergonomically correct office chair. By her own choice, her desk is height adjustable, and she stands to work for part of her day. She describes her computer set up as "what gamers would call a command center," with two large monitors; she does not work with the screen on her laptop. This set up makes it easier to do her work but also makes it difficult to work anywhere but her desk.

Messer tries to take a break and get outside at some point every day, although she does not always succeed. As she lives in an apartment building that means getting downstairs to go out, which takes more time.

When Messer goes to the Headquarters' office, she sits near others in informatics. They do the same type of work, each bringing their expertise to different projects, so not working with each other. Thus proximity is the only way Messer has been able to meet these people who have become a resource to her.

The other space that she discusses using is the company cafeteria, where she will meet a variety of people for lunch when she is at the office.

In terms of organizational workplace being a place for her to work with others in the organization, this is not something that is likely to happen due to the number of coworkers who teleworker or work in other locations. Messer indicated that while her boss is officially full-time in-office he generally works from home on Fridays. While most of the people she works with are either full-time in the office or part-time teleworkers her boss manages one other person, who is also a full-time teleworkers. She also indicated that most of the people she interacts with work in different office locations and that those in an office location together rarely sit proximal to one another.

**About her organization - CareFull Insurance.** CareFull Insurance is an American based insurance company with over 50,000 employees. While the Company does some international business, its primary services are in the United States.

In Messer's part of the organization, many people work together from different geographic locations and therefore, she described strong virtual communication capabilities. Messer's conversations with me suggest this separation of coworkers is a result of both a distribution of workers to various offices and a high percent of workers who telework.

CareFull is an organization committed to telework that has had telework in place for over 20 years. At their high point, they have had almost 50% of employees teleworking. However, this number contains a very broad definition of who is a teleworker, which for CareFull includes workers working at client locations, mobile workers, and employees working part-time or full-time from home. In addition to a telework policy, they provide on-line training resources for teleworkers and their managers. Officially, the policy requires employees have a record of performance and ability to self-initiate; at least the first part of this requirement would suggest a work history with the company in an office, something that was not required of Messer.



During their long history of having telework, CareFull has tracked the benefits and impacts of this policy. The company has found they get significant benefit from their telework program. Through this program, the company has been able to save millions of dollars on real estate, facilities maintenance, and utilities costs every year. An additional benefit is that the company has a lower turn-over rate for their teleworkers than their workforce in general while at the same time these employees are 10-20 percent more productive than their in office counterparts.

**Informal communication.** Messer discussed and thought about how she used informal communication to bond with coworkers, learn and teach, being mentored and mentoring, developing a shared understanding, and adapting procedures and processes.

While Messer described a small amount of bonding activity while working from home, she described her monthly trips to the headquarters' office as significant for her bonding with others. As she has a short duration with the company the range of these connections is also much small than that of other participants, something that would be an expected difference even if she worked in the office.

Bonding activity while she works remotely, as with others, happens generally around more formal activities. However, in addition to saying informal communication was more likely on small conference or WebEx calls, she indicated that there were three people who hosted calls she participated in who were more likely than others to talk to participants about non-work topics as they get onto calls.

In the office, proximity and shared job roles have been important to developing relationships with people she would never interact with from her home office. Additionally,

when she is in the office she tries to have lunch with her boss and, if he is in the office and available, her coworker. This is easier because of the nearby company cafeteria.

As might be expected because of her relative newness to the organization, learning is important to Messer. She described informal learning in terms of who she reaches out to, how, why, and how often. Her choice of who to interface with has evolved in her time with the organization. When Messer started with the company, she interacted a lot with her coworker, working for the same boss. He is also a full-time teleworker so she interacted with him through instant messages. Additionally, she worked with a staff trainer, who although in a different position now, she is still in touch with when she needs help. She has also reached out to her boss for help as well.

As she has had the opportunity to interface with other people in the organization she has started to develop a wider range of people she can learn from, primarily from two types of relationships. First, as she has spent time in the office she has gotten to know a circle of people who do the same work she does on different projects and reporting to different bosses, she now reaches out to some of them for help. Another set of relationships is developing from people who are on multiple project calls with her, people that she believes will know who she is when she reaches out. She will always start reaching out by either an instant message, for people she is more comfortable with or an email, for people she knows less well, to ask about their availability. She noted that both their internal instant message and email systems have availability indicators for coworkers. If the question is more complex, either she will ask, or the person she is reaching out to will suggest, a telephone conversation or a WebEx. Both of these platforms will support sharing documents, but sharing a document on the telephone is slower.

With the people she is on conference or WebEx calls with, she may also initiate a telephone call immediately after a call that ends early. She indicated she is down to needing to reach out in this way about once every two weeks now.

Messer is still close enough to when she started with the organization to feel strongly that her face-to-face start up with the organization made a difference in her getting started well with the organization. Being in the office still makes learning easy, as when she has a question she can ask who ever is available.

Messer is also happy that the coworker who helped her when she started is now reaching out to her for help, most often on systems he has not worked with in a while.

Messer has developed three sources of mentoring, none of which are from participating in the company's formal mentoring programs. First, Messer has contacts in the company from growing up near the headquarters. They recommended someone she should develop a relationship with and she was able to meet with that person when she was at the office; she feels this kind of meeting is beneficial to have face-to-face. Second, she has maintained a relationship with the person who helped train her, who is now in a different position. Finally, as her boss and unit coworker are both older than she is, when they have lunch together they like to tell her stories about people that did make it at the company and why; so she often gets the guidance of cautionary tales at lunch time.

Messer received an email recently from a new teleworker, for advice on teleworking resources.

Developing a shared understanding is a critical part of the start up of Messer's work on projects. About half of the work she does is with her boss and those projects are the more complex ones on which she works. She has two different processes for developing a shared

understanding on the scope of the work that is required of her. First, when she is working on her own, understanding the project is a more formal procedure of virtual meetings and documentation of project requirements by the project managers. When she is working with her boss on projects, they communicate to make sure they are on the same page. She starts with an IM, to determine availability and if needed, they will talk on the telephone or WebEx. They often share documents on the instant message or WebEx systems, the earlier is slower and the latter takes some time to get started.

For the other work when she needs a clear understanding of a project it will start with a conversation which is accomplished on WebEx, when document sharing is required and conference calls when they are not.

Messer discussed that not too far into her employment she realized she was redoing work on some projects because she was not clear on the fine points of the projects. She realized that there was certain information needed for her to determine how to approach her analysis that she was not getting from the paperwork that she was provided by project managers. She brought it up in a conference call, and that information has since been added to the information she gets at the beginning of her work from project managers.

#### **Case 6 – Michael McCown**

**Teleworker.** Michael McCown is a 57-year-old attorney working as Assistant State Bar Council at the State Bar in his home state. He has been with the State Bar for eleven years having started work for them in a satellite office. Eight years ago the organization discussed closing the satellite office, and McCown became the first person in the organization to telework. He was well suited for this experiment, as he had worked in the technology industry before becoming an attorney. In addition, his wife's job required them to stay in this part of the state,

and his children were in school there; so telework was his option for remaining employed by the State Bar. Two other attorneys from that office followed him as full-time teleworkers.

McCown is an Assistant Bar Counsel working in the disciplinary division of the State Bar. This part of the organization has several Assistant Bar Counsels, each assigned a different jurisdiction in the state. His primary responsibility is the investigation and when needed, litigation of formal complaints submitted against attorneys in his jurisdiction. All of the Assistant Bar Counsels answer to the State Bar Council and, each is also overseen by their own district committee of ten volunteers. Seven members of each district committee are attorneys in the state and the remaining three lay citizens. These committees of volunteers serve for up to two three-year terms with new members rotating on to work with more experienced members. In order to not overtax his committee members, three-member subcommittees of the district committee complete the oversight work, changing participants every three months.

In addition to this primary role, McCown has responsibilities for other role related work in terms of internal training of volunteers and continuing education for attorneys in the state. McCown helps organize and presents at the annual disciplinary conference, held to get new volunteers up to speed on their responsibilities and the way work is handled at the Bar. He is also expected to develop and present Continuing Education courses for attorneys in his jurisdiction. These roles are far less time consuming than his primary role and the continuing education is something the organization insists not interfere with the progress of cases.

McCown investigates and documents cases, allows for attorney rebuttal, and reviews cases with subcommittees for a determination on if disciplinary action needed or not, and if needed proceeds with completing it. This work involves a standardizes series of steps to move the cases forward that involves both an application of the law and a significant amount of

interaction with staff, volunteers, peers, and his boss and other executives. His work involves assembling needed evidence for each case and evaluating the need to move forward with each case and how. He is also responsible for producing reports and making them available on the organizations enterprise system, and when needed by volunteers, having staff upload them to the project management system. Interaction with staff, which is ongoing throughout the process, is done using email, the enterprise systems for sharing documents, and by the VOIP telephone. Except for the investigators, whose work is mobile, the staff works in the office. To interact with peers and his boss he uses the internal VOIP telephone. Within the disciplinary unit of the organization attorneys are important to each other as sounding boards to provide critical feedback and alternative points of view. Getting this support was originally difficult, as the attorneys were used to interacting face-to-face and it often took calling many people for someone to answer his telephone calls. As the organization has allowed attorneys in the office to work part-time as teleworkers, this problem has disappeared. Other than the initial meeting and training, McCown interacts with individual committee members by telephone. Subcommittee meetings are completed using a state provided conference call system and using documents shared on their project management platform. His full committee only meets when a case is taken to court, and thus meet face-to-face at a courthouse.

McCown has a laptop computer, VOIP telephone, and a high-speed printer provided by the company. He also uses a second monitor and has his own printer. When mobile he uses his own cell phone.

The organization works with their own internal conference call system, a state based conference call system, a project management platform, organizational email system, and a web meeting system. The internal conference call system uses the limited number of telephone lines

their system has and so is used only internally. Calls with volunteers are all on the state conference call system. Documents are shared through the project management system and not on the meeting platform. None on the systems at this point use a video component. McCown indicated that use of new platform capabilities is often litigated by attorneys in the disciplinary process; this results in the Bar being very cautious about adding new capabilities.

While McCown considers himself a full-time teleworker, he spends regular time in the organization's office. In addition, he uses a number of alternative locations to conduct Board business.

McCown started teleworking from his single family home. Following a recent divorce, his boss asked him to move to the main office, but he was able to stay as a teleworker to remain close to his children and now teleworks from his condominium on the fourth floor of his building.

McCown spends the majority of his work time in his home office, which is set up in a small room of his condominium. He has an L-shaped desk with his work laptop and connected external monitor, and his own personal laptop off to the side. The desk has corkboards that have pieces of paper on them and storage shelves above that. Behind him, he has two full height bookcases for his reference material and also, hangs his bicycle off of one. At the end of his desk is an additional work surface for his personal and work printers. He has a considerable amount of memorabilia in his office including artwork done by a family friend, photographs of his children, and sports items.

Prior to his divorce, McCown on occasion worked on his back patio, as his back yard was secluded. As the outdoor space at his condominium complex is not private, he no longer works outside.

The organization has only one office now that McCown travels to for meetings. While at the office McCown makes an effort to get around to interact with as many people as possible, extending into other parts of the organization beyond his coworkers and support staff. The attorneys in this office all have enclosed offices.

McCown travels to litigate cases, teach continuing education classes, meet with new volunteers, and to attend the annual volunteer training meeting. Case litigation and some of the continuing education classes take place at courthouses. He runs continuing education at a locally available meeting space, which might be a restaurant. He makes efforts to meet with new volunteers over lunch in restaurants as well. The Bar runs the annual training for new volunteers at a local resort. When we completed our first interview, he was working from his mother's home in a different state, which though not a frequent occurrence, is now possible with the technology that has evolved in the organization over the last eight years.

**About his organization - The State Bar.** This State Bar is an agency of the state Supreme Court, charged with regulation of attorneys in the state and it does this with fewer than 100 employees. The organization has two line sections, and two internal operational sections. The section in which McCown works, is responsible for handling formal complaints against attorneys from investigation to prosecution. A significant component of this process is the involvement of volunteer committees, composed of some attorney members and some lay citizens. The Bar completes much of this work remotely using a conference call platform. As the organization has moved into using non-face-to-face platforms they have also migrated to a paperless work process.

The State Bar is subject to the state's requirement to support telework. This has required them to aim to have 25% of staff determined eligible to telework doing so. The organization has



determined that only attorney's may telework, and those working in the main office may only telework up to two days a week. Additionally, the organization has a limited number of laptops set up to work remotely, which limits the number of attorneys that may telework from the main office on any given day. Other employees may not telework; McCown described their roles as having elements the organization has determined require their presence in the office.

McCown recognizes the organization has two significant operational issues with telework. The first is an ongoing concern with data security of the case files; an issue that extends beyond telework. The second, is as a government agency being able to assure the public that their dollars are spent well, including assuring them that employees are working hard. The security issue is addressed by slowly and carefully adopting the use of any new technology platform into the organization's work processes. McCown believes organizational leadership still prefers face time as a way to assure employees are working; however, the full-time teleworkers each handle successfully, higher workloads of populous jurisdictions, which mitigates the lack of face time enough that they are allowed to continue teleworking.

**Informal communication.** A number of factors influence the need for and approach to informal communication McCown utilizes in his job: his personality, the organization, his roles, relationships, and the technology available for his work. First, McCown describes himself as a "people-person" who is also strategic about his interaction with others in the organization. His role in the organization requires many different relationships to complete his work, each with different needs, including: volunteers, staff, peers, his boss and other leaders and extended organizational staff. Within the organization he sees himself as a double outsider, being neither from the place he works in a location where being a local is important, and being a rare racial minority in the professional ranks of the organization. Finally, the organization has a cautious

relationship with virtual technology, which is not central to the work they do, but has the potential to impact their ability to succeed due to high security requirements. The training he received as an attorney also influences this, where he learned to put nothing in writing he does not have to.

Most of the bonding that McCown does is around the edges of the things he must do to complete his work. Previously the State Bar funded an annual luncheon to thank Volunteers and give volunteers and attorneys a chance to meet each other; there is no longer funding for this.

McCown recognizes the importance of a good relationship with his volunteers in getting work done successfully, getting positive feedback from volunteers to his superiors, and sometimes in helping him get resources that support work efficiency. McCown makes an effort for a one-on-one meeting, preferably over lunch, with new volunteers. This meeting is presented to volunteers as a chance to review their role and the work processes but for him, it is important to do face-to-face to establish a positive relationship and getting to know one another. After their training and his initial meeting with them the vast majority of his interaction with volunteers is mediated, with one-to-one interaction by phone and multiple participants on conference calls (audio only). On rare occasions, where documentation is needed, usually because bonding has failed, he will document interaction using email. He tries to have a little bit of social conversation to build rapport when communication is one-to-one but also recognizes most of his volunteers are involved in small businesses and very busy. McCown also sends volunteers an annual summary of what they have accomplished in the district that includes a thank you for their service. He believes this kind of formal recognition of their work also builds a more positive relationship.

Michael also makes an effort to be in touch with the volunteers that are responsible for directing the work of his unit. He reaches out to them with phone calls regularly, to see if they need anything from him to help them do their job, and makes sure they are aware of what he is accomplishing.

McCown prioritizes maintaining a good relationship with the staff that supports him, all of whom he shares with other attorneys in the organization. To do this works hard to understand the challenges they have in accomplishing their work, to maintain regular contact with them, and to be aware of their interests and lives beyond the office. Most importantly, he makes sure to recognize the total workflow that his support staff has and to determine how to fit into that flow in the best possible way. At this point, he indicated that most attorneys start their work day latter than the support staff, so he makes sure that his work is available when they arrive at the office, before they receive work from other attorneys. Communication with staff is through document sharing platforms and telephone conversations. He tries to initiate telephone conversations on a more personal note, commenting on their lives or sharing a joke they would enjoy. When he is in the office, he is sure to spend time interacting with them. Finally, he makes sure to send them something for mother's day and their birthdays to show he cares about them beyond their work.

McCown discussed the important of having other attorneys to talk to as he works through how he will approach each case. Most of his interaction with his peers is via the telephone. When he makes these calls he tries to start with a brief social interaction, if the voice of the person he is calling indicates they will be open to that. As he believes face-to-face interaction is still very important in the organization, he is sure to leave time when he visits the office to interact with as many people in the organization as possible. Additionally, he is sure to make time for "scotch and cigars" with coworkers and others in the city that might positively influence

his coworkers opinion of him. He recognizes his success at developing these relationships in the number of people in the office who have reached out to him to be sure he is doing ok as his divorce proceeds.

He discussed his peer relationships in terms of those he had worked with in the satellite office and those who work in the main office; these relationships were substantially different because of the level of relationship developed and commonality of the way they work. His relationship is strongest with the attorneys he worked with face-to-face which he attributed in large part to their history; when they worked together in the office the attorney running the office insisted on the attorneys having lunch together once a week. As all of the remaining attorneys from the satellite office now telework, they all use the telephone as their primary communication channel, which has made it much easier from the beginning of their teleworking time to get them to answer his phone calls. On the other hand, when McCown started teleworking he felt that his in-office coworkers did not feel that he was really working any more. He found it difficult to get them to take phone calls from him, as the work culture was very based in face-to-face interaction. He had his boss intervene to address this early on, telling his in-office coworkers to take his phone calls. Now, however, as many other attorneys telework it is no longer a problem.

As his boss still prefers a management style of seeing people do their work, McCown tries to get to the office regularly, to have face-time with him. However, he also recognizes that his personality sometimes gets on his boss' nerves, and tries to be aware of when that is happening.

McCown spoke of having a car ride with the head of the organization before he started teleworking where it became clear to him that she supported telework. He has maintained his

relationship with her by stopping by to see her when he is in the office and has found her supportive of providing resources, like an upgraded printer/scanner, when needed.

McCown also makes an effort to develop relationships with people in other parts of the organization as well as senior leadership. He has used these relationships at times to get resources needed to work successfully as a remote worker. However, these relationships are primarily rooted in face-to-face interaction when he is in the office. He discussed taking time to make the rounds of the entire office to have brief conversations with as many people as possible, so they know him and he can get anyone necessary past the issues of his outsider statuses. While he is not from the state in which he works, he father has lived and been a business owner for years in the city in which the organization is located. In conversations, he makes sure to mention the community relationships both he and his father have built to highlight his roots in the city. As one of the few minorities in the organization, he discussed using humor and irony to address and get past uncomfortable situations that arise in conversation on occasion.

As was discussed above, the organization sponsors a training conference for new volunteers every year. The meeting is held at a resort, with face-to-face training provided on the requirements of the various volunteer roles.

McCown also tries to have a one-on-one lunch meeting with new volunteers, during which he reinforces that procedures and expectations of their volunteer role. On occasion, if a new volunteer is required to fill out the term of someone who must leave, then this one-on-one meeting will serve as their primary training.

McCown is responsible for taking continuing education classes to maintain his license. Additionally, he provides training for attorneys in his jurisdiction on issues related to changes in court procedures. These classes are held face-face to face in a variety of locations from

courthouses to restaurant meeting spaces. He indicated there has been discussion of moving to an electronic class delivery platform but this has not been done yet.

After volunteers have completed initial training McCown makes a point of promoting their asking questions any time they need input on what they are doing. This is generally handled with a telephone call. On rare occasions where the working relationship is not smooth, McCown may opt to send an email in response to a question, so that he has a written record.

McCown specified that he uses less staff time than he did when he worked in the office with staff members. This is specifically because he is not with them to easily look at work as they progress, so he feels he cannot give them more challenging work.

McCown indicated that it is crucial to the credibility of the organization that cases reviewed and determined by the various Assistant State Bar Councils are approached and evaluated consistently. Assistant Bar Councils are a critical resource to test their thinking on the cases they are developing and to get feedback on alternative approaches. Typically, this has been handled face-to-face visiting each other's offices as needed. McCown and other teleworkers now have these conversations on the telephone via a conference call. Initially McCown found it difficult to get in-office Assistant Bar Councils on the telephone, and had his boss intervene to get them to answer his calls. However, now that most Assistant Bar Councils telework part-time, he no longer has this problem.

McCown discussed that keeping his boss up to date on what is going on with cases is important, particularly if there are "surprises" coming, which he specified as something like a call from a reporter. In the past, these kinds of communications happened by walking down the hall, and are now handled with phone calls.

McCown discussed two different adaptation types that can occur in the process of their work. The first is when there are different types of legal determinations made, where documentation of the thinking process is critical for consistent applications by all attorneys in the group. The second is a change in the litigation process, particularly a modification in technology platform.

The way the State Bar practices discipline needs to be consistent across the state. If an issue arises, where there is a question about how to proceed McCown and his coworkers will run it past his boss via and email. He will follow up via email or phone call. If needed, they will have a conference calls to include others. Then decisions on how to proceed, which need to be standard, are distributed via an email or at periodic attorneys meetings. Attorneys meetings are general done over a conference call, although on occasion are done face-to-face in the office.

## **Chapter 5: Parameters of Telework Frame and Definition of Full-Time Telework**

### **Introduction**

Chapter 5 and chapter 6 are both findings chapters. Each chapter focuses on one of the two primary research questions.

Researchers have suggested that there are four parameters that can be used to describe types of telework—location, technology, time, and employee-employer relationship. Full-time telework may, because of the words selected to describe it, appear to be its own definition. The naming of this way of work seems to describe an intertwining of three of these parameters, suggesting as a meaning that full-time teleworkers spend all of their time working at a place outside of organizational workplaces, completing work enabled by the use of information and communication technologies (ICTs). This chapter will review these three parameters to present how these participants see them as enabling their work. To conclude, I will use the descriptions these workers provide about their way of working to develop a definition for full-time telework.

### **Place(s) of Work Location**

All of the participants in this study work from their homes, having this location as their single assigned place to work. For all of them, then, they also do not work in a shared workplace with their coworkers, a characteristic they share with many globally distributed team members (something several of them are part of as well). Their space use is influenced by how they think about their own work and personal needs, as well as how they view the requirements placed on them by their organization as part of being teleworkers. However, all of the participants also used organizational spaces, and some used other spaces, to accomplish their work goals. Finally, their success working in this way emerges in part out of the workplaces used by others in their organizations as well.



All the participants in this study have a space dedicated solely to support their work during working hours. Messer even explained that she moved to get a dedicated space, saying, “part of why I moved after 7 months of being in my first lease, I moved to find another spot that had more space so that I could have a designated office.” However, ‘dedicated’ varied in its completeness from working hours only to no other use. Ninassi, who had a fully dedicated space when she lived in the suburbs, has moved into the city preparing for retirement, and now works in a corner of her bedroom; she stated, “back when I first telecommuted I absolutely did have a completely separate room that I could close the door at the time. Now it is a dedicated section of my bedroom, so very few people go in there and I can definitely shut the door during working hours.” Messer, the youngest of the participants, uses her room for work during the day while it serves two other purposes outside of work hours: as a place for her boyfriend to work in the evening and as a guest room when they have visitors. McCown, now that he is living in a condominium, has a dedicated space, that also stores personal items like his bicycle. Ferguson, Augustin, and McCoy have fully dedicated spaces. McCoy stated, “the other thing about my home office, it is a designated office, there is no other activity that goes on other than work.”

Several participants described the reasons for these use patterns as influenced by cost of space, and security of work information. Ninassi stated about her current workspace:

It is not an enclosed room, but it is a dedicated area of a room and I can close the door. I have moved into [a major US city] so there is no separate room, unless they want to pay me significantly more, or give me a huge bonus to buy a two-bedroom apartment. But also, there is no distraction; there are no children in the house or anything like that.

Messer explained that when she started with her organization she could not afford to have a dedicated space, “when I first started, the apartment I was in did not have a room that was specifically designated for an office. They probably would not have loved that but it was not really something I could work around at that point, financially.” While Augustin, who started teleworking in her bedroom, after a number of years was able to afford an addition to her home, that included the office space she now works in. Another issue that appears to influence these workers’ abilities to have part-time dedicated space is the amount of paper documentation they are working with. Ninassi and Messer, who use the space they work in differently during work hours and after, both indicated they work with exclusively with electronic documents. This means their work is secure when they turn off and put away their computers. Messer made this choice to avoid having to have additional furniture in her home, required if she printed out documents. She stated:

I do not print anything for work. If I were to try to print something, I would need to have a printer from CareFull and a file cabinet from CareFull and a shredder. So I said, I do not need it, any of it, because I do not have a need to print anything.”

Later she added

There is a bed in here we use it as a guest bedroom if we have visitors, but I turn off my computer and if I ever felt necessary I would put it in my bedroom and lock it away from somebody.

Ninassi indicated “We use all kinds of systems to share information depending on the circumstances, but nothing is paper. I never print anything, everything is electronic.” She followed up later, saying, “so, if my computer is shut down there is nothing for anyone to see, no

one would ever be able to understand what I do unless they are competitors. So, there is nothing really to lock away.” Therefore, for these two participants, the work that needs to be secured exists on company servers and is only accessible when their computers are on and connected to company systems. On the other side of the spectrum both McCown and Augustin, who have fully dedicated workspaces, work with paper documents. McCown receives confidential paper documents that he must scan into electronic format. McCown talked frequently about the need for confidentiality as a driver for how he works, including his workspace: “I have a dedicated space where it is concealed and any files are not left out for anybody that comes by my apartment, they cannot see it. And generally I tell people you cannot go in there anyway.”

Whether their space was a full or part-time workspace, participants were motivated to separate work and home activities as something positive for both aspects of their lives. Half of the participants talked about isolating themselves from the noise in their homes. McCoy discussed adding a door to her home to provide noise separation, saying,

We used to not have a sliding pocket door on the door that I showed you coming upstairs. So that is one thing I said, “you know, I absolutely have to have a pocket door,” so, we had a door installed, just so I could make sure that I had a completely quiet room.

Messer also indicated needing to separate herself from noise, saying “I do have my own room, I can shut the door and block out noise, if there is stuff going on.” However, she also likes separating her work from non-work life, stating: “My own space is much better, because I can close the door and leave and it is the end of the day and I do not have to think about it.”

Augustin indicated she can work within large noisy spaces saying “I can work in the middle of a hurricane and it does not bother me”. Yet she also discussed the specific noise at home being

difficult when she discussed the short time she and her part-time teleworking husband tried to share the office indicating, “No we tried that once, and it did not go well. He was too loud on conference calls; I had my calls; it was not pleasant.” While these comments focused on their ability to work alone, there was also some discussion of disruptive noises that coworkers can hear when they are on conference calls. Yet, Ninassi expressed her lack of concern about call disturbances as related to her pending retirement, she said:

I really do believe it depends on your position and your ambitions. I have no ambitions, so, I am not trying to get promoted or anything like that. I often have something happening, fire trucks, police, I assure the members on the call that they are not coming for me and often go on until the noise has passed. I just believe I am in a position that I am not very sensitive to those things.

However, Messer, the youngest participant with the least status, also stated: “Every now and then, I am on a fairly main street, fire trucks go by. I was actually surprised one has not gone by today. There will be sirens and stuff that go by and someone says, ‘Oh, my God, what is going on there?’” Her tone of voice suggested it is not a big deal. The idea that this was becoming more normal was something Ferguson also suggested saying:

That is the key, keep the dogs at bay; yes, that is very correct. There is a drawback to that, from the work-at-home environment, I have been on a conference call and the dogs have been barking and the birds have been chirping, and everyone is saying “are you in a zoo over there?” But, the interesting thing is because now more and more people are doing the telecommuting that has just become acceptable; you hear kids yelling in the background at some places. I

think in the beginning you were horrified to be on a call if there was any kind of background, now it is just part of the norm.

Some of the noises being described, like pets, and children are not as likely to be heard in the office, while others like weather, and sirens could occur anywhere. This leads to the question of why if it used to be a problem, is it not now? Most of these participants are working in organizations that are highly organized around technology and electronic records. This is not to support teleworkers, although it does: it is to support distributed work and distributed profit generation. Most of the participants work for organizations where the workforce is highly distributed, and the way they are working in neither unusual nor the specific cause of other's work process disruption. Noise then becomes a factor when it is significantly disruptive of workflow. For the teleworkers this was the noise that came from within their homes when they were trying to work.

**Working in other parts of the house.** Participants work at their desks as a rule when home, for reasons that tended to revolve around being near their work resources, but for those living in condominiums or apartments it also included security of their work information. McCown, who was the only participant who liked to work outside, stated, "When I am in [my mother's house] I am used to sitting outside under an umbrella working; or when I had a deck in [my home before my divorce], on the deck." However, as he is concerned about confidentiality, and his current living arrangement has shared outdoor space, he indicated it is no longer feasible:

Because my work is confidential and my laptop also has it's phone function. So, if I get a call and I have to talk about a confidential matter I cannot really talk about that in the public areas downstairs in the apartment complex while I am sitting by the pool. I would have to get up and go inside, so no.

Ninassi stated, “I guess I have gone outside on occasion, I am not qualified in the corporation to have a tablet or a VPN enabled phone, so I am not really that flexible.” Augustin does not do anything of substance outside, noting:

I might walk outside on a call, yes, I guess. I do not know if that qualifies as actually working outside. I will pace on calls, just to move around and get up, but if it happens to be outside, it happens to be outside. But, I do not actually sit outside to work.

She further explained she does not because of “glare on the screen, it is usually hot, you have to move everything. I do not know, it never occurs to me to be honest.” Ferguson indicated that he never works outside, “I find the Wi-Fi connection is not necessarily as good, so I do not. In fact, I do not think I really ever have, to be honest with you.” Messer likes her multiple big screens for working, when I asked her if she ever worked outside she indicated:

I did that once, I went and worked at a coffee shop down the street. But again, it is the same thing; I prefer to have my set up with my big monitors, my nice mouse and everything. So no, I usually just, today I actually went out for a walk during lunch, and got my sun and my walk in then.

Other than the discussion about outside, only a few indicated working in other parts of the house, but it was rare, limited, and for a particular reason. Augustin indicated if she did, “It would probably be in the family room if I was sick, if I was hurt, and I needed to work in a different position, and nobody was home.” Messer indicated:

The only reason I ever would is because I only have an in-wall air-conditioning unit in my living room, so that space gets cooler, so it is never really hot. I think I

have done it once or twice when I have not been able to get enough airflow in here, I will go and sit out there with my laptop. But, I prefer not to because I have got such a nice set up with my two big monitors. To look at a little screen is terrible.

Ninassi, who works all electronically, indicated:

I might move to the dining room table sometimes that just is, depending on what is going on it is a better switch up. There are only two rooms, so unlike probably most of your other people you have interviewed, I just have a one-bedroom apartment. There are only two rooms; those are the only options.

Participants are working, and working involves their technology, and so working somewhere other than their desk is not something most indicated they did often.

**Personalization.** I was able to have video interviews with five of the six participants. All five had workspaces with some level of personalization involving objects that were not part of their work process. Four of these participants never do video conferencing, so they do not have personalization items there for image. However, the one participant who does use video conferencing extensively indicated that she hung art on the wall of her office so “I make sure the scene behind me is more like an office setting.” An additional three people had art, several had family photographs, and knick-knacks with meaning.

**Organizational requirements and provision for home workplaces.** Only one of the five organizations has requirements for home workspaces, but Ninassi and Augustin believe the focus of these requirements is on outcomes, and are consistent with requirements for those working in organizational spaces. Ferguson’s organization was the most relaxed in terms of

requirements, as he indicated there were no requirements for his workspace in terms of dedicated space, security of equipment, ergonomics or safety:

It is all loosey-goosey. Some people that I work with, like myself, we have a dedicated bedroom that we set up. But, it is all myself pulling everything together. Other people just work on their dining table; other people work just wherever. I guess I could be sitting by the pool working this afternoon.

McCown also had few requirements for his workspace, but his organization did provide him an ergonomic chair: "...well now that everything is all on-line, we do not have to have a dedicated space." Messer, when she started, also was provided a chair, and could have gotten a desk and file cabinet but did not have the space. Since getting a larger apartment, she now has a desk with a height adjustable work surface, so she can sit or stand, but her organization did not provide the desk. The company had no requirements that she was aware of, and she has never had to provide information on her workspace. WorkSyn, where both Ninassi and Augustin work has annual paperwork that must be completed. Augustin stated:

There is a big questionnaire and paperwork that you have to fill out before you are approved for teleworking and, part of the requirements are that you do have a secure place. They do not necessarily require you to have a separate room; they ask you if you do. They ask you if you have a phone line. What is your environment? Why do you think it is conducive to working from home? How do you feel you are going to work? Do you have a private space? That kind of thing. So based on your answers they could very well say, "you know what, you do not qualify." So, most likely people will have a separate office. And, most people do,



because they are set up that way. Maybe I am wrong but, I do not really get the idea, and I work with a lot of people that work remotely; I never get the sense that they are working out of the kitchen table or anything like that, unless they live alone. You will get an occasional dog bark or something like that. But, they have guidelines on that.

The paperwork Augustin and Ninassi complete is entirely text-based and they do not need to provide photographs of their space. Ninassi indicated she had to submit additional paperwork when she moved, to immediately address her working conditions in her new space. Ninassi and Augustin indicated they are required to take on-line training on ergonomics and fire safety, classes that are required for everyone in the company. Augustin said, “We have a class, a mandatory course we have to take on-line that is all about ergonomics. However, it is not exclusive to telework; it is a general class, for everybody. It is about having the right posture, having the right chair.” She continued later:

There is also another class that you have to take that they try to make it very general; so it is not just if you work in the office, but also if you are home. It is if you have an appropriate plan for fire and this and that. It is not exclusive to teleworking, they make us all take it.

Ninassi talks about those same requirements this way:

We have to take a survey, submit information every year, and yes, there are very definite requirements. It has to be private, secure, it has to be safe, there are safety requirements, there are ergonomic requirements, yes, and, we actually have to take that every year to assure the company that we are meeting those requirements. It is actually to the point of there has to be a fire extinguisher; I am

looking at the fire extinguisher as a matter of fact. You know with WorkSyn there is always a high emphasis on safety.

**Leaving the home office.** Working outside their home office was something all of the participants in this study did. What drove the use of these spaces was particular to the participants' job needs and their individual preferences. There was also a range of types of spaces that participants used for work purposes. Only one type of space was used by every participant – organizational workplaces or, “the office.” However, while all participants in the study go into the office, the purpose, frequency, and proximity vary.

**Into “the office”.** All of the participants in this study spend some time in at least one or more company office; with most traveling to their headquarters or other major office location, while a few go into local offices. The formal business purposes that required them to go to the office included: meetings (scheduled by others), training new employees, being trained, technology support, and major corporate functions. However, while formal activities are the reason most of them go to the office, all but one talked about using this time for as much informal communication as they could fit into their office visits. Ninassi was the only one that did not find office time helpful. However, she also indicated “Given I have been a telecommuter for so long, my assigned office is not where anyone I would ever interact with goes.” Messer, while having started briefly in the office for training, no longer has to go to the office<sup>5</sup>, but still goes to headquarters primarily for accomplishing informal communication, interacting with her boss, coworkers, others in parallel positions, and mentors. Messer stated:

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<sup>5</sup> Since completing the interviews, I found out that CareFull has decided to pull back on telework and Messer now goes into the office in the city she lives in several days a week. This is not the office location where her boss and others doing her job work.

Just in terms of meeting other people, there are two people that are within the same organizational scheme as me, they have the same two tier up boss but then a different direct boss; these two people I would not come in contact with otherwise, when I go into the office, I generally see them and we will talk some.

McCoy travels to headquarters, arranging this travel to be present for important meetings or reporting. Many of her peers and direct reports are in this location, as is her boss and other leaders she supports, so, McCoy takes advantage of each trip to spend as much time with others as she can, including coffee before work and having lunches or other meals with others in the organization. McCown also goes to the office for a wide range of events including bi-monthly attorney meetings, monthly hearings, mandatory staff meetings, before or after case work travel that has him nearby; meetings organized by his boss, and organizational social functions like their Christmas party or retirement parties. While he indicated he tried to get to the office as often as possible, he also discussed pushing back on some meetings due to the travel time involved. As with others McCown discussed using office time to interact with others in the office. Augustin's travel is also for meetings, and generally in the organization's headquarters location. Augustin discussed an attempt to get her to move to the headquarters' location, which she was able to avoid by illustrating she could be there for the few necessary meetings. Augustin specifically discussed using this time to connect with some of her mentors who work in this location, when they are available. Ferguson makes annual trips to an office location, generally not local, for his sales team meeting. More recently his in-office time has been in the local office, to handle the training of new employees, work he completed because of his knowledge and location. He misses the efficiency of working at home when he has to go into the office, indicating, "so, now it has gotten to the point where when you do go into the office you start to

get a little annoyed, even though you are glad to see some of these people who you have not seen and have to say ‘hey, I am busy’”

***Other places for work.*** Participants discussed a range of alternative spaces that they utilized, although with much less frequency than company locations. These spaces included local restaurants, coffee shops and bars used for meetings over meals and by Augustin as a back up, when she has power outages. Both Messer and McCoy mentioned company cafeterias as places for less formal interaction over coffee or lunch. McCown’s organization uses a local resort for annual training of volunteers. Ninassi indicated that she sees coworkers at professional meetings. In the most unique “other place” discussed Augustin noted that she will spend time with coworkers, and former coworkers while she is on vacation. She discussed having dinner at people’s homes, and meeting them at ski slopes. When she does this, it is generally with her husband and children as well. She also discussed having coworkers and former coworkers and their families to her home when they are on vacation.

***Where others work.*** Another factor of workplace that was important to the teleworkers is the location, mobility, and distribution of the people that they work with. All of the participants work on distributed teams. The distribution of participant’s coworkers varied: one within his state, one national, and the rest global.

McCown’s organization, which is a state-based organization, had the least variance, with most employees working in the one organizational location. However, even for this organization there was a significant distribution around the state of people McCown and others in the organization work with, including attorneys, investigators, and many of the volunteers. So even for this organization with only one office, there was a need to be able to interact with people in distributed locations to complete their work process within McCown’s unit of the organization.

Messer's organization does business predominantly in the United States, and they have offices throughout the country. As far as the people she works with she says, "My direct contact is with people who are predominantly in [the corporate headquarters]; in some of my larger groups' meetings people are all over the place." She clarified that "all over the place" is throughout the United States, and that she currently works only with people in the United States. Additionally, she indicated, "The majority of people that I work with directly are either full-time in the office or part-time in the office." Only a few people she works with are full-time teleworkers. However, the organization as a whole has over 30 percent of their employees teleworking, which they define to include people working from home, people working part-time at home, mobile workers and workers working from client locations.

Ninassi, Augustin, McCoy and Ferguson all work for organizations that do business internationally and described working with people in many different locations as a normal way of doing business in their organizations. Ninassi, Augustin, and Ferguson routinely work with people distributed throughout the world. For Augustin and Ninassi this involves close team members. Ferguson's team is mostly in other cities in the same time zone or one off, it is the people he supports who are distributed in the Asia Pacific region.

**Place summary.** For these full-time teleworkers, their home offices were their official place of business. That space came to function much as a more traditional office, in that it was dedicated space in which they spent most of their work time. This was made necessary by the centrality of their technology to their work, and their desire to have a quiet place to focus on their work.

However, all participants at some point in their work lives spend time working in other places, with the most common other place to work being a company office location. This

location most often was not the closest office, as participants were called to meetings at superiors' office locations.

Finally, the work location of their coworkers impacts the way people work, and often contributes to teleworkers' way of working being more normalized within the organization as routine ways of working for many or all other workers.

### **Technology**

Workers working through information and communication technologies (ICTs) are a key element of the definition of telework. For the participants in this study technology was key to how they worked and the fact that they can effectively telework. There are three aspects to discussing technology: describing the tools they are using; the perceived and adopted affordances of those technologies (Norman, 1999); and how technology distribution, adoption, and fluency enables their work.

**Tools - hardware and communication platforms.** Hardware is important in two ways for informal communication: first, what the participants themselves have; and second, what their coworkers and others in the company have. All participants' technology resources provide audio and video capability through their computers, supported by web meeting and voice over internet protocol (VOIP) phone platforms. Several used their personal cell phones for work, and they indicated it was better to use their own phone than to deal with the paperwork having a company cell phone would entail in the company, and for tax reasons. This mobile technology supports a range of audio, text, and visual tools varying across participants. While a few would like hardware that had different features, all felt the equipment that they had supported their needs. More importantly the technology that was available to others in their organization supported the kind of communication they needed to have, and was consistently dependable, even when

connecting to organizational members in other countries. McCoy indicated that if employees where working in any office in the company that she would know they had access to the same communication technologies she has a home.

Table 5.1

*Technology Hardware Available for Participants*

Technology	Valerie Ninassi	Maria Augustin	Ellen McCoy	Christopher Ferguson	Carolinn Messer	Michael McCown
Laptop	Yes	Yes	Yes	Yes	Yes	Yes
External Monitor(s)	No	No	Yes	No	2	2
Video Camera	Yes	Yes	Yes	Yes	Yes	No
Telepresence	No	No	Yes	No	No	No
Cell Phone	Personal	Personal	Yes	Personal	Personal	Personal
Printer/Scanner	Personal	Yes	Yes	Personal	No	Yes

**Perceived affordances of communication platforms accessed by participants.**

Technology and communication platforms are changing constantly; new features and new platforms become available on a regular basis. For this reason trying to document the contribution of a particular technology of platform runs the risk of being out-of-date before the research can be published. Therefore, examining the perceived affordances of the technologies that are used (or not) by workers is more important for understanding the role of this resource in virtual ways of working, including telework.

Table 5.2

*Communication Platforms available for Participants*

Communication Platform	Valerie Ninassi	Maria Augustin	Ellen McCoy	Christopher Ferguson	Carolinn Messer	Michael McCown
Web meeting	Yes	Yes	Yes	Yes	Yes	No
Conference Call	Yes	No	Yes	Yes	Yes	Yes (2)
VOIP	No	No	Yes	Yes	Yes	Yes
Instant Message	Yes	Yes	Yes	Yes	Yes	No
Intranet	Yes	Yes	Yes	Yes	Yes	Yes
Enterprise System(s)	Yes	Yes	Yes	Yes	Not used	Yes (2)
Internal Social Media	Yes	Yes	No	No	Yes	No
Email	Yes	Yes	Yes	Yes	Yes	Yes
High-speed internet	Personal	Personal	Yes	Personal	Personal	Personal

***Ubiquity of technology in the work process.*** The most important finding in this study about technology is the ubiquity of these various ICT's in the work processes of the participants. Participants are working the same way as their coworkers and have access to the same work materials. Messer works in an organization with a large teleworking population, which may have an influence on the specific ICT packages available to her. Four of the others are working for organizations that are internationally distributed, requiring access to documents, information, and processes globally. Augustin indicated: "We are not a small company in one building where you can go pull out the file. So, we really have been forced to have everything electronic."



The only participant not in this type of organization is McCown, whose organization is based within one state, and has only one office. However, during the course of his time as a teleworker, the organization has transitioned to being paperless, and to an increase in part-time telework among his coworkers. He now accesses documents in the same way as his coworkers and therefore has immediate access to resources. The most significant difference McCown has encountered in this transition is that as his coworkers have started teleworking part-time, it has become much easier to work with them, as they understand what it takes to work successfully from a remote site and are therefore more responsive to working with him remotely. As he put it, “they pick up the phone.”

*Seeing each other.* All participants except one have communication platforms through which they can see one another. Of those participants, only one uses this capability; the rest choose not to, as do the people they work with.

McCoy not only uses video during many of her meetings, but she also uses a telepresence system with a high definition camera to hold meetings with many executives. Her computer and cell phone both have video capability. Part of the reason she uses the telepresence system is that several of the Vice Presidents she communicates with insist on video meetings. McCoy indicated that she also uses video “...if I am having a tough discussion with an employee, on a particular issue, then I would say, ‘hey, you know, let's get in a meeting, turn on your camera.’ So, I would sometimes ask for a specific reason.” McCoy indicated she finds the visual cues she gets from this system helpful in small meetings. However, when she is presenting to a larger room, the size of the faces become so small she cannot read them. In those cases:

I sometimes will ask somebody who is going to be in the audience to message me before I deliver a message, and I will say, ‘ok, what is the body language going on

in the room? What was such and such's response? What was their facial reaction?' Once in a while I will do that, if it is a really critical or sensitive topic, just to get an idea of what is going on in the room; because I cannot always pick up on that.

She commented that her focus on presenting also contributes to her lack of attention to other's reactions. Interestingly, McCoy also noted that video use is more common in the US and among higher-level executives. She finds many non-executives need to realize that others are using video before they will try it.

The rest of the participants did not miss that their groups did not use video, and were happy not to have to get dressed "for work" and otherwise be presentable. McCown, whose organization does not have video capability, said, "I know for me then I would have to wear my clean shirt and I would have to shave; I do not know if I want my boss calling me and seeing I am still in my pajamas." Of these five, none expressed not using the video component as a loss or limitation to communication. Ninassi stated, "I guess we can actually click on a button and see each other, but, I never found that of any necessity, to actually look at a talking head."

***Sharing documents.*** Sharing documents is the most important affordance of the communication platforms for most of the participants. The document sharing capabilities, which allow meeting attendees to work on documents together, share presentations, work on white boards, view a list of attendees, and share messages is extremely important to the way they work together remotely. Ninassi indicated "Worksyn has a web meeting service; 90% of our meetings are held on web meetings, where we can share diagrams, and information." In addition, McCoy and Augustin both discussed using this platform to aid teaching someone else. McCown, the one participant that does not have a platform with document sharing capabilities, shares documents

through an enterprise system where they can review documents but not work on them jointly. As many of the documents they are discussing are parts of legal proceedings, it is critical they not be altered and must be confidential. For this reason, the organization “locks” these electronic documents and only allows them to be viewed on-line.

Augustin and Messer noted that it was possible to share a screen on their IM systems. Messer indicated it was a bit slower to load, but there are times it was helpful. Augustin pointed to such an example, “There is a way through our [IM], our instant message, where you can share the screen and view each other’s screen. So, if it is a one-on-one you are talking on and it is like ‘ok, let me show you what I am talking about.’ You can just [IM] real quick and not have to get into a [web-meeting].”

One other infrequent use of this affordance was the occasional sharing of photographs. While the participants that had shared or seen other’s photographs indicated it was rare, several described sharing or seeing pictures from vacations, of family events, people’s pets or other things of interest. Ninassi and Augustin described accomplishing this through web meeting document sharing. Augustin indicated she had shared a picture of a recent vacation to China; while Ninassi discussed seeing photographs of a coworker’s daughter winning a swimming medal. When Messer described using the company telecommute/telework social media intranet site, she said:

People will share photos on the telecommute/telework group I was mentioning earlier. They have events where you can attend and post, you know “show us where you work from,” “what do you see out your window?” or all sorts of various things on this platform. One time, I was going to meet a friend somewhere in [her city], and the building next to where she lived had a really old

CareFull logo and a date and I took a picture of it, and then got some email or something like ‘share historical CareFull information or pictures’ and I posted that on there, because I thought it was pretty cool. So there are things like that.

***Availability of personnel.*** Participants discussed three resources for determining coworkers’ availability. The most important was an instant message list, along with a quick brief instant message. Augustin stated: “The funny thing is everything has morphed into texting or emailing, and then you ask, ‘Are you available to talk?’ or ‘Can we have a talk?’ or you set up a time. There is no more of the pick up the phone and calling, because nobody answers their phone.” Messer, when talking about instant messaging, said, “it is more just to check if they are free. I rarely just get a phone call from somebody without knowing, without getting an IM first.” McCoy indicated that even for these quick check availability calls, her cell phone is set up for video, so that if the other person is set up that way, they will see each other.

A second availability cue is availability identification via instant messaging. McCoy stated:

I could just go onto instant messaging. I could see if they are presenting, it will tell me that they are presenting, so I will not disturb them. If it says they are just in a meeting, so they are actively listening, or it will say also that they are available.

Ninassi discussed using a shared calendar. She indicated that when she needed to get people together “I will put it right on their calendars, so everybody can accept it or not accept it. We have the facility of looking at everybody else’s calendars, so we can see when people are free or they are not free.”

*Passing a note.* Participants discussed the ability to have a back-channel conversation during a meeting, or while doing other work. Ferguson wrote: “Use of IM is also very prevalent during conference calls, both to gauge someone’s opinion on what is being discussed as well as to simply comment or call out a topic in particular.” While “under” the meeting, these conversations are often with someone in the meeting. However, they may also be way to pull someone’s knowledge into a meeting when they are not there. Augustin provided this example about her intern:

If she is in the middle of doing something, she can pop me a quick message, ‘Hey, can you talk for a minute? I do not know how to set up this folder.’ I will say, ‘Fine.’ or, ‘No, I am on another call, can you text it? Can you type it to me?’

And, we can communicate over [IM] while I am on this other call. That way you are not held up for an hour, if it is a quick question.

In his journal, Ferguson wrote that:

During an approval call (which I was not part of), I received a series of IMs from the business development prime who was presenting financials on a current deal. This is a very common occurrence, where I will receive IMs asking for information while someone is on another call.

Ferguson also wrote about a social interaction that took place while he was working which he titled “Monday morning social IM exchange”:

Use of IM is also very common for purely social interaction. IM elicits a much more immediate response vs. email and allows both sides to continue working, while periodically responding to one another (vs. phone call for example). This

particular exchange morphed into a back and forth with an inside sales representative (located in [another state one time zone different]) about music and our favorite bands/concerts over the years. This back and forth lasted for a couple of hours.

Many participants indicated they spend a great deal of time on the telephone, and that the people they work with do as well. For this reason, having a way to get in touch with someone when one of you is involved in a meeting is important. McCoy commented: “We do instant messaging frequently, I mean constantly. I could be on a conference call and somebody might message me, ‘Hey, do you know this?’ or ‘Can you call me when you are done?’ The instant messaging has really cut down on the amount of email.”

***Delineation of relationships.*** Several participants described particular types of communication platforms as being more casual, and thus appropriate for use with people they were equal to, or higher than in the organizational hierarchy, or very familiar with. Other types of communication platforms were deemed to be more respectful and thus more appropriate for communicating with people they did not know well and/or people that were more senior than their bosses. As an example, Messer indicated: “IM is more casual, email is more formal.”

Another relationship that was deemed important to recognize was when they were contacting coworkers outside of their normal work hours. The participants recognized that their coworkers thus might not have access to the same technology, and/or that they might not be dressed for work, and/or that they might be in the middle of some other activity. McCoy stated that “If it is after hours, even if they are on their computer, we will just revert to audio, because we just need to have conversation. So, typically if they are after hours, or I am after hours, a lot of time we will just do audio or instant message.”

***Social connection.*** Participants use a variety of platforms for social reasons. Augustin discussed using messaging on their web meeting platform:

I will be on a call, a [web meeting] presentation for example, and you can see the list of people that are participating on the call. And, if I see a name that I think, oh, wow, I have not talked to that person in a million years. So on that same [web meeting], I can send a quick message, “Hey, how are you? Great to hear your voice,” or something like that.

Several of the participants discussed using this platform for interactions that were completely social. McCoy stated that she uses “instant messaging to jump on and say, ‘Hey, how are you doing today?’” Augustin also noted that she used email and telephone calls for these types of interactions:

I have one of the sales vice presidents that I worked for a million years ago and I helped him on a huge escalation for a big bank that he will never forget. He is a big Eagles fan, so when the Eagles lose terribly I will send him a quick email and I will say, “How about those great Eagles?” And, he has not heard from me in months, but I have to give him a hard time. And then, he will answer, “Oh, God, yes!” and then add, “How are you? How are the kids? How is the family?”

***Accuracy and meaning.*** Several people talked about written documentation as something they used sparingly, and carefully. Ninassi discussed her concerns about instant messaging challenging her ability to be clear and focused. Her role is one of technical expertise, and she felt the quick turnaround and multiple conversations created challenges.

I try not to use our instant messaging system, although many people depend on it. I find the answers are too terse, for what we need to do, and the way our instant messaging system works if I am on I am bombarded, and one conversation seems to be able to be hijacked by a new one coming in and I found that I am answering the wrong person. I try to avoid it at all costs.

Email, on the other hand gives her time to communicate accurately. She explained: “In email you can review it, you can reread it, you can edit it, you can think about it, you can choose your words more carefully and then send it.” She continued: “Often times the words are not quite sufficient to come to complete understanding.” This is when she pursues talking to someone.

***Document access and documentation.*** Document access is important at two levels. First, all of the participants noted that they have full access to the documents they needed for their work processes. All the participants worked through a router or virtual private network to directly access organizational documents, data, and systems they needed to do their work. They were comfortable with and felt they could depend on consistent access for themselves and the people they worked with no matter where they worked. Augustin indicated,

Everything is out on a website, we have a lot of intranet, a lot of information, almost too much information. Every thing is stored, I mean even for employee records there are places, specific places to store them out on some of these sites. So there is not a thing really that is paper anymore.

While Augustin’s company had the most employees of all the organizations represented by the participants, there was consistency across all of the organizations in the use of paperless processes and documentation. Some of the participants still printed out documents to work with, and two indicated that they never printed anything. This along with the dependability of their



technology meant that they could access information and organizational electronic systems easily and consistently.

A second documentation issue is at a finer scale. The participants were all aware of when their activity and thinking were creating what they felt was a document trail. Several participants delineated only audio communication as not generating a record, while writing, specifically email as creating a documentary record. Augustin noted, “I will ask, ‘Can you talk? I do not want to type this.’ There are certain things I keep protected.” McCown, who is an attorney, credits his education with his practice of never putting anything in writing unless he wants a record, so he uses email specifically for the purpose of creating a record. He stated “I use email to formally communicate.” McCown also was the only one who had concerns about surveillance by his organization: “We have learned that the [headquarters] management monitors and actually reads our emails.” This makes him more cautious about putting things in writing.

*Perceived affordances summary.* The technologies available to the participants afford many communication possibilities. However, not all of these possibilities were valued and used by these workers. The participants were nonetheless very aware of the possibilities that their technologies offered, and about how they were using them to support their work and place in their organizations.

**Technology and workers.** One other important technology issue was that all but one of the study participants see their coworkers as highly technology literate. They see being able to use the technology resources available to them as a basic skill for participating successfully in their organizations. In five of the participants’ organizations, there was an expectation that they would be able to work with anyone on any platform they had available. McCown, whose organization was the smallest among the participants, was the only one who did not see many of

his coworkers as being technology literate. His organization was also the most recent in adopting telework and a paperless work system.

*Technology summary.* Technology supports and affordances for the participants in this study were widely available, and dependable. The hardware and software, which continues to develop and evolve over time, largely supports them doing their work successfully as part of work teams and other extended networks within their organizations. While these platforms afford a wide range of resources for working among the most important being ability to jointly share documents, easily identify availability, and be able to depend on communication assess to and responses from coworkers. Finally, within the organizations of most of the participants they feel coworkers are techno-literate so that using these platforms to communicate is easy and successful.

## **Time**

As a descriptor in telework, time is considered in two ways. First, time is used as a quantitative measure, of the time spent in an organizational space and the time spent outside of it. This measure has typically been in days per week, occasionally, days per month, as that is often how telework arrangements are formally structured. However, this was not the case for the participants in this study. A second use of time is as the delineator of regular work hours versus “after hours work.” Generally, a worker is only considered a teleworker when they are working regular work hours at home, and not considered to be teleworking when they bring work home to finish at the end of a day (US OPM, 2011). Participants in this study worked their regular work hours at home. Because of workloads and global workforces, many worked non-regular business hours at home, however this issue was often treated differently.

**The time parameter.** Only two participants in this study attempted to put a time scale on the frequency of their time in the office, both presented it as an approximation. McCoy indicated “I do travel about every four to six weeks to our main office.” Messer discussed going into the office about once a month. So, while several participants could identify approximate time steps for going into the office, it was not the driver for why they went into the office, as it might be for part-time teleworkers. The driver for most of these workers to go to “the office” was specific business needs.

**Lack of commute increases work time?** Claims have been made that teleworkers work more hours (Noonan & Glass, 2012). Ninassi seemed to support this, stating “I personally am probably a hundred percent more efficient. And, they get so many more hours without paying everyone; I am so thankful to not have to get in the car or the subway and commute.” Ferguson also believes that he and other teleworkers in his organization work longer hours:

I think working remotely has helped because everybody works longer hours than when they had to go into the office. So, I think companies to some degree, have been able to take advantage of that. The old days of everybody sitting around the lunch table, and having an hour-long lunch break or half-hour break and discussing things outside of work, that is gone. I mean I sit here with my sandwich and work and eat. Breakfast time, I sit here, and eat and work.

However, Augustin suggested some of this time was used for her personal life, “I love to run, it does not impact my work, but if I had to go into the office every morning, it might, right? It would be a lot more difficult.” However, most of the participants did suggest that they work more than forty-hours a week, but they also suggested that the extra hours are a result of smaller staff doing the same or more work. Augustin told me “We are beyond the point of being

slammed. We have an ungodly amount of work for the people that we have and we keep getting squeezed.” She continued:

We never have head count to hire anybody else, so at times I will have people escalate me because my guys are not working on their deals quick enough, and I just look at them and I go “you know what? I have a queue for escalations, escalate me; there is nothing I can humanly possibly do, you are just going to have to wait.”

Several had worked these into their workday routine. Ninassi said, “we start early, we work through lunch, but I do not typically work past, it is very rare to have a call that goes until 6 PM. Now, that does not mean that I do not email, etcetera in the evening.” Yet, participants also cited other reasons for longer hours. McCoy, Augustin, and Ninassi discussed regularly talking with people in different parts of the country and the world, and that it impacted them needing to talk to people outside their normal business hours, and sometimes out of the other person’s business hours. Augustin told this story:

I try to get it on early, because I have my guy in Europe. So, when I get on at 5 am it is already eleven o’clock for him. So I try to check in, I do not check-in all the time because I am not micromanaging, but if I need something from him, like, we had a huge escalation the other day, my boss, my boss’ boss, everybody was wiggling out and I could not get a hold of him because it was late in our day. So, I said “Do not worry”; so I got up at three am and as soon as he logged on I saw him and I said “Hi, we need you to do this right away.

**Time summary.** Time out of the office is a parameter that is often used to describe telework. For these full-time teleworkers the standard of hours per week or hours per month is

not a foundation for determining where or how they work. Additional detail is required in order to make time measures valuable in understanding this very intensive teleworking. In terms of the number of hours worked, it is also worth understanding impacts beyond or instead of working at home that might be causing teleworker to work more hours.

### **Chapter Summary**

This study looked at three of the four parameters of telework. While in the past, these parameters were used to identify the teleworker in isolation, these participants were aware of the ways in which each of these parameters enabled their interaction with coworkers. Their home workspaces, where their places of business that had to be isolated physically and acoustically from home activities in order to support their concentrated and uninterrupted interaction with coworkers. All indicated they did not need shared space to get their work done, however they all valued the ability to meet with coworkers face-to-face, particularly to eat or drink together. ICTs are now the shared connection that these workers had consistently with their coworkers, because these ICTs are ubiquitous in their organizations. This made ICT mediated communication a normal way of doing business. In addition, most participants had multiple communication options, and could easily identify for what and why different ICTs' perceived affordances were valuable. Finally, Time for work that was shared was something the five participants who worked across time zones were aware of. This influenced their work in three ways, they were aware of the shared work hours they had with coworkers, they were aware of when they were extending beyond the shared work hours and modified the way they interacted to respect that (this could be a delay in communication, or a change in mode of communication), and if the time difference was substantial then it modified the primary means of communication, possibly moving away from synchronous ICTs to asynchronous ones. All of these parameters play a role

in participants' involvement in their organizations, specifically work teams. Much telework research has focused on these parameters as factors that were relevant to the teleworker in isolation, they need to be considered as part of the workers sociotechnical system as well.

### **Full-Time Telework Defined.**

A “full-time teleworker” is a term used by organizations and workers to identify a category of workers. However, there is little description in the literature of what specifically we know about how the various parameters discussed above are engaged in by full-time teleworkers, and how this is different or similar to other ways of working. To know where studies on this type of worker might help inform future research on teleworkers or any of the many other categories of people connecting to their work primarily through ICTs, we need a better understanding of these engagements. Additionally, understanding why these extreme teleworkers use shared spaces for work may help us understand what uses these spaces are most valuable for. So, this section will examine how these full-time teleworkers engage with these parameters to work in this way.

**Time in place and full-time telework.** On the surface, the description “full-time telework” might seem to describe an intertwining of the three discussed parameters of telework that looks like the following: full-time teleworkers spend all of their time working in a place outside of organizational workplaces that are shared with their coworkers; this way of working is enabled through the use of ICTs. This definition arises from the typical time allocation of places of work of the more numerous part-time teleworkers, whose work locations are often determined by days per week or less often days per month. However, this definition is not readily applicable to how the participants in the study actually work. Additionally, is it inadequate to understanding how they do it successfully.

***Time in shared workplace.*** All of the participants of this study spend some time in at least one company office. However, while two participants estimated a frequency of their office visits, none of them determined their office visits via any time pattern. McCoy, who suggested approximate regular time steps for visiting the office, described the work-related purposes for going to the office as the driver of her visits rather than a calendar routine. She indicated going to the headquarters office “about every four to six weeks” but also said

My director does want me to coordinate it to be there if he has an all hands meeting, or sometimes we have to do quarterly reviews with the executives. He pretty much leaves it up to me, although I usually ask him, “when is your next big event?” so I can try to coordinate something.

Three other participants--Ferguson, Augustin, and McCown -- did not indicate flexibility in their office visits, nor did they suggest a regular timing of such trips, but they did describe business purposes, most often meetings, driving these trips. Ninassi indicated she only went to the office for technology support. Messer, the youngest participant, was alone in indicating she used being in town for family events about once a month, for also visiting the office, having been told “if you are around, come into the office”. She indicated the company would not cover cost of travel or a place to stay, “so I will kill two birds with one stone and go home and see my parents, and stop in the office.” However, when she is there she takes advantage to develop new or strengthen existing relationships. However, while the time in the shared workplace might not be a large part of their work time or even a regular time pattern, all but one participant saw it as important. If researchers evaluate time spent in the office as strictly quantitatively connected to

its significance for workers, these workers suggest it might be missing a resource they see as important.<sup>6</sup>

*Locating work in-office is important.* While most of these workers believed that they can do their job successfully without going to the office, they also indicate this time is important for accomplishing a wide range of activities and accessing opportunities they do not get working from home. Augustin insisted:

Alright, the way I look at is telework is really no different than working in the office, but you have to work harder at the social interactions. So, you work at trying to put that together in a different way. For example, water cooler chat, you are not all physically in the same place, so you cannot go to the water cooler and have a water cooler chat, or you cannot pop into somebody's office, but the reality is, you really can, and you just have to do it in a different way. You can pop into somebody's office in the way of an instant message, in the way of phone call. You can do water cooler chat where you can schedule a quick call with the three people that you would have met at the water cooler that you were interested in talking to. Now, is the same? No, but is it ninety percent the same? Yes.

However, she later went on to say:

Yes, one of the things that we used to do, is we used to do annual or twice a year meetings, where everybody would come into a location. And, we would do physical team building activities, and then we would have a big meeting, and we would share information and everybody would get to see each other, and bond

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<sup>6</sup> Ellen Keable, from her time at BOSTI suggested a similar idea to me when I worked for her. In their work time spent at ones desk was more important to workers processes than the time allocation would suggest.



and meet and then you go off and do your job for the rest of the year. But, it gives you that kind of bond that is hard to achieve sometimes. We do not do that anymore, because we do not have the funding. And, I am trying to actually put together one for this year, and find out what is the most cost effective way to do it. We have a lot of people in our organization, and it is expensive but it is very valuable. You know in that sense, it really, really helps. It does not have to be all the time, once a year is even better than nothing.

Most of the participants described things that they did in the office more effectively or that they could not do at home; however, they strongly believed these opportunities to work face-to-face were enhancements, not essentials. While for many scheduled office visits occurred because of formal work activities, such as meetings or training, they also regularly tried to use this time for bonding, or serious conversations, where they felt face-to-face interaction was helpful. So as a parameter for describing full-time telework, time as a proxy for location of work is not a defining element of this way of working. However, having time in the office as a resource appears to be important.

**Technology.** Use of ICTs to communicate is an essential part of the description of telework. The participants in this study were no exception. However, these participants were also successful because the technologies they were using were routinely used by all organizational members as ways to interact. For most of the participants, working with a nationally or globally distributed workforce, both in and out of organizational locations, is routine, making ICTs necessary to accomplish work, not just for them but for all workers. While McCown's organization was the exception to this, his experience highlighted the importance of this issue. McCown described his ability to work with coworkers as improving when other

attorneys could telework, as they came to understand the importance of communication that was not face-to-face. Finally, other than McCown, the participants worked in organizations where they indicated that the technology literacy of their coworkers was a given, so that the ability to take advantage of the technology platforms they have is ubiquitous.

**Location.** All of the participants are assigned by their organizations a place of work that is their home. While many do work at times in organizationally shared workplaces, they do not have assigned, dedicated workspaces in those locations. While the parameters for defining telework often extend beyond the home to include coworking centers, organizationally owned telework centers or mobile work, this study did not include teleworkers in any of these locations.

Full-time teleworkers are thus those that are NOT assigned as their sole workplace an organizationally owned space in which they are co-located with coworkers. However, as these participants show, their time in organizational space differ dramatically, as does their access to which organizational spaces they can go to and for what purposes. Technology resources are largely dependent on organizational decisions, and the participants' ability to use them effectively are dependent on their coworkers' adoption of these various technologies in their routine work-life.

**Definition.** After examining how the participants engaged the parameters of telework as described by previous researchers (Montreuil & Lippel, 2003; Weijers, Meijer, Spoelman, 1992) full-time telework can be defined as a way of working where workers are assigned a routine location of work that is not in an organizational space shared with coworkers and requires the use of ICTs to interface with others in the organization to complete their work. I would also recommend identifying as a separate category that of the "full-time at-home teleworker", to

further distinguish these workers from workers in organizational telework centers, mobile workers, workers working in cowork centers, and workers working at client sites.

## **Chapter 6: Informal Communication of Full-Time Teleworkers**

Informal work communication is recognized as being a significant problem for those working through information and communication technologies without the advantage of shared physical work environments (Jeong, Choi, & Kim, 2014; Kraut, Fish, Root, & Chalfonte, 1990; Whittaker, Frohlick, & Daly-Jones, 1994). This research asks the question as to if and how full-time teleworkers are accomplishing informal communication, and if and when they believe being in an organizational space working face-to-face is important. The research approach to this question was to talk with participants about activities that researchers have identified as being supported by informal communication: bonding (Kraut, Fish, Root, & Chalfonte, 1990; Nardi, Whittaker, & Bradner, 2000), learning (Nardi, Whittaker, & Bradner, 2000), shared understanding of processes and procedures, and adopting and adapting processes and procedures (Fish, Kraut, Root, & Rice, 1992; Isaacs, Whittaker, Frohlich, & O'Conaill, 1997). Among those categories the processes involved with developing a shared understanding and adapting processes and procedures are types of learning. Therefore this chapter will present how participants used informal communication to accomplish bonding and learning.

### **Bonding**

In addition to talking about how they accomplish bonding participants also discussed the importance of bonding, and the ways telework parameters enabled bonding. This section will start by looking at why participants felt bonding was important, then look at the roles of time, technology and place in bonding. I will conclude with what emerged from participants' discussions of how they accomplish bonding as full-time teleworkers

**Importance of bonding.** Participants recognized and discussed the need for and importance of developing relationships. These reasons included having contacts to find out about internal job opportunities, and having support when needed. Augustin explained why it was important to maintain these relationships saying, “you cannot just call people up three years latter and say ‘I need you to do this.’ That is the kind of stuff that you just need to keep in touch for.” She added latter “It is also good to keep your relationships in different parts of the company because you never know what is going to happen, or when you want people all over.” McCoy even discussed having people located in headquarters go into large meetings she was not physically present for to let her know the facial expressions of key stakeholders.

**The role of time in bonding.** Time played a role in bonding in the typical telework parameter of time spent physically together, in a way that participants described as important but not essential. More importantly, participants discussed time for bonding as duration of time spent working together both physically and virtually. Most of the participants were very conscious about maintaining and building relationships and used any work interaction they could to accomplish this. This was particularly evident with this group of participants as most of them have been with their organizations for many years, and several had even longer relationships with close coworkers due to acquisition of their units from other companies. The duration of these interactions, even where it was always mediated, they believed was essential for their ability to bond with coworkers. Ninassi and several others discussed how long-term interaction with the same people contributed to close relationships that were built of accumulated knowledge of one another over time. She provided an example:

Having been essentially in the same organization and the same job since 1995, so for twenty years, a number of people I work with have been around that long or

almost as long. I was one of the people that they sent down as the advanced guard to [city name in the same time zone, 2.5 hours flight time away] when Worksyn bought [Company X]. So during February to maybe December of 1999 I probably went to [city name] 68 times. So I have met those people, I do know what they look like, we did develop a relationship over that intense period of time; that is all I was doing. That was my time marrying the job. So, I am just trying to say that because I have been in place for so many years, I do have pretty close personal relationships to people. I am not sure it had to do with face-to-face meetings. I have known people, “Oh you had a baby,” and now “oh, they were just accepted to collage”. You know what I mean?

Later I asked her if having bonded first in a face-to-face environment made a difference in the quality of the relationship, she indicated:

For me, I would have to say no. And, only because I think it has more to do with us working together over the years, building that kind of working relationship that we can depend on each other. It is more the working relationship. I will give you an example, I have the same sort of relationship with my counterparts in Europe, [living in two countries]; I have never met them and I feel I have the same kind of interpersonal relationship as with the people in [city name] that I have met. So, I do not think it matters for me. I think it is more the years and working together and people, the kind of work they do, supporting each other, being on the same side, being on the same team, all working through difficult issues, and just developing that relationship over the years, that really counts.

Augustin, whose organization has had many rounds of layoffs, indicated, “I have become friends and socialized with a lot of the people I have worked with. It is like when you go to war with somebody and then you come out, you are best buddies because you have been traumatized together.”

*New relationships.* All the participants indicated having to interface with new people, although most indicated it was not that often. These new relationships were most often with people that were dispersed in other parts of their organizations, but occasionally were with people in their close team circle. They also had a range of organizational relationships: employees, contractors, interns, and volunteers. Participants took the same approach to communication with these new people in terms of bonding as they had with others, with the attitude that time and doing their job well would build relationships. Of the participants McCown was the one who predictably had to bond with new volunteers at least once a year. He meets with the volunteers that work directly with him when they start, “I try, in fact when a new member comes on board, I make it a point to call them and introduce myself, if they are close by go meet them for lunch or what have you and just explain the process in general.” Beyond this his responses in this area reflect not only longer-term thinking about developing relationships but also the practicality of this, given today’s work pressures. He discussed balancing respecting volunteers time and using time around conversations to develop relationships, stating:

I have been able to maintain a social relationship by encouraging them to call me with questions that they might have about some questionable conduct that they have seen, from some attorney or whatever, and encourage them to be very active in that regard. And I will send them an email, “I thank you for your service. This is what we have been doing over the year, keep up the good work”, blah, blah,

blah. Other than that, they expect to hear from me every three months, if there is a case. I have that bubbly personality where I can generally soften up somebody very quickly, find some commonality there to have a conversation with them, even if it is talking about the weather in their particular neighborhood. They understand that. And most of these people are very busy professionals anyway, so they do not want to spend a whole lot of time chatting you up.

**Technology and bonding.** Another key aspect of the way in which bonding was being accomplished was the ubiquity of technology, electronic documentation, and accessibility to electronic data through cloud storage across each participant's entire organization. Normal interaction for workers—teleworkers, mobile workers, distributed workers, people not near each other, and all those working with them-- is through mediated platforms. McCoy provided an example:

A lot of times, when I am in [corporate headquarters], it is spread out over five miles; there are thirty buildings. So, if we are going to be having a meeting, we may have three or four of us huddled in one room and then there could be other people in all different buildings. So, even when I am there, it is not like we all travel to the same place. Even though we might set up a meeting room, not everybody will go to the meeting room, because they are in back-to-back meetings and they do not have time to, so they are going to sit in their building and take it like you and I are doing right now.

As so many of the participants work in organizations that have offices and workers in many locations, having the ability, and then the expectation that mediated communication is going to be used, means these teleworkers have a much wider range of people to bond with virtually.



**Location.** Participants in this study did not feel that their home work environment was important for bonding, largely because other than McCoy, they do not use video interaction when communicating with others. They also felt that they were able to bond through mediated communication and be successful and had a variety of feelings about face-to-face time for bonding.

*The importance of shared physical workplace for bonding.* Five of the six participants spent ‘meaningful’ time in the office. By meaningful I mean it is time that is important to accomplishing their job. Ninassi, the one who does not indicate she visits the office for technology support. The time in the office, for four of these participants was determined by organizational activities that they needed to participate in. For four of the participants, time in the office was consciously used for bonding activities. Some, like McCown found this time essential, others like Augustin found this time beneficial but not essential, and Ninassi felt there was very minimal benefit to in-office face-to-face interaction.

Participants come to the office for a range of activities including: meetings, reporting, training others, and their organization’s social activities. “The office” in terms of who was there, also impacted the amount of bonding activity that is done. Ninassi and Ferguson both discussed going to their local offices—Ninassi for technology support and Ferguson to train others. This time was not used for bonding; Ninassi stated “in all honesty when I am required to go to the office, usually to do with hardware or something like that, there is nobody there. There is certainly nobody that I work with there.” And while Ferguson knows people there he said, “now it has gotten to the point where when you do go into the office you start to get a little annoyed, even though you are glad to see some of these people who you have not seen, and have to say ‘hey, I am busy.’” However, when participants get to an office where there are people it is

beneficial to interact with, often not the office closest to them, they use as much time as they can find to interact with people. Participants described interacting with bosses, mentors, coworkers, subordinates, and people doing similar roles but that they do not work with. They use time before the day, during the day, at lunch, and after work. McCoy describes time before work bonding saying “somebody is in early, and we will just say, ‘let’s walk over to the other building and grab a coffee and sit and have a chat.’” She and Messer both described using lunch to have time with those they work with, McCoy said, “I will always ask for a team lunch, we will all go to lunch. You cannot do that remotely, right?” Messer described having lunch with a boss and team member, potential mentors, and other coworkers. Augustin stated “when I do travel to headquarters, for example, I do make it a point to go either meet or visit the people that I either work with, interface with, or that I need to know, so that there is that one-on-one, face-to-face. Because it does help once you are remote again.” She also suggested that there are some people that you must bond with in a face-to-face setting, remembering this story:

I will give you a classic example, I had to work with this guy, who was a peer of my boss, so he was not directly my boss, but a peer of my boss. He was a level above me, and he would not answer my IM half of the time, and then he kind of did, and it was this whole thing like I was beneath him, like ‘do not bug me.’ I kept trying and trying, so, finally when I went to [headquarters] I made a point to go meet him in person. “Hey how are you doing? I am Maria.” And you know what, he is a great guy, we hit it off, we had a great conversation. Then when I came back home and I contacted him for something he, “hey, how are you doing? Yes sure, no problem.” So, it did take that personal contact. Now, not everybody

is like that, but some people are. So I do make sure that I reserve at least a half a day when I am in [headquarters] just to walk the floors and do that.

McCown was very much the same, indicating he made sure to touch base with people throughout their smaller organization, so that he would have contacts throughout.

Another important opportunity to bond emerges around regular meetings of work groups and large business units. McCoy believes that face-to-face meetings provide opportunities for bonding in a way you do not get remotely, she said:

There is nothing like being in that same room, having a group meeting, having an all hands meeting, where everybody is in the same location, and they are interacting informally. They might be in a presentation and then there is break time and then everybody is going to get a coffee, or they are going to go to dinner or after the big meeting. It is those relationships at a deeper level that you cannot get on the phone.

These group meetings are something many participants felt are important, however for some they indicated they are a thing of the past, and something that they believe removes important bonding opportunities. Ferguson talked about not having been included in the company sales meeting for the last three years and not getting to meet the front line sales people in his new region, he said:

We have an annual sales conference, it is in [city]; our group has been cut out of it the last three years. I actually just picked up supporting Asia-Pacific four years ago, so some of these folks I have not had the opportunity to meet face-to-face, which is interesting because all the other sales people, most of them I have known for years. So, from that aspect it does get a little frustrating, especially given that it is a great

opportunity to build some outside of work relationships with these people over a cup of sake, if you can, after dinner.

McCown explained they used to be able to invest more in bonding with volunteers:

Speaking of the volunteers, we used to have money in our budget to hold a luncheon once a year because we do not often have a full district committee hearing. Sometimes we go a year, two, or three years before there is the opportunity for everyone to interact in one place. Our job was to convene them in one place and have a big lunch and pay for it. Now we have stopped doing that.

Augustin discussed the reason these meetings have been eliminated, saying:

One of the things that we used to do, is we used to do annual or twice a year meetings, where everybody would come into a location. And we would do physical team building activities, and then we would have a big meeting, and we would share information and everybody would get to see each other, and bond and meet, and then you go off and do your job for the rest of the year. But it gives you that kind of bond that is hard to achieve sometimes. We do not do that anymore, because we do not have the funding. And I am trying to actually put together one for this year and find out what is the most cost effective way to do it. We have a lot of people in our organization and it is expensive but it is very valuable. You know in that sense, it really, really helps. It does not have to be all the time, once a year is even better than nothing. But, it is not a reality any more.

For those that had at some point worked in an office or at least spent a good bit of time visiting an office they acknowledged that they might have a closer relationship with people they had

worked together with in a physical space. Ninassi stated, “I have no problem getting to know people remotely, maybe because I have been doing it for such a long time. Just knowing how somebody looks, I do not think really influences that relationship much. I mean maybe it is a little beneficial, I am a little bit closer to the people I have met over time.” However, the feeling Augustin expressed was expressed by a number of participants, when she said about having face-to-face interaction:

Yes, there is that component that is necessary. It is not necessary to do your job, and it is not necessary every day. But it really, really helps you when you go back. So even if you meet new people that you are working with, you have met them personally, and had a drink or dinner where you were able to chat about your families.

***Other shared physical space for bonding.*** Often, but not always, emerging from the time they spent together at meetings participants spent time eating or drinking together at restaurants and bars. This however, was not always with people they were there to meet with. Ninassi discussed having lunch with people several times a year, when they were in the area she lives in, for other reasons. She also indicated she was able to spend time with people she works with at professional meetings. The most interesting of these other spaces emerged when Augustin discussed spending time with current or past coworkers while on vacation with her family. She discussed meeting one former coworker on the ski slopes the coworker lived near. Another time going to a former coworkers home for dinner with her family. Because she has done this, she has also had coworkers and their families to her home for dinner when they are visiting her area on a holiday.

**How bonding is accomplished remotely.** There were three ways that bonding activities emerged in the work lives of participants. First and most common, was bonding connected to more formal work activities. This happened around the edges and underneath group communication, and before, during or after one-on-one activities. Important to this activity is the listing of participants' names on web-meeting platform's desktop page as they join meetings; this makes it possible to immediately identify who is available to communicate with. Second, participants make time and put effort into connecting with coworkers. This often happened around non-work events, such as holidays, vacations, illness, or family events. Third, maintaining connections through passing across each other's radar screens periodically. This activity, from participants' descriptions, appears to primarily maintain a circle of weak ties. All three of these activities happen extensively through mediated connections, while four of the participants talk about investing time in face-to-face interactions of the second category when they visit the office.

*Around work activities.* Participants talked a lot about brief conversations of a personal nature that happened around, and for one participant within, work activities that involved mediated communication. This happened around both group and one-on-one interaction. However, several participants indicated that the group interactions around which this occurred were with smaller groups and did not happen when there were meetings with large numbers of people participating.

*Around mediated group meetings.* Five of the six participants talked about bonding at the beginning or end of mediated meetings. This could be described as the time while people were getting onto or leaving a web meeting or conference call. Ferguson wrote:

While waiting on two other participants to join the call, I had an informal conversation with the sales VP. Both of us were returning from a week's vacation. It turned out we had both spent time with extended family. We discussed the importance of family time, the difficulties of being away from the office for an extended period, and especially how hard it is getting 'back in the saddle'. This was a brief 4-5 minute conversation, but good (and rare) relationship building time before others joined the call.

Alternatively, it could be while people were wrapping up the call. Messer indicated "The past few weeks every Thursday everyone has been like, 'is it Friday yet?' I do not know if it has to do with the warm weather or just bad weeks, but just more kind of one off comments like that that people will say towards the end of a meeting towards the end of the week." Two participants discussed this as an infrequent activity, while three discussed this in a way that suggested it was a routine occurrence. Though she provided several examples of this Messer indicated that these conversations were not usual, "people try to get the meeting started as quick as possible so they can get off as quick as possible." Ninassi, who found this more routine provided an example of how these interactions would happen saying:

These pre-call teams have five or six people regularly on the call. But you just get to know someone, "I am sorry my mother-in-law passed away," "I had a heart attack." You tell people a certain amount and then you can personally reach out or talk about these things for two minutes on a call. People are mostly interested, or else at least sympathetic enough to give that time.

She also provided examples of how coworkers remembered and followed up on these interactions over a series of calls.

I have a call with my counterparts in Europe every Friday that is a structured call. There are three of us and we have been meeting for a number of years. So, over time somebody says, “oh, I will not be on the call next week, I am going on vacation.”

And, I will ask, “Oh, where are you going?”

And, they will say, “Oh, I am going to blah, blah.”

“Oh, that is cool, anything special?”

“Oh, my three daughters are swimmers and it is for a national contest.”

And, so now I know that he has three daughters and, they are competitive swimmers, so, the next time he comes back, I ask, “how did the swim meet go?”

Ninassi continued with the conversation from when they returned and told everyone:

“Oh, she won a gold medal!”

And, you are on a call but you will take the time out, and say, “Oh, do you have a picture, why not you put it up.” Because we are on a web meeting and we can all see a picture of the twelve year-old who won the gold medal. And it just opens up more interpersonal informal discussion. Sort of the kind of thing you would have talked about over the water cooler back in the day, or at lunch.

Messer and Augustin also discussed that once in a while they would see pictures from someone else in this way. This is possible as the web meeting platforms five of the participants use allows interactive document sharing. However, the video capability where they could see each other while communicating the web meeting provides is only used by one of the five. Ninassi, who does not use it, told me “I never found that of any necessity, to actually look at a talking head.”



McCoy was the only person who did not talk about bonding during web meetings. Her bonding activity focused on instant messaging and face-to-face interaction. However, she also reported heavy use of web meetings for interaction with very senior people in her organization with whom she indicated she would lean away from less formal communication.

*Underneath mediated group meetings.* Another form of bonding that occurs around meetings is interaction underneath the meeting with other people that are in the meeting. Technology affords this possibility as the desktop screen for the web meetings provides a list of participants as they get on the call. Augustin said: “

I will be on a call, a [web meeting presentation] for example, and you can see the list of people that are participating on the call. If I see a name that I think “oh, wow, I have not talked to that person in a million years,” on the [web meeting] I can send a quick message, “hey, how are you? Great to hear your voice.”

Participants also interfaced with people they were comfortable with within the meeting and outside of it. McCoy indicated:

If it gets to a part of a meeting where it does not pertain to me, I might even instant message during a meeting. If I am in the same meeting with somebody, we could instant message if somebody else is presenting something new to me, and say, “hey, I did not know that, were you aware of that?” That I do multiple times a day.

However, McCoy was clear that instant messaging was a less formal way of communicating that required a closer relationship, saying:

It would most likely be peers or somebody in the same meeting with me, where something resonates between the two of us. It would definitely be my team members, and then it would definitely be my boss, he does that a lot. I can tell you the ones it would be less frequent with, it would not be a VP that I do not have a relationship with. That would be unusual, for me to do that, unless they were to initiate it, to say “Hey, Ellen do you know about that?” I would not typically reach out to a VP where I do not have a relationship and say, “Hey, this is what is going on here.” I would not do that.

Messer made a similar distinction indicating “I mostly just IM people who I know better, who are more comfortable with it, I suppose, who I have interacted with before.”

*One-on-one mediated synchronous interaction.* As with the group interaction one-on-one mediated synchronous interaction might occur at the beginning or ending of a conversation on web meeting or telephone call. However, Messer also discussed this as a waiting activity during ongoing work, stating:

I mentioned working with one specific coworker a lot where we were helping each other working together on a project so we would be doing programming and then running it and checking it and while the program was actually running we would talk about other things. And so with her specifically, and conversations or calls that are like that where we are actively working on something, if there is ever downtime in the process of what we are doing we might go off topic and talk about non-work related items.

*Showing support and interest virtually.* Several of the participants, particularly the two who see themselves as people persons, reach out solely to show support or interest. Participants

described reaching out for holidays, something someone should know, and for issues in the other person's lives. This was accomplished synchronously and asynchronously using telephone, instant messages, and email. Augustin talked about contacting people for the holidays, and how she contacted different people, saying:

It depends. I did a lot of instant messaging; actually I think it happened to be the beginning of the year, if I remember correctly, right. So, there is always a good in to say, 'Hey, Happy New Year' right? You want to say that to everybody. So, if there are some people you have not talked to, you know how I always make a point of reaching out to people, sporadically or every quarter or something, so that gives me a good in. And then there are some people that I work with all the time, that instead of saying "good morning", you are like "Hey, Happy New Year, did you have a good time? We were off for two weeks. How is the family? How did your daughter do in her softball team?" Because, you know them that well. So you will send little snippets. And then other people, it is a longer conversation, like my friend [name], we had to catch up on a bunch of stuff, so he asked 'when can you talk?' and I said, 'I can talk in twenty minutes.' And so then we got on the phone and talked for an hour. So it just depends.

She continued to describe when she would email:

Email would be a little more formal. It would be, for example, the president of [another company], it is the New Year, it is a great chance for me to reach out, so I am present in his eyes, but I am not going to instant message him and send him a text. I am not going to call him directly because he probably is never going to

answer. So I can send him an email, “Hey, Happy New Year. Hope you had a great time.” Here I am, hi do not forget me, that kind of thing.

She also discussed reaching out to people she knows going through life challenges giving examples of reaching out to a former employee who is a widower raising a daughter, and a former boss who had lost his 24 year-old son to cancer. McCown wrote about finding out what he needs to know from a coworker:

I am able to obtain the ‘water cooler’ information that a teleworker inherently is not privy to, as she has cultivated a relationship with the other women in the [headquarters] office. She is considerate of me and will call me if there is any information I may need to be aware of, which serves to create a teleworker relationship.

Ferguson mentioned using instant messaging for one-on-one interaction that is purely social. He wrote:

Use of IM is also very common for purely social interaction. Instant messaging elicits a much more immediate response versus email and allows both sides to continue working, while periodically responding to one another (versus phone calls for example.) This particular exchange morphed into a back and forth with an inside sales representative (located in [another city one time zone different]) about music and our favorite bands/concerts over the years. This back and forth lasted for a couple of hours.

***Just barely staying connected virtually.*** Several people use social media, external and internal to maintain business relationships. Augustin and Ferguson, both use LinkedIn and were

both in agreement that Facebook was not a good direction for business relationships. Augustin said:

Facebook, I really try not to be Facebook friends with the people I work with, currently. There are some old coworkers that are really good friends now, that we do not work together anymore and yes, I have no problem Facebooking them, but I won't have anybody on my team or my boss, no.

LinkedIn however, becomes particularly important for maintaining relationships with people who have left the company. Ferguson discussed:

LinkedIn, just because you never know in the work environment of today when you are going to need reach out to somebody there. And it is also nice to keep up and see where they are and what they are doing. I use that more with the people that are more ex work colleagues. There are other people that I used to work with, my old boss as a matter-of-fact, that I keep up with on a regular basis.

While Augustin will also use it as a way to initiate contact, she said:

There is one Vice President that I worked for, that left WorkSyn a while ago and I do not even remember where he is now, but we will hook up through LinkedIn a couple of times, "Hey how are you doing? Is everything ok? Hey, can you talk?" or "No I cannot, I am traveling." "Oh, Ok well let us talk next week."

**Bonding summary.** Full-time teleworkers are bonding successfully through ICTs, but also are choosing to supplement this activity with face-to-face interactions when possible. Important to their ability to do this is the time before, after, and occasionally during meetings, much as it would be in a more traditional face-to-face

setting. Teleworkers also layer informal communication under meetings, again this is also done in face-to-face situations; the difference doing this layering virtually, is that this activity goes unseen by others in the meeting. Communicating for social reasons and personal support is an important way to maintain connections, and is made easier for people with ready lines of communication waiting to be used. Finally, LinkedIn was used by several participants as a way of maintaining a loose tie with former coworkers. Time, technology and place all play a role in full-time teleworkers ability to bond with coworkers. However, time in particular, is important in a different way than what had traditionally demarked types of telework; workers felt that longer time periods of limited amounts of bonding activities provided strong relationships.

## **Learning**

In this section, I will discuss how participants in this study made sense of their use of informal communication for learning. Additionally, I will discuss how informal communication can initiate a process leading to organizational learning. I will conclude with a summary of what participants said the role of shared workplace they find ideal for learning.

**Discussion of levels of learning.** Crossan, Lane, and White's (1999) article on organizational learning presents levels of learning in a way that leaves open room for examining the use of informal communication in both individual and group learning. In this study the majority of what participants discussed was group learning, however, one also discussed individual learning. Additionally, many also discussed how informal communication can initiate the process of creating organizational learning.

**Individual.** Messer, the participant with the shortest tenure in her organization and role discussed experiencing implicit learning:

I talked to my boss and there must have been something I noticed that looked weird with the data. So, we were talking about it and looking at it, and then we realized we needed to talk to the woman who did a lot of the programming, who I mentioned before. So, we got a meeting on the schedule and talked about it, but through that project specifically, I got a lot of learning and tips and training on SAS. So both, at the same time, we were asking questions of her for how we are doing things, if we are doing them the right way. We were noticing some thing going wrong, something not opening right. So, she would then explain what the code she wrote was doing, and we would say, “ok, no we need it to do this.” And, then there was an active meeting so we were watching her change the program and the coding so that it ended up being a learning experience as well.

So, in the process of trying to fix a problem (group learning—shared understanding and changing a process) she ended up learn more about coding. This communication is also an example of the fuzziness of the line between formal and informal communication. This is a discussion about ongoing work, within the formal structure of work, which would suggest formal communication. However, the spontaneity of the secondary interaction, pulling in an unplanned participant for just-in-time information makes this part of the conversation informal communication. Messer, watches a process on a shared screen, and in addition to solving a particular problem, realizes something about the platform she works with she did not previously know. During an experience she intuitively learns (Crossan, Lane, & White, 1999). As Crossan, Lane, and White (1999) state, “[w]hen actions take place in concert with other members of a workgroup, the interpreting process quite naturally blends into the integrating process. Integrating entails the development of shared understanding” (p. 525).

**Group.** As many of the participants have many years of experience at their job, they more readily recognized the need to support learning opportunities for others. They also tended to be in roles that were very structured, technical roles, where they are given a problem to solve within the existing organizational systems; that is most of what they discussed was single loop learning. Participants discussed group learning with two purposes: first, to develop a shared understanding; and second, to mutually adjust the work they were doing with other, during the process of getting work accomplished.

*Shared understanding.* This was particularly prominent when any of the participants had a new employee or new person in a role, where the person would need to share understanding of the thinking, processes and procedures of the group they were going to be working with. While Ferguson discussed there having been formal training for this in the past, it no longer provided. So, many of the participants, who took on the responsibility for this were in the position of having to, as the particular need arose, teach new group members. McCoy discussed one way she might approach teaching someone who had just joined her team:

Let us say it is a one-on-one, because I am trying to share something with somebody who is just joined the team, and then what I would do is, I will just show you. So, I would go on [indicating the web meeting we are on] and I would say, “ok, I need to show you how to do,” you can see we have whiteboard, I can go in a white board with you and write on a white board. Or, I can go in and say, “well let us go take a look.” I will just share something with you, [she puts a visual on the web meeting screen,] really quick, and [the web meeting `screen comes up showing our images small to the right and three buttons – “connect to audio”, “share application”, and “invite and remind copy meeting list”] this is



something I can share, and say, [she opens a PowerPoint document], ok, this is something you need to know about.” [She moves to the next slide,] “here is who,” [next slide] “these are the things we are talking about,” [next slide] “here are the key people on this team,” and then I could go into more detail and show where the links are to get into the documents. And, we could have this type of a session. And, [closes PowerPoint and I get a grey screen,] I could say, “Ok, you can find this document in this location.” I can give them the URL and then what I would do is I would go on my instant message and ping the link to them and say, “Ok, go here and open that and do what I am doing.” Oh, and you cannot see the desk part. [her desktop shows generic library headings]. I could say, ”Ok, let us go into doc storage location. I want you to go here,” and I would just click them through, I would ping them the location on our instant messaging, and then they would open that location. And then, if I am showing them, they could do that on their end.

Several participants also recognized that these workers would likely have ongoing questions, and need someone available to “tap on the shoulder” to ask questions. With workers remote from one another assigning a more experienced worker to be available for electronic “taps on the shoulder” was one way of enabling development of shared understanding in the process of trying out a new role over a period of time. Augustin talked about assigning an experienced employee to an employee who had been away for an extended period:

Augustin: I just had a lady I brought on the team to write some of my contracts and things like that, though she had worked for WorkSyn twelve years ago for and decided to take a little leave after she had her baby; she was looking to come

back. And she is a lawyer, has her law degree and everything, and she came back and I had somebody assigned to her one-on-one to bring her up to speed, teach her.

She was in [the south central US] and he was in [the south, in another state].

Gobes-Ryan: I was getting to that question next. They were not physically together, they were doing that through phone calls, web meetings?

Augustin: Yes, instant messages, the whole nine yards. She came up to speed, and wrote her first contract in two days.

McCown, also needed to get volunteers up to speed and promotes them calling him as often as needed with questions, for which he provides an explanation of what they do and a specific example to support how they can approach cases.

The need for shared understanding also arose in everyday work activities, Messer discussed needing to make sure, at the beginning of a project that she was thinking about the need in the same way as the people seeking her support, she stated:

I like to have a conversation before I start my project, so that I know exactly what they are asking for. We have prioritization lists set up, and we have spec sheets where they are supposed to tell us everything that they are looking for but, those are not perfect; those do not always change how they are supposed to change. So, I like to have a conversation with them, before I start. It is just something that I realized after going through so many projects where, you run the data, and then you show it to them and they say, “Well, actually, can we see it like this instead?” And, then I am running the whole project again. That was getting frustrating, so I decided all right, I am going to talk with everybody before I start my projects.

For McCown's work shared understanding with his coworkers is central to the success of their work, as they all need to approach cases with similar substance in the same way. He described having ongoing telephone conversations about thinking through case approaches with coworkers as an essential part of doing his job. They make space to question each others thinking to make sure they have thought a case through completely and appropriately. Ninassi, indicated she gets email requests from people needing help thinking through a project approach; she prefers to respond in writing: she stated.

I always start with an email.... If we can come to some understanding in email, because in email you can review it, you can reread it, you can edit it, you can think about it, you can choose your words more carefully and then send it. If they do not understand, I run two of three calls which I ask people to join, depending on the nature of the issue or I will ask them to call me, or I will call them. Often times the words are not quite sufficient to come to complete understanding.

So, even for Ninassi, who preferred to start in writing, a conversation was often needed to enable shared understanding. For this process, participants tended toward synchronous conversations, a process that provides the opportunity to continue clarification until both parties are comfortable with what they understand.

One last process for teaching, is what Ninassi described as "sort of a formal-informal thing" which is that she hosts a "solutions call" twice a week, during which anyone that needs her technical expertise can call in and ask questions or review project approaches. It is a recognition of the need many people in an organization may have for access to her knowledge even though she is not in the same space as they are. She explained the calls this way:

...I run a solutions [missing word] call, anyone can come, new to title, old to title. You can bring a set of requirements; we can work together on the call, using webmeeting, to come up with a design. They can ask any questions they want, it is an open mike, uh, first come, first serve. I can explain my answer. We can go into alternatives. We can go over the process. I can show them how to do it.

She added:

Again I run a call twice a week, anyone can come, it is fully documented – the time, the location – and they can come, they can ask any question, no question is too stupid. I would rather people ask questions, than assume the wrong things.

*Adapting or changing processes and procedures.* All of the participants discussed a need to adapt processes and procedures. This was discussed at two levels, mutual adjustment the “coordination of work by the simple process of informal communication” (Mintzberg, 1983, p. 4), and second adjusting a work process to lead to a change of organizationally documented process.

*Mutual adjustment.* Most of the participants discussed some amount of work coordination with coworkers. While this happened across work locations, it also occurred while coworkers were mobile. Instant messaging was important for this process for many, as a quick way of communicating, or as a way to be sure others were aware of your need for quick interaction. Messer discussed working with her boss first, through IM “When I am working closely on a project with my boss we will often exchange a few IM and if needed, get on the phone to discuss the project in more detail.” Augustin discussed communicating with her intern while in a meeting, saying:

If she is in the middle of doing something, she can pop me a quick message, “hey, can you talk for a minute? I do not know how to set up this folder.” I will say, “Fine” or “No, I am on another call, can you text it, can you type it to me?” And, we can communicate over [IM] while I am on this other call. That was you are not held up for an hour, if it is a quick answer.

Instant messaging was used sometime as a quick check on availability or a notification that something important is coming through a different platform. McCoy told me, “I would normally have somebody pick up the phone. I would message them first, and say, “Hey, do you have time to talk?” and then just pick up the phone. She noted if they are in the office they will have a video of each other for the call. Ferguson discussed using email to exchange work in process but noted that IM was important to make sure people were aware something was coming their way, he wrote:

I received an email asking to assist updating and modifying language for a new customer contract. We worked in Microsoft Word to track changes made. We had a series of back and forth emails with additional changes until we were both in agreement with the final document.

\*\* It is also very common to receive IM’s during these exchanges, due to the magnitude of email we all receive during the course of each day. Using IM to notify another party that an important email is coming their way ensures they will look for and address the correspondence in a timely manner.

However, there were other situations that required a different approach to coordinating work. Ferguson described phone calls with a sales person in the car:

3-way call with sales/sales engineering to resolve quote question. Sales was traveling to a customer meeting, and called from car with sales engineer on the other line. Sales needed current contract clarification as well as assistance position future offering.

Augustin discussed using web meetings when talking to her team about how they would get projects assigned; this allowed team members to distribute work according to available time, familiarity with the work, and desire to get up to speed of various project types.

*Adapting processes and procedures.* Participants all discussed doing some informal communication to adapt processes and procedures, but most indicated there was a limit in what and how far they could take this kind of process through informal communication. Most of the adapting that participants discussed had to do with a need arising in their own work system that needed to be addressed. However, Augustin also discussed taking over an existing team and reviewing how they approached work:

I inherited this group, so they did it a certain way, and I looked at it and I am ok, it does make sense, we will keep it, I can make that decision. Or I can say no, this is not what we are going to do , here is how we are going to do it. I have made some changes and we will talk about it as a group and implement it.

For most of the participants processes and procedures where very formalized, so the change process generally was the start of addressing a change in the system that made their existing process inadequate. This could include line of service differences, and cultural differences. Ferguson discussed needing changes to their customer relationship management (CRM) system for both of these reasons:

We are on the services side; we sell maintenance contracts--extended warranties and support, etcetera. We find that a lot of systems, especially the ones that are generically available to different customers, and because the company has a more hardware/software focus, not everything necessarily fits in with the way we operate on the services side. So, there is some tweaking that does have to be done. There is also some tweaking has to be done on a global level because not everything that works in the U.S. is applicable to Asia-Pacific and Australia or Japan. So, there are some tweaks to the systems there.

He stated that a need for change is recognized in one of two ways, "...somebody comes across something what is starting to be a trend, or it is causing an issue here..." He discussed the initiation of this through informal communication, but that it rather quickly becomes formalized:

Technically, it would be an internal discussion with the other team members, asking "are you finding the same issue?" Because, if it is going to be a one off thing, unless it is something that is a substantial impact it is not going to go anywhere. Then that will get sent up to my boss, and then to his boss, and so on and so forth.

The issue is generally raised in their weekly sales meeting conference call as it is the time when they discuss issues coming up in their work. As with Ninassi's solution calls this is another space that is a formalized time for informal communication. It becomes truly formalized going up the chain of command, as changes to the CRM require funding.

**Organizational.** All participants discussed some organizational learning in terms of establishing a new procedure or process. One participant specifically discussed changing a process herself, while most of the rest of the participants discussed how something moves to

being a formal organizational process. Messer was able to modify the project initiation document that is provided to her; she asked for this in a conference call meeting, and it became “official” when it was added to the document others complete. McCoy, discussed that sometimes changes can be made informally, but when changes become more substantial and involve funding they generally transition to formal processes.

McCoy: Usually what we find, is work in smaller numbers is more effective. To say let us have the four of us come up with a framework, and then we will get input from the broader team to try to get traction, and get more support around this cross-functional new process, the new type of thing we want to introduce. If it does not get the traction because sometimes if it is so cross-functional that you cannot get the mind share of, of somebody, some organization, like, “that is your problem, you go worry about it.” So then, what we have to do is, start, I hate to call it escalation, but what we try to do is get the executive management endorses to it, so they say, “ok, we are going to provide a single representative from our organization.” Then they have a conversation with that person, and say, “I am holding you accountable, you need to go support this initiative.” We will do that too.

Gobes-Ryan: So those processes, it sounds like getting formalized fairly quickly helps you.

McCoy: Yes, we will spend though, quite some time, if we will try to do it informally, and if we cannot get the traction; you know it could be a month before we start escalating. Then I might take it to my manager, they might back-seat it, but then if their manager, or their VP asks about it, it gets going. It just



takes some time for people to realize that there is a true need for some things. Other times you know if it is going to be, if it turns into a project that has got to go through a formal project review, because people do not have the resources to staff it; if it is a big initiative, or it becomes a big initiative, then it has to go through the formal project review funding model. Why should we dedicate resources to support this? What is the expected outcome, and return on investment that we are getting? Or, what is the risk of not doing it, because, it might not get funded?

McCown indicated that his boss provides written documentation when they make a decision as to handle a new type of case:

You know the rule of thumb is if it does not have to be in writing, do not put it in writing, for obvious reasons, being in the legal profession. But if you want it to be official then it is put in writing. Generally when we do that it is something important, and it is for training purposes such that all of us will see how this particular situation was dealt with and handled such that if it comes up again in another jurisdiction, with another Bar Counsel, we have that trail of emails, to fall back on. So, it gets modified on the fly. [My boss] may take it and turn it into a policy that he says, “this is how we are going to deal with this going forward”.

Ninassi was the only participant that indicated adapting organizational processes and procedures was something beyond what she dealt with and is very structured. However, Augustin who works for the same organization indicated she was very limited in this regard, “Unfortunately, at WorkSyn we have very structured, convoluted processes that we have to follow.” Ninassi explain why:

“...in WorkSyn processes and procedures are really formal. It might be the nature of the company; we come from an environment where operations ran the company. Everything has to be written down including operational manuals, so this can be done by a ninth grader, and this can be done by a twelfth grader.

Remember, we are still a union company. And, it may be my interpretation of processes and procedures are different than someone who would be in a more informal organization. Also, we have over 300,000 employees.

### **Face-to-face learning needed**

McCoy, Augustin, and Ferguson all talked about face-to-face learning being better than ICT mediated, if there was substantial learning to be done. Ferguson discussed why he felt it was important for him to make the effort to go to the office and provide an opportunity for face-to-face learning:

Gobes-Ryan: So, when you were doing that going into the office, was that something that the company wanted you to do or did you feel that you just needed to?

Ferguson: I think definitely, I needed to, especially for somebody that is coming in brand new into the industry. This is actually a new graduate, so she knew nothing about pretty much anything. I think there is nothing better than doing hands-on training for somebody, as far as getting up to speed. It gets to be a lot different when you have people that had been, not only in this industry, but especially even in the company, moving from one job to another, and therefore they are already pretty much familiar with it. Those training sessions we may have a week and then it is sink or swim. Unfortunately, that is the way it seems to

be any more, there is no longer any formal training to get somebody going, it is very short lived, here trial and error, off you go.

McCoy explained the challenge with trying to do this intensive interaction virtually:

When they are not co-located, it is too easy to get distracted. So, they could turn off their camera, so you cannot see me, and I am like, “Oh, I need to answer this email.” So, it is way too easy for them to do that, especially if somebody is not comfortable in front of the camera. So, if they are face-to-face I think it is more effective when they have a lot of hand-off to do, a lot of training, to be face-to-face.

**Hybrid.** At the same time they recognized face-to-face might not always be possible, and presented several options for approaching this. McCoy discussed having a new person in an office location near them, connected remotely to someone doing the same job, with an in-office person that understands the job they can also ask questions. She said:

You cannot always have them side-by-side, because I have another situation, where I have somebody coming in from the [European] office, coming in to [headquarters]. The person they are handing off from it is a less critical job but, I have somebody in [the same job across the country] so I said, “you guys have to do your transition over the computer.” But, I have somebody also in [headquarters] who is very familiar with the job, because they are the boss of the person handing-off. That person can then be the go-to person for a new person.

Ferguson and Messer discussed a progressive approach starting in the office and moving to mediated learning. Ferguson discussed getting a new hire up-to-speed:

Now, one of the people that currently does have to go into the office, I help train her. I would go in on a daily basis for a period of time, and we would have sit down training sessions and get her up to speed on using the database, that is [platform name] that I told you about. Then once she got up and running to a degree, then it was a matter of sending her the information but I did not have to go into the office and then, I would send her documents to train on, and then, she would go in and do the training on-line. Then I would just go in and double check the work she was doing. Then, it is a matter of phone emails, and IMs going forward.

Messer described a similar process for her start up as a full-time teleworker:

I was hired as a teleworker. When I first started, I was going into [the corporate office]. I went into [the corporate office] consistently for the first two weeks, and then from there it was once or twice a week for the next three months. And then, I was physically in [city 1.5 hours drive from corporate office]; so I was definitely a work-at-home.

It is worth noting that McCown's organization, which has an annual cycling on of new volunteers, does a once a year face-to-face training for these volunteers who otherwise do most of their work for the organization virtually. However, if a volunteer comes into service off the normal schedule McCown must get them up-to-speed virtually. So while all participants did face-to-face training for new employees, they also had worked out systems for hybrid face-to-face/virtual training and/or training virtually in entirety. What was interesting was that this appeared to be the entire start-up training for new employees. Ferguson explained:

Typically, when somebody comes into our group they are totally green to it. Even though we have had some people that have come in that have been in the company in another capacity, and so they are aware of our group. Once you get in and you are trying to figure out how to do the day-to-day, what you need to do the process, the tools you have to use, you are starting from ground up. It seemed a long, long time ago that any sort of a full process for training was available; that has not been around for a long, long time. It is all very informal, it is all very hit the ground running, here is your desk, here is your laptop, here are your new responsibilities, and by-the-way, here is somebody that is going to help, get you on your feet. So it is really interesting, it has not been since [my old company] days that there were formal training sessions and all of that. There is no formal process whatsoever.

### **Learning Summary**

Participants discussed many levels of learning being accomplished while they work from home: individual, group and organizational. Informal communication is critical for group learning and plays a role in the other two levels.

### **Chapter Summary**

Bonding and teaching are two things that people do with informal communication. Participants in this research discussed using informal communication to do both of these activities without being in a shared physical work environment. Much of the bonding that was accomplished was done as part of other work processes, although not all. Learning on the other hand, tended to be an interaction specifically organized for learning. Although, learning also occurred as part of ICT mediated work processes as well. Participants noted that face-to-face

activity was not necessary to do their jobs, while also indicating it was valuable. The specific activities they mentioned benefiting from face-to-face interaction were fully social activity, such as going out to eat or drink with coworkers, where they described a deeper, quicker bonding occurring. The other activity was newcomer learning, as availability of someone to learn processes from as needed was thought important and difficult to maintain through mediated communication. They did mention however, that they had to accomplish this remotely.

## **Chapter 7 – Discussion, Conclusion, Limitations, and Future Research**

This chapter presents the research discussion, conclusions, limitations, and future research question that emerge. First, it discusses the findings in context of the relevant literature. This section is divided into two parts, the first two address the two major questions of this research. This first section will examine the parameters of telework, and suggest a more robust use of these parameters in telework research. The second section looks at how informal communication is accomplished by teleworkers and examines the sociomaterial practices this group of participants' uses to compare with earlier research and findings on informal communication. The conclusions present what this research shows about the two research questions. Limitations discuss the confines of what can be drawn from this work and why completing this research as I did provided a more important benefit. This chapter will end with a discussion of research questions emerging from this work.

### **Location, Technology and Time: From Binary Delineation to Complex Relationship**

Place, technology and time are three of the four parameters (along with employer/employee relationships) used by most telework researchers to describe the teleworkers and/or settings they are investigating (Garrett & Danziger, 2007; Haddon & Brynin, 2005; Sullivan, 2003). These three parameters have a long history in thinking about the organization of businesses, going at least as far back as Miller's (1959) article *Technology, Territory, and Time: The Internal Differentiation of Complex Productions Systems*, in which he discusses a business' organizing of role relationships around technology, territory, and time. While these categories

still play a significant role in the organization of businesses, in most telework research they are used as categorizations without recognizing their significance to teleworkers or the teleworking processes. First, we need to recognize that telework is a category of ways of working, and not a single way of working; the term telework does not provide enough information to know how a person is working. Questions need to be addressed about the significance of each parameter of telework in order to understand how they are relevant (or not) to this new way of working. Additionally, there are salient questions as to the ways these parameters interact to enable or challenge the work processes of teleworkers. To approach this examination more effectively, much of this work will be framed from the perspective of sociomaterial practice. However, in order to recast the relevance of place, as its sociomaterial role as a “container” for work is challenged, I am examining the parameter of place from a phenomenological perspective, to focus on the meaning place brings to the work process.

**Location(s) of work as parameter.**

*This relates to another form of abstraction critiqued by Lefebvre (1991) where research treats space as an empty container that has no relevance to the social interactions that merely take place within it. In this move of separation, the material becomes taken for granted and thus effectively invisible to social science.*

(Dale & Burrell, 2008, p. 206)

Location as a parameter of telework in much telework research has come to mean ‘in the office’ or not, which is in practice a substitute for the assumption of ‘physically co-located with coworkers’ or not. In much past research, the workplace was assumed to have no significance to work beyond this role of containing all the coworkers, or containing one worker. When telework and other forms of virtual work first began to appear, the implicit assumption was that ‘in the



office' was with coworkers, which though an inadequate consideration of workspace, was at least technically correct. However, as my participants documented, they are often working with people in multiple alternative locations: sometime they are in organizational spaces at a variety of locations, sometimes they are in other organization's spaces, and sometimes they are working from their own homes. As Ninassi said about going in to her local office, "There is certainly nobody that I work with there." The idea that any given worker being 'in the office' indicates that they will be working face-to-face with any or all coworkers is no longer an assumption that can be safely made. At the same time, my participants discussed different levels of social and organizational meanings, as well as the physical practicalities embedded in their home workspaces. These represent a number of ways in which a home workspace, even though disconnected from face-to-face interaction with others in the organization, is important to the teleworkers and to those working with her/him.

I seek to examine this through the use two frames developed by Henri Lefebvre (1991) in *The Production of Space*. The first, is the spatial triad, where space is perceived - spatial practice; conceptualized - representations of space; and lived – representational space. This provides a resource for recognizing the significance of the socially constructed (and slowly evolving) concepts of workplaces and workspace in terms of social-historical meaning, the imposition of professional disciplines, and the practical, symbolic, and organizational significance of living in space. Lefebvre (1991) also introduced the concept of domination – which represents power over, and appropriation – that indicates use of space. It is through these two concepts that I can illuminate the way in which participants use (live) their home offices to respond to and resist the authority of their organizations over their lives. Waapshott & Mallett (2012) have used this framework to examine the boundary of home workspace and home. With

this work I want to look at how the levels of meaning in place are contributing to the significance of this workspace type for these workers' engagement in their organizations.

*Spatial practice.* Workplaces and spaces have historical physicality and layers of meaning that are actively contested in today's organizational space. Working "at home" was a common way of living for many until the industrial revolution. Campbell Clark (2000) explained, "with the growth of the industrial market economy during the past 300 years, a trend began which segmented activities associated with generating income and caring for family members" (p. 748). While white-collar jobs did not emerge until the early 1900s (Jacoby, 2004), after which time the numbers of those working in "the office" grew. While the clerical staff often sat in an open floor plan 'seas of desks' (Zelinsky, 1998), the office took on a new meaning, with professionals displaying status through objects, walls, and doors (Vischer, 2005). In 1963 the first of the new open office, status-free workplaces was built in Germany (Zelinsky, 1998). Since then there have been an increasing tug-of-war between the strict interpretation of workplaces as costly resources, to be maximized in occupancy and made more efficient in space use; and the desire of workers to maintain control over their workspaces and their ability to work<sup>7</sup>.

In spite of this historical context of the concept of workspace, all the participants in this study share a common understanding of workspace spatially – they are at their desk, with a computer and internet, and not interfacing (by sight or sound,) with the life of the home they are in. Interestingly, most of the organizational spaces they work at when in their organizations' offices are open-office, ranging from cubicles to group work tables on open floors (with the

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<sup>7</sup> This push is one that I experienced first hand in my role as a workplace designer and planner.

exception of McCown's office). However, they all hold onto a more 'old school' vision of workspace as its own enclosed space.

***Representation of space.*** Experts in many fields have overlaid their "wisdom" onto organizational workplaces, dominating the bodies of workers with their ideas and designs of efficiency (Siddons, 2014; Zelinsky, 1998)<sup>8</sup>. Changes in the use of workplaces brought on by the financial economies of system furniture, and non-assigned (hoteled) workspaces (Duffy, 2008), adopted by many US designers and organizations, insist that space is only a container and workers are only cogs. This is clearly represented in the disconnect between this kind of corporate space use and research on how workers work in organizational spaces effectively (Brill, Weidemann, & Associates, 2001; Vischer, 2005), which document the challenges of these kinds of space use approaches for many workers and work processes. Additionally, organizational real estate costs are often considered in isolation from their ability to support the much more significant cost of employees (Horgen, Joroff, Porter, & Schön, 1999) obscuring the linkage between the relatively small savings in real estate costs and the productivity challenges and costs they may create. Recent trends in the pulling back of telework programs by major organizations suggest there may now be some reconsideration of the value of workplaces (DePass, 2016; Pepitone, 2013a; Pepitone, 2013b; Wilkle, 2014). However, it is yet to be seen if bringing workers back into the office will change organizational space design and use patterns to reflect what research indicates workers need to work effectively (Brill, Weidemann, & Associates, 2001; Vischer, 2005).

When it comes to workspaces for teleworkers, the companies the teleworkers in this study work for did not provide them specifications for what had to be in their home work spaces.

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<sup>8</sup> Zelinsky discusses Frank Lloyd Wright's furniture design to restrict the movement of clerical workers, and Taylor's scientific management shortly after.

Two had organizations that provided a desk chair. One had an organization that provided a printer; while another could have gotten a printer and shredder if she wanted to be able to print any work-related paperwork. All organizations provided a laptop computer, and one participant was provided a telepresence system and high definition camera. Two participants, Ninassi and Augustin, had to complete on-line training on safety and ergonomics in the workplace, required of all employees, and fill out annual paperwork indicating compliance with safety and ergonomic requirements. All had some degree of belief that work information must be secure. And, most importantly, all understood that their ability to telework was at their employers' discretion, meaning that their life/work style could be disrupted at any time. So, while their organizations were very engaged with the details of corporate workspaces, when it came to workspaces at participant's homes the organizations provided limited input. Teleworkers were left to make sense of what would satisfy the organizations so their telework privileges would not be at risk.

***Representational spaces.*** When participants discuss the lived experiences of their places of work, they focused most on the things they find necessary to support their ability to work successfully in their home office. In addition to this, they also discussed the ways in which they responded to the authority the organization had to revoke their status as teleworkers, through their space use choices, in this way describing the domination of the organization over their home workspaces. Several of them displayed a logic of negotiation that provided them a way to appropriate the space to balance their own limitations or life choices. Beyond their home spaces they also discussed the use of other spaces they used much less frequently but that provided significant value to their work processes.

***Home workspace.*** A significant body of work indicates that the places we work in matter to our ability to succeed at work ( Brill, Weidemann, & Associates, 2001; Horgen, Joroff, Porter,

& Schön, 1999; Vischer, 2005; Zelinsky, 1998). Connecting what my participants said with this earlier research on organizational workplaces indicates that this is as true of workspaces in the homes of teleworkers as it is for workers in the office. Additionally, Montreuil & Lippel (2003) found that teleworkers rated “The quality of the home environment higher than the usual open lay-out office” (p. 344) and, as they were responsible for their own home workspaces, they had control over creating a space that supported them in ways they would not get in organizational spaces<sup>9</sup>.

Some design research that has focused on homeworkers and teleworkers has presented important information on user preferences for a separate room (Ahrentzen, 1989; Montreuil & Lippel, 2003) or dedicated space (Gurstein, 1991), and for workspace that could be shut off from noise in the home (Ahrentzen, 1989; Montreuil & Lippel, 2003). A decade or more latter, many of these findings appear to hold for my participants. While I had two participants who started teleworking in their bedroom, when they were able to they established dedicated, separate workspaces. In the time they worked from their bedrooms, they were able to establish that as a dedicated workspace during their work hours. In addition, one participant was finishing her career working from her bedroom, again a dedicated space during work hours. She was, however, clear that this was a short-term arrangement; possible because she no longer had children, and no longer needed the dedicated space she had formerly had in the suburbs before downsizing into a city location.

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<sup>9</sup> Vischer (2005) reviews the feedback workers provide about lack of control of many aspects of their work in organizational spaces. Also important to this is Gurstein’s (1991) recognition that this idea of control of the home environment is a middle class idea, recognized from the other side by Olorunfemi (2013) in his study of the challenges, including spatial, of implementing telework for lower wage women in Lagos, Nigeria.

The second finding that supports earlier research is the participants' desire for separation from noise. For workers in-office location noise is one of the "complaints most often cited by employees in open-plan offices" (Vischer, 2005, p. 99). Vischer (2005) indicated "noise that is people-generated" is the most uncomfortable as it makes it difficult to concentrate. Ahrentzen (1989) found homeworkers wanted their workspace far away from rooms where "noise is produced" (p. 279). Participants in this study strongly identified noise from activities in the home as a significant concern for location and enclosure of their workspace. McCoy even indicated she had a solid door put on her workspace to keep the noise out. Again, research by Montreuil & Lippel (2003) found teleworkers "appreciated the silence of the home environment" (p. 344) supporting this as a benefit of home workspaces.

Finally, Ahrentzen (1989) indicated people working from home worked at their desk unless they were taking a break, and then they might go to another part of the house. My participants rarely worked in locations away from their desk, either inside or outside of their home; some indicating they did not even think about it, others saying it was difficult to work away from their set up and one noting security concerns. These findings, unlikely to be seen by teleworkers, their management and organizations, contradict the images that abound in the popular press showing teleworkers working on the beach, at resorts, on the playground with their children, in bed or lounging on the sofa press (Sheppard, 2013; Vallarta Today, 2014; Webb, 2012; White, 2016). Participants took seriously having a functional workspace and spent their work hours, and often more, working there.

The teleworkers in this study were very motivated to continue teleworking. For some the lack of commute time gave them more work/life balance; others valued the ability to do their job while living away from the office location. The opportunity for all these participants to telework

was at the discretion of the organization. While Messer was the only one hired for a position that was required to be a full-time teleworker, she has, since our interviews, been called back to the local office part-time as part of that organization's announced discontinuation of telework. Augustin and Ninassi's organization had in the past announced the intention to discontinue telework, but never followed through on it. When McCown got divorced the organization asked him to move to the headquarters location, but he was able to continue teleworking to be near his children. Most of the participants felt this potential to lose their telework opportunity, and recognized the disruption it would cause to their lives, and in response several voiced the need to be sure that their home workspaces could never be used as the reason they could no longer telework. In this way the organization, without giving them the requirement for a dedicated room or space, influenced most of them to dedicate significant portions of their homes full-time to the organization. In addition, while several had started working from home with financial support of internet connections, phone lines, and/or cell phones, many paid for this themselves now, expressing these costs as not a big deal because they were tax write-offs. Some of the participants expressed knowing the organization would not approve of something that they had to, or chose to do, appropriating their spaces in a way that worked better for their entire life. Ninassi was the most distinct example of this, indicating that the organization might not like that she no longer had a dedicated room:

It is not an enclosed room, but it is a dedicated area of a room and I can close the door. I have moved into [major US city] so there is no separate room, unless they want to pay me significantly more, or give me a huge bonus to buy a two-bedroom apartment. But also there is no distraction, there are no children in the house or anything like that.

She also indicated, “WorkSyn changed its policy, when I first started they provided [an internet connection], it had to be dedicated, and they paid for it; but then they decided that we should use our own and they do not pay for it, so it is not dedicated.”

*Other spaces.* Research on full-time teleworkers, though limited, suggests that they spend some time going to the office (Montreuil & Lippel, 2003). Yet there is no identification of the significance of this space to their work processes. Keable (personal communication, n.d.) in a conversation with me suggested that the research completed by BOSTI indicated that one cannot determine the value of a particular space to workers’ abilities to succeed at their jobs based merely on the time they spend in it. Most participants in this study offered what seemed to be contradictory information on their use of other spaces, particularly organizational office places, saying both they could do their job without going to the office, while also indicating that going to the office was “very helpful,” necessary for relationships with key people and a means for solidifying work relationships in a way they could not do remotely. Moreover, while organizational space was the alternative space they used more than any other, it was clearly the access to both people they worked with and for many also developing a more extended circle of business relationships that was most important. For this reason, Ferguson recognized the value of the relationships that were possible from attending the off-site annual sales meeting, as it was the immediate relationships that were most important to have access to. Hinds and Cramton (2014), in a study on globally distributed teams, found that when a team member from one team spent a very limited time in the location of another group of the distributed team that team members from both locations benefitted from a brief visit for an extended period. While this research was on a different kind of virtual team, it is worth further investigation to better understand the benefits of investing short periods of time in getting teleworkers together with



others they work with. Several of the participants expressed the desire to have more group meetings, or the ability to participate in group meetings they were excluded from to save money.

*Location summary.* While the primary work location of full-time teleworkers is likely to be a location from which they are not working face-to-face with coworkers. However, consideration of the place as an element of their work goes far beyond this. By examining these participants' use of work places through the lens of Lefebvre's place triad it is possible to see the rich contribution of this place to the work lives of full-time teleworkers. Through the spatial practice it is possible to see the socially constructed and evolving meaning of workplace beyond it being a place to sit. Through examining the overlay of design and real estate professionals onto workplaces in the office and in workers' homes, it is possible to see the challenges arising in the use of both these types of work spaces. Finally, through the lived experience of these workers in the various spaces they use, one can see the workers sensemaking about how they decide on the spaces they will make for work in their homes. This latter reflects both the desire of the workers to accomplish their work and their response to the domination of their organization over their lives and homes; where they subjugate their home, life and family to this domination, in a trade-off for other benefits. And also, in how they negotiate their own appropriation of their home spaces for work differently, and the sense they make of that.

### **Information and communication technologies (ICTs)**

ICTs used by teleworkers have been a binary identifier distinguishing these workers and other categories of homeworkers (Olson, 1983; Olson & Primps, 1984) in much telework research. More importantly, when research on telework started, it also distinguished teleworkers from their in-office coworkers for whom the expensive adoption of ICTs (Messenger & Gschwind, 2016) was unnecessary because they were working in a shared environment with

coworkers and the artifacts involved in their work. This latter distinction is no longer valid, as the adoption of ICTs have become central to much of work (Orlikowski, 2007) for many workers. This lack of identification is not limited to telework research. Orlikowski and Scott (2008) indicated a broader problem in organizational research, stating: “We begin by juxtaposing the pervasive presence of technology in organizational work with its absence from the organizational studies literature” (p. 433). However, because of the central role of ICTs in enabling telework, this lack is more critical for telework research as it limits the ability to compare research results over time and make good scholarly use of past efforts, which has been a challenge for my work.

Researchers’ omissions or lack of description of ICTs and how teleworkers engage with them results in critical information getting left out of research publications, as ICTs and what workers and groups of workers do with them vary significantly. These variances emerge from several evolutionary trajectories. First, the ICTs themselves have changed over time, making some of the ways these technologies are identified, when they are identified at all, inadequate for comparison. Second, ICT adoption is not consistent in time and place, so we cannot assume the sets of ICT resources that were obtainable based on the period in which research was completed and published were made available and used by research participants. Third, ICTs are rarely used in isolation to accomplish work, but are instead used in technology assemblages (Jarrahi, 2014). Finally, while it is important to recognize ICTs as part of what happens in organizations, much telework research has other foci. Therefore, any identification frame of ICTs in research must be both understandable and achievable within the larger research structure.

While specific ICTs are sometimes not identified, when they are they are often identified by product classes, which creates several problems. Craipeau (2010) indicates that there has been an evolutionary change in telework due to ICT development (Messenger & Gschwind, 2016,

credited Craipeau, 2010<sup>10</sup>). Messenger & Gschwind (2016) identify three generations of ICT development that have not only changed specific equipment and features (Baruch, 2000; Fanaj & Azad, 2012), but also the dispersion of ICTs, and the mobility afforded workers through their use. These differences all change the way work can be accomplished both in and out of the office, and leave holes in our ability to explain changes in research outcomes over time. Messenger & Gschwind (2016) indicate that teleconference platforms were available as early as the 1980's, but the features of these platforms, as well as the connections supporting them have changed significantly in that time. Today's conference platforms afford very different ways of working than this same category of technology used by the subjects of earlier research. So while I believe that technology changes may have made ways of working different for my participants than was available in earlier studies, drawing this conclusion definitively is challenging because information on the ICTs used was not provided in earlier studies (Fay, 2011; Fay & Kline, 2012)

Of the participants in this study four work for technology companies, and one for a company that was almost 50% teleworkers at the time of the interviews. Additionally, several participants reminded me that their technology companies developed some of the products they were using, so they had access to the latest possible product available. By contrast, McCown's state-based agency was reluctant to bring on new ICTs as it opened them up to challenges from the people they disciplined; so, the platforms used in their organization did not include all the ICT features available. So, while my participants were all interviewed in the same time period, the platforms of technologies being used were not the same among all of them. Therefore, even

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<sup>10</sup> Craipeau's 2010 article is in French, so I am dependent on Messenger and Gschwind's interpretation of this article.

using or estimating dates of data collection, it is still not possible to be sure what generation of technologies research participants are using.

An additional significant complication in assessing the ways of working that ICTs make possible is that they are rarely used in isolation any more (Jarrahi, 2014). As an example, participants in this study described multitasking with overlapping use of teleconferencing and instant messaging or email; so the things they are accomplishing, and their sociomaterial practices cannot be framed in terms of interactions with one particular ICT, but instead frequently involves multiple technological tools. Additionally, accomplishing some activities like the status recognition of those they are communicating with uses a range of ICT resources in an ongoing way, so it extends beyond the time span of a particular activity. Jarrahi (2014) suggests a sociotechnical approach to examining research participants' multiple ICT uses, which he describes as "technology assemblages" (para. 5).

Finally, the practice of research adds its own layer of difficulty to effectively analyzing the use of ICTs in telework research. Research investigations address different foci, and use different sets of methods. This means that the need for information particular to technology materiality, human agency, affordances, sociomaterial practices and/or the sociotechnical systems in which they exist will vary widely. While I have pursued several levels of analysis offered by the structures of thinking within the literature on sociotechnical systems, I can (and will) only be able to think through what I had access to for my research.

The actual question then becomes: what information should we provide in telework research so as to enable the effective use and analysis of past research results over time, and pragmatically, how can that inclusion be accomplished in a reasonable way for researchers who are not studying the technologies per se, but are more interested in the processes in which they

are involved? This is not a new challenge, and investigators such as Orlikowski have been engaged in asking these questions within organizational research for a long time (Orlikowski, 2007; Orlikowski & Barley, 2001). She recommends:

I want to suggest that we can gain considerable analytical insight if we give up on treating the social and the material as distinct and largely independent spheres of organizational life. In particular, this requires replacing the idea of materiality as ‘pre-formed substances’ with that of ‘performed relations’, in order to characterize the recursive intertwining of the social and material as these merge in ongoing situated practice” (Orlikowski, 2007, p. 1438).

For qualitative research in particular, this is the learning of a new frame that sees not just people as participants in organizing but also ICTs; for developing a way of talking about what occurs that recognizes “there is no social that is not also material, and no material that is not social” (Orlikowski, 2007, p. 1437).

## **Time**

Time as a parameter of telework has been used to identify the number of hours a week (occasionally hours per month) that a teleworker is assigned/allowed, often by an official agreement, to work out of the office and how many they are assigned to be in the office. That is, the amount of the workweek spent in and out of the office is the time parameter. Taking an objective view of time, telework researchers have used this as an absolute to delineate differences in telework outcomes. There are several problems with this use of time that emerge out of my findings, which contrast with earlier research where time is seen as significant: specifically, that the time scales used are inadequate to the proper measurement of full-time

telework; that time patterns exist and afford a more useful measure; and that time complications emerge from dispersion.

**Days in office are inadequate.** The most common time pattern used as a parameter for telework research is that of days in the week working out of the office. On occasion this pattern may also expand to days in the month out of the office. An example of this can be seen in Wiesenfeld, Raghuram and Garud's (1999) study where they identify the virtual status of participants by asking them to indicate "their workweek with respect to the days spent working in the office, at home or in mobile mode" (p. 782). This pattern assumes several things: telework schedules are all based on calendar orientation, and that time measures location (which connects to the objective view of time as associated directly with productivity (Orlikowski & Yates, 2002; Kaufman-Scarborough, 2006). While it may still be true for the majority of today's part-time teleworkers that their location is based on a specific, often contractually agreed-to calendar schedule, it omits many other options for temporal organizing. In this study, participants did not organize around these kinds of time pattern; most were unable to even provide me with an estimate to work in this structure. Additionally, it falsely suggests a connection of much of today's work to a strict connection of productivity over a specific time frame (Blair & Wallman, 2001).

**Temporal structuring.** Orlikowski and Yates (2002) suggest a wider frame for looking at time in organizations—temporal structuring, where time patterns in work "characterize people's everyday engagement in the world" (p. 684). The three organizing factors for this temporal structuring for the participants in this study were projects or cases, internal organizing, and external reporting. Many participants were engaged in more than one of these. These factors were also what they organized their going to the office around, so my participants did

have temporal patterns for work and going to the office, but these patterns, particularly multi-layered ones, do not appear to be solely time-based, because they are not consistent time-wise.

*Projects or cases.* All of the participants organized some of their time around specific projects or cases; all worked on multiple projects or cases simultaneously. None of them indicated that the types of projects they worked on had a standard time period, but were determined by factors specific to the projects. These projects were of the types listed in table 7.1. and in the case of two participants the project cycles involved a temporal pattern that would bring them to the office. For Augustin, travel to the corporate headquarters was for project reporting, while, for McCoy, traveling to one or more offices was part of the cycle of a merger or divestiture.

Table 7.1

*Participant Project Types*

<b>Participant</b>	<b>Type of Project or Case</b>
Ninassi	Solution designs
Augustin	Solution designs
McCoy	Mergers and divestitures
Ferguson	New contracts and renewals
Messer	Statistical analysis
McCown	Cases

***Internal organizing.*** Internal organizing was also a temporal structure which most participants used. This ran a range of specific activity types, including: training, planning or coordinating meetings, internal reporting, and organizational celebrations. Some of these activities had regular schedules, such as Ninassi's bi-weekly solution calls, McCown's annual volunteer training, and Ferguson's annual team planning meeting. Others, such as retirement parties arranged in McCown's organization, and Ferguson's training of new employees were "events" – "neither fixed nor regular, but ... more dynamic, varying by conventions and norms" (Orlikowski & Yates, 2002, p. 686). Most of these occurrences involved travel to the office at some point for participants. The exception to this was that training activities might or might not involve going to the office. (Ferguson and Messer both discussed traveling to the office for training, while Augustin and Ninassi both trained coworkers remotely.)

***External reporting.*** McCoy in particular discussed participating in external reporting requirements; these reporting deadlines were objective 'clock-time' occurrences that had a fixed pattern, calendar-based schedule. Because of her significant responsibility in these events, McCoy traveled to headquarters to present this information to executives prior to the information being submitted.

***Significance of temporal structuring.*** The consistent daily, weekly, or monthly time patterns that have heretofore been assumed in telework research are not adequate to allow an understanding of the activities of teleworkers who are working full-time, as none of my participants could describe their work in this type of structure. They are however working in temporal structures, and understanding what these are informs our understanding of the potentials of full-time telework.



**Time and remote work.** As most teleworkers are part-time in the office, it is typical for teleworkers to live close to the offices in which they work. Often then, issue of time differences with coworkers are not usually considered when studying teleworkers. However, when teleworkers work remotely full-time, they may not live near the office they would generally work out of, as was the case with at least three of the participants in this study (some others have over time become connected with coworkers or offices that are not within commuting distances from their homes). Five of the six participants in this study worked with people in other time zones; for four of them the time differences were significant, and for one of those the time differences with some coworkers were day versus night differences. For this reason it is important to recognize some of the challenges time differences can make in remote work, and how this may influence their communication patterns.

Research on distributed teams has looked at the challenges of working across time differences (Armstrong & Cole, 2002; Espinosa & Carmel, 2003; Klein & Kleinhanns, 2003; Riopelle, et al., 2003). Some of these differences are related to the challenges of reduced to no overlap in standard work hours, while others are challenges of differences emerging out of the socially created time use differences resulting from the different places people work from.

Of the participants in this study only Ferguson routinely worked with people with whom he did not have overlapping regular work hours. This had a significant impact on the methods of communication that he chose, i.e., primarily email, because it is asynchronous. However, there were times when he was able to talk to coworkers by communicating outside of both of their regular work hours. Ninassi and Augustin regularly spoke to coworkers in Europe. Augustin discussed getting up in the middle of the night to talk to a coworker when an important issue arose, rather than waking that coworker up in the middle of their night. Routinely, they were

aware of their overlap time and planned communication during that time. Riopelle, et al. (2003) indicated that when time zone gaps are over six hours different, special arrangements need to be made to have synchronous communication. All of the participants except McCown spoke to coworkers regularly who were within 1-3 hours time differences, and noted being aware of people's different work hours when initiating synchronous communication. McCoy noted she included commuting time in the time she could communicate with others, particularly if they could accomplish what they needed without having work over a document. Both McCoy and Ferguson noted they spoke to people outside of normal business hours but during reasonable waking hours.

Ferguson, McCoy, Ninassi, and Augustin routinely worked across cultures, and Ninassi and Ferguson in particular noted that it was not unusual for them to have no face-to-face interaction with these coworkers. These interfaces bring to fore other issues in addition to time, that add their own time-related complications. Ferguson, noted that communication with his Korean coworkers was much more difficult than with coworkers in New Zealand and Australia. Some of this was based in language barriers, and some in different work attitudes across cultures. Additionally, several researchers noted some parts of the world have different work weeks and work hours from those we have in the United States; and less frequently, coworkers in different countries have different holiday schedules (Espinosa & Carmel, 2003; Riopelle, et al., 2003). While none of the participants in this study noted this as a problem, those of them who had been working across national borders had been doing so for a long time, so those problems may have been long figured out.

**Time summary.** Time as a parameter of telework needs to be expanded to start with an understanding of the ways teleworkers temporally structure their time, before moving to any

effort to understand if there exists a numerically regular time pattern or not. Additionally, the ability to connect in time may impact the way workers choose to work, and it can bring to light other embedded issues that may make working together across time zones more challenging and also richer. Finally, understanding what is motivating time use is an important first step to understanding teleworkers' usage of time if we are seeking to make telework research and potentially other type of virtual work research readily comparable.

### **Informal Communication**

Informal communication, thought to be difficult or impossible to accomplish remotely (Handel & Herbsleb, 2002; Isaacs, Whittaker, Frohlich, & O'Conaill, 1997; Kraut, 1989) is something all the teleworkers in this study accomplished routinely. However, as the workers in this study were pushing the limits of new ways of working, the context in which they worked, identifiable through examining their parameters of telework as discussed earlier, was important to their being able to accomplish this. Additionally, depending on what they were trying to accomplish, different aspects of these parameters become important, and often they were in combination. This section starts by focusing on the parameters of telework as examined in this study, and then discusses them in the context of how they advance, confirm, or challenge contentions in the broader informal communication literature. I will then discuss the sociomaterial practices that I believe were the most important to my participants' use of informal communication to accomplish bonding and learning.

**Place.** The significance of place in enabling informal communication is evolving, as the extent to which organizations use place to connect people who are working together is changing. While the place that participants were working – their homes – were a key part in their selection for this study, what was not anticipated was the extent to which the others in their organizations

that they were working with were also teleworking, distributed, or mobile. However, these circumstances are not unusual today, as current research on where people work indicates that the presence of these various locations and circumstances for working are becoming more common. Place is not the standard way of connecting workers within an organization, it was when Nilles coined the term telecommuter in 1973 (Gan, 2015). However, while these workers were finding ways of accomplishing informal communication within their virtual work processes, there were important contacts and types of connecting that were not part of virtual work processes for which the participants indicated they still found being in a shared physical space essential.

While telework researchers generally do not state it, there is often an underlying assumption in many of these studies that teleworkers are the only worker not co-located in a shared physical workspace, or that such workers are comparatively rare in the organizations studied. Past researchers have made comments like: “Temporal and spatial distance reduces opportunities for teleworkers to interact with colleagues and provides less access to organizational routines that are sources for connections and understanding” (Fay & Kline, 2011, p. 62). This statement assumes teleworkers are away from a shared place and others are together in that place within which the routines and connections occur. Given the overall percentage of teleworkers is still relatively small<sup>11</sup> (Global Workplace Analytics & Flexjobs, 2017), this would initially seem like a reasonable assumption. However, as organizations and their employees become more distributed (Hinds & Kiesler, 2002), work more often at client sites (Leonardi, Treem, & Jackson, 2010), are more mobile (Chen & Nath, 2008), and travel more for work (Aguilera, 2014; Rhoads, 2010); and because of the increasing numbers of contract (Drucker,

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<sup>11</sup> Global Workplace Analytics and Flexjobs (2017) *2017 State of Telecommuting in the U.S. Employee Workforce* using U.S Census Bureau’s America Community Survey data indicated that “nearly 4 million U.S. employees worked from home at least half of the time in 2015. That represents about 3% of U.S. workforce” (p. 7).

2002) and outsourced workers (Cooper C. L., 2005) that are now engaged by organizations, teams and work units working apart are becoming more normal, and entire teams working in a shared space more rare. As this happens workers are increasingly connecting to one another through ICTs, and more opportunities are developing in and around these mediated work processes for informal communication. Additionally, research has shown that workers who are located more than 30 meters apart are much less likely to have daily face-to-face contact and engage in live informal communication (Kiesler & Cummings, 2002), reducing the likelihood of face-to-face interaction among employees in larger offices (Kraut, 1989). Other studies on informal communication have shown a drop in the frequency of such communication as distance between workers increased, and separation by floors reduced communication even more (Kraut, Fish, Root, & Chalfonte, 1990). This separation within a location is something McCoy described as occurring in her corporate office where “co-located” workers were distant enough that they primarily used mediated ICTs to connect. As was stated earlier in this document, the participants in this study were all working with distributed coworkers. While some, like Augustin, Ninassi, and Messer, worked on primary teams that were entirely distributed, all the participants either worked on hybrid teams as their primary team or for project-related work. This means even the coworkers of my participants, working in their organizations’ offices, were more frequently using mediated connections; and thus even these workers were likely accomplishing mediated informal communication. This suggests that when doing research on informal communication practices of teleworkers, it is no longer reasonable to assume that teleworkers are the rare people not working primarily or totally face-to-face. While there are likely still organizations for which face-to-face communication is the norm, it is clearly now important in telework research to note

the extent of co-location and communication proximity of the other workers with whom the teleworkers interface to get a full picture of the communication environment.

Because this was their routine way of working, the teleworkers that participated in this study also discussed having long-term relationships that were primarily or entirely technology-mediated. Walther, Van Der Heide, Ramirez, Burgoon, and Peña, (2015) describe a study showing that a group of students that communicated through asynchronous text only were able to “achieve levels of impression and relational definition equivalent to FtF [face-to-face] interaction” (p. 8) after a period of six weeks. Participants in my study were utilizing multiple types of ICTs, and much of their interaction with their coworkers was synchronous and involved a voice component. Given the type of communication and the duration of these relationships, their being comfortable enough to engage in informal communication using ICTs is not surprising, and based on these earlier findings it might have been achieved more quickly.

However, shared workplaces are still important to the informal communication successes of remote workers, as all the participants indicated that while they can function without being in a shared workplace, they benefit from it when they are. They indicated these benefits were associated with a number of types of interactions, some of which they did not identify as things they did through mediated communication tools, including: developing relationships with people who were not responding to technology interactions, developing workplace relationships that extended beyond their work teams, cementing existing workplace relationships, and learning.

The use of technology to communicate requires two willing participants. In a shared physical environment, you can go into a coworker’s space to interact with them. This unidirectional choice for informal interaction is not currently feasible with technologically mediated communication. For participants in this study, this limitation resulted in an inability, at

times, to get the professional support needed to do their job. Participants identified these issues as rooted in power structures, and in in-office workers not wanting to change the way they normally worked. Augustin identified an exercise of power by one of her boss' peers in his refusal to respond to her via several different mediated platforms of attempted communication with him. She indicated that she had to go to meet him face-to-face in the office before she was able to get him to reply to her mediated communication outside the office. While publications have discussed power and telework (Hanson, Engel, & Gobes-Ryan, 2010; Offstein & Morwick, 2009) this specific approach of withholding communication has not been discussed in earlier work and deserves more attention. McCown described being isolated from needed support because in-office coworkers would not take his calls to brainstorm case approaches, something he indicated is typical in the practice of law. However, when leadership allowed fellow attorneys to telework, they became responsive to his calls; McCown attributed this to their now understanding teleworker needs. Considerations of teleworker isolation in earlier research focused on either the need for social interaction (Huws, Korte, & Robinson, 1990; Mann & Holdsworth, 2003) or workers' ability to cope with isolation (Golden, Veiga, & Dino, 2008; Huws, Korte, & Robinson, 1990; Mann & Holdsworth, 2003). It is not until recently that there has been a focus on isolation within the work process itself. While researching self-employed teleworkers Hislop et al. (2015) indicated, "there was a lack of support regarding problem solving, as people had no peers or managers to communicate with" (p. 227). While the participants in this study did have managers and coworkers, there were still times when making a connection for support was an obstacle. McCown's isolation and its later correction points to the problem being one of office workers not wanting to have to work differently than they are used

to, which is an important issue to address in establishing patterns of place use in organizations that are still heavily relying on co-locational work processes.

Messer, the most recently hired employee among the study participants, discussed her ability to meet people in the office that she had not met through work assignments - people that were helpful resources for knowledge, skills, and mentoring. While participants discussed significant levels of interaction with those they knew through work activities, the chance meeting of people you are not working with directly does continue to be a circumstance of a shared physical environment (Armstrong & Cole, 2002; Becker & Steele, 1995). While Messer indicated that her organization maintained social media tools dedicated to teleworkers to support interaction, she rarely used it, and did not describe developing relationships in that way.

Ferguson mentioned how being together at the annual sales meeting, which he no longer was included in, would have given him a chance to develop a better relationship with his new Asian front line sales coworkers, who he has only worked with remotely. While earlier telework research has examined the impact of time in shared place on various aspects of work life, this has been within the weekly routine of work, and not within a more extended time-frame, and this work has tended to focus on the negative impacts of more time away from the office (Gajendran & Harrison, 2007; Scott & Timmerman, 1999). However, Hinds and Cramton's (2014) research on distributed teams found that small amounts of time for limited personnel exchanges afforded benefits to workers in both locations (office visited and office visiting from) for an extended period. They found workers in both locations became "more familiar with one another's work styles, capabilities, personalities, roles, and cultural context, which enables bonds to strengthen, in large part because coworkers feel more confident in being able to predict the behavior of their distant coworkers and in their own ability to behave appropriately in those relationships" (Hinds



& Cramton, 2014, p. 808). However, they also found that this required both visitors and hosts to be engaged in developing their relationships while together (Hinds & Cramton, 2014) or this time together could make their working relationships worse. However, when you add this potential benefit to Golden, Veiga, & Dino's (2008) suggestion "...that those who extensively telework may actually be more inclined to seek out face-to-face contacts, as they 'make conscious efforts to communicate'" (p. 1417), minimal amounts of time together could provide significant benefits.

While some researchers have suggested that teleworkers miss out on social interactions happening in and around shared workplaces (Kraut, 1989), there are no studies that attempt to identify teleworkers seeking out social interactions, and how much and what type of interactions are effective in supporting the objectives of informal communication. Many of the participants in this study made significant efforts to spend social time with coworkers even when not related to work activities. For example, Ninassi would meet people for lunch she was not working with, McCown would make the three hour drive to headquarters for social events, and Augustin would spend time with former team members when on vacation. Finally, several felt strongly that start-up learning was most effective done face-to-face. This was described as important because of the amount of back-and-forth that is required as someone is learning how to do things, the kind of brief but frequent interactions are hard to address remotely. One other aspect of learning that was seen as important was social or psychological support for newcomers as they discover their expectations for their new organization and job are not met. Jablin (2001) described it this way: "research has identified the areas in which newcomers experience expectation-reality 'gaps' and has shown that interactions with and social support from insiders help newcomers make sense of these experiences and reduce levels of distress." (p. 757). Messer described having lunch with

her boss and peer when they were in the office together, and having them tell her ‘war stories’ about things that had tripped up other new employees so that she would not make the same mistakes they had. Augustin discussed having an intern, who worked only for her, and who she had work in the corporate headquarters in another state. While she indicated that the intern was not working with anyone there, she felt that it was important for this college student to be around a professional environment to learn about what that was like.

**ICTs.** ICTs are important in enabling informal communication because they have become the routine way for employees to connect in many organizations. Whittaker, Frohlich, and Daly-Jones (1994) indicated “informal communications often occur between frequent interactants who often share large amount of background knowledge” (p. 132). When they made this statement in 1994, it was an indication that informal communication really needed to be face-to-face to occur, but the increase in the amount and breadth of employee engagement in mediated communication is changing this. This increase in mediated communication resulted in two things happening that were critical to the ability of the teleworkers in this study to accomplish informal communication for both bonding and learning. First, almost all technology access, adoption, and literacy were pervasive in most of the participants’ organizations. This both makes informal communication possible via technologically mediated channels in these organizations, and is important because of their distributed and mobile work forces discussed previously. A second important element of ICTs for informal communication is that all the participants used a range of available tools to accomplish this communication, and they also opted not to use some tools that they could have.

***Pervasive ICTs.*** Information and communication technologies (ICTs) have permeated business today. Ninassi, who worked at client sites early in her career, discussed putting in a

special request for equipment that she needed to submit paperwork from home, something few had at the time. In their research on informal communication, Whittaker, Frohlich, and Daly-Jones (1994) stated: “informal interactions are poorly supported by technology” (p. 131); however, times have changed. Participants in this study worked in organizations where everyone had access to their own computer, at least one mobile phone number (sometimes through their computers), and ownership of or access to a range of other information and communication hardware and software. Additionally, all had access to documents and data electronically from wherever they needed it. Finally, most had access to availability information on coworkers and several had access to coworkers’ calendars electronically. And, making new ways of working feasible, their coworkers largely had similar if not the same resources. Because of these resources, they work differently, and can accomplish things that were not possible for workers in the past (Messenger & Gschwind, 2016). In the 2016 Global Information Technology Report researchers state “the current transformation is nurtured by a different type of innovation, increasingly based on digital technologies and on the new business models it allows: executives in almost 100 countries report increases in the perceived impact of ICTs on business-model innovation compared with last year” (Baller, Di Battista, Dutta, & Lanvin, 2016, p. 8).

Another important aspect of this pervasive availability and use of ICTs is that for most of the participants there was an expectation that everyone they worked with would be up-to-speed on the available ICTs. However, because many these participants’ organizations are in the technology field, they may represent the leading edge of technology savvy workforces; as *The Global Information Technology Report* indicated, “the skills required to leverage ICTs remain woefully inadequate in many organizations.” (Di Battista, Dutta, Geiger, & Lanvin, 2015, p. 3). Therefore, this ability to use and assume coworkers can use technology to interact to get work

done may not yet be the norm in all businesses. What is important here is that technology literacy, specifically technological literacy as something enacted, has become central to leading organizations' success today. Wallace & Hasse, ( 2014) propose organizational strategies should include: "...the attempt is to grasp technology as continually playing shifting and emergent roles within ongoing and recurrent interactions across a sphere of professional workplace influence" (p. 154). So, emergent technologies and the employees who are motivated to engage with them will be developing new sociotechnical practices that are likely to keep changing work practices well into the future. What Wallace and Hasse (2014) showed, and this study confirms, is that some of what earlier research predicted about the impact of ICTs on workplaces was true, but often in ways different than were anticipated, and that some things that seemed essential then were not essential in the ways expected.

**Time.** Time has often been presented as a trade-off related to the use of mediated communication: "Computer-mediated groups take longer to communicate than face-to-face groups. The CMC groups took longer to reach decisions than did face-to-face groups in several studies" (Walther J. B., 1992, p. 61). However, Walther (1992) also argued that much of this past research used teams with no history working together, only observed their working together over one problem of short duration, and that what they were observing was therefore only the "initial interactions among unacquainted partners"(p. 62). Walther (1992) noted that "over time, computer mediation should have very limited effects on relational communication, as users process the social information exchanges via CMC" (Walther J. B., 1992, p. 80); and the time required for this in his study was several weeks, with text-only interaction. This work was followed by that of Hollingshead, McGrath, and O'Connor (1993) who found that time working with a technology and time working with the group were more important than the time with a

type of task. So, in the context of this study, all the participants are beyond this early window of experience with the ICTs they are using, and are already acquainted with almost all their coworkers.

There are two ways that I believe time is important for informal communication for teleworkers. First, all of these participants held roles in their organizations that required a significant amount of time interacting with others within their typical workdays. Second, time involved their tenure with their organizations and more importantly the duration of their relationships with coworkers, which was sometime longer.

All participants in this study worked on multiple teams, and all described moderate to high levels of interaction with coworkers during their workdays. Several worked on teams where there were high levels of task interdependence driving this interaction, while for others managing, consulting, getting or giving help, reviewing progress was more of a driver of communication. This is at odds with early telework research, which suggested that workers who needed little interaction, or those with low task interdependence with others, were more suited to be teleworkers (Golden & Veiga, 2005; Kraut, 1989). What my participants described was frequent, dependable mediated communication. This suggests a shift in the sociomaterial practice of telework, indicating that Kraut's (1989) finding that "home workers are typically cut off from informal communication channels and therefore less well integrated into an organization's structure and culture" is no longer necessary true. In fact, it appeared to be their high levels of interaction and, for some their high levels of task interdependence that contributed to their success. What these teleworkers were accomplishing was a different type of proximity, a sociomaterial proximity that worked in ways that earlier researchers suggested were essential for informal communication (Kraut, 1989; Kraut, Fish, Root, & Chalfonte, 1990).

Long-term relationships with coworkers were not uncommon; half of the participants were in organizations where mergers and company sales resulted in relationships with some coworkers that were longer than their employment tenure with their current organization. Augustin indicated that her coworkers had spent the time necessary to survive the war together, and others indicated that because of this time they trusted one another to get their parts of the work done. Participants described their working with people over time as an important resource for bonding with others, again countering earlier research that indicated physical proximity was required for the informal communication to support bonding (Kraut, 1989).

**Bonding.** Golden and Raghuram (2010) provide the following definition of bonding: “the attachment and cohesion that an individual has with his or her coworkers, which stems from the extent to which one knows, likes and feels similar to them” (p. 1066). Fay and Kline (2011) indicate that “Our findings point to the importance of relationship building values that transcend technology, such as trust, liking and friendship, and the need for informal communication opportunities to nurture such relationships” (p.158). However, many researchers suggest bonding is more difficult to achieve for teleworkers, as Golden and Raghruam (2010) indicate “separation from others makes bonding less salient and harder to detect due to limited exchanges and lack of a shared context” (p. 1066). While this study has identified some limitations at the fringes, it found that the participants did achieve bonding fairly well. However, I would suggest there are important elements in the context of these workers that made this possible in addition to what has been discussed above. There is however, research that indicates that much of what the participants in this study do to achieve bonding through informal communication are practices that have previously been documented in face-to-face and/or mediated communication. This section will review this work is to extend these findings to telework, highlight the sociomaterial

practices that made bonding possible through informal communication for participants in this study, and examine how these fit or challenge existing claims in the literature. This review has been divided into the four ways that I observed participants achieving bonding through informal communication remotely: pre- and post-meeting talk, multicomunication in meetings, one-to-one social interaction, and social networking sites.

*Pre- and post-meeting talk.* Mirvel and Tracy (2005) describe premeeting talk as, “the exchanges that occur before the scene becomes a focused gathering with a single point of attention” (p. 2). Additionally, they identify this type of informal communication as “small talk” stating its purpose is as “a place for building work and friendly relationships and lies at the nexus of cultural and institutional forces” (Mirvel & Tracy, 2005, p. 2), or within the category of interaction this study identifies as bonding.

Participants in this study described using pre-meeting talk in the same ways that earlier face-to-face research suggested they would, though their frequent use of web meetings or conference calls resulted in differences in practices. These conversations were about family issues, vacations, and their health, all topics identified by Mirvel and Tracy (2005) as being addressed in face-to-face small talk while waiting for meetings to begin. These specific topics have been identified as displaying awareness of, interest in, understanding of, and support for one another, as well as support for building relationships (Mirvel & Tracy, 2005). Most participants who discussed this were using webmeeting platforms with screen sharing capabilities and whiteboards. While McCoy used the video component of her webmeeting platform, others chose not to use this available resource, indicating that seeing each other provided no benefit. This may be in part due to what McCoy described to me about the webmeeting systems’ visually prioritizing the speaker to the point where images of others in the

meeting are not large enough for reading non-verbal cues. While research from Whittaker, Frohlich, and Daly-Jones, (1994) found that participants in their study opted for “videophone over phone alone” (p. 132), Kraut, Fish, Root, and Chalfonte (1990) found that, counter to expectation, that video conferencing was not successful. There were suggestions from my participants that warrant further investigation, that the use of video-conferencing would require meeting participants to be dressed appropriately for work, and this may be a personal reason that motivates workers to not use video-conferencing. However, A different visual, seeing a list of who was on the meeting call enabled participants to know who they were talking ‘in front of. The way participants talked about the significance of this web meeting list suggests it is a substitute for the visual “sighting” to recognize a person and their availability that Kraut, Fish, Root, and Chalfonte (1990) discuss as a prerequisite for informal interaction. The ability to share screens provided another level for participants to show interest, by asking to see photographs from other’s vacations or family events, as Ninassi described doing after a coworker’s daughter won a swim meet. This type of sharing was described by participants as occurring because of a disclosure about missing for a meeting during the current or a past meeting (i.e. missing work for vacation or family function). In terms of timing, the face-to-face and mediated meetings were not entirely different, as Holmes (2014) found “In addition to its social functions..., small talk filled in time while participants waited for the meeting to begin. This was evident from the fact that, as soon as a sufficient number of people were present the small talk was generally interrupted by the person chairing the meeting” (p. 43). Participants described this interaction as before the meeting started. However, while in Mirvel and Tracy’s (2005) study the meetings the small talk occurred in had from 15-25 people attending, where anyone could break off and talk in small groups; my participants indicated that small talk generally only occurred when the



webmeetings had smaller attendance. Additionally, the participants indicated only one conversation, often initiated by the person running the call.

Conversations at the end of meetings were described in the most detail by the youngest participant in this study, who described conversations about upcoming out-of-work activities. Again this is a type of bonding is also present in face-to-face interactions. Holmes (2014) looking at face-to-face meetings states “At the end of interactions, small talk was also common. It might be a brief see you later or give us a bell (‘phone me’), or a more protracted disengagement, serving a range of functions, especially attention to positive face needs” (Holmes, 2014, p. 43).

Messer indicated that they often talked about the weather, the weekend getting close, and what they were going to be doing outside of work. The ability to carry on these interactions is dependent on the webmeeting platform ‘staying open’ as long as any participants are on the call together, as there was no discussion of these being limited to moderator initiation.

These findings also build in interesting ways on two aspects of earlier informal communication research: the use of audio channels, and the use of video channels for bonding when entering or exiting meetings. Kraut et al. (1990) compared informal communication in face-to-face interaction and through video mediated communication and found less informal communication happened in the mediated meetings. This appears not to have changed in terms of pre- and post-meetings interactions, due to the limited capabilities of the webmeeting channels: it is difficult to impossible to have more than one spoken conversation occurring at the same time, and it is possibly difficult to track the beginning of the formal meeting if one is involved in a text interaction. Also, while having these conversations in a physical environment, participants are able to talk with a selected sub-group at the meeting, something that is not

generally possible in currently available web audio systems (Mirvel & Tracy, 2005). So, at this time it does not appear to be possible to generate a sociomaterial practice that would make more conversations pre- and post- a single meeting feasible. Video is still not heavily used in these interactions, as researchers found earlier (Fish, Kraut, Root, & Rice, 1992; Kraut, Fish, Root, & Chalfonte, 1990). While these same researchers noted that it was a problem not to be able to share work documents (Fish, Kraut, Root, & Rice, 1992), they did not predict the sharing of photographs that shared screens have made possible in the support of informal communication promoting bonding.

Finally, proximity was determined to be important for bonding; Kraut et al. (1990) stated “Just as proximity was associated with familiarity, it was also associated with one’s liking for colleagues and respect for their work” (p. 171). I would argue that this is still true but that ICTs are providing a different type of proximity due to their ease of use, ubiquity in the workplace and low cost. Yet this is still not the continuous proximity of a shared physical environment, which was expressed by McCoy when she indicated that she would like a space in the headquarters near her main team members that was constantly on video feed where they could “go to” her office as whenever they needed.

***Multicommunication in meetings.*** Side conversations in face-to-face meetings is a recognized occurrence (Bajko, 2012; Berc, Gajewska, & Manasse, 1995; Stephens, 2012). ICTs broaden these possibilities in face-to-face meetings (Bajko, 2012; Kleinman, 2007; Stephens, 2012) as well as supporting these opportunities in mediated meetings (Berc, Gajewska, & Manasse, 1995). While this originated as ‘whispering’ in a face-to-face meeting (Berc, Gajewska, & Manasse, 1995), it is now often done with ICTs both in face-to-face and mediated meetings, as a practice called multicommunicating. “Multicommunication is defined as using

technology to participate in more than one conversation simultaneously” (Stephens, 2012, p. 196). While it can enhance efficiency, it can also be challenging to keep conversations separate, in particular when the conversations are different (Stephens, 2012).

While many participants described using this type of informal communication practice, Ninassi indicated she avoided it, particularly with requests from outside the meeting, because it was too difficult to keep messages straight when multiple people IM'd her. Other participants described two different uses of informal communication for bonding during webmeetings. These were dependent on the material affordance of the webmeeting systems to support text communication with one or more others in the meeting, that appears as an aside to the shared screen each attendee sees as part of the meeting. The first use of this resource, described only by Augustin, aligns closely with the study of face-to-face meeting communication. If Augustin needs to leave a meeting early she will send a text message through the web meeting platform to all of the participants which they can choose to read as is convenient for their ongoing meeting participation. Holmes (2014) observed something similar in face-to-face meetings saying:

Another point at which small talk can occur is when the personnel involved in an interaction changes – when someone leaves or someone new arrives to joining an interaction. In some respects, these ‘change’ points parallel openings and closings but, because they are often ‘interruptions’ to the business of the continuing participants, any small talk is generally minimal and may be confined to routine phrases (p.44).

In behaving this way Augustin displays politeness in two ways: she does not interrupt the progress of the meeting, while at the same time providing an explanation for leaving early; thus making her a good coworker, and increasing her bond with others in the

meeting. The other use of informal communication for bonding under meetings is to text message one other participant during a meeting. Augustin indicated she might text someone if they had not communicated in a while, to say hello; while likely briefer than pre-meeting conversation, this is another way of showing interest in coworkers.

Participants also used their internal instant messaging systems during meetings to have brief communications with people not in the meeting. The instant message system has a resource they described as important, in that their friended coworkers can post their work statuses, so that coworkers' availability could be known prior to getting in touch with them. This substituted for the sighting of the actual person to determine availability to converse that Kraut et al. (1990) described as a precondition to the initiation of informal communication. Augustin described this as a way to avoid holding people up when they had a simple question, a practice which can be considered a way of "doing collegiality" that Holmes (2014) described as a role for small talk. This kind of consideration is another way to increase bonding with coworkers.

Clearly technology is critical to supporting these types of informal communication for bonding. It was often dependent on multiple material resources, sometimes of multiple technology platforms; these included text identification of meeting attendees, web meeting text message capabilities with varying receivers, and the ability to instant message. Wasson (2004) suggests that "The lack of visual access between meeting participants, and the limited auditory access, seemed to encourage multitasking" (p.54) (In suggesting limited auditory access she is referring to the ability for participants to mute their microphones when not actively speaking.) While this may be so, Klineman (2007) found both computers and cell phones were used during face-to-face meetings, with the former being acceptable to most participants. So, while this

activity occurs in both face-to-face and web meetings, it would be worth further investigation to discern if it is more prevalent in web meetings when it is unseen.

Earlier research on informal communication discusses these types of interactions as short and opportunistic. What Isaacs et al. (1997) point to as critical to this is the ability to detect the availability of the person being communicated with. As described above the physical sighting of the other was the important resource in the face-to-face setting. For participants in this study to speak to someone else in a webmeeting, the participant list combined with their ability to hear who was speaking and predict the direction of the meeting in terms of imminent speakers allowed them to initiate brief interactions. Engaging with someone outside the meeting depended on the use of the status indication on an IM system and generally started with an IM text question to confirm a person's ability to text further at that time. Participants' use of these resources aligns with what Isaacs et al. (1997) describe: the need to interface with another person briefly, and/or to converse with someone about an interaction, during the primary interaction (Isaacs et al., 1997). During face-to-face interactions Isaacs et al. (1997) discuss the possible need to exchange documents as part of the discussion. This capability is available as part of the IM interactions of my study participants, and IM or sharing of the document cloud address was used by participants to share documents in their IM interactions.

***One-to-one social interaction.*** This is a second type of informal communication for bonding that can be described as small talk, which Holmes (2014) indicates "At the extreme, this is talk which is independent of any specific workplace context, which is 'atopical' and irrelevant in terms of workplace business, and which has relatively little referential content or information load" (p. 37). However, this communication has a significant role in the workplace to "serve the organisation's goals indirectly by maintaining good relationships between employees" (Holmes,

2014, p. 38). Some researchers have suggested that mediated communication discourages small talk (Kiesler & Cummings, 2002), while others suggest that sharing some small talk about family and friends is important for mediated coworkers to establish a work relationship (Fay, 2011; Fay & Kline, 2011; Isaacs, Whittaker, Frohlich, & O'Conaill, 1997; Olson & Olson, 2003). As with other practices moving to mediated rather than face-to-face environments may require and even benefit from substantial practice changes. While small talk in physically shared environments is often exemplified as opportunistic (Holmes, 2014), Olson and Olson (2003) suggest as a mediated practice we may have to be more conscious to “reveal more personal information to each other” (p. 12), suggesting both intentional interaction and a more topical focus.

These types of communications were described by many of the participants in the study, running the gamut from opportunistic to organized and intentional. They generally happened in one of two ways: first, during ongoing work where they might have some down time; and second, in purely social outreach for good wishes or support. For the first type, Messer discussed having to work out a project with a coworker where there was computer running time for what they were working on, and that during their wait, they would have conversations about non-work things. This was essentially a two person meeting, as they were working on a webmeeting platform, and this function was like the small talk discussed above. Participants reaching out for purely social purposes involved using a number of different ICTs for a range of reasons. Ferguson discussed an intermittent instant message interaction about music with a coworker that spanned several hours while they were both doing their individual work. Agustin indicated using IM for things like checking in on a sick coworker, or teasing someone about a favorite athletic team losing a game. She specifically discussed wanting to wish everyone Happy New Year, and using IM for people she talked to a lot, email for higher level people, to be formal, and phone for

people she had not talked to in a while and wanted to catch up with. Ferguson, who had fewer ICT choices, used the phone to check in for birthdays and holidays with the people that supported him. Both Ferguson and Augustin discussed trying to quickly touch base with people face-to-face whenever they were at the office, Augustin focused on more time with fewer people while Ferguson indicated he tried to say hello to as many people as possible.

Early telework research found that informal communication for bonding was dependent of physical proximity, and that because of this, home based teleworkers were “denied...socializing and friendly social interaction” (Kraut, 1989, p. 26). However, more recent work by Fay (2011) found both personal disclosure and sociality were among the things accomplished with mediated informal communication; these bonding activities were reported by teleworkers as being done by others more than by them doing this themselves. Fay (2011) suggests this may be to reinforce the idea that they are working hard. This study, involving participants in organizations and groups with high levels of distributed workers, did not evidence this kind of dichotomy.

A number of researchers have studied specific video technology tools involved in informal communication (Dourish, Adler, Bellotti, & Henderson, 1996; Fish, Kraut, & Chalfonte, 1990; Fish, Kraut, Root, & Rice, 1992; Isaacs, Whittaker, Frohlich, & O'Conaill, 1997; Kraut, Fish, Root, & Chalfonte, 1990; Lee & Takayama, 2011; Ogi & Sakuma, 2015) . These studies gave priority to the idea of sighting and what it provides, and did not focus on users saying they wanted document exchange and/or the ability to see one another's work (Kraut, Fish, Root, & Chalfonte, 1990). All but one of the participants in this study had access to video conferencing capabilities, but did not choose to use it. Their reasons included: a lack of benefit, tone of voice being adequate to 'read' another person, and not wanting to have to be presentable for work.

(This last point is specific to teleworkers, in contrast to most other workers who are in work environments. However, some participants were at times talking to others in the office, and they were not choosing to use video either). McCoy, the one participant who used video, stated that this was largely because senior executives with who she had to interface insisted on it, and as such she is now in the habit of using it. I had thought originally that the screen sharing approach absent video would be inadequate, as I believed people would want to work on documents at the same time. But my participants indicated this was not an issue, and that if they needed to they could hand over the document and the screen control (2 separate activities) to someone else to work with.

Of the other platforms people were using for this that I can consider in light of past research findings is IM, specifically as regards Nardi et al.'s (2000) findings. The centrality of this platform for the teleworkers in my study was surprising to me. Its immediate presence, status indications, ability to support emotional context (emoticons and video emoticons), ability to appear on multiple devices, and ability for participant regulation of interaction timing are all important features of this interface (Nardi, Whittaker, & Bradner, 2000). Nardi et al. (2000) also mentions keeping up with friends and family. Two participants mentioned doing this, however their systems were internal so it was for family members working in their organization. Augustin developed a special notation for people on her 'friends' list in this category; she put a 'z' in front of their names, which dropped them to the bottom of the friends list, so they would not be in the way of the work task connections she used more frequently.

An interesting negative finding in this study relates to opportunistic 'small talk' bonding among workers who are not working together, but whose skills might enhance or complement one another, which is apparently not being accomplished remotely. Messer made mention of this



limitation in discussing her visits to the office, where she made efforts to share workspaces with others doing work similar to her own, toward generating some social connections outside her workgroups.

***Social networking sites.*** Participants in this study discussed three social media resources: LinkedIn, Facebook and internal social networking sites (SNS); researchers have studied all three and their benefits and limitations in the workplace. Skeets and Grudin (2009), in their study on Facebook and LinkedIn in the workplace, found these two social networking sites were the most heavily used SNS at the time. While they found LinkedIn to have more users, Facebook was more heavily used. In this study the use of these SNS were more heavily focused away from work, with LinkedIn more often used for former coworkers and extended business connections, and Facebook more heavily used for former classmates, childhood friends, and colleagues from former jobs (Skeets & Grudin, 2009). Importantly, they discussed issues, particularly with Facebook, on keeping work/client and social/family connections separate, and discussed difficulties with the interaction of the two that created workplace discomfort (Skeets & Grudin, 2009). On the other hand they described some who indicated they had better relationships with coworkers when they got to know more about them through Facebook. LinkedIn was more important for people in maintaining loose business ties and for job searches. Several articles have been published about IBM's internal social networking site (DiMicco, Geyer, & Dugan, n.d.; DiMicco, Millen, Geyer, Dugan, Brownholtz, & Muller, 2008; Steinfield, DiMicco, Ellison, & Lampe, 2009), discussing the possibilities and use of the site. This site allows for a home page with a photo of the employee, their contact information, a section about them, lists they can post (i.e. "Cities I have lived in, "Last 5 projects I worked on" (DiMarco et. al. 2008, p. 713)), and others comments. Employees have to opt in to participant and can control

who sees what information on their page (DiMarco et al., 2008). In 2007, a year after its launch, 30,000 employees were on the site, with 67% of them seen as active on the site (DiMarco et al., 2008). Interaction was generally with people beyond their immediate workgroup (DiMarco et al., 2008).

Several of my participants indicated that they used a social networking site for work purposes. Of the participants that used social media for work, they agreed that LinkedIn was the site to use for this, and also specifically mentioning that Facebook was not appropriate for work contacts. (Augustin did indicate having some friends on her Facebook page that had originated as work connections, but who no longer were and had become friends primarily.) They also agreed that this page, while something they did not use often, was useful for keeping track of former coworkers, now working for different organizations. Augustin and Ferguson specifically mentioned using LinkedIn to contact and periodically set up meetings with people with whom they no longer worked. Specifically, they were interested in maintaining these distant relationships in case they were needed for some future purpose. This is in alignment with past research done of social media use at work, where LinkedIn is the preferred site for work connections, is not used regularly (Skeels & Grudin, 2009), and is used to maintain 'weak ties' (DiMicco, Millen, Geyer, Dugan, Brownholtz, & Muller, 2008). As these participants indicated, social networking sites were not used as a way to keep in touch with people they were currently working in the organization with (Skeels & Grudin, 2009). Additionally, LinkedIn was found to be most useful to older professionals (Skeels & Grudin, 2009), and as such the younger participant in my study largely did not use it. However, Messer did discuss her organization setting up discussion boards for different categories of employees, including teleworkers. Unlike the site that IBM developed, these discussion boards depended on people posting

topics/questions, and others taking the time to respond. Messer indicated that periodically she would look at the teleworker discussion board and post a picture or see something from someone she knew, but she did not discuss this as significant in relationship maintenance or in the development of resources for her.

Interpersonal informal communication plays an important role in supporting the maintenance of weak ties, which are the relationships that have been found to delineate high-performing from low-performing workgroups (Isaacs et al., 1997). In the past workers were dependent on running into someone in the hall, coffee room, cafeteria, a professional meeting or some occasional event. SNS seems to have taken that to another level. Isaacs et al. (1997) identified six functions of informal communication as “tracking people, taking or leaving messages, making meeting arrangements, delivering documents, giving or getting help, and reporting progress and news” (p. 467). Of these six many are supported in traditional SNS, and can be in sites like the one IBM developed. The most informal of informal communication is “a spontaneous interaction in which the initiator had not planned to talk with other participants” (Kraut et al., 1990). The one challenge I would notice with these sites from my research is that the participants who seemed to most heavily use them were the ones I would identify as outgoing. As Augustin indicated these are not the kind of relationships you can just go back to and after no interaction for a long time; they must be maintained, and these sites provide a resource for doing that, if workers choose to use them.

**Learning.** Participants in this study used informal communication to accomplish learning in a number of ways, through a range of sociomaterial practices. These practices build on and challenge what we know about informal communication in light of its use in mediated settings. In order to review these practices, it is helpful to understand how past researchers have

categorized the kinds of learning done in organizations. Researchers who study learning in organizations distinguish formal and informal learning (Marsick & Watkins, 1990); and informal learning is commonly subcategorized to include what is known as incidental learning. Informal and incidental learning are the two kinds of learning that the participants in this study described accomplishing through informal communication. As past research findings have indicated that informal learning makes up the majority of organizational learning (Kraut, Fish, Root, & Chalfonte, 1990; Marsick & Watkins, 1990; Twidale, 2005), teleworkers' ability to successfully accomplish this remotely is important to their success as members of their organizations.

Marsick and Watkins (1990) define these types of learning as follows:

Informal learning, a category that includes incidental learning, may occur in institutions, but it is not typically classroom-based or highly structured, and control of learning rests primarily in the hands of the learner. Incidental learning, a subcategory of informal learning, is defined by Watkins as a byproduct of some other activity, such as task accomplishment, interpersonal interaction, sensing the organizational culture, trial-and-error experimentation, or even formal learning. Informal learning can be deliberately encouraged by an organization or it can take place despite an environment not highly conducive to learning. Incidental learning, on the other hand, almost always takes place in everyday experience although people are not always conscious of it. (p. 12)

Past research has sought to define organizational learning on a scale of formal to informal learning, with the formal end being a classroom setting, with a teacher and structured lessons. The formal-to-informal learning scale then involves variations in setting, relationship and/or participants, structure of interaction, and purpose of interaction. As learning becomes less

formal, it moves out of the classroom into the everyday, away from a teacher-organized activity, and even away from a focus on learning as the central purpose of the interaction (Eraut, 2004). While there is an overlap in the occurrence of informal learning and informal communication, they are necessarily different.

The learning processes my participants described most often were between managers and subordinates or between coworkers. The move to mediated communication does not appear to have impacted this, as Jablin (2001) indicated, when discussing face-to-face learning, that newcomers learn from “message exchanges with supervisors, peers/cowokers, and managment sources” (p. 756).

In addition to learning types my participants discussed a range objectives: “newcomer” learning, developing shared understanding, getting or giving help, other work (incidental learning), and changing processes or procedures. Isaacs, Whittaker, Frohlich and O’Conaill (1997) identified six objectives of informal communication, of which I identified one as a learning objective I found in this study – getting or giving help. However, three of their objectives were used to enable the primary learning objectives participants described. First, “tracking people” was possible and quick, through checking a coworker’s IM status (seeing this did require the coworker to have agreed to “friend” the participant). If the status of the person they wanted to communicate with indicated availability participants often followed up with an IM text to ask if the person was currently available to ‘talk.’ Second, to “make meeting arrangements” participants looked at coworkers’ electronic calendars and ‘invited’ the desired participants. Taking or leaving messages (Isaacs, Whittaker, Frohlich, & O’Conaill, 1997) was primarily accomplished through IM or through email. In the rest of this section, I will examine each learning objective category participants identified to describe the predominant sociomaterial

practices that emerged, and then examine how that aligns or not with what earlier research suggested about informal communication.

*Newcomer learning.* Getting established in a new organization is an important step in both an employee's success and in his/her decision to remain in an organization (Holton, 1996). Newcomer training used to have a large formal component to it (Gilsdorf, 1998); however, my participants, most with 25 or more years of work experience, indicated that the formal component of new employees' training has been minimized or eliminated as compared to what it was at the beginning of their careers. The increased reliance on informal communication has moved practice in these organizations toward learning in a more interactive way, which research suggests is likely to be more effective (Jablin, 2001; Twidale, 2005), and makes informal communication an important learning resource for newcomers (Twidale, 2005). Several participants were on the training side of this kind of learning and described preparing visual resources and scheduling a time to interface with the newcomer. Participants indicated they had varied resources available for new employee learning. These resources included co-location of (or lack of co-location of) the newcomer and the person training them, and financial resources to have workers travel to a different office location. Given their resources differed for different newcomers, participants described tiers of preferred processes for educating newcomers, and all but the first tier were dependent on the pervasive availability and routine use of ICTs by participants' coworkers. They stated that face-to-face interactions were the most preferred, followed by one-on-one mediated learning, always available interaction (hybrid face-to-face then virtual, or entirely virtual), and noted that at the least they wanted newcomers to have the ability to virtually 'look over the shoulder' of an experienced manager or coworker. Participants indicated that face-to-face interaction met the needs of this type of training in two ways: first, to

be able to observe a more experienced person doing something they needed to be able to do; and second, to have immediate access to their help when needed. McCoy in particular felt that when a newcomer and their instructor were not together it was too easy for the instructor to get engaged in other work and, not seeing the newcomer in front of them, to ignore the newcomer.

When it was necessary to move to the second preference for training, where newcomers were assigned virtual help, two key sociomaterial practices were most often used to make this successful: first, newcomers had access to their assigned teachers immediately by using IM for its immediate presence on the screen of their assigned support person, and tracking their teachers' availability by viewing the IM status of that person in a pop-up menu. When she first moved to telework as a newcomer, Messer described being able to quickly get answers to many questions just through the use of IM, and when necessary, by exchanging documents as IM attachments. She also indicated that it was easy to move to a phone call if necessary, sometimes still using IM for document exchange. In these short interactions, webmeetings, due to the time involved in scheduling, were not preferred. However, Augustin and McCoy discussed using a webmeeting platform so they could have the newcomer observe them working on their computers through the shared screen function, which also afforded the ability to move to a whiteboard if needed. The larger screen presence, compared to IM, made the start-up time worthwhile. While McCoy was in the habit of using the video component of the webmeetings, none of the other participants who had such access used the video component of their webmeeting platform. If a newcomer was seen as needing less help starting up, as was described by Augustin when an attorney who had left the company returned after a period away, a single webmeeting was used without an expectation that frequent interaction would be needed. The final piece that made these work was that scheduling was made easy through the use of IM (immediate) or shared calendar invitations

(scheduled) as described above. One participant, McCown, did not have a webmeeting platform and used conference calls and provided cloud computing access to documents that everyone could look at electronically. They did not have the ability to see joint work on the documents as the other participants did.

Earlier research on informal communication and learning in face-to-face environments supports the significance of these practices for the success of learning through informal communication as it is being accomplished by teleworkers. In newcomer use of informal communication for learning, researchers have documented the need for availability and convenient access to an appropriate person (Jablin, 2001; Kraut, Fish, Root, & Chalfonte, 1990; Twidale, 2005). Nardi, Whittaker, and Bradner (2000) found “The visibility of IM also contributes to greater efficiency for tasks requiring rapid responsiveness. This visibility served as an important altering mechanism making recipients more aware of instant messaging, than messages sent in email and voicemail” (p. 81). So, in having this resource, messages from newcomers appeared on the screens of teachers devices immediately after sending. Additionally early research talks about “sighting” availability (Kraut, Fish, Root, & Chalfonte, 1990) as important. In this research they were referring to seeing another person as a way to gauge their availability for interaction. Nardi, Whittaker and Bradner (2000) found, as did I, that people in their study used the status feature on their buddy list to judge availability of communication partners. For longer or more complex learning interactions, early research on informal communication suggested that in general, people communicating virtually wanted to be able to share documents (Fish, Kraut, Root, & Rice, 1992) while allowing interaction with those documents (Isaacs, Whittaker, Frohlich, & O’Conaill, Informal communication re-examined: New functions for video in supporting opportunistic encounters, 1997) and they did not find



workers seeing each other with video connection was important enough to make the effort to do often (Kraut, Fish, Root, & Chalfonte, 1990). This was born out by the practices of most of my participants.

***Developing a shared understanding.*** Hinds and Weisband (2003) define shared understanding as “a collective way of organizing and communicating relevant knowledge” (p. 22). Crossan, Lane, and White (1998) indicated developing a shared understanding is an integrating learning process for which “dialogue and joint actions are crucial” (p. 525). In order to achieve shared understanding among coworkers shared mental models are required (McComb, Green, & Compton, 1999), which are developed through learning together (Hinds & Weisband, 2003; Van den Bossche, Gijsselaers, Segers, Woltjer, & Kirschner, 2011). Researchers suggest high levels of rich communication and interaction are needed to develop the shared mental models necessary for this understanding (Hinds & Weisband, 2003; Van den Bossche, Gijsselaers, Segers, Woltjer, & Kirschner, 2011). Informal communication plays an important role in its particular benefit of “coordination in the face of uncertainty and equivocality” (Kraut, Fish, Root, & Chalfonte, 1990, p. 150). Additionally, Fay and Kline (2011) suggested that for teleworkers informal communication plays a more significant role in developing a shared understanding because they lack the physical cues of co-located workers.

Developing a shared understanding was something my participants discussed accomplishing in both one-on-one and group interactions. The range of issues included: discussing approaches to new projects, informal intermediate project reviews, and reviews before client meetings. Messer explained discussions of new projects often followed formal program web meetings, when a smaller group responsible for analysis would get on a phone call or stay on the web meeting to talk and be sure they shared an understanding of what their internal client

expected before starting the work. She also regularly used informal interaction to review projects in process. While shared understanding was often accomplished with ICTs, several participants discussed finding face-to-face interaction beneficial, when that opportunity was available. McCoy described the two benefits to this face-to-face interaction: first, seeing others' expressions in response to what she was saying; and second, being able to better evaluate new and culturally diverse team members. When remote, she was the one participant who used video, and sometimes telepresence, particularly if she was having a difficult discussion. Most of the participants did not use their video capabilities: Ninassi explained this was not needed as she was comfortable using tone of voice to understand the attitudes of participants in their webmeetings without video. Several others indicated defaulting to web meeting platforms without video, as they afforded the possibility to share documents or to use the white board; they indicated the extra set-up and sign-in time was worth the effort because visuals were often brought into mediated conversations without pre-planning. Several participants indicated that they used phone calls for these discussions under two sets of conditions: first, if they were talking to a single person or small group who they were familiar with, and felt they did not need visual support for their conversation, as initiating a phone call was easier; and second, if the need to develop a shared understanding was immediate but not simple enough for an IM. For participants in this study, phone calls were used when someone they were working with on a project was on their way to or in a client meeting and needed to clarify something with someone they were not physically with. It is important to note that this type of interaction engaged coworkers who were already working together and thus familiar with one another, and the level of shared understanding required was much less complex.

To arrange these interactions participants reported using IM or calendar functions. IM worked well for situations where the conversation needed to take place sooner, and fewer people were involved due to the instant presence of the IM message screen on coworkers' devices. Checking electronic calendars was easier to accomplish if the meeting was less immediate, as the organizer could see all participants' calendars, find a time all were available, and notify all with one 'invitation'.

I have identified one study, by Hinds and Weisband (2003), that documented shared understand through mediated communication of virtual teams. This study documented significant problems these separated workers faced in accomplishing shared understanding. They identified a range of issues at the root of these problems: technology differences among team members, mismatch of technology and task, technology limitations, and the routine way of working being in proximal co-located environments. (Thus, virtual work required more effort. Also, some information was space based, such as project rooms and bulletin boards.) Many of the technology issues discussed have been in large part addressed in the more current generation of sociomaterial practices in organizations (Messenger & Gshwind, 2016). My participants all indicated they had access to the same technology as their coworkers, although they might have to be aware of limits on non-work hours access or some equipment being a shared, reservation-required office resource. Additionally, most participants were part of highly virtualized organizations, where the combination of mobile, distributed (which could mean another floor in the building or another building on a campus), and teleworking employees meant that people routinely connected for work through ICTs. As well, an issue not addressed in the literature that several participants brought up, is that their organizations have undergone many rounds of layoffs, that they were down to too few people for too much work, and that there was no

guarantee that more cuts were not coming. A likely upshot of these workforce reductions is that workers who had not figured out how to deal with ICTs were likely gone, and the workers remaining were very motivated to stay productive and get along with coworkers

The range of informal communication practices described by participants in this study confirms some and contrasts with other early informal communication research findings. First, my participants engaged a range of ICTs as the different affordances each provided became important for the practice at hand. This confirms Fish et al.'s (1992) finding that workers would use a wide variety of mediating technologies to meet their needs as appropriate. As with newcomer learning, participants' practices for accomplishing shared understanding reinforced the findings of Isaacs, Whittaker, Frohlich, and O'Conaill (1997) that not only was it important to be able to share documents instantly, but that workers "should be able to see each other pointing and writing on documents" (p. 479). IM was still used for schedule coordination and brief messages, as Nardi, Whittaker and Bradner (2000) had identified. Finally, I found that most of my participants were choosing not to use video components of ICTs, as was the case with participants described in earlier research, although those investigators had predicted that video would be important (Kraut, Fish, Root, & Chalfonte, 1990). The reasons that video was not used today are different than in past work, as these technologies are no longer difficult to use, high cost or lacking in dependability (Fish, Kraut, & Chalfonte, 1990). Now, at least in part, several participants indicated that not having to have to dress up for work was a greater benefit than "seeing a talking head". This last indication may mean that although video technology has gotten better in terms of cost and ease, it is still not addressing the problem Fish, Kraut, Root, and Rice (1992) found when they said "that there were many expressive functions for which users did not find the CRUISER system [their video platform] sufficiently suitable" (p. 45).

***Getting or giving help.*** Suchman & Wynn, (1984) in their article on the sociotechnical organization of clerical work identified spatial proximity as important to asking and answering questions. A little more than a decade later, Isaacs et al. (1997) indicated proximity was still important for getting or giving help. The idea that proximity was important for getting or giving help also held up in early telework research when Yap and Tng (1990) in a study on attitudes about telework among women computer professionals found that both those who favored telework and those who were against telework believed that difficulty getting help would be a problem with teleworking. In addition to intentional help seeking, researchers also found that co-located workers offer spontaneous help to one another (Isaacs, Whittaker, Frohlich, & O'Conaill, Informal communication re-examined: New functions for video in supporting opportunistic encounters, 1997), which would require a signal that help is needed.

Most of the participants in this study discussed seeking or giving help within their work groups, meaning they were seeking or giving help to others they worked with or at least had a substantial relationship with. All described the help needed as work related. These interactions generally engaged one of two media: instant messaging or telephone. Instant messaging was particularly useful when information being shared was easy to ask for and answer in brief texts. Initiating interaction in this way had several advantages my participants described: first, it was generally the most immediate channel to get to the other person because it appeared on the screen of a range of devices participants' organizations used as soon as it was sent; second, the receiver's often responded during other ongoing activities, particularly if their participation was peripheral and the answer brief; and finally, it was easy to move or plan to move to a different platform if more in-depth interaction was needed. The second medium used was the telephone, which was used when one participant was mobile or outside of normal business hours (or both)

and quick interaction was needed. For McCown's organization it was the primary way of having immediate contact, as they did not use an instant messaging or a text messaging platform. While McCoy's organization's phones had video components, she indicated speaking on the phone without video as respectful when one participant was outside of business hours, but this indication also included the unsaid expectation that they would answer their phones outside of work hours. This kind of interaction allowed a more complex question and/or answer, and participants indicated they could share documents as instant message attachments if needed. There was one unique extension to phone calls for help, which was Ninassi's "formal/informal" solutions web meeting. WorkSyn, recognizing the need for this kind of help, had Ninassi as a senior content expert host help calls twice a week; these calls were open to anyone who needed technical support in her areas of expertise. Recognizing this as an official part of her schedule allowed Ninassi to dedicate the time needed to this exercise. It also exposed her to a wider range of employees, as since it was essentially a specific help desk, people could call who did not have a prior relationship with her. This extended their ability to get help beyond peoples' immediate teams.

These practices of learning in many ways are perfect examples of informal communication. Several earlier studies indicate that informal communication is unscheduled (Hrastinski, 2008; Hrastinski, 2010; Kraut, Fish, Root, & Chalfonte, 1990). Providing more detail Kraut et al. (1990) describe four levels of planning, of which they consider the first formal communication and the other three informal:

- (a) a conversation that was previously scheduled or arranged (we term this *scheduled*),
- (b) one in which the initiator set out specifically to visit another party (*intended*),
- (c) one in which the initiator had planned to talk with other

participants at some time and took advantage of a chance encounter to have the conversation (*opportunistic*), or (d) a spontaneous interaction in which the initiator had not planned to talk with other participants (*spontaneous*). (p. 160)

Most of the practices discussed here are clearly intended and thus, informal. However, Ninassi's discussion of her solution call, I believe, presents an example of a company formalizing an informal process to make it more beneficial than it would likely be if left informal; and in doing this provides an example of how mediated communication, not just for teleworkers, can be used to overcome limitations of informal communicative behavior, in this case proximity. Fish et al. (1990) indicate that "most conversations involved people who are housed close to each other" (p. 163). In establishing this call, the organization is essentially making Ninassi virtually proximal to people across the organization, many who would not have had access to her if this required physical proximity. Even leaving it up to strictly informal communication help seeking a coworker would need to know of Ninassi's existence and expertise and be comfortable reaching out to her, and she would have needed to have a connection to that person that would motivate her taking time from her assigned work to help them. This organizational practice is identified in learning literature by Marsick and Watkins (1990) who say, "some organizations provide structure and design to what otherwise would be considered informal learning. For example, an organization might initiate a mentor program, designate certain recognized experts as coaches, or institute a career development system that includes planning for learning outside the classroom" (Marsick & Watkins, 1990, pp. 14-15).

***Incidental learning.*** Incidental learning emerges out of an everyday activity not focused on learning (Marsick & Watkins, 1990). Thus in order to experience this kind of learning, having everyday work activity is essential. However, research has found that teleworkers were

cut off from learning opportunities due to isolation (Cooper & Kurland, 2002), and that isolation became worse as people teleworked more, and was not mitigated by teleworkers' access to ICTs (Golden, Veiga, & Dino, 2008).

Participants in this study discussed accomplishing incidental learning and creating work activities in which it occurred. Messer, the youngest participant, discussed an interaction where she was watching how another person produced a particular analysis through the screen sharing capability of their web meeting platform. During this interaction she realized that the tool her coworker was using could be used in a way she had not realized before. Seeing others doing work was an important opportunity for her to learn in everyday work processes.

As a manager Augustin discussed teaming more senior team members with less experienced ones, so that they would have the opportunity to learn while working. She also indicated doing some work in larger groups working at the same time so that team members would have the opportunity to see how others approached thinking about a problem.

As was discussed earlier, informal communication research identifies shared documents and ability to see work on those documents are important to informal communication (Isaacs, Whittaker, Frohlich, & O'Conaill, *Informal communication re-examined: New functions for video in supporting opportunistic encounters*, 1997). It is particularly important for incidental learning because of its ease participants discussed having regular mediated interactions.

While earlier research strove for (Fay & Kline, 2011; Fish, Kraut, Root, & Rice, 1992; Kraut, Fish, Root, & Chalfonte, 1990) and documented the need for (Isaacs, Whittaker, Frohlich, & O'Conaill, *Informal communication re-examined: New functions for video in supporting opportunistic encounters*, 1997) video components to mediated informal communication, participants in this study found this feature largely unhelpful, particularly as groups in the



meeting became larger. McCoy indicated that the video system made the images of the speaker's face large, and those of the listeners small, so the speaker was unable to see the responses of those listening to them. This aligns with the challenge that Fish et al. (1992) found with "the many expressive functions" (p. 45) that video mediated communication was not capturing, that workers get in face-to-face interactions. While earlier research focused on the use of video did not have positive results, researchers are still pursuing stand alone video systems to support mediated informal communication, and they are just now starting to identify some limited successes (Ogi & Sakuma, 2015). As this work moves forward, these scheduled group activities could be an important means for evaluating Isaacs et al.'s (1997) predictions as to what could make video systems work.

*Adapting processes and procedures.* Adapting processes and procedures is essentially making changes. Salem (1999) describes change as involving "differences over time" (p. 4). He describes two orders of change, of which the changes to processes and procedures described by this study's participants falls into his category of 'first-order' change. He defines that change as "evaluating the outcomes of behaviors and adjusting behaviors to maximize goals" (p. 5) and later calls this "simple learning" (Salem, 1999, p. 5). While several participants did describe informal communication as a possible resource for initiating of these activities, Ninassi felt it was never an informal procedure, and all felt it had to become formal before it could be implemented. Based on Salem (1999), this is not unexpected, as he states "when there is little environmental equivocality or pressure, the system tends to acquire more and more resources, and each cycle of behavior becomes more structured and more efficient at using those resources. The system centralizes as it reduces the equivocality in its processes" (p. 5).

## Conclusion

This study examined two interrelated but distinct questions. First, what is the significance of telework parameters? And second, Can full-time teleworkers accomplish bonding and learning through informal communication? And, if so how and how does it build on existing informal communication research? Additionally, this research used an approach to telework research that has not been used to examine this category of work, that provides a way of examining this way of working as a rich practice that depends on integrative practices of social and material elements. Below is a summary of the important conclusions from each.

**Telework parameters.** Telework is framed within four parameters: place, time, technology and organization-worker relationship. These four components emerged as the frames of work in the industrial revolution in a way that still has significance today (Gajendran & Harrison, 2007). However, as we move into another era of ways of working the relationship significance of these parameters are changing.

While researchers often identify the parameters of telework in publications (Golden & Raghuram, 2010; Mann & Holdsworth, 2003; Sewell & Taskin, 2015) the specific way the parameters occur in their studies are often not identified, or are not identified in meaningful detail. While I will summarize each parameter below an important consideration for all that is largely missing in the literature is the contextualizing of each of these in teleworkers organizations or at least all their work groups. It was in the detailed descriptions of these parameters that much of the findings of this work emerged. It is essential then that telework (and other virtual work) research documents each parameter in detail, so that work can be comparable across studies.

When documenting place, it is important to document all of the places in which workers work, even when that time is small. This should include all places where workers interact for business purposes with coworkers, contractors, volunteers and clients. Also important is what and who determines when and how much time they spend in these places. Finally, it is important to understand what value to the work process these different places provide them. An example of what this would look like for place is to document the work location of the teleworkers work group; this should provide an understanding of the extent of face-to-face and mediated interaction (i.e. in the same office location or in different office locations) that the group the teleworker works in is using.

Time is significant in two ways shared work hours, and time spent together (which needs to move beyond the typical time in a week indication). While there is research on the impact of both of these (Armstrong & Cole, 2002; Hinds & Cramton, 2014), they are not well documented in most research.

Technology, is the least well documented of the parameters; and is important in terms of both hardware and software (particularly communication platforms) commonly used for communication and sharing of information. Messenger and Gschwind (2016) documented generations of technology and how they were different in terms of how working was possible. What is not addressed in literature is the difference it makes when the use of technology for communication becomes pervasive in organizations often made necessary as organizations become more distributed and co-location of workers on teams together becomes rarer.

**Place.** Connecting and containing the material elements of work had for a long time been the assumed purpose of places of work. We can no longer assume that people work together by being in a shared place. We can no longer assume that being in the office, that ‘shared place’,

means you are with the people you work with. All of the participants in this study worked with coworkers also not in organizational space and/or in a variety of their organization's spaces. This was as true for the participant who worked in a state based governmental agency as it was for the participants who worked in globally distributed organizations. For my participants space was often not what connected their work-teams and their work. This suggests an important reconsideration of the based assumption of shared space as the material connector of coworkers in organizations.

**ICTs.** Participants in this study had access to many of the same ICTs that have been available for a while, so that merely listing the types of hardware (something I found common in telework research) was not what provided insight into their capability to accomplish informal communication as teleworkers. The addition of software platforms they used also did not add insight. To understand these teleworkers' abilities to accomplish informal communication required having them discuss their informal communication practices to accomplish bonding and learning. In talking to them about how and why they do this the material affordances of the range of ICT hardware and software they engaged became an essential part of the discussion.

In trying to compare the findings of this work to studies that were done earlier, the work that became most feasible for comparisons were those studies structured to examine a specific ICT (Fish, Kraut, & Root, 1992; Kraut, Fish, Root, & Chalfonte, 1990; Nardi, Whittaker, & Bradner, 2000) because these studies also discussed the actual practices that workers engaged in. Research that focused on specific practices, even on the same practices I was looking at (Fay, 2011), was difficult to compare because critical contextual elements of the earlier telework were not included. What this suggests for the future study of telework of telework is that a rich description of ICTs in practice is needed in order to provide a full understanding of how various

communicative practices are accomplished, and of when and how we might expect them to change as ICT capabilities and types evolve over time.

**Time.** Much of the documentation and evaluation of telework has been in terms of time in place per week, specifically time in organizational workplaces. What I found in this study is that another scale for time is needed and that work time together (shared work hours,) is an important time factor of telework. None of the participants in this study could describe their time in the office in hours per week, or even in terms of any regular time schedule, as they did not organize their work that way. However, it was clear from talking to participants that time spent in shared space with coworkers still provided some unique value. While this study identified the value of this time in reinforcing relationships, connecting with difficult-to-connect-with coworkers and to meet people in the organization you were not working with who could be valuable to know, the amount of time needed for this was not examined.

**Informal communication.** The second question in this study looked to see if full-time teleworkers were accomplishing informal communication for bonding and learning, two areas in which this kind of communication had been identified as important (Kraut, Fish, Root, & Chalfonte, 1990; Nardi, Whittaker, & Bradner, 2000). Early research that examined informal communication through mediated communication channels, insisted that this kind of communication was impossible or difficult to accomplish (Kraut, 1989). In this study, it was clear that the participants were doing it routinely. Several factors appear to be key to this being achievable. First, and I believe most significant, were the sociotechnical systems in which most of the participants in this study describe working. On the material side, not only did teleworkers have a range of ICTs, but all of their coworkers, regardless of location, did as well. This resulted in team practices where the affordances of various technologies could be engaged in relationship

with all workers for all work. (There are some limits relative to shared ICTs and non-office hour access, in particular for in office workers; but participants discussed sociomaterial practices that adapted to this.) On the social side, participants worked in organizations where workers and the organization's business were distributed. Additionally, those workers were increasingly working from home, from client sites, and from different countries (I was surprised during my research when I realized all of my participants were members of distributed teams, in addition to being teleworkers). While some traveled a fair amount, others were substantially limited as to where they worked. The presence of these two factors: the pervasiveness of ICTs, and the distribution of workers and work, I believe lead to a tipping point where mediated informal communication becomes not just possible, but successful.

Informal communication as a concept, both in how it originates and what it does, has changed due to the sociomaterial practices of work. Key in these changes is the interactions of the various communication technologies but also changes in organizational processes, which have become less formal over time. While earlier research indicated informal communication was "unscheduled," (Kraut, Fish, Root, & Chalfonte, 1990) some of the ICTs participants used need scheduling – as an example, when people are using web-meeting platforms. Additionally, with the busy workdays and distribution of coworkers participants described work routines that involved checking availability and scheduling time to talk for most work interactions. Past researchers have argued that informal communication cannot occur between a boss and subordinate, but in several circumstances my participants would describe boss-subordinate interactions as such. I believe this emerges from the increased informality that I have witnessed in organizations over the last several decades, which has provided the opportunity for this kind of interaction to sometimes be informal. This all means that the things that are accomplished with

informal communication and the structure of its informality has changed as sociomaterial practices of this communication have moved into the digital era.

### **Significance of this work.**

This work was completed at a significant inflection point in the use of ICTs in organizations, a point where the affordable capability of technology is allowing for ubiquitous adoption of many ICTs in organizations, which in turn makes distributed and mobile work more feasible. These work practices in turn reinforce the adoption and emergent uses of ICTs in organizations. The participants in this study all illustrate this occurrence, as their work, specifically their informal communication, has the potential it does because of the iniquitousness of ICTs in the organizational systems in which they work. The ways they are working were not possible in earlier generations of telework. Beyond illustrating the significance this systemic change in organizations is making, this work is significant in three ways. First, these participants' work experiences indicate that shared physical workplaces are not necessary for informal communication in organizations. Second, it eliminates one of the formality dimensions of communication. Third, it illuminates the need for more detailed application of the parameters of telework to research and documents, and provides examples of how and why this is important.

Participants in this study were able to accomplish informal communication without being with coworkers in a shared physical space. This was accomplished, not through a specific technology intended to enable informal communication, as has long been sought (Fish, Kraut, & Chalfonte, 1990; Isaacs, Whittaker, Frohlich, & O'Conaill, 1997; Kraut, Fish, Root, & Chalfonte, 1990; Ogi & Sakuma, 2015), but through the emergent mediated practices of work without shared physical environments. Some of this practice is enacted in processes that have been accomplished, researched and documented in face-to-face interactions; such as pre- and post-

meeting interaction (Mirvel & Tracy, Premeeting talk: An organizationally crucial form of talk, 2005). Other practices are emergent sociomaterial practices not possible in the past, such as IM conversations interwoven into work. While the types of technology that workers have is important to supporting this; ICT use practices being shared across the organization is critical for this possibility. There are two caveats to this finding. These participants still valued shared physical environments for two things that informal communication supported—bonding and newcomer learning. Bonding, was accomplished remotely, however participants indicated that when together they had more fully social interaction often over food and/or drink. While they indicated they did not need this they all recognized a qualitative difference in this interaction both in depth of understanding and the ability to accomplish it quickly. Newcomer learning, which participants described as frequent and “as-needed”, was identified by participants as not as effective when they needed to accomplish it outside of shared physical environments. This activity though, seems to be one that would lend itself to emergent mediated work practices over time, due in part to the importance of this need.

This work serves to modify the dimensions of communication first described by Kraut, Fish, Root and Chalfonte in 1990 and modified by Hrastinski in 2010. The imbrication of these teleworkers and their coworkers and the materiality of the ICTs they are using in work made possible new ways of working that are significantly different from those documented in earlier telework research, in which coworkers often were not working together, and did not have access to, or choose to engage through the technologies available in their particular era. That is teleworkers and their coworkers’ sociomaterial practices are now the same across different locations. These practices are no longer driven by in-office/out-of-office work resource access differences; they are now evolving around the distributed and mobile workforces these



organizations have; where it is increasingly likely that work teams will not be entirely collocated for any particular work activity.

Both Kraut et al. (1990) and Hrastinski (2010) contend that informal communication is unscheduled. What this study found was that both technology materialities and emergent practices reduced the possibility of unscheduled communication for coworkers who are connecting through ICTs without shared space. Participants in this study all identified web meeting and/or conference call platforms as resources for informal communication. Their engagement of web meetings and/or conference calls, required the scheduling and distribution of sign-on information before interaction could occur. Additionally, as my study participants described to me their engagement in informal communication as full-time teleworkers, the communication they described was necessarily accomplished through ICT-mediated communication channels. Critical to this communicative success was the emergence of ubiquitous technology adoption and use across their organizations. One of the emergent sociomaterial practices noted regularly by the participants was their use of IM or text messaging to check-in with a desired communication partner for availability, or with a group, often through a calendar request. My participants indicated it has become viewed as impolite to engage in synchronous communication without first asynchronously verifying the availability of communication partners. The availability of technologies with affordances permitting such easy “check ins” has been recognized and adopted into the work practices enabled these emergent sociomaterial practices. Thus, this serves as another example of the sociomaterial practice that Orlikowski (2007) noted when she wrote, “ we see that the communication changes enacted ...emerge from the performativity of the BlackBerrys as engaged in members’ everyday practices” (p. 1444). What is important in this context is understanding is that this change in the

enactment of informal communication was not possible at the time of most earlier informal communication and telework research. My study indicates that workers are finding ways to do informal communication without space by using these new technologies in emergent ways that take advantage of the full potential of these technologies, and not by trying to work with them “as if” they were together with coworkers in a shared space.

These examples illustrate the importance of specifying the ICTs that are integral to the sociomaterial practices that comprise the work processes of telework, virtual work and work generally. While the workers in my study are still classified as teleworkers, a worker category with a long history, their sociomaterial work practices and their sociotechnical systems differ significantly from those used and available to workers in earlier research (Bentley & Yoong, 2000). Much of the earlier research on telework and virtual work does not document in detail the specific ICTs, affordances that were available to and engaged in workers’ sociomaterial practices or in the sociotechnical systems of their organizations (Collins, 2005). However, Messenger and Gshwind (2016) have documented the evolution of ICTs in work practices over time, so we know that what is possible for my participants would not have been possible in earlier generations of telework. So a single category of “telework” is an insufficient basis of classification for comparing past studies to those done today. The work practices of participants, as documented through the information and communication technologies available to them and their choice of which of these tools engage and how, is what matters.

Location, another traditional parameter of telework, also comprises both a wide range in places of work, and a spectrum of different types of face-to-face or mediated interaction under classifications that inadequately recognize the significance of the different places of work. Definitions of telework vary in governmental standards (U.S. OMP, 2011; Weiz & Wolf, 2010),

and in practice in different organizations. “Telework” may include people working from home, from a cowork center, from an organizational telework center or satellite office, or from a client site, or it could be someone who works while mobile. Each of these locations afford variance in face-to-face interaction, and in who this interaction is with, as well as the physical and symbolic resources those places provide. In this research all the participants were full-time teleworkers based in their homes. This meant they did not regularly work face-to-face with coworkers, clients, or other workers. Nor did they have access to any of the physical or symbolic resources of an organizational or other type of shared workplace. Again, this indicates that the category ‘teleworker’ or even teleworker working in a particular place is insufficient to accurately indicate the magnitude and kinds of resources that the worker has access to for their work practices. We must identify the what those places are providing for workers work processes.

Time is most frequently used in telework research to identify the amount of time workers spend in or out of the office. As I noted in earlier sections, this measure is not a valid use of this parameter for these workers. What did matter to their work practices, that has not been not been explicitly examined in past telework research (Gajendran & Harrison, 2007), is the impacts of time overlap of their work days with those of their coworkers. Where their work time, and their coworkers’ work time were significantly different, as in cases of work teams spread across multiple time zones, this is a consideration in their choice or work practice and may result in a blurring of work-time with home-time. This work clearly identifies shared workday time as formative in the choice of work practices. Thus, time as a parameter of telework, and work in general, must be documented as a resource between coworkers not just as that of each worker in isolation.

This work thus clearly shows how the parameters of telework need to be re-defined in the context of full-time teleworkers in modern organizations, but also indicates that these parameters can still afford a useful frame for considering the lived experiences of such workers. It is important to characterize these parameters in detail, so as to make the practices that are particular to specific cases of telework clear, and also to afford a means for the findings of research on work and telework to be usefully compared and analyzed.

### **Limitations**

This study had five primary categories of limitations: the perspective I bring to the topic, sampling, sample size and the participants, and the type of data I used for the study. While each of these limits the study they also make possible other more important foci for this research. The rich data of this qualitative study, while not generalizable, through a rich thematic analysis made possible the discovery to many important directions for future research that could not be accessed in a typical quantitative study.

**My perspective.** Two aspects of my career bring me to this research with professional and personal perspectives on the topic I am researching. I have spent my career involved with design and strategic planning of workplaces (primarily white collar offices). In the last two decades, issues around mobility, distributed workforces and telework started to have a considerable impact on the way organizations thought about and planned workplaces. People I had the privilege of working with through professional organizations, who were leaders in the field professionally, academically and governmentally started asking questions at our meetings about the relevance of workplaces in the future. A partner of a major international design/research architectural firm suggested that office buildings are done (Duffy, 2007). (His writing since has been less extreme, suggesting he was making a point with his statement at the

meeting). Between my work and professional conversations, I have come to believe that we are going to have to figure out how to support organizations using both physical places for work and ICTs to connect workers in ways that are more effective. It is unlikely that either place or technology will be the full solution for organizations. However, to serve organizations' needs in the future it is essential that we start examining space and technology as a pairing of resources. While this pragmatic viewpoint I bring from my practice experience may narrow my framing of my research, I believe it also adds a layer of understanding of the everyday challenges real estate and design professionals face when trying to provide workplaces for organizations and their workers today with a need to plan for the future at the same time.

I bring one other perspective to the table: I was an accidental teleworker. Due to lack of space at the location I was hired to work in, I became a teleworker for an organization that did not support or permit teleworking. While I was not the only teleworker in my part of the organization, there was no structural support for someone not working in the office. This resulted in lack of access to basic technologies needed to work, lack of access to administrative support, lack of access to IT support, and challenges accessing electronic documents needed to do my work. As this was before cloud storage was available, each local office had their own computer server and data security systems, which resulted in difficulty accessing data from multiple office locations simultaneously and resulted in corrupted files coming out of and returning into the system. Additionally, without a technology background I was unable to identify the origins of the technology system problems I was having. ICTs available at the time made interacting to get work done difficult, and as the common practice in the organization was working face-to-face, coworkers were reluctant to have to do what felt like extra work to work with me. I was assigned a manager, geographically, as was the practice in the organization, who

ignored me and made no efforts to get me assigned to projects (leaving me to make phone calls on my own, in an unfamiliar organization to find work). Even though I traveled considerably for work, these problems resulted in my feeling isolated and unable to work successfully, and I decided to leave the organization after a short duration of employment. Due to this, I came into this study with a belief that the potential of telework was limited.

**The sample.** The study was set up to involve a minimum of five people with an upper limit of 10; I ended up with six participants, with one of them only completing the first interview before withdrawing for family reasons. I sought a very specific population of successful, full-time teleworkers who were employees of their organizations. As this is a specific and small population of the U.S. workforce I did not have any further constraints on the group of participants I sought in terms of demographic distribution, although I did actively seek a younger participant for my last participant, as the population I had gotten to that point were older. Due to IRB constraints I was not permitted to reach out directly to participants: I had to wait for them to come to me through the solicitation of others who I contacted to identify teleworkers they knew. I was thus dependent on my family, friends and professional connections to direct possible participants to me. As it turned out, my participants came to me entirely through family and friend connections.

**The participants.** The participants I was able to engage for this study represented a narrow range of industries, and some of their individual demographics did not align with US teleworker statistics. Four of my participants worked for companies or divisions of companies in the technology industry. These companies were involved in developing and marketing infrastructure, software and/or hardware products that teleworkers would use. A fifth participant worked for a company that at the time had almost 50% of its employees teleworking, and thus

had made a commitment to ICTs needed for successful distributed work. The sixth participant had owned his own technology company prior to his current job; so, while his organization was not progressive in technology adoption, he was technology literate. This meant that four (possibly five) of my participants worked for organizations that were likely on the cutting edge of technology for their workforce. While this may be outside the norm for technology adoption in organizations, I believe it was beneficial to my ability in this project to focus on the leading edge of what is possible. Additionally, my participants, five of six of whom had extensive professional experience, were also very technology literate, in organizations where they described coworkers as technology literate as well. It is likely that the general workforce population is not this technology-savvy. The second significant organizational demographic is that five of my six participants worked for large organizations. According to current U.S. telework statistics, this is not entirely unexpected, as “telecommuting options are more than twice as common in large companies (those with over 500 employees) than small ones (those with under 100)” (Global Workplace Analytics & Flexjobs, 2017, p. 19). Four of my participants’ organizations have globally distributed workforces and business. A fifth participant worked for an organization that was distributed across the United States. Only one participant worked for a smaller organization, that was limited to working within one state; this was also the only participant who was a government employee. Statistically, this underrepresents government employed teleworkers (Global Workplace Analytics & Flexjobs, 2017; Lister & Harnish, 2011b). My sample omitted federal government teleworkers, who equal for-profit companies as having the highest percentage of teleworkers in the U.S. (Global Workplace Analytics & Flexjobs, 2017).

Demographically my participants did not always align with the distribution of telework population, as shown in Table 8.1, nor were they representative of all possible categories of teleworkers within my sample constraints. Age was the most significant demographic difference as Table 8.1 indicates.

Additionally my study demographics differ from current U.S. (2017) statistics in occupation, with a higher representation of managers and professionals (Global Workplace Analytics & Flexjobs, 2017). Finally, while my study included one executive level manager in the financial area of her organization, a manager, three professionals, and a sales support professional there was no representation of “office and administrative support” staff, currently the second largest occupational category of U.S. teleworkers (Global Workplace Analytics & Flexjobs, 2017, p. 12).

Table 8.1

*Demographic Representation of Teleworking Workforce (U.S.) 2017*

Age Ranges	U.S. distribution	Study distribution
16-24	10%	16.3%
25-34	17%	0%
35-44	23%	0%
45-54	24%	50%
55-64	19%	16.3%
65+	8%	16.3%

*Note:* U.S. distribution of Telework workforce data is from Global Workplace Analytics & Flexjobs (2017) page 10.

**Type of data collected.** In talking about my findings I have been careful to recognize two limitations on what I can say. First, in my interviews I have asked people to make sense of



what they did after the fact (sensemaking). While another approach might have documented the talk to look at the occurrence of informal communication, my methods did not seek this type of data. I was thus asking people to make sense during an interview of what they had done in the past. Therefore I can only speak to what they indicated doing and the practices they discussed.

### **Future Research**

Several potential areas of future research emerged from this work, that are discussed below.

**How can telework parameters be consistently documented in a standard way, to allow telework research results to be comparable?** Telework research and research into other areas of virtual work need to develop a structure for documenting data for each of the four parameters of telework, in a way that focused on each categories critical elements that will remain over time. I believe this will be most difficult for technology, as this category is evolving with new types of technology, changes in access, adoption timing and adoption across populations. This is an important issue to address soon, as it will enable better cross-comparison of research over time.

**How are ICTs changing work practices and work? How are work practices changing ICTs?** Several studies have been completed examining telework from a sociotechnical perspective (Bélanger, Watson-Manheim, & Swan, 2013; Fernandez & Marrauld, 2012), however I did not identify any that took a sociomaterial perspective. This research built on the work of Leonardi (2012) and Orlikowski (2007) this work is the first to examine full-time telework as an imbrication of social and meterial recognizing that not only does each make the other possible but that they change the way work is accomplished. Most importantly in this study, is the recognition that multiple ICTs are integrated to make the sociomaterial practices

possible. It is critical that work be studied not just acknowledging there is technology being used, but we must start understanding the affordances being adopted into practices and how they are changing the way work is accomplished. More research must recognize this, and document how teams and organizations are interacting using the full range of technologies and how all of the social and technological possibilities and constraints create possibilities for, or limit work processes.

**As people start working without being co-located as a routine, does being colocated periodically provide benefit (making the cost and time worthwhile)? For what purpose?**

**How much time?** While this study documented the co-locations places my participants indicated using, many wanted to be able to do more of this, particularly with their immediate work teams. More time needs to be invested in documenting the range of places in which teleworking and other distributed or mobile coworkers are coming together and to understand what is being accomplished in each of these that are both foundational and central to the work of the organization. It is important to understand if different locations and activities promote different communicative behavior. I believe this is particularly important for the times and places where coworkers eat and drink together, as this behavior was imbedded in all getting together and efforts were made to be sure it occurred. This is widely known to have importance for society at large, but is also discussed in distributed work literature by Nardi & Whittaker, (2002). Additionally, it is important to understand the amount of time together, for whom, and what must be accomplished in that time that provides the foundational and direct work benefits to enable distributed workers to develop the interpersonal relationships critical to working together most effectively. This should build on the work of (Hinds & Cramton, 2014).

**How are teleworkers within different organizational systems developing communicative practices within various socio-technical systems? How similar or different are they?** What my participants demonstrated to me is that teleworkers are succeeding (or not) within organizational systems, where the way business is done, the resources that are common, the locations of workers and the organizations' businesses are all important systemic factors in how teleworkers do and can work. There exist substantial categories of telework research that examine specific work (Golden, 2006; Golden, 2007; Golden & Veiga, 2005; Konradt, Hertel, & Schmook, 2003; Maruyama & Tietze, 2012; Sardeshmukh, Sharma, & Golden, 2012), and personal (Hilbrecht, Shaw, Johnson, & Andrey, 2013; Mann & Holdsworth, 2003; Troup & Rose, 2012; Armstrong & Cole, 2002) outcomes relative to telework however, work that documents how teleworkers make sense of these elements in order to accomplish their work is limited (Bélanger, Watson-Manheim, & Swan, 2013; Fernandez & Marraud, 2012), and more is needed. This work is critical for seeing what workers can make possible, how workers choices may refuse to fit our best models, and for understanding the multiple factors – environmental, material and social are working together to enable or make difficult teleworking. It is particularly important as it sheds light on the leading edges of what will be possible for new ways of working, and in developing a space to continue to see how these elements that are and will continue to shape each other are evolving.

When the participants in my study discussed their sociomaterial practices, their discussion made clear to me the importance for understanding how telework is accomplished and how workers are productive with and through multiple ICT platforms It also made it clear the importance of a systemic way of viewing these processes by examining the ways workers within a specific organization and work unit

Using the lens of socio-technical or socio-material practice for examining telework and other virtual work pParticipants indicated that their decision to not use video is, at least in part based in their desire not to have to dress for work, combined with the lack of benefit they see in this. This specifically suggests the need to further research teleworker attitude toward use of video interaction. It also suggests a need to examine further this and other potential ways that teleworkers protect their territory. Finally, it suggests a need for personal considerations in models for technology choices for work.

**What are the organizational and individual characteristics that support successful telework?** There were four characteristics that seemed to be beneficial to my participants, that it would be valuable to pursue research on to see if these made a difference in the success of teleworkers. First, a high level of technology literacy. While an ability to fluently use ICTs is important, most were comfortable discussing the systems through which they connected, and several discussed skills at diagnosing system problems, so they would not be stuck without technology support. Second, participants had a high level of self confidence, that I believe would be important to feel comfortable communicating without the visual-cues body language offers. While, discussed discussed learning to read people's tone of voice, most seemed to be comfortable enough in their own skin not to dwell on mistakes or shortcomings. I think it would be worth looking at self-confidence as a beneficial trait for teleworkers.

The teleworkers in this study displayed a high level of self confidence, an ability to ask questions and effectively integrate new information. I suspect after spending time with these people that there are personality and emotional intelligence characteristics that make people more likely to succeed remotely and might be focused on a cultivated by those who want to succeed at telework. Third, it would be worth seeing if there is a success difference between

introverts and extroverts. Two participants in this study went far beyond the other four in reaching out to others, it would be valuable to know if and when developing the thicker network was valuable, and if it made a difference in teleworker success. Finally, two participants, McCoy and Augustin, actively fostered mentor relationships. Messer, knew more senior people in her organization who were “having her meet people for lunch” who sounded like potential mentors, although she did not talk about them as such. Neither of the men in the study had mentors nor did Ninassi, although at the point she was close to retirement (and has since retired). This seems like a more difficult thing to accomplish remotely, and one that potentially makes a difference in workers careers. It would be valuable to look at two things: first, if teleworkers are developing mentors, and how; and two, if organizations have programs to support employees developing mentors, and if teleworkers are engaging in those programs.

**Does the use of ICTs influence what is accomplished with informal communication?**

Two very different questions emerged for me from this work in this direction. First, after hearing about Ninassi’s formal/informal solution call, which appears to me to be a formalized way for people to get help however, extending to a much wider audience than she would attracts through informal communication, I wonder if there are more formalizations of informal communication occurring in work processes, that could be documented and shared. Second, and in a different direction, the powerplay of withholding communication that Augustin experienced, is something I experienced as a teleworker. Most of the participants did not share examples of this, but I think it is worth examining this phenomenon to see if, and where it is occurring in telework and potentially distributed teams.

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## **Appendix A: Interview Questions**

The two interview protocols included below are the starting point for the active interviews I completed with each participant. While each set of questions covers the information I wanted to discuss in each interview, each interview proceeded in part in response to the participants response to questions, and therefore sometimes topics were discussed out of order or additional questions emerged.

### **First Interview**

#### **Introduction.**

#### *What do you do?*

1. Can you describe:
  - i. your job,
  - ii. what you do, and
  - iii. how you work with others to do it.
2. How is your work group organized – by project, expertise area or some other way?
3. Do you work on one team/project at a time or multiple? How many? Is your role the same on all teams?
4. Have you always worked with the same group or team, or with different groups or teams? How often is that likely to change?

5. What overarching industry would you describe yourself as working in? (I will use this, gender and age as and a pseudonym as the only identifier of you in my written documents.)

***Your organization.***

1. What kinds of technology do you use, both hardware and software as communication tools? What is company supplied?
  - i. How reliable is it?
  - ii. Do you have difficulty because of any coworkers ability access technology – describe
  - iii. Do you have difficulty because of coworkers discomfort or unfamiliarity with technology?
  - iv. Are their limits on who has access to any of the technologies?
  - v. Do you have issues in using this that relate to accessibility because of the organizations' use of the technology?
  - vi. Do you have issues in using technology that relate to accessibility because of where you are working?
2. Can you talk about the way your organization approaches documenting work product (i.e. are all records electronic)? Where is data stored?
3. Do you communicate with people while mobile? What technologies do you use?

***Life as a teleworker.***

4. How long have you been a teleworker?
5. Have you always been a full-time teleworker? If not, how did you get to working this way?

6. Can you tell me about where your coworkers work? Are any of them co-located? Do any of them telework, or work on the road?
7. Do you maintain relationships with people in the organization who you worked with in the past, but are not working with now? If you do, why?
8. Are there any security or other electronic firewalls or other dividers that make it difficult to access how you access information needed to do your job?

**Defining informal work.**

There is an aspect of work, informal communication, often cited as the reason that workers cannot telework full-time or at least until they have been working in organizational space for some period of time. This aspect of work is embedded in the communication we do outside of structured organizational activities. I am looking to understand what social and material elements (i.e. human resources, organizational structures, and technology) you use to do informal communication. By this, I mean communication outside of planned organizational activities that support a range of activities you do to enable you and those you work with to be able to do their work. Research includes in these activities developing and maintaining relationships with your coworkers mentoring and being mentored, learning how things are done, developing a shared understanding & adapting procedures or processes. Does this concept seem clear as I have described it?

These activities are often described as being unscheduled, having random participants, having agendas emerging in the conversation, being interactive, informal. Informal communication is often used to support socialization, bonding, learning, teaching, and comprehending and determining how to use formal procedures and processes.

*Work process.*

1. Can you describe how, during the course of a week you would do things outside of structured organizational activities to bond with your coworkers
  - i. What technology do you use to connect? Why does this work (in terms of the technology and how it is used by your organization)?
  - ii. Can you tell me about your relationship to the people you are interacting with? What is your business relationship? Have you always worked physically apart or did you start co-located?
  - iii. Does the way other people work impact your approach to bonding?
  - iv. Do organizational work or technology adoption policies influence how you approach bonding?
  - v. Can you describe how, during the course of a week you would do bonding?
  - vi. Are there aspects of your physical work environment that impact Bonding? Or of coworkers work environment?
  - vii. Are there ways you think this type of informal communication could be improved?
  
2. Can you describe how, during the course of a week you would do things outside of structured organizational activities to learn from or teach your coworkers
  - i. What technology do you use to connect? Why does this work (in terms of the technology and how it is used by your organization)?



- ii. Can you tell me about your relationship to the people you are interacting with? What is your business relationship? Have you always worked physically apart or did you start co-located?
  - iii. Does the way other people work impact your choice on how to accomplish teaching or learning?
  - iv. Do organizational work or technology adoption policies influence your how you approach teaching or learning?
  - v. Can you describe how, during the course of a week you would do teach or learn from others?
  - vi. Are there aspects of your physical work environment that impact teaching or learning or, of coworkers work environment?
  - vii. Are there ways you think this type of informal communication could be improved?
3. Can you describe how, during the course of a week you would do things outside of structured organizational activities to mentor or get mentoring?
  - i. Define mentoring for me.
  - ii. What is your relationship with the mentor or mentee?
  - iii. What technology do you use to connect? Why does this work (in terms of the technology and how it is used by your organization?)?
  - iv. Can you tell me about your relationship to the people you are interacting with? What is your business relationship? Have you always worked apart or did you start co-located?

- v. Does the way other people work influence your choice on how to mentor or be mentored?
  - vi. Do organizational work or technology adoption policies influence your approach to mentoring or being mentored?
  - vii. Can you describe how, during the course of a week you would do mentor or get mentoring?
  - viii. Are there aspects of your physical work environment that influence mentoring or getting mentored; or, of coworkers work environment?
  - ix. Are there ways you think this type of informal communication could be improved?
4. Can you describe how, during the course of a week you would do things outside of structured organizational activities to develop a shared understanding or adapting procedures and processes?
- i. What technology do you use to connect? Why does this work (in terms of the technology and how it is used by your organization)?
  - ii. Can you tell me about your relationship to the people you are interacting with? What is your business relationship? Have you always worked physically apart or did you start co-located?
  - iii. Does the way other people work influence your choice on how to accomplish shared understand or adapting procedures and processes?
  - iv. Do organizational work or technology adoption policies influence how you accomplish these things?

- v. Are their aspects of your physical work environment that impact developing a shared understanding or adapting processes and procedures, or, of coworkers work environment?
  - vi. Are their ways you think this type of informal communication could be improved?
5. Do you get together in shared physical space with your coworkers? What types of places? Who decides this should happen? Is there something from the above activities you try to accomplish, that you feel happens better when you are together?
- i. If no, why not? Do you think any of your jobs would be more successful if you did – in particular the informal communication?
6. Is there anything you think is important to this discussion I have not asked a question about?

### **Second Interview**

As with the first round of questions, the second round of questions are a guide for open-ended interviewing with participants. This round of questions was intended to do three things: first, fill in any holes that I found in information sought in the first interviews; second, to pursue findings that emerged in one or more interviews with other participants; and third, round out contextual information that is important for the cases of each participant. For participants where the findings in the first interview or diary addressed question below, some questions will be omitted, so that I will not be asking for information already provided. The questions below are the core questions for this round of interviews. Additional questions will emerge from the interview process.

**Organizational telework policy.**

1. Does your organization have a telework policy? Do you follow the broader structure of it? Can you discuss it?
  - i. Is there a minimum term of employment workers must have to telework?
  - ii. Are there types of positions one must have to be able to telework?
  - iii. Are there types of positions in which employees are not allowed to telework?
  - iv. Is there are requirement for people new to the company to work in a company office before telework is permitted?
  - v. Do you know if new teleworkers have to go through a formal approval process to telework?
2. Do you recall the approval process you went through to telework? Can you describe what was involved?
3. When you started teleworking, or periodically since then, did the organization make any requirements on you as a teleworker?
  - i. Was a dedicated space required? Did it have to be a set aside room?
  - ii. Was there a requirement in terms of security of equipment and documents? What was it?
  - iii. Were there requirements for any of your office furniture to meet ergonomic requirements? If so, how were those requirements shared? How was it documented that you accomplished this? Did the company provide any of the furniture in your office space at home?

- iv. Were there requirements for safety of the environment you work in? If any of these were required, how do you document and how often?
4. Does your organization track teleworker success? Is this information shared in the organization? Is it of any help to you as a teleworker?

**Support of telework.**

1. Do you feel that your manager(s) support telework? What is it that conveys support/lack of support?
2. Do you feel senior executives in your organization support telework? What is it that conveys support/lack of support?
3. Do you have the opportunity to “go to the office”? If so, where would that be? What kind of workspace would you have? Would any coworkers be present?

**Workspace.**

1. Is the space you work in an enclosed room? If not, how do you secure work items?
2. Is the space dedicated primarily or exclusively to work? If not, what are the other uses of the space and are they during office hours?
3. Do you ever work in another space in your home?
4. Do you ever work outside? Why or why not?

**General work.**

1. I want to understand a little more about your time use at work --What portions of your day are heads down alone work, project interactive, training support, or other?

2. Do you find cross-cultural work more difficult than working with other US coworkers? Do you think it is more difficult to achieve virtually? How do you address that?

**Shared understanding.**

1. If you need to develop a shared understanding of something – like the parameters of a project – how would you do this?

**Technology.**

1. Do you ever share photographs from things like vacations, or your children over WebEx or other technologies with coworkers?
2. Do you use any social media sites with your coworkers – i.e. Facebook or LinkedIn? If so, with who and for what purpose? If not, why not?

**Journal.**

1. You discussed using IM, email and phone to reach out to people for bonding, what made you decide
  - a. who to reach out to?
  - b. what technology to use?
  - c. when to reach out?
2. You mentioned bonding activity during planned meetings, at what point in the meeting did this occur and why?