

TELEWORK AND THE NATURE OF WORK: AN ASSESSMENT OF DIFFERENT ASPECTS OF WORK AND THE ROLE OF TECHNOLOGY

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TELEWORK AND THE NATURE OF WORK: AN ASSESSMENT OF DIFFERENT ASPECTS OF WORK AND THE ROLE OF TECHNOLOGY

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Abstract

Engagement in work through information and communication technology from places other than a corporate office, often referred to as telework, is simultaneously transforming work and life. In order to support successful adoption of telework by organizations it is important to move away from research stacking up evidence for or against telework. Instead what is required is a more nuanced examination that seeks to contribute to better understanding of work practices and the support for successful approaches to telework. Based on an analysis of an extensive online debate following Yahoo's decision to ban telework, we identify important issues associated with telework in practice and contrast them with their presence in extant literature. This leads to the identification of areas for research that should be further advanced to support organizations in improving their telework practices. In particular such research can be built on a more thorough assessment of teamwork and collaboration needs, as well as the nature of work that is to be undertaken by teleworkers.

Keywords: Telework, Telecommuting, Working from Home, Workflex, Flexible Work, Nature of Work, Collaboration, Virtual Ethnography, Yahoo!.

1 Introduction

“We need to be one Yahoo!, and that starts with physically being together. Beginning in June, we’re asking all employees with work-from-home arrangements to work in Yahoo! offices.” – Excerpt from memo sent to Yahoo! staff in February 2013 (Swisher, 2013)

While *Yahoo!* announced that it will end work-from-home arrangements for its staff, the *Harvard Business Review* argued for the increasing importance of work mediated by technology, announcing the advent of a ‘Third Wave of Virtual Work’ (Herrin, 2013). The difference between these positions is striking and it is therefore no surprise, that Yahoo!’s decision lead to intensive online debates about telework. The data generated by these debates provide the unique opportunity to examine issues surrounding telework from a practice perspective and contrast them with issues in the research literature. Furthermore, an exploratory study of this conjuncture enabled us to consider insights from many different perspectives, including teleworkers, those who work with teleworkers, as well as family and friends of teleworkers.

Telework or telecommuting describes work undertaken away from traditional offices by means of technology. Numerous benefits are proposed as the result of freeing work from spatial and temporal constraints, such as reduced need to commute for employees or reduced office related expenditure for organizations. Over the last three decades teleworking has become increasingly common in work places, however, overall the adoption of telework has been slower than anticipated (Pearlson and Saun-

ders, 2001; Pyöriä, 2011). One reason for this might be that the complexity and multifaceted nature of telework practices have been underestimated in both practical settings and research. Current research on telework is often investigating ‘good’ outcomes of telework, such as increased job satisfaction, and ‘bad’ outcomes of telework, such as reduced work-life balance (Gajendran and Harrison, 2007). Importantly, telework is not only a means for extending where and when knowledge workers can engage in their work, but it fundamentally transforms the notion of work and life (Seamas, 2005). The aim of this research is, therefore, to contribute to a better understanding of aspects that are of importance to telework from a practice perspective.

Several factors are identified in the literature as potentially bearing on the outcomes of telework for employees and their organizations (see Bailey and Kurland, 2002; Martínez Sánchez et al., 2007; Morgan, 2004; Boell et al., 2013). However, in order to advance research on telework it is important to investigate to what extent these factors are of concern to teleworkers, their managers, colleagues and partners. To this end, an intriguing event drew our attention: in February 2013 Yahoo!’s CEO Marissa Mayer effectively banned the company’s employees from teleworking (Cain Miller and Rampell, 2013; Moses, 2013; Keller, 2013), a move that was echoed later in 2013 also by HP (Hesseldahl, 2013). The vigorous debate, about telework that followed through social media, provided a unique opportunity to investigate different aspects of telework in practice. Our study, of issues raised by participants during these debates, revealed numerous aspects and concerns that those practicing, managing or banning telework find relevant. Such research is important as it has the potential to identify additional dimensions that are of relevance to those involved in or affected by telework.

This paper, therefore, contributes an exploratory study of the online debate regarding Yahoo!’s change of its telework policy. Firstly, we demonstrate that there is a mismatch between the current research literature and the perception of telework from a practice perspective. Specifically, one aspect that is currently largely absent in research on telework is thorough engagement with the nature of work that is undertaken as part of telework. And secondly, our investigation of the discourse among teleworkers and non-teleworkers enabled us to identify different aspects of the nature of work that are of potential interest to telework research. These contributions are of importance to practitioners as they identify issues that are potentially critical for improving their engagement in telework, and for researchers as they identify phenomena that are currently not thoroughly investigated by research.

The remainder of the paper is structured as follows: The next section introduces the background for our research on telework, including a discussion of several different dimensions covered by current research on telework. After this we describe the virtual ethnographic research methodology we employed in our research. The paper then presents an analysis of debates about telework, followed by a discussion of our contributions and implications for research and practice.

2 Background

‘Telework’ can be broadly described as the engagement in work from a workplace other than a central corporate office, where information technology (IT) plays an important role in that work activity (Sullivan, 2003). This broad conception of telework is referred to by different terminology throughout the literature. Another label that is commonly used, particularly in the US, is ‘telecommuting’ a term that indicates that the concept of telework originated in the 1970s in response to the oil crisis (Pyöriä, 2011). The idea was that teleworking can be a means to avoid commuting to central offices and thus can help reducing dependence on fossil fuel (Nilles et al., 1976). Further labels used throughout the literature also include ‘remote work’ or ‘virtual work’ (Gajendran and Harrison, 2007). In practice telework is often considered as one measure of flexible work arrangement or workflex, which may also include other measures such as flexible work times or compressed work weeks (Fiksenbaum, 2013; Morgan, 2004). It is important to note that the centrality of the ‘IT’ aspect sets telework apart from other forms of working from home (Sullivan, 2003) and mobile work (Cohen, 2010).

However, this general conception of telework is increasingly questioned as it regards telework as a unidimensional concept (Allen et al., 2003). Telework can be practiced in different ways and using

one label for all its various forms glosses over these differences and can thus be contra productive for research (Sullivan, 2003). For instance, telework can be conducted full-time or part-time and there is evidence that the intensity of telework influences outcomes associated with telework (Gajendran and Harrison, 2007). Another aspect in the literature is the difference between telework undertaken as part of ongoing employment or as freelancer (Garrett and Danzinger, 2007). Allen et al. (2003) therefore suggest that telework needs to be understood as multidimensional concept, as telework arrangements can differ in frequency, location, degree of autonomy, formality of telework policies, the way how performance is assessed, and if teleworking is initiated by employees or management.

2.1 Review of key dimensions in current research on telework

To date research on telework often focuses on potential positive and negative outcomes of telework. However, results from these studies are often inconclusive and even an extensive meta-analysis of earlier research could not help in providing a clear picture (Gajendran and Harrison, 2007). It is therefore important to delve deeper into the web of interconnected aspects that are of relevance for researching telework. As a first step we review the existing literature on telework and identify major dimensions that are of relevance in the context of researching telework. Employing a hermeneutic approach for conducting literature reviews (Boell and Cecez-Kecmanovic, 2011, 2014) we identified and analysed 239 papers published in information systems and related literatures. We read and categorized each paper based on its approach, topic and key contributions. This was followed by an assessment of the emerging body of knowledge, which in turn informed the next round of reading and classification of the papers. Through several hermeneutic cycles including the reading of individual papers and understanding of the body of knowledge on telework we developed a comprehensive literature review (see Boell et al., 2013). We summarise here key dimensions identified in this literature review on telework.

Societal Dimension. Issues associated with telework at a societal or national level include increased sustainability by minimizing carbon emission, reducing dependence on fuel imports and reduced need to invest in transportation (Kanellopoulos, 2011; Nilles et al., 1976; Pyöriä, 2011). Further aspects are related to workforce by enabling better retention of women in the workforce and by providing access to work in rural and developing areas (Kanellopoulos, 2011; Simpson et al., 2003; Trauth et al., 2009).

Technological Dimension. Telework requires specific technological infrastructure and skills (Gregg, 2011; Simpson et al., 2003). Apart from related aspects of training and the provision of technology this requires the consideration of technical support, and security aspects when accessing data and communication outside of corporate networks (Pyöriä, 2011).

Organizational Dimension. Overall there are numerous claims that telework can contribute towards improving an organization's performance (Bailey and Kurland, 2002; Davis, 2002; Kanellopoulos, 2011; Martínez-Sánchez et al., 2007). For instance, it is argued that telework can increase an organization's agility by allowing its members access to work-related information regardless of time and space (Campbell and McDonald, 2009; Davis, 2002). Telework may also help in reducing expenditure, such as for real estate and equipment (Kanellopoulos, 2011; Pyöriä, 2011). Furthermore, offering telework can provide organizations with a means to show their commitment to staff and their well being. Subsequently it is argued that telework can increase work morale among staff (Campbell and McDonald, 2009; Donnelly, 2006; Kanellopoulos, 2011; Pyöriä, 2011) and can help in recruiting and retaining staff (Donnelly, 2006; Gajendran and Harrison, 2007; Kanellopoulos, 2011; Pyöriä, 2011).

Management Dimension. From a managerial perspective telework may require new means for assessing and providing feedback on the performance of staff, that do not require direct observation and immediate feedback (Pyöriä, 2011). Telework therefore requires the use of management practices that are based on the setting of objectives, and less on direct supervision. It thus encourages management-by-objective as a management style (Kurland and Cooper, 2002; Pearlson and Saunders, 2001; Pyöriä, 2011). However, supervision relying more on objectives and less on direct supervision, can reduce the overall need for middle management. Telework, therefore, has the potential to improve the number of subordinates that can be handled by a single manager (Pearlson and Saunders, 2001).

Collaboration Dimension. Telework is also associated with challenges for collaboration and teamwork. Not being physically co-located can hinder the members of a team in building of implicit shared knowledge among them (Brodt and Verburg, 2007; Donnelly, 2006; Pearlson and Saunders, 2001; Pyöriä, 2011). Furthermore, it is argued that reduced direct interactions among staff may reduce trust (Gajendran and Harrison, 2007; McCloskey and Igbaria, 2003; Pyöriä, 2011). In particular, as teleworking colleagues cannot be seen working, there may be the perception that teleworking is an excuse for slacking off, or extra long weekends (Pyöriä, 2011).

Productivity Dimension. From the perspective of individual employees a number of studies argue in favour of increased productivity as a result of teleworking (Bailey and Kurland, 2002; Gajendran and Harrison, 2007; Gregg, 2011; Kanellopoulos, 2011; Pjöriä, 2011). One frequent argument is that time saved commuting to and from work can be, at least partially, put into additional productive work (Kanellopoulos, 2011; Pyöriä, 2011). Also as teleworkers, potentially have more autonomy in how they structure their work (Campbell and McDonald, 2009; Gajendran and Harrison, 2007; Gregg, 2011; Pearlson and Saunders, 2001; Pyöriä, 2011) they may be able to better alignment their work with individual productivity cycles (Gajendran and Harrison, 2007; Pyöriä, 2011).

Employee Dimension. Teleworkers may be less subject to work stress and etiquette demands (Gregg, 2011). However, more often the argument is made that teleworkers have less chances of social and informal interaction with colleagues potentially leading to feelings of social isolation (Gajendran and Harrison, 2007; Gregg, 2011; Kurland and Cooper, 2002; Mann and Holdsworth, 2003; Pyörä, 2011). Over time this may reduce the identification of teleworkers with their organizations (Allen et al., 2003). Furthermore, by being distanced from their workplace and what is going on in the office teleworkers may curb their career prospects (Gajendran and Harrison, 2007; Kurland and Cooper, 2002; McCloskey and Igbaria, 2003; Pyöriä, 2011).

Life Dimension. Telework can enable more freedom in regards to where employees can chose to life (Hardill and Green, 2003; Pyöriä, 2011; Simpson et al., 2003). Telework can also help reducing stress from commuting and enable work participation when suffering from minor diseases (Gregg, 2011; Kanellopoulos, 2011). In addition, on the one hand it is argued that telework enables a better coordination of work and life commitments such as taking care of household tasks or dependent family members (Donnelly, 2006; Gajendran and Harrison, 2007; Gregg, 2011; Kanellopoulos, 2011). On the other hand it is argued that telework contributes towards a blurring of work and life (Campbell et al., 2013; Davis, 2002; Fonner and Stache, 2012; Gregg, 2011; Mann and Holdsworth, 2003; Olson-Buchanan and Boswell, 2006; Tietze and Musson, 2002).

As this review of research on telework reveals telework is a complex phenomenon that has been described and investigated as a multidimensional concept, with dimensions ranging from a societal dimension to aspects associated with the life of individual teleworkers. While this review reveals important, although sometimes inconclusive, results, the key question regarding the aspects of telework that are relevant for a practice perspective remains open. If telework research is to make important contributions for organizations and their employees, coverage of practical aspects is of particular importance. This is a major motivation for our research as we seek to explore key dimension of telework revealing especially aspects not sufficiently addressed by the current literature.

3 Research Approach

In order to contribute to a better understanding of aspects of telework from a practice perspective we examined on-line debates on telework by practitioners using a virtual ethnographic or netnographic approach (Hine, 2000, 2008; Kozinets, 2002). By accessing practitioner-based discussions and reflections, this approach enabled us to shed light on further issues of relevance in the context of telework that are not yet well covered in the research literature. In addition, a virtual ethnographic approach was chosen for its ability to reach a distributed audience with the potential to incorporate a wide perspective of views on telework (Hine, 2008). Furthermore, virtual ethnography provides a means to uncover novel perspectives on telework, by collecting data that is not affected or obstructed by interference by

the researchers' prior assumptions and understanding of a research domain (Kozinets, 2002). This renders it in particular sensitive to uncover aspects that are not yet covered by research but that are prevalent from a practice perspective.

Furthermore, a virtual ethnographic approach enabled us to obtain insights regarding challenges and benefits associated with telework from a wider audience consisting of individuals interested in telework irrespective of their own participation in telework. As a result our data sample includes, beyond teleworkers themselves, perspectives from colleagues, family members and friends of teleworkers. This renders our methodology sensitive to issues related to telework that may not be directly experienced by teleworker's themselves. Such aspects are, however, of particular interest for finding additional issues that currently may challenge successful engagement in telework.

Our research site was chosen in the context of the debate regarding the decision by Yahoo! to restrict the ability of the company's workers to telework. The decision was widely reported in the press, leading at times to vigorous debates about the merit and perils of telework (e.g. Cain Miller and Rampell, 2013; Moses, 2013; Keller, 2013). This event therefore provided a unique opportunity to investigate data from online discussions about telework that involved a wider audience including teleworkers and those interested in telework.

In order to ensure a wide coverage of issues regarding telework we searched for websites with intensive debates about telework. We selected debates by readers from three major newspapers in the USA, UK and Australia: *The New York Times* (USA), *The Guardian* (UK), and *The Sydney Morning Herald* (Australia). All three newspapers generally encourage their readers to participate in debates on current issues on their websites, in particular offering intensive debates on the topic of telework in the context of Yahoo!'s decision. Furthermore, all three newspapers have in common that they have a broad reach, both in their print and online presence for their respective countries and beyond. This ensured the involvement of a wide audience in our analysis of debates about telework. Regarding influence in print, all three newspapers are among the highest for their countries in terms of circulations of print copies. Regarding online influence, according to rankings of visits to websites by *alexa.com*, the websites of all three newspapers are ranked among the most visited websites for their respective countries, generally being the most visited website of any newspaper for their country.

We gathered data from online discussions about Yahoo!'s telework ban, from the webpage of all three newspapers. All of the discussions were instigated in response to articles by each of the newspapers about Yahoo!'s decision to ban its workers from teleworking. Furthermore, all three newspapers moderate their comments, thus ensuring a high quality of debates, evident in the complete absence of spam or inflammatory comments in our dataset. Overall our empirical material included more than 500 individual comments, in about 200 pages of printed text. Comments varied in length from lengthy statements consisting of several paragraphs to short one sentence replies to what others have said. Most of the comments made were in regards to telework. However few comments referring to other aspects, such as specific business aspects of Yahoo!, were not analysed in-depth.

We adopted a thematic analysis of the empirical material (Ezzy, 2002) and coded comments according to emerging themes. For this all comments were read in depth and coded into categories that were, on the one hand informed by our literature review, and on the other open as to be able to identify additional dimensions not currently present in the literature. The focus was on particular issues about telework that participants raised as important or critical. Therefore coding was initially guided by the broad dimensions derived from our literature review while being open to new ideas, insights, views and experiences. When individual comments raised multiple issues they were coded against all of the issues raised by a participant. Furthermore, while our analysis progressed we developed finer grained coding of individual themes and a hierarchical structure of codes, grouping coherent topics together. Of particular interest to our analysis were comments raising issues that are not yet thoroughly represented in the literature. For instance, closer engagement with collaboration issues, a dimension present in earlier research, revealed that they included different aspects such as: coordination of work, informal communication among colleagues, confidentiality, etc. We used qualitative research software

package *NVivo* to code and analyse our data (Bazeley and Jackson, 2013). Furthermore, following Hine's (2008) advice, the subsequent analysis conceals the nicknames used by participants in discussions in order to help preserve the anonymity of their online identities.

4 Debates on Telework

A high-level analysis of our data confirms that our research approach was successful in capturing a broad spectrum of dimensions and perspectives on telework and its multifaceted nature. Comments clearly indicate that participants included different types of teleworkers, ranging from those occasionally working from home to others engaging in full-time telework. In addition to current teleworkers and those already teleworking for several years, participants also included individuals that formerly engaged in telework, family members of teleworkers, work colleagues of teleworkers, as well as managers. Comments reflected a wide range of opinions from being supportive of telework to others being highly critical. We also investigated if discussants raised common and comparable issues across the different newspapers. Overall similar spectrums of issues are raised in all discussions, thus indicating a commonality of issues that are of interest in the context of telework across the readership of all three newspapers. For instance, management, collaboration and indeed transportation are of general concern in the context of telework irrespective if discussions were taken from newspapers from the US, UK or Australia. As our interest is on the general range of issues about telework that are of concern in practice, we present our analysis from the empirical data set as a whole.

4.1 The multi-faceted nature of telework in practice

Overall participants referred to numerous issues related to telework. In particular did the data indicate the complexity of telework in practice, its multifaceted nature and simultaneous integration of many different aspects even for a single teleworker. Work-life issues, collaborating with colleagues, socializing at an office with co-workers, and place of living are all simultaneously present and influencing the telework experience, as highlighted by Mary from Sydney:

I work two, sometimes three days from home. For creative thinking - for writing, and structuring my work, it's fantastic. It's quiet. I can breath [sic] fresh air. I can see the sky and feel the world feeding into my thinking. I don't waste time on gossip, I don't get distracted by unnecessary conversations. I don't feel as stressed by other people's tension or anxieties. My thinking is flexible and my solutions to problems are always more interesting when I make them at home. And I'm much more productive [at] home - stuff really gets done - my comparative output is high. And I can have lunch in the garden! But the mundane organisational work I can and often prefer to do in the office. Meetings are better face to face, than on the phone, but I can plan around those as my job is so independent of others. Two days a week of work from home is just wonderful! Creative and invigorating [sic] - and I feel trusted and valued by my immediate boss.

This discussion highlights the situated nature of telework. It indicates that telework has many shades, some of which are considered as beneficial, while others are considered a limitation. The division between positive and negative aspects of telework is therefore not clear-cut, as adverse effects may be simultaneous present even at the level of a single teleworker. The complexity of the potential implications of telework expressed in the comment above, provide a potential explanation why findings on telework are at times paradoxical (Gajendran and Harrison, 2007, Pearlson and Saunders, 2001). This indicates that research that seeks to investigate if telework ultimately is a "good" or a "bad" thing may not be able to sufficiently capture the complexity of telework in practice. As Mary indicates, telework is helpful to her for some tasks, while she prefers others to be done in a more traditional office setting.

4.2 The nature of work as important dimension of telework

"I am waiting for my car mechanic and barber to start teleworking." (Comment by Hugh from Australia)

In addition to the multifaceted nature of telework in practice, Mary's comment above also highlights the very nature of the work that is undertaken by a teleworker as an additional important dimension when investigating telework. However, the 'nature of work dimension' is frequently absent in current research on telework. Instead, similar to the comment by Hugh above, the division is often drawn be-

tween work that is in general not suitable to telework, such as construction work, and work that is in general suitable to telework, such as the work done by knowledge workers. However, as Mary underlines, the difference of what type of work may be suitable to telework cannot be drawn that simply. Some work she “prefers to do in the office”, in contrast, other aspects, such as creative thinking, planning and writing, she believes, are benefiting from teleworking. A similar observation about the benefits of teleworking for some tasks and the benefits of being collocated in an office environment for other tasks, was also made by Tom from Newcastle:

I telework 1-2 days a week because I live in Newcastle and work in Sydney and whilst its highly productive, I would never give up the 5 hours on the train each work day to work completely remotely. In that sense I understand Yahoo and Google's stance, the office is social and the best "ideas work" often happens collaboratively, less so by individuals. But this definitely depends on the type of work you're doing. For me, this is collective problem solving. At home, it's usually individual tasks like report writing.

Tom and Mary, as well as other participants argue that telework can contribute to their productivity for some tasks such as writing. However, for Tom's work, thinking through problems and creating ideas is better done collaboratively, being collocated with his team at his organizations central office. This indicates that certain types of work requiring concentrated work in solitude, such as writing, may benefit from telework more uniformly than others. In contrast tasks, such as thinking through problems and generating ideas to solve them, may be more effectively done in face-to-face interactions. Clair from Stamford further underlines this by arguing for part time engagement in telework, as to accommodate productivity benefits from telework and work from a central office:

I do believe the best balance is some [sic] in office and some at home - that way you get the productivity of home with the innovation those casual interactions and in office together time drive. No one - and I mean no one - spends 100% of their time trying to innovate as a group. You have to do the productive work - by yourself, mostly.

The comments by Mary, Tom and Clair underline that the benefits of teleworking depend on the nature of work that is undertaken. Indeed the nature of work and the suitability of different types of tasks to teleworking are subject to intensive debates, featuring roughly in 20% of comments. It is frequently argued that different types of work involve different tasks and that these tasks differ in their nature thus implicating suitability for telework. The nature of different types of work is therefore an important dimension for better understanding the potential of tasks to be undertaken as part of telework and how telework may affect worker's productivity. For instance, work can differ in the extent to which it requires the exchange of ideas, or frequent ad-hoc and informal interactions among the members of a team, or solitary work, such as writing. Table 1 provides an overview of different aspects of the nature of work that were discovered in the empirical data using the thematic analysis approach described above. The work undertaken, for instance, by software developers, call centre operators, journalists, or consultants all involve dynamic activities, team interaction on an ad-hoc basis, fast changing situations and efficient decision-making by a team. These kinds of tasks, participants argued, have been traditionally conducted more effectively when actors were co-located. However, telework offers an additional mode of collaboration and interaction that enables developers, call centre operators, journalists and consultants to be efficient and effective beyond face-to-face interaction. Subsequently deeper engagement with different facets of work and, for example, its dependence on team interaction and efficient decision-making is of importance to better understand how work can be effectively organized given the various opportunities for telework. The presence and richness of the discussion on the nature of work dimension in our data suggests that it is highly relevant in practice. However, the nature of work dimension is currently not adequately investigated by telework research. It is therefore important to investigate more thoroughly the nature of different types of work and how they can be supported and may benefit from telework. This apparent gap is an important finding as this dimension is currently not subject to thorough investigation in the telework literature.

The following two sections further exemplify the relevance of deeper engagement with different aspects of the nature of work by looking more closely at some of the aspects from Table 1. First, the next

section (4.3) looks more closely at the role of technology in team work, in particular related to the exchange of ideas, team creativity and decision-making, and section 4.4 then looks at the role of technology in asking and answering questions among colleagues. These aspects were chosen for further analysis as they were among those most heavily debated in the data set, and because in both debates the use of technology featured as central aspect. As telework heavily relies on technology, understanding the role of technology for undertaking different aspects of work is of importance for advancing telework research and practice.

Aspect	Description	Example
concentration	Some types of work require high concentration, benefiting from working in solitude without interruptions.	“when it comes to concentrating I need the quiet ergonomic conditions that I set up for myself in my home.” (Liz from Oakland, New Zealand)
writing	Work that is related to producing textual documents such as articles or reports.	“If, for example I ask a member of staff with drafting a detailed report, I don't feel they need to commute three hours to and from the office to do so.” (Betty from the UK)
creative thinking	Work that involves creative thinking or other high level cognitive activities.	“For creative thinking - for writing, and structuring my work, [telework is] fantastic. It's quiet. I can breath fresh air. I can see the sky and feel the world feeding into my thinking.” (Mary from Sydney, Australia)
administrative work	Work depending on direct manipulation of documents and files by means of a computer, for example, programming, testing, data entry, etc.	“In the office we get our work via email and then it's just point, point, click, click, click. Some days hardly a word is said. And my work quality at my home-desk would be as good as I make it.” (Fiona from Melbourne, Australia)
seeking and providing feedback; asking and answering questions	Work that depends on interaction among participants in a work practice; getting feedback and assessments from others and asking and answering questions.	“It's also much more time consuming for me if I wish to show them something; a document, a letter, a video - anything....I'm going to have to scan it in and send it to them or fax it to them” (Fred from the UK) “answering questions may be one of the most important parts of our job, making us and co workers more productive.” (Jane from the UK)
exchange of ideas	Work that involves exchange and triggering of ideas among team members that is necessary for team creativity, coordination and collaboration.	“Some jobs require 'eyes on' some don't. Some require brainstorming sessions, some don't.” (Anthony from Melksham in the UK)
collective decision making	Work that requires members of a team to collectively make decisions in an efficient manner.	“Certain work requires collaboration and quick decisions.” (Jack from the UK)

Table 1. Overview of different aspects of the nature of work

4.3 The role of technology in teamwork

Team interaction can be achieved through different means and the role of technology in supporting such work activities was heavily debated among participants. This is exemplified by the following exchange where several people respond to Nick's comment in which he argues for the importance of physically collocated teams for certain types of work, such as agile software development. However, respondents argue that temporal 'collocation' of team members can be regarded as more important than sharing the same office:

Nick: Certain work requires collaboration and quick decisions. For example, if you involved in agile development, team communication is absolutely vital if you are to make your deadlines. Critical situations can happen without warning and addressing an issue with everyone on site for an impromptu meeting is a lot easier when everyone is present than when you have to phone everyone up...

Evelyn: @Nick - Nonsense. I work in a development-based business where instant decisions are often needed. No-one has to phone everyone up. We log-on or dial in and we are all connected. I am currently collaborating with a team in five different countries on three different continents. The norm when everyone is on site is usually that key people are committed to other meetings and aren't available.

Jack: @Nick - You book the con call and send a group email, often via an MS calendar or something. Takes, oh, seconds. (And even those not at a PC have a smartphone or tablet to pick up the message). Really, it could hardly be easier. Sometimes, I wish it [sic] nothing like so easy.....

Max: @Nick - What's a "phone"? Seriously -- agile development implies that the members of a team are in constant communication with each other. They obviously won't be communicating all the time but rather they need the capability to be able to initiate ad-hoc meetings at a moment's notice, even if its [sic] to just answer a single question. F2F is too inefficient. This does mean that all team members need to be actively working at the same time but it doesn't mean they have to be physically in the same place.

This debate underlines the need for developing a better understanding of the processes involved in a type of work that is team-based and collaborative in nature, as it seems that the needs of participants may vary considerably. For instance, Nick argued that his work benefits from the ability to have ad-hoc face-to-face interactions that are impossible to achieve when teleworking. However, others object to this view and argue that for their work technology enables them to communicate effectively and also deal with ad-hoc situations. Evelyn claims that in her work where ad hoc interaction and instant decisions are often needed, face-to-face meetings are not necessary. While working within a globally distributed team, as Evelyn does, involves continuing collaboration, knowledge sharing, and dealing with ad hoc situations, it is not necessary to meet face-to-face as their use of various technological tools enables and assists them effectively in doing so. Jack further added that technology may even ease the burden of contacting others too much. Similarly, Max finds it even easier and efficient to coordinate work and organize ad hoc meetings electronically. Irrespective of team members' proximity, Max finds it important for team members to work at the same time and be online.

As this brief discussion shows work requirements and attitudes towards collaboration can be vastly different even when participants engage in a similar type of work – e.g. software development. For some participants the dynamic and complex teamwork required and is more effectively completed when team members are collocated and can meet face-to-face. Whereas, others claimed exactly the opposite – that teamwork can be equally or even more effective when mediated via technology. This indicates that in addition to a better understanding of the nature of work, it is important to understand different modes of team interaction as part of different work practices that can vary across and within organizations as well as within teams. This further suggests that a universal view of telework or technology to facilitate telework and assist in team coordination and collaboration is a myth and that research based on such assumptions is too abstract and disconnected from reality.

The findings suggest that further research is called for seeking in-depth understanding of the needs of team members in specific teamwork practices in order to develop telework policies and assess telework in practice. Such research would also provide knowledge necessary for designing technological support for telework that is flexible enough to be adjusted for specific needs of team members and different work modes. Research that can help in shedding further light on how technology effects and can be used for improving team work, interaction and collaboration is therefore of interest in the context of telework. However, this area is not yet subject to thorough investigation in telework research.

4.4 The role of technology in asking and answering questions

While physical presence can facilitate asking colleagues for their help and advice, this has two sides to it, as the person being asked may perceive this as an interruption to their work. The following exchange exemplifies two contrasting viewpoints:

Brad: I am more effective when I am sitting with my peers, available for impromptu discussion or questions. the [sic] ease of being able to walk over to someone's desk and ask them a question is just not comparable to

making a call or sending an email. In my job, having people constantly working from home is disruptive and counter-productive. I say we just ban it.

Janice: Well, that might be the case for you, but how effective are your poor co-workers when you just "walk over to someone's desk" and rudely interrupt them? I much prefer to have someone send an email, it means I have a record of what was asked/what my response was, it means I can think for a moment to give a full and considered answer to the question, and finally, If I am working on something that requires my full attention, I don't get interrupted by rude idiots who like to "wander up and ask questions" and I can attend to it when I have finished with what I was doing.

On the one hand Brad and a few others claim that compared to online, face-to-face communication is much better and more effective for asking colleagues questions and getting an immediate response. On the other hand, Janice's view is illustrative of an opposite position that technology mediated interaction for asking and answering questions has advantages over direct face-to-face communication. While immediacy of response is of key importance for the former, avoiding interruption and allowing more time for a considerate answer is emphasised by the latter view. These viewpoints therefore indicate how they can be implicated in different potential assessments of effectiveness of telework. One position according to which telework can be beneficial and one according to which telework can be a hindrance for asking and answering questions. Importantly, these viewpoints would not be surfaced, only the outcomes of their telework assessment.

This posits that telework research should more deeply engage with how and to what extent interaction among colleagues requires asking and answering questions as part of different work practices. This requires to better understand, for instance, how, when, where and for what reasons colleagues commonly ask and answer questions from others as part of their work. Better understanding of these aspects of the nature of work can thus potentially make an important contribution to telework research and practice. For instance, the quality of answers to some questions may benefit from giving colleagues the time to concentrate on the issue at hand and to think through their answer. The answer to other questions may benefit from immediate reply, for example, work output may be highly interdependent and others may be hindered in their ability to continue their work without considering important aspects that their colleagues are currently working on.

What is of interest to researchers and practitioners is thus to gain a better understanding what types of work and interaction among colleagues are required as part of specific work practice, and how and why these interactions are perceived to benefit from direct face-to-face interaction or technologically mediated communication. Better understanding of these issues can support organizations and teleworkers in improving both their co-located and telework practices.

5 Discussion and Conclusion

Our research makes an important contribution to the body of knowledge on telework by identifying and explaining different aspects of the nature of work and more specifically the role of IT in exchange of ideas and decision making. These aspects are not addressed by the literature. However, as our analysis demonstrates the nature of work involved in telework is an important aspect from the perspective of discussants that identified significant implications for their engagement in work and with co-workers. These findings suggest that deeper understanding of the diversity of aspects that potentially affect the outcomes and experience of telework is a topic that requires further attention of researchers of telework (Haddon & Brynin, 2005).

Using a unique opportunity we examined extensive debates about telework in social media platforms following Yahoo!'s decision to ban it's workers from teleworking. These debates involved a broad spectrum of participants, interested and potentially affected by telework. Beyond part-time, full-time and former teleworkers, teleworkers working for organizations and freelance teleworkers, debates also included viewpoints from partners, colleagues and managers of teleworkers. Consequently analyzing these debates contributed an assessment of a broad spectrum of perspectives on telework, identifying important aspects related to telework from a practice perspective not yet well covered by research.

The findings from our study are theoretically important as current research on telework often reports inconclusive, paradoxical and contradictory results (Gajendran and Harrison, 2007; Pearlson and Saunders, 2001). One possible reason for this is that in practice telework is related to several dimensions and numerous aspects that may have adverse effects on each other and ultimately telework outcomes. This study contributes to scholarship on telework by showing that in practice telework is a complex phenomenon often involving numerous and nuanced aspects that simultaneously shape how an individual teleworker, a team or an organization experience and assess telework. Importantly, these aspects can have an adverse effect on the experience of telework even for a single teleworker. For instance, some aspects may be contributing to being more productive when teleworking, while others may be perceived as limiting productivity when working physically separated from colleagues. Research and theorizing therefore need to explicitly take into consideration the existence of these differences and contradictory inclinations (Arnold, 2003).

Furthermore, our study makes a contribution by investigating to what extent current research on telework sufficiently and adequately addresses aspects of telework that are important from a practice perspective. One important outcome of this investigation is that the nature of work plays a major role for adopting and assessing telework. Earlier research addressed, for instance: *technological issues*, such as secure and reliable IT infrastructure; *organizational issues*, such as cost savings and satisfaction among workers; *societal issues*, such as transportation and sustainability; *management issues*, such as performance assessment and management styles; *collaboration issues*, such as building of trust and shared knowledge; *productivity issues*, such as increased work autonomy and work interruptions; *employee issues*, such as socialization and career development; and *life issues*, such as work-family conflict and family-work conflict. While the body of research on telework provides a wealth of knowledge, some important domains are unexplored. In particular largely absent in this body of research is a thorough investigation how and why different tasks and different nature of work are more or less successfully supported or enabled by telework arrangements. For example, our results indicate that telework can help in improving productivity for some tasks, such as writing, concentrating and creative thinking. However, for other tasks, such as gaining immediate feedback from colleagues on artefacts like documents the usefulness of telework was questioned by some participants.

Work involves different aspects and support for these aspects can differ depending on the nature of work, where and when work is undertaken, and the needs for interaction, collaboration and coordination of work activities. Our study identified several such aspects: concentration, writing, creative thinking, administrative work, seeking and providing feedback, asking and answering of questions, exchange of ideas, and collective decision making. The degree to which each aspect is required will vary for different types of work as certain types of work will emphasize some of these aspects more than others. We for instance looked more closely at the aspects of teamwork and asking and answering questions. We showed that in both cases the way in which technology can be utilized for supporting these aspects of work is heavily debated in practice. While, some participants made a case for the usefulness of technology, others argued the opposite that technology can be a hindrance. It is therefore of interest to understand better what aspect of the nature of work are involved in different types of (tele)work and how these aspects can be mediated and supported by technology.

Our research therefore highlights engagement with the nature of work as an important dimension for future research on telework. This opens up multiple opportunities for future research. Firstly, while our research was exploratory in nature it enabled us to identify several aspects of the nature of work dimension that is worthy of further research of relevance for practice. It goes without saying that research is needed to investigate other aspects that are not covered by our study. Further research can highly benefit from, for instance, ethnographic studies using participant observation techniques of (tele)work focusing on day to day work activities. This should include investigation of work activities in the context of different cases, as different aspects of the nature of work dimension may be present in different work settings and therefore only observable in certain settings and not in others. Secondly, due to the anonymity of online discussions we could not collect further details on the background of

our participants such as age distribution, gender, cultural background or intensity of their engagement in telework. Future research might therefore investigate whether the aspects identified by our research are of particular concern to different demographics, or if they differ across cultural settings (Masuda et al., 2012).

Finally, future research should investigate different aspects of the nature of work more deeply. Take the case of asking and answering questions among colleagues. Thorough research of this aspect may shed further light onto different circumstances in which colleagues need to be asked. It is highly likely that there are qualitatively different types of questions, such as asking for advice, asking for technical specifications, or asking for help when learning tools and techniques. Researchers can seek to identify different types of questions asked as part of ongoing day-to-day work practices and how these types of questions can be facilitated through technology. Such research can, for instance, contribute to better understand where and why asking questions among teleworking colleagues can be supported by technology.

Our research was motivated by and was conducted from a practice perspective. Current research on telework is often quite abstract, stacking up evidence that is either in favour or dismissive of telework. Research that, for instance, provides evidence that telework can contribute to job satisfaction among employees (e.g. Fonner and Roloff, 2010) provides little help to organizations that seek to engage in telework. We propose a different approach to research that seeks an in-depth and a more nuanced investigation that is relevant to practice. From our study we suggest that organizations and their workers are most likely to benefit from flexible part-time telework arrangements. This suggestion is driven by the observation that work generally includes different aspects for which different and adaptable work arrangements of co-location and telework may be suitable and effective. Different aspects of the nature of work, identified by our research, may therefore be used for dissecting work practices associated with different positions in order to better understand how and to what extent their work is suitable for teleworking.

In addition, our identification of several aspect of the nature of work can guide the design of working arrangements, including telework, and the selection and adaptation of specific technologies to support them. To date telework often seems to rely on a patchwork of different technologies with no coherent integration of these technologies for telework purposes. Organizations may use one application for email and calendar services, another for virtual meetings, yet another for coordinating tasks, and maybe nothing for facilitating decisions and agreement among distributed team members. Thus, there is a potential for developing approaches that support telework by integrating several of the aspects that are relevant to teleworking and providing an integrated technological environment. Such approaches may be useful for facilitating collaboration and coordination or creative processes among the members of telework teams. Deeper investigation into the nature of work can help in ensuring that such tools suit the different needs of alternative telework arrangements.

It is important to note that our study provided only a first step towards deeper understanding of the nature of work in the context of telework. The netnographic approach and a non-intrusive nature of inquiry were conducive to identifying additional aspects that are of relevance to telework research beyond those examined so far. However, our results should be further validated by future empirical research that examines in more depth different aspects of work and their potential to be undertaken as part of a telework regime. A longer term goal for this type of research, from an IS perspective, can be to contribute towards the design and development of dedicated technological environments that can provide flexible support for organizations and their employees with various (tele)work arrangements.

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