From Presence to Multipresence: Mobile Knowledge Workers' Densified Hours

Johanna Koroma and Matti Vartiainen

Introduction

A pivotal property and capability of mobile information and communication technology (mICT) is to enable mobile, multilocational work. 'Virtual communication' refers to the social use of mICT, which enables its users to be continually available in cross-boundary work. It is typically practised in multinational companies and other networks in which workers operate and collaborate across organisational and cultural boundaries, time zones, and geographical locations. It is part of the 'new normal' of work in such fields. While working across different boundaries, mobile workers are 'multipresent', using mICT to be concurrently present and related in changing physical, virtual, and social spaces.

In this chapter, we focus on why and how knowledge workers increasingly use mICT to communicate and collaborate with other individuals while working in different locations and social situations, as well as the

J. Koroma (✉) • M. Vartiainen
Department of Industrial Engineering and Management, Aalto University School of Science, Aalto University, Finland

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factors that drive this behaviour. Based on our data from interviewing 25 mobile knowledge workers, we propose a novel concept of 'multipresence' that arises from a ubiquitous connectivity in different places. We also describe how it is experienced as benefits and costs that influence an individual's productivity and work–life balance. We claim that this type of work has become a normal work approach; however, it remains new from the research point of view.

Theoretical background

Effects of mICT usage on work practices

Our multi-disciplinary approach is based on work and organisational psychology, as well as communication and organisation studies since the 1990s (e.g., Allen & Shoard, 2005; Gibson & Gibbs, 2006; Herbsleb & Mockus, 2003; Herbsleb, Mockus, Finholt, & Grinter, 2000; Hinds & Bailey, 2003; Ruppel, Gong, & Tworoger, 2013). Researchers of these disciplines have deep-dived into the development of digital technologies and their potential to fulfil the needs of global collaboration by enabling cross-boundary communication while also increasing the intensity and fragmentation of work. In particular, emails have been widely adopted, used, and studied as a technological medium in a worldwide business community (e.g., Barley, Meyerson, & Grodal, 2011; Bellotti, Cuchenaut, Howard, & Smith, 2003; Bellotti, Cuchenaut, Howard, Smith, & Grinter, 2005; Mazmanian, Orlikowski, & Yates, 2005; Middleton & Cukier, 2006; Renaud, Ramsay, & Hair, 2006; Thomas et al., 2006). In mobile multilocational work, practical actions as suggested by sociomaterial theory (Orlikowski, 2000, 2007, 2009) arise as an interplay of face-to-face and virtual social interactions in the physical and digital contexts. According to Sproull and Kiesler (1991a), the effects of communication technologies in a networked organisation have two levels of potential consequences. The first-level technical efficiency effects are predictable and planned, whereas the second-level social effects are unpredictable and difficult to control. The first-level ubiquitous communication possibilities appear to increase the efficiency of collaboration, whereas the second-level social effects may change employee

behaviour in a way that has unexpected or unwanted consequences on collaborations (Sproull & Kiesler, 1991b), as well as the work–life balance of individual employees (Hill, Hawkins, Ferris, & Weitzman, 2001; Middleton & Cukier, 2006; Murray & Rostis, 2007).

Working from multiple locations

The pressure to be available 24/7 and communicate if possible have strengthened with the increased use of smart mobile technologies (Mazmanian, Orlikowski, & Yates, 2013; Perlow, 2012; Ruppel et al., 2013). Virtual online (synchronous) and delayed (asynchronous) communications are necessary in distributed organisations when mobile knowledge workers increasingly collaborate with their contacts (e.g., Cousins & Robey, 2005; Gareis, Lilischkis, & Mentrup, 2006; Hyrkkänen & Vartiainen, 2005) and coordinate their work with colleagues (Bellotti et al., 2003, 2005). During their daily and weekly work, mobile workers move from one place to another and work from several locations other than their main workplace and home (Koroma, Hyrkkänen, & Vartiainen, 2014). In addition to meeting individuals face-to-face in these locations, they expect those individuals, and are expected in turn by their colleagues and customers, to be socially available because of virtual connectivity (Barley et al., 2011; Mazmanian et al., 2005, 2013). One of our study participants, a male global business human relations manager, summarised how his work-related communication practices had entered other life domains and filled most of his days:

> Sometimes, I use the whole train journey for phone calls; at airports, I usually read my emails and make phone calls to Finland. Then, while driving [from the airport] home, I also talk on the phone and … This is how my life is right now.

From social presence to multipresence

Researchers have been interested in social presence from the telecommunication perspective for decades (e.g., Rice, 1993; Short, Williams, & Christie, 1976). In this discussion, social presence has included both face-to-face and technologically mediated interactions (Steinfield, 1986)

even though this comprehensive definition is rather ambiguous in mediated communication. Social presence requires the multisensory experience of another human being (Biocca, 1997; Ijsselsteijn & Riva, 2003); therefore, it has been defined as the 'sense of being with others' (Biocca, Harms, & Burgoon, 2004, p. 456). Biocca and co-authors (2004) introduced the concept of 'mediated social presence' a decade ago to capture the unique features of interactions mediated by telecommunication technology (e.g., virtual presence). The concept is clearly needed, as mICT provides broader possibilities for virtual presence than ever before. In addition, virtual presence may be both synchronous and asynchronous.

Social presence may also be analysed from the 'absence' viewpoint. Presence and absence are at two ends of a continuum, both socially and virtually (Biocca et al., 2004). Traditionally, social absence occurs when an individual is disengaged and withdrawn from social activities that occur in the same physical space (Kahn, 1990). In addition, an individual may be virtually absent. 'Mediated social absence' signifies the unavailability and non-attendance of an individual in activities that occur in a virtual workspace (Sivunen, 2015; Sivunen & Nordbäck, 2015).

Research on dual presence highlights the significance of social presence in both physical and virtual spheres. Jackson (2002, p. 8) introduced the concept of 'dual presence' not only to explain how workers choose a gender-related strategy to combine their work and domestic duties but also to characterise the social interaction as a general phenomenon 'of being physically present in one domain of experience while virtually present in the other domain via ICT' (Golden, 2009, p. 4). Jackson (2002) and Golden (2009) conceptualised dual presence by enlarging social presence to handle both face-to-face presence in a physical location and virtual presence in a work domain. Rather than separating different tasks and performing them successively, which has previously been considered typical work behaviour, a worker now attempts to perform the tasks simultaneously, thereby benefitting from dual presence. This has been a characteristic behaviour for accomplishing more in the same amount of time (Barley et al., 2011; Golden, 2009), not only while working at home (Daly, 1996) but also at any work place. Smaller, lighter, and more accessible technologies enable synchronous and asynchronous communication almost anywhere using several media, which can result in complex situations. Therefore, we argue that the phenomenon of presence is more diverse than allowed by the

dual-presence approach. Our analysis indicates that workers are present in not only two but often multiple spaces (physical, virtual, and social), using several technologies concurrently or successively when changing their physical locations; thus, they are multipresent.

Research on mobile workers (e.g., Koroma et al., 2014) indicates that mICT usage results in both benefits and costs. It increases flexibility and feelings of autonomy (Barley et al., 2011; Hill et al., 2001); however, ubiquitous access to mICT resulting in simultaneous communicative incidents initiates various challenges, such as interruptions in workflow and disruptions in worker concentration (Bellotti et al., 2005; Gonzalez & Mark, 2004; Jackson, Dawson, & Wilson, 1999, 2001, 2003; Manger, Wiklund, & Eikeland, 2003; Mark, Gonzalez, & Harris, 2005; Thomas et al., 2006). Neurophysiological research supports these findings by indicating that it is possible to successfully combine a cognitive activity with a physical activity but not with another cognitive activity (e.g., Jackson, 2008; Just, Keller, & Cynkar, 2008). In many cases, work occurs after official working hours (Fenner & Renn, 2004, 2010). The material properties of asynchronous technologies make it possible to send messages at any time of the day or night, seemingly without disturbing a recipient, as the messages are stored until they are handled. This often results in experiences of stress and extended working hours, because messages pile-up when a receiver is busy performing other tasks (Barley et al., 2011). The need to be almost constantly available adds an extra, often stressful, demand to mobile work.

Data and methods

Research design and data collection

We are interested in answering the following questions:

1. What are the specific causes of multipresence and what are the circumstances that lead to a multipresence strategy?
2. How does the use of mICT enable multipresence events across multiple locations?
3. What types of benefits and costs are attached to these events?

We collected data from individual and focus group interviews, which also included new interviewees. In addition, individual diary records were kept for five workdays. The participants were selected from four companies in the telecommunications, oil, and banking industries, which operated globally or across Northern Europe. The company headquarters were in Helsinki or Espoo, Finland. Prior to data collection, we contacted the company human resources (HR) representatives to obtain additional information about the company and the intensity of the employees' mobility. The company HR department informed its employees of the study, and 25 voluntary candidates (12 women and 13 men, aged 27–63 years) individually contacted the researchers. They were all Finnish-speaking, experienced, white-collar mobile workers occupying different positions, including executive and middle managers, project managers, and experts who worked in partly distributed teams and whose co-located subgroups were located across multiple sites. Three participants worked with teammates who were dispersed in Finland, 12 collaborated with partners in other Nordic countries (Denmark, Sweden, and/or Norway), three worked with partners elsewhere in Europe (Belgium, Germany, Italy, the Netherlands, Switzerland, or the UK), and the remaining seven had global collaborators (Canada, China, India, Singapore, or the USA). Performing their work required or had recently required them to travel regularly, work from a range of different locations, and use ICT extensively across different boundaries.

The data collection proceeded in three phases. First, the voluntary participants contacted the researchers. We explained the data collection protocol and gave them instructions on how to complete a diary for one work week prior to the interview. The participants used electronic Outlook calendars that were partially completed with their pre-booked meetings to make diary completion as simple and easy as possible, particularly when on the move. They colour-coded the calendar items according to the level of mental stress experienced: high strain was marked red, moderate strain was marked yellow, and no strain was marked green. Several participants also wrote detailed notes in the appointment fields of their calendars. Each participant completed a diary record for five full working days, if possible, days that involved business travel.

We printed the electronic diaries and used them as a basis for the individual interview, both to facilitate the informant's recollection and as a

separate source of data. We conducted and recorded the semi-structured interviews in a meeting room at the informant's office building. They lasted between 60 and 90 minutes. The aim of an interview was to enrich the diary-based description of the workday. We created the interview themes deductively using the existing literature on mobile work. We asked specific questions of all participants and subsequently allowed them to discuss other significant issues. The key themes explored in the interviews were as follows:

- The use of physical work environments;
- The use of different mobile technologies in different locations and while travelling;
- The experiences of these situations and control of work, and work–life balance.

First, we asked generally about the substance of the participants' work. Next, we discussed their calendars in detail, asking questions such as follows:

1. What happened during the meeting you marked in red [high strain]?
2. Who were you working with?
3. What type of technologies did you use?

We conducted three pilot interviews in one of the companies to ensure the congruence of the interview protocol. All participants were interviewed in their native language, in this case Finnish. Face-to-face interviews fostered an openness to discuss subjective views. After the interview, the participants delivered the printed calendar for more detailed analysis. Only two participants were not able to provide their calendar because of technical problems. Finally, we held two focus group meetings including both our participants and their team members to present our preliminary results and request feedback from them. Initially, we were interested in the specific types of multipresence events the employees experienced and how they perceived them, rather than the prevalence of these experiences. However, using the focus group interviews, we were able to confirm the commonness and, particularly, the familiarity of the experiences among a larger group of mobile workers.

Data analysis

The research undertaken and analysis presented are indicative and explorative rather than generally representative. The method of analysis used was inductive. The interviews were fully transcribed, listened to, and read several times. We coded the transcribed interviews using Atlas.ti® software (Scientific Software Development GmbH, Berlin, Germany) for qualitative data analysis, conducted the coding process independently, and resolved occasional differences through discussion. Coding was an iterative process: we added new codes as we progressed and subsequently recoded previous transcripts to incorporate the new codes. We constantly went back and forth to refine the codes. The intent was to remain at a proximal level of analysis to provide a better vision of obtaining valid and practical knowledge of the different situations during the workweek.

We used event system theory (Morgeson, Mitchell, & Liu, 2015) as the framework to identify events in the data. Event system theory is based on the principle that the controlled information-processing events bounded in space and time are separate from the responses to them, but form individual experiences. According to Morgeson and co-authors (2015), these responses or circumstances are perceptible. Individuals notice particularly novel, disruptive, and critical events that have an effect on their behaviour or, more widely, on an organisation. We followed Morgeson and colleagues in our analysis by defining events initially as being part of the environment or context that is external to the perceiver. Second, they are bounded in space and time (i.e., discrete) such that they have an identifiable temporal beginning and end and evolve in a specific setting. Third, they constitute observable actions or circumstances.

We began our analysis by identifying communication events to understand the usage of mICT in different locations. This provided the answer to our second research question: *How does the use of mICT enable multipresence events across multiple locations?* At first, we used only the codes for specific technologies in use and different physical places where the events occurred; however, we determined that it was necessary to add other codes to include social and virtual interactions as well, because of the embeddedness of the activities. We started to recognise a pattern: interviewees would repeatedly describe themselves in situations communicating with one or many, or of being contacted by someone through communication media when they were

busy doing something else in a physical place. Our participants described situations that appeared as multipresence events. We subsequently began to recognise the causes and circumstances that led to this behaviour. This provided the answer to our first research question: *What are the specific causes of multipresence and what are the circumstances that lead to a multipresence strategy?* To answer the third research question, *What types of benefits and costs are attached to these events?*, we identified the benefits and costs that were observed in these events. In some cases, the participants described benefitting from these situations; however, they also described challenges or hindrances to communication and collaboration, which we categorised as costs.

We identified 341 communication events that developed in specific work-related settings and had a detectable and consecutive beginning and end. We obtained very rich data. The participants explained being accompanied by other individuals (family members, colleagues, supervisors, or unknown individuals) in 239 events. Our participants used asynchronous technology in 188 events and synchronous technology in 224 events. In 77 events, different technologies were used in the same event. The events varied from short to rather long and had different effects on individuals and groups. An example of a short event is as follows: 'The flight was late, and I stood in a queue to the gate. Then, I called my team members and boss. We discussed a few minutes'. A long event might be working one or more hours on accumulated emails on a kitchen table at home in the evening, when other family members are watching TV and eventually going to bed. We edited some quotations to improve readability; however, we carefully avoided altering the speaker's intent.

Findings

Continuous availability and access lead to multipresence

Our first research question investigated the specific causes and circumstances that led mobile workers to use a multipresence strategy. As communication technology allowed online and mobile phone access, as well as availability to other individuals physically present (such as family members), our participants developed two main approaches to handling

these situations. They would either attempt to divide their attention simultaneously between two social situations (face-to-face and virtual) or postpone virtual communication and handle it later when they had time, privacy, and a peaceful environment. If they were participating in something that required their full attention and was difficult to interrupt, they typically postponed the virtual communication, which very often led to longer, sometimes very long working hours, typically at home or in a hotel room. This approach often resulted in a lack of sufficient recovery time and quality of work/communication. It appeared that it was mostly asynchronous technology, particularly email, which was causing the need to decide between these two strategies. A young male company lobbyist, who was working two to three weeks every month in Brussels and spending his workdays and evenings meeting with politicians, activists, and other contacts, described a commonly felt pressure to react to incoming messages, which made him continue to work late in the evening in his hotel room:

> These business trips are full of back-to-back meetings, and I have noticed that I have no time to read emails until late in the evening after arriving at my hotel room. Then, I have a hundred emails waiting in my inbox.

Although this was a commonly used strategy, we were more interested in events in which the participants attempted to divide their attention between two or more activities that required a simultaneous social and virtual presence. In addition, we aimed to understand the causes of these multipresence events and the circumstances that led to them.

Email overload

One reason participants selected a multipresence strategy was the volume of emails that required their constant attention because of a collectively developed habit to use email as a main medium of communication. Email was mentioned in 177 events. A male sourcing manager of a large telecommunication company indicated that some individuals used mainly email to communicate:

> These people work 'through email'. If you reply, you can be sure that you will receive exponentially more emails.

Constant availability expectations

Collaborators were not aware of each other's physical and social contexts; however, they had begun to interpret those contexts; although their contacts were not constantly online, they would regularly read their emails. This generated a spiralling use of mostly asynchronous technologies to communicate with contacts as soon as they are available; an approach that resulted in an increasing number of emails that required attention, as well as a pressure to be available as much as possible during or after office hours. A male HR manager who travelled between company sites explained this:

> Everybody is trying to be online to get things done. If you cannot be available when you are travelling, the messages are definitely piling.

In many cases, the participants were not able to control the time or number of meetings they were expected to attend, which resulted in a limited time to handle incoming messages and perform other tasks. In addition, when booking the meeting time from invitees' calendars, a meeting inviter regularly selects the media in advance. Many participants felt that they did not have control over their workday schedule. As a male lobbyist explained:

> People very often book meetings from each other's calendars; as a result, you don't really have control over your own calendar as other people can see all your appointments and have access to make reservations …

Substantial time was spent in meetings. A female talent development manager of a large corporation attempted to book time from her own calendar for the tasks that required concentration. She explained how difficult it was to control the calendar:

> Even my assistant may book a meeting to the only available spot in my calendar, which is my lunch time, even though I have specifically ordered her not to do so.

Expectations that they should participate in at least some of the meetings organised by their team in the main workplace, despite the geographical

and temporal boundaries created by the time-zone differences while travelling, resulted in multipresence events. For example, although geographical and time-zone boundaries existed for all collaborating partners, diverse environments and technologies made boundaries more visible to some collaborating partners, particularly those who were participating from a business trip, than to others.

Uncertainty

Asynchronous rather than synchronous media were used intensively for urgent messages. Many participants felt they needed to monitor incoming emails because of the anxiety of not knowing if the content was urgent and required their immediate action. A young female HR specialist explained this concern:

> Previously, before I started to get emails to my phone, it was sometimes difficult to know what type of 'bombs' were waiting there if I could not access my email from vendor premises or a hotel. However, it is now easy. I can monitor what is going on and send a short reply or make a phone call if needed.

In some cases, the combination of a large number of emails and not knowing the contents resulted in an almost compulsory habit of checking messages. For many participants, the solution was to read and reply to emails in every possible situation. A male business HR manager described this response:

> I have to use every available moment to handle my emails because I am getting them all the time and I have no way of knowing whether there is important information in them.

Controlling

The participants attempted to keep themselves updated by monitoring the flow of messages, which provided a feeling of being in control of their work. A male vice-president of production described his strategy to be aware and in control of global activities:

> Carrying a smart device 24/7 with me, I am very aware that even if I haven't activated push email, I only need to push one button to access everything. This awareness is a source of stress. I am always online. I never know what will appear in my email; so, I am reading it quite frequently during evenings and on weekends. It feels good to know that everything appears to be ok.

The participants explained that they individually decided how and when to use mICT to cope with the volume of emails according to the situation, their availability, and the uncertainty of the incoming message contents. They also decided how to control their work and work–life boundary; no participant indicated that she or he had discussed how to resolve these situations with their manager. A female talent manager explained that she decided to use a multipresence strategy for work–life balance:

> I would rather take the calls from my car while driving than from home after office hours.

Multipresence occurs in multiple places

The second research question investigated how the use of mICT enables multipresence events across multiple locations. The participants described five basic types of physical places they used for working: the main workplace, home, moving places (i.e., different means of transportation), secondary (e.g., customer premises and employer's other office) and 'third places' (e.g., airports, cafés, and hotels). 'Third places' are the central settings of informal public life and places to meet outside of the work environment (Oldenburg, 1989). mICT enables these places to be used for work purposes in different situations (e.g., Breure & Van Meel, 2003; Brown & O'Hara, 2003; Forlano, 2008; Perry, O'Hara, Sellen, Brown, & Harper, 2001). The circumstances in the physical environments influenced both social and virtual interactions. The participants identified the restrictions and possibilities of these places. In addition, the use of mICT did not tie them to working in one place; therefore, it was possible to change environments and use a chosen media when moving from place to place.

Main workplace

Most communication events ($N = 114$) occurred in the main workplace, typically in meeting rooms and open office premises, surrounded by local colleagues. The main workplace was used to meet other individuals unofficially in an open office area and officially in face-to-face meetings. The most frequent event was the use of synchronous and asynchronous technologies in an open office environment, surrounded by many colleagues doing the same. The other common event was to be present in online or face-to-face meetings while also using technology, often email, for virtual presence. Asynchronous technology was often used during the meetings inconspicuously and without disturbing other members. A female HR manager was typical of many participants. She described how she did this:

> I was in a live meeting for an hour and a half in our [open] office. I naturally wrote emails during the meeting because we did not use video cameras.

Synchronous technology was used on short breaks between meetings. The participants appeared to feel obligated to be available as much as possible during normal office hours in their main workplace, more than in any other location, despite their other assignments.

Home

Many communication events occurred at home ($N = 104$). The participants worked at home occasionally or regularly, typically once a week. For many participants, teleworking from home required extra arrangements and affected their choice of communications media for several reasons. For example, their children under school age were taken care of at home or by a spouse who arrived home from a night shift and attempted to sleep, or their retired spouse was at home. Nevertheless, very often, they worked before and after office hours while other family members were present. A female head of sourcing explained how she began her mornings:

> A typical situation or almost my habit is that first thing in the morning, I try to react without a delay to the emails that I have received from the USA during the night and determine whether I will need to be the first one rushing out the door to the office or if I can take it easy and send the kids to the school first making sure they have their bus tickets in their pockets….

Late-evening virtual meetings from home when other family members were also present were relatively common and essential for global collaborations because of time-zone differences. In some cases, being available at late hours required making special arrangements, because the home role was not visible to the collaborating partner. A male business HR manager explained that his availability depended on the situation:

> How I handle the incoming phone calls after working hours depends entirely on the situation and who is calling. For example, if my manager calls in the middle of a family dinner, what else can I do but take the call.

Moving places

Events in moving places (N = 51) occurred in aeroplanes, taxis, trains, and cars. There was a constant need to use time efficiently and be available, despite the means of transportation. In aeroplanes, work and communication were asynchronous because of a lack of network access, whereas synchronous communication events, such as phone calls, were typically executed in cars, both while driving and as a passenger in a taxi. A female talent development manager who regularly used all travel times to make phone calls explained how situations changed when moving from home to the office while also attending a conference call:

> I attended a conference call [while driving]. It lasted longer than I expected. After I arrived at work, I ended up sitting in my car in the company parking garage to continue the call. Then I walked to our office and walked around the floor, still talking on the phone.

The need to remain in contact occasionally led to attempting to work in undeniably quite demanding and unsuitable conditions such as dangerous physical environments. A female chief director of HR managers noted:

> Although my drive to the office is very short and I don't have time to work in my car, I admit that I occasionally read emails at a traffic light and decide to make a short phone call or take a call.

Often the pressure to use every available situation for working appeared to be strong, even though it is illegal in Finland, as in many other countries, to use a hand-held device (i.e., not mounted and voice-activated) for phone calls or reading and writing emails or text messages while driving. The participants indicated that they scheduled conference and other phone calls for their travel time in a private car or a taxi because they felt it was the only available time and was a sufficiently private place to have a discussion. Even travelling time to a vacation home with family was used for urgent or important phone calls. Colleagues and subordinates learned that some individuals were easier to reach while they were commuting at a specific time of the workday, and changed their behaviour accordingly, as a female HR specialist explained:

> In the mornings when I am driving to work, it is early afternoon in Singapore, and they have just returned from lunch. They have learned that it is easier to reach me at that time by phone while I am sitting in a car.

Some participants emphasised that their organisations expected them while travelling to handle the same tasks they would perform when in the office.

Secondary places

The smallest number of communication events ($N = 22$) occurred in secondary places. The participants found it challenging to be available for virtual communication and to identify a place and time to read emails while working in secondary places, such as a customer's premises, the employer's other office, or a manufacturing site. They described mainly using the short breaks in their busy meeting schedule to make phone calls or handle emails. An experienced female project manager explained how she attempted to incorporate necessary work tasks in her day:

> We were required to take laptops to the training. I felt pressure to use every possible situation to read my emails and received a couple of urgent phone calls as well. Therefore, I needed to use the breaks to listen to my voice mails and make phone calls. In practice, I could not concentrate on what was taught.

In general, the participants were fully occupied while working in secondary places; however, at the same time, they were aware of messages piling up and used every possible opportunity to check that there were no urgent messages in their inbox or voice mail.

Third places

We identified many events in third places ($N = 53$). The participants used mostly asynchronous technologies because they were typically communicating after regular office hours across time zones or surrounded by unknown individuals and concerned about privacy issues. The medium was chosen according to not only the task but also the local situation. A female talent manager described how she chose a communication media while travelling:

> [At the airport] The technology I use depends on how much time I have available. It takes more time to use a laptop, so I often use my mobile phone for quick tasks.

In some cases, our participants communicated using their phone from very unusual places, such as a shopping mall or a playground, when babysitting their children.

Multipresence results in benefits and costs

Our third research question investigated the benefits and costs related to multipresence events. To address this question, we assessed events in which the participants described benefitting from these situations or perceiving inconveniences as individual costs. Many participants indicated how devices enabled them to use their time more efficiently, but also resulted in pressure to use the devices in every possible situation during their work and leisure time.

Benefits

mICT provided our participants with resources that they would otherwise not have had. The participants clearly felt that technology was a resource for them and they benefitted from using it, even though they needed actively to adjust their work practices, and to plan and control specific situations as they arose. They described having more possibilities, opportunities, and flexibility.

Efficient use of time. The most important benefit was an opportunity to use 'unproductive' time efficiently between different work activities or when moving between places, such as the time between meetings, following a schedule change, or sitting in a taxi or cafe. Typically, the social component in these physical places was weak and did not require their complete attention. The participants described circumstances in which they were surrounded by strangers or when their social role differed from their ordinary work role but was not very demanding, such as role of a passenger, customer, or visitor. A talent manager who travelled in all Nordic countries and regularly used a taxi as her transportation to and from airports described how she used such time:

> I could say that I have teleconferences regularly while I am in a taxi. I know in advance the time slot, and I can schedule a teleconference or make other phone calls and use that time efficiently.

The flexibility to check messages in different times and places was described as saving substantial time in responding to demanding situations and preventing subsequent problems. A male production designer, who had previously worked in a position that included regular evening phone calls, explained:

> I would rather deal with a problem in five minutes at home by phone than attempt to fix it for several hours the next day or week.

Mobility enabler. The ability to work from different locations using mICT was considered essential for mobile workers and was therefore perceived positively. A young male lobbyist said that the opportunity to use portable technologies was fundamental to his work:

> I think that the possibility to make phone calls and read emails on my phone while, for example, waiting in a lobby for a postponed meeting to begin makes my work truly mobile.

Flexibility enabler. The flexibility to use multiple technologies and devices instead of relying on only one technology or device that may not operate sufficiently in all situations was described positively. In addition, the participants were able to arrange virtual meetings in two separate situations, namely, when a face-to-face meeting was not feasible and to reduce the amount of work-related travel.

Costs

In addition to benefits, the participants also identified several costs of communication events, particularly difficulty concentrating, productivity losses, disturbances in their work–life balance, and stress. They were typically unable to plan and control these situations, which they described as externally initiated.

Concentration difficulties. Our participants attempted to cope by being physically present in a meeting while using asynchronous media that did not interfere with the meeting to manage their other tasks. Therefore, they were unable to follow the meeting and ended up not concentrating well on any task. A male sourcing manager summed up the impression of many study participants:

> If I look at my colleagues in meetings, most of them are not really present but handle their emails instead. … Afterwards, they don't have any idea what issues were dealt with in the meeting.

The same sourcing manager also indicated that restlessness and frequent interruptions in open office areas resulted in concentration difficulties.

> We have [in this company] reduced travelling and instead increased the number of teleconferences to a witless amount without developing ground rules on how to behave. Some individuals participate in teleconferences from their desks and 'yell' into their phone. There may be three teleconferences going on simultaneously in a small open office area, and there is this hullabaloo going on.

Productivity losses. The participants said that they regularly interrupted their work because they needed to pay attention to what is going on around them when surrounded by colleagues because some of the information could be useful. A male HR manager who routinely received several messages and calls on the top of a dense daily meeting schedule described how this affected his productivity:

> … my phone keeps ringing and emails are appearing in my inbox, and I haven't really done anything that requires concentration for at least six months … and I should …

Challenges in work–life balance. The connectivity and 24/7 availability had several consequences for the participants' family lives and work–life balance. Many participants (both male and female) had difficulties managing their work–life balance. A female chief director of HR managers confessed that she had given up trying to keep up, for example, with family dinners:

> I have nagged my husband about being online 24 hours a day. Now I have understood that life has changed, and everybody is doing it, including myself. Families used to eat dinner together at 5 p.m., but we are not even at home at that time. Fortunately, my mother said that not even she could do it anymore in these circumstances.

Stress. Many participants described how an email overload, easy access to the network, and portable devices made it sometimes difficult to resist checking emails. They felt that they needed to know 'what is going on' and be 'on top of things' even though they were aware that this habit resulted in disruptions to work, difficulties in managing their work–life balance, and therefore, a stressful experience. A male vice-president of production explained that regularly accessing his email often led to unwanted consequences:

> I know that it does cause me stress to be constantly online because I never know what I will find in my inbox. I quite often check my emails in the evenings and during weekends because it keeps me peaceful to know that nothing serious is happening and everything appears to be ok. However, if I realise a message that will make me worry about what is going on and read it more carefully, then I am in the loop of stressful thoughts and my leisure time is sacrificed.

Most participants indicated that they experienced stress because of the pressure to be available for synchronous contacts or to monitor asynchronous messages despite their busy work schedule and after-office hours.

Discussion and conclusions

Mobile ICT has enabled knowledge workers to work and collaborate flexibly in almost any place, thereby creating an increasingly common mobile and multilocational lifestyle. However, this development has brought expectations from employers, collaborators, and the mobile workers themselves that they will make themselves available at all times, regardless of the local context. To meet the communication and collaboration demands, mobile workers often use a multipresence strategy. Consequently, mobile workers use it because they feel that they *have* to or are *expected* to be present in multiple spaces to perform successfully on

their job or they *try to manage* their working hours and work–life balance. These situations occur during work or leisure time when an individual is also occupied with other activities that demand attention and concentration. Thus, they are creating and maintaining a cycle of responsiveness (Perlow, 2012) that reinforces their need to be available. Our findings are in line with previous research on how sociomaterial distinctions between different technologies shape behaviour and create not only new possibilities but also new work demands (e.g., Barley et al., 2011). This new normal behavioural change has an effect on the entire organisation or network of workers, as well as on the workers' private lives.

Our study contributes to the presence literature by introducing technology-enabled multipresence as a novel concept to define workers' preference to be simultaneously present in physical, virtual, and social spaces while working across boundaries in multiple locations and on the move. States of presence arise from different combinations of physical, virtual, and social spaces ranging from absence to presence, both socially and virtually. Communication and collaboration events are divided into four types of event categories depending on the type of space and the method of communication used, as indicated in Fig. 1. The events take place in different and changing circumstances, and are influenced by the technology in use, the local context, and situational demands. The multipresent event occurs when an individual works virtually by using simultaneously different synchronous and asynchronous technologies in a physical place that is also occupied by other people. mICT does not bind a user to one physical place but instead it is possible to maintain virtual presence and availability while changing physical and social environments. Multipresence enlarges the concept of dual presence by including simultaneous synchronic and asynchronic communication using different technologies in changing locations.

Mobile knowledge workers are more exposed to multipresence events than stationary workers are because they are on the move and mICT is often the only available communication channel through which they can reach colleagues or other collaborators. They cannot select absence as a permanent strategy because of their collaboration and coordination demands. They are likely to be virtually available and present, which results in both benefits and costs. As they work from different locations,

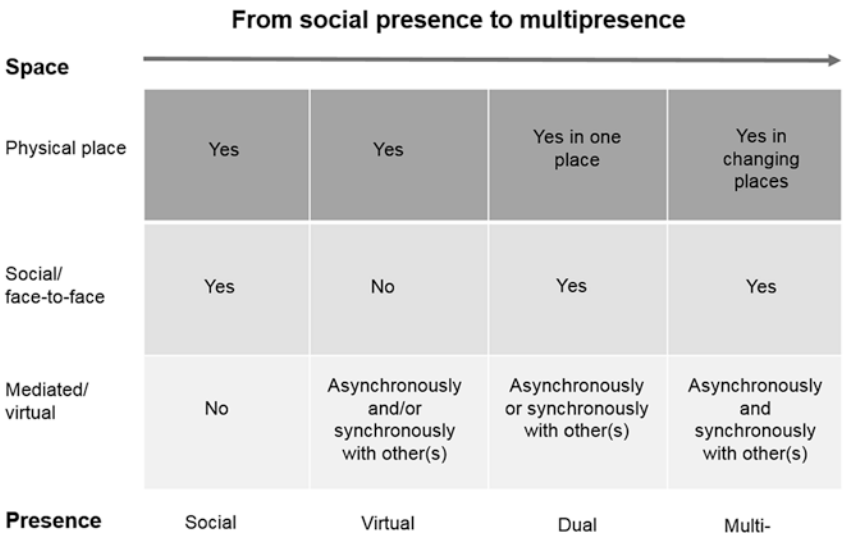

Fig. 1 Different types of communication and collaboration events in mobile multilocational work

they typically need to decide on their own how to balance the benefits and costs. They may choose to perform their online tasks simultaneously with other activities, solving work-related problems 'just-in-time', or they may choose to postpone online communication. If they do not make themselves available, messages will accumulate and they will need to handle them after office hours. However, if they respond to the interruption, they will not be able to concentrate sufficiently on either communication, resulting in productivity loss.

Our study is not without limitations. Since we did not include observations of the participants' daily work but relied on retrospective interviews and calendar entries, it remains unclear how the actual communication events occurred. It may be difficult for the participants to recall all events and separate the different technologies used in one event. Therefore, we suppose that there were even more and more complex communication events than our findings suggest. It is also unlikely that the participants would have described or marked their calendars for events that did not occur. Our data were obtained only from Finnish participants. Cultural and organisational differences in the norms and

preferences for using specific types of technologies are likely have an effect on worker behaviour, even in global companies.

Our results emphasise the responsibilities of an organisation, a team, and a manager to support individual employees to manage work-related communication and work–life boundaries. When using current technologies and beginning to utilise new technologies, both employers and mobile multilocational employees must consider and agree on the following:

1. How to use varied and new technologies to create and maintain the required continual, open dialogue in teams and organisations, while maintaining mobile workers' productivity;
2. Better work practices for use in varied communication and collaboration events in the knowledge workflow to ensure sufficient recovery time, work–life balance, and well-being at work;
3. These decisions cannot be relegated to an individual employee. Instead, laws and societal policies, and organisational strategies and guidelines should guide and control common work practices. Advising individual employees to learn new skills and competences so that they can process information faster, and that they must also prioritise their tasks, manage their time, or remove distractions that disrupt their work, does not solve the problem. In the interests of efficiency and well-being, individuals who work together must have a common understanding about how and when to withdraw from multipresence and safeguard their ability to concentrate at work, and about how to achieve recovery time both off- and on-the-job.

The occurrence of multipresence events in work will continue to increase because of mobile lifestyles, the availability of new physical premises in which to work (e.g., cafés and hubs with good Internet access), developing technologies such as augmented reality (e.g., optical head-mounted displays and other wearable technologies), and new ways to communicate, such as company social media. The current practices of mobile email and online meetings are in transition; technologies will change and progress rapidly. We do not think that our findings are device-specific; rather, they are more dependent on the properties of the

technologies used; for example, the synchronicity or asynchronicity of communication, and the social effects. Additional research is required to understand technology-mediated collaboration and the consequences for worker productivity, work–life balance, and well-being. We anticipate that the construct of multipresence provides a conceptual tool for scrutinising and investigating presence in a work environment of rapidly digitalising communication.

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Johanna Koroma is a doctoral candidate in the Virtual and Mobile Work Research Unit (http://www.vmwork.net/), Department of Industrial Engineering and Management, Aalto University School of Science. She is a senior expert in the Finnish Institute of Occupational Health. Her research interests focus on designing new ways of working in distributed settings and on developing digital services for occupational health and well-being at work.

Matti Vartiainen is Professor of Work and Organisational Psychology in the Department of Industrial Engineering and Management, Aalto University School of Science. He is a mentoring professor in the Virtual and Mobile Work Research and Work Psychology and Leadership Units (http://tuta.aalto.fi/en/about/bit/). With his research teams, he is studying organisational innovations, digital work, leadership and well-being in new ways of working, mobile and multilocational distributed teams and organisations, reward systems, knowledge and competence building, and e-learning systems.