Slowing work down by teleworking periodically in rural settings?

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Abstract

Purpose – The rise of knowledge work has entailed controversial characteristics for well-being at work. Increased intensification, discontinuities and interruptions at work have been reported. However, knowledge workers have the opportunity to flexibly adjust their work arrangements to support their concentration, inspiration or recuperation. The purpose of this paper is to examine whether the experienced well-being of 46 knowledge workers was subject to changes during and after a retreat type telework period in rural archipelago environment.

Design/methodology/approach – The authors conducted a longitudinal survey among the participants at three points in time: one to three weeks before, during, and two to eight weeks after the period. The authors analyzed the experienced changes in psychosocial work environment and well-being at work by the measurement period by means of repeated measures variance analysis. In the next step the authors included the group variable of occupational position to the model.

Findings – The analysis showed a decrease in the following measures: experienced time pressure, interruptions, negative feelings at work, exhaustiveness of work as well as stress and an increase in work satisfaction. There were no changes in experienced job influence, clarity of work goals and work engagement. Occupational position had some effect to the changes. Private entrepreneurs and supervisors experienced more remarkable effects of improvement in work-related well-being than subordinates. However, the effects were less sustainable for the supervisors than the other two groups.

Originality/value – This paper provides insights into how work and well-being are affected by the immediate work environment and how well-being at work can be supported by retreat type telework arrangements.

Keywords Work environment, Well-being, Knowledge work, Quantitative, Telework

Paper type Research paper

1. Introduction

In recent decades, globalization and technological revolution have resulted in the emergence of new forms of organizing work that has become increasingly knowledge intensive (Osterman, 2013; Benner, 2002). Knowledge work can be defined as creative production of, dealing with or conveying knowledge in a network with activities facilitated by information and communication technologies (ICT) (cf. Castells, 1996; Drucker, 1993; Blackler, 1995). Networking and innovation processes are no longer bound by the boundaries of the organization (Castells, 1996; Vargo and Lusch, 2008), nor is the placement of workers (Hislop and Axtell, 2007, 2009; Urry, 2000; Felstead *et al.*, 2005; Bosch-Sijtsema *et al.*, 2011). Traditionally, a personal office or desk

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delegated to an employee has been a symbol of employee status and a device of management regulation and control, but in recent decades the idea that some spaces and times are marked for work has become questionable (Felstead *et al.*, 2005). This paper engages in discussion about the significance that new and alternative work environments may have for knowledge workers.

The virtual organizing forms, "space of flows" (Castells, 1996), operating alongside the real and physical ones generate new kinds of instabilities and unpredictabilities at work (Knox *et al.*, 2008; Mark and Su, 2010; Brown and O'Hara, 2003). The development of ICT-based knowledge work has been found to create new kinds of pressure, disruptions and discontinuities in the work processes (Chesley, 2014; Jett and George, 2003; Gonzalez and Mark, 2004; Perlow, 1999). Often knowledge workers need to synchronize their work effort simultaneously to several work processes with potentially unlimited geographical spread (Wajcman and Rose, 2011; Brown and O'Hara, 2003), and ICT enables the employees to be reached by colleagues and clients even in unconventional hours. These may create challenges to the personal management of work process, working time and individual well-being. There is evidence of increased experiences of work intensification in various statistical surveys (Green, 2006; Green *et al.*, 2013).

Flexible working arrangements and especially telework have been considered one way to support work-life balance and personal well-being of the employees. Telework can be broadly defined as remote work substituting for work in the same location with colleagues, employers or customers supported by workers' use of ICT (Garrett and Danziger, 2007). Telework has included promises of better work satisfaction, balance between work and private life, and work peace and autonomy for the employee and increased efficiency, motivated workers and decreasing office accommodation costs for the employer (cf. Van Horn and Storen, 2000; Green *et al.*, 2012; Heinonen, 2000). However, research results on the effects of telework on well-being have in many ways been contradictory. Telework has also been associated with more intense work effort and new problems with balancing work and private life (Kelliher and Anderson, 2010; Tietze and Musson, 2005). Working in a distance from one's work community involves a clear risk of the isolation of the employee (Pyöriä, 2011). Telework has not diffused in a manner it was expected to (Pyöriä, 2011), even though many employees report conducting work in various locations such as client's or business partner's place, hotels, the holiday home, coffee shops or while travelling (cf. Felstead *et al.*, 2005; Brown and O'Hara, 2003). Recently, perhaps reflecting the shortcomings of isolated telework, more social alternatives for flexible working arrangements, such as various private or public co-working space arrangements, have been developed (Spinuzzi, 2012; Bilandzic and Foth, 2013).

The majority of telework research has concentrated on home-based or home-office telework instead of the more mobile forms of telework (Hislop and Axtell, 2007, 2009; Garrett and Danziger, 2007; Mark and Su, 2010; Brown and O'Hara, 2003). However, also literature examining mobile telework or mobile work has focused on such work processes where employees have little discretion on their work environment, such as commuting, travelling for work purposes, working at client's or business partners' premises or other premises of the employer (cf. Hislop and Axtell, 2009; Garrett and Danziger, 2007; Mark and Su, 2010; Vartiainen and Hyrkkänen, 2010). There is a gap in the existing mobile and telework literature regarding other environments that workers may utilize for purposes such as supporting concentration, inspiration or recuperation from work pressure.

To address such an alternative telework practice, this paper takes as its focus a periodical telework arrangement in rural archipelago environment. The arrangement can also be described as retreat type telework. This paper examines by means of a longitudinal research design whether this kind of telework arrangement had an impact on knowledge workers' psychosocial work environment and well-being at work. The respondents of the study ($n = 46$) carried out one week's telework period in the rural settings of southwestern Finnish and Estonian archipelago. The data are derived from a survey that was conducted before, during and after the telework period within a research project of the Finnish Institute of Occupational Health.

This paper is structured as follows. It starts with literature discussing well-being factors related to knowledge work, telework practices and urban and rural environment. Second, it elaborates the objective of the study and presents the process of data collection, background data of the participants, the measures used in the data collection and the methods of the analysis. Third, the paper analyses the extent to which changes in well-being at work were found during and after the telework period according to the measures utilized. Last, this paper discusses these results in light of the previous studies and their possible implications.

2. Knowledge work and well-being

While the overall increase in tasks related to knowledge processing have given rise to expectations of work becoming intrinsically more interesting and rewarding, many studies have reported of experiences of increasing time pressure, tight deadlines or interruptions in knowledge work (Chesley, 2014; Perlow, 1999; Jett and George, 2003; Gonzalez and Mark, 2004). Paradoxically, statistically the average working hours have decreased or stagnated in the whole western world, so the apparent intensification of work has generally been explained by changes in technology and the ensuing re-organization of work (Green, 2006). The prevalence of ICT is resulting in mediated communication replacing face-to-face communication, and this in turn has been associated with short, fragmented work episodes (Wajcman and Rose, 2011). In addition, the possibility to work in any place or time, or stay always "on-line" (Gant and Kiesler, 2002) has enabled work to "extend itself" (Chesley, 2005; Duxbury *et al.*, 2007) and to break the boundaries between work and private life (Felstead *et al.*, 2005). Time management has become a more complex task than before for the individual worker.

Well-being at work has been approached from various disciplinary perspectives, such as psychology, sociology or economy. This study understands well-being at work as a multi-layered phenomenon, consisting of the subjective experience but being also strongly influenced by social and organizational aspects such as work community and management strategies (Ryan and Deci, 2000; Blom and Mamia, 2007). In general, well-being at work can be defined as a meaningful and fluent flow of work (Csikszentmihalyi, 1997) in the working environment and work community that promote safety, health and career of an employee (cf. Dagenais-Desmarais and Savoie, 2012). Well-being at work is often considered to comprise two dimensions: the absence of risks and hazards at work, but also the engagement and ability to realize oneself in work activities. Psychosocial work environment is considered an important enabler of well-being. According to a famous model by Karasek and Theorell (1990), well-being at work results from balance between demands of work tasks and control of work process. A combination of highly intensive work effort and low workplace autonomy is likely to produce rising stress levels. Therefore the intensification of work could be sustained to some degree if it was coupled with autonomy and influence on one's work.

Some authors consider that changes in the work processes that are enforced by the technological development are in fact leading to universal development of more horizontal organization and greater responsibility and autonomy of an employee (Heckscher and Adler, 2007; Castells, 1996). This development, which is also described as transition from bureaucratic to post-bureaucratic management, has the potential to make work more satisfactory and regenerative experience (Kira and Forslin, 2008). Flexible working practices such as telework are considered part of such a development. However, from a more institutional perspective, the post-bureaucratic development seems anything but linear. National industrial relations systems may also support employers to use new technology for tighter management control instead of investing in skill development, as has been observed, e.g. in the so called liberal labour market. These practices may become an obstacle to employee autonomy, including the development of telework. (Oinas *et al.*, 2012; Green, 2004, 2006; Johnson *et al.*, 2009.) In addition, telework practices have so far been associated particularly with employees with higher occupational status (Welz and Wolf, 2010; Pyöriä, 2011), which reflects unequal opportunities to utilize these arrangements (Pyöriä, 2011; Blom *et al.*, 2001). Therefore, in sum, development of well-being in knowledge work has many contradictory tendencies.

2.1 The possible impacts of telework on workers' well-being

The availability of mobile technology "liberates" the employee from a fixed location (Brown and O'Hara, 2003; Hislop and Axtell, 2007), and potential workplaces may be found anywhere. In theory, knowledge workers are able to choose any space that suits their work task and supports their well-being, work-life balance, inspiration or productivity (cf. Felstead *et al.*, 2005; Brown and O'Hara, 2003). For workers engaging in creative knowledge production there is no more any logical reason for why the whole work process should be bound by specific place and hours. Mobile workers develop tacit skills to adapt to changing environments and conditions (Felstead *et al.*, 2005). Increasing experience of different work environments may increase willingness to experiment with various working styles and environments, as well as individual sensitivity regarding the changing conditions of work environment (Vartiainen *et al.*, 2007).

Despite of this positive horizon opened up by mobility literature, empirical research about other kinds of telework than home-based or home-office telework has not been very extensive. Many definitions of telework have been broad enough to include diverse locations of work, but the empirical research on telework has had the tendency of taking home environment as granted (Hislop and Axtell, 2007). However, research paying more closely attention to the more diverse work locations has generally found that these locations shape the work processes in unique ways (Hislop and Axtell, 2009; Mark and Su, 2010; Brown and O'Hara, 2003).

In general, telework as a form of flexible work arrangement is widely believed to ease the work load of knowledge workers by providing them with more freedom and independence at their work. From employees' perspective flexible work arrangements are considered to result in increased autonomy over working arrangements (Tremblay, 2002), increased work productivity (Hill *et al.*, 2003), reduced commuting and decreased interruptions (Haddad *et al.*, 2009) as well as enhanced opportunities of managing work-life balance (Tremblay, 2002). From the organization's point of view the benefits include an increased ability to attract and retain talented staff (Maruyama and Tietze, 2012),

greater productivity and decreased office accommodation costs (Green *et al.*, 2012). Telework arrangements also support the goals of regional development (Cornford *et al.*, 1996). As telework reduces commuting to work, transport emissions could also be reduced (Kitou and Horvath, 2003).

The studies of concrete telework practices have achieved mixed results. There has been evidence of increased work satisfaction (Kelliher and Anderson, 2010; Tremblay, 2002) and autonomy (Kelliher and Anderson, 2008; Tremblay, 2003). Employees engaging in telework have also claimed larger organizational commitment (Kelliher and Anderson, 2010) and increased productivity (Golden and Veiga, 2008; Baruch, 2000; Tremblay, 2002). On the other hand, in some cases telework has involved alienation from the work community, experienced reduced visibility, weakening of the flow of information (Maruyama and Tietze, 2012; Tremblay, 2003) and intensification of work, partly as employees have experienced they have to compensate for "the privilege" with increased work effort (Kelliher and Anderson, 2010). Telework has allowed better opportunities to answer to family needs, but sometimes it has been a source of new conflicts between work and family (Tietze and Musson, 2005). Similarly, some work suggests that job stress is lower among those who spend more time teleworking (Raghuram and Wiesenfeld, 2004), but others report teleworkers show more signs of mental ill health than office-based workers (Mann and Holdsworth, 2003). In conclusion, these results highlight that telework does not suit everyone and to all life situations (cf. Pyöriä, 2011). In addition, most of this telework literature has focused specifically on home-based telework or has not directly addressed the question of other work environments.

There are certain preconditions for the management in order for telework arrangements to succeed. The increasing autonomy and responsibility of teleworkers for their own work process necessitates trust from the organization. In many ways this reflects the transition from bureaucratic to post-bureaucratic organization (cf. Kira and Forslin, 2008). The organization has to give up surveillance of the actual work performance and working times (Pyöriä, 2011). All in all, telework has many potentials as well as risks for the individual employee, which is why uniform solutions should not be applied but instead the individual situation and personal will should be taken into account when managing telework arrangements (Pyöriä, 2011).

2.2 Knowledge workers, urban and green environment
Besides being configured in the abstract terms of descriptions, rules and procedures, work is also a concrete socio-material practice taking place within the relations of human beings and artifacts (cf. D'Adderio, 2011; Latour, 1992). The virtual "spaces of flows" of knowledge work do not exist outside any local context, but it is the various local routines, rules and artifacts that make these flows work (Brown and O'Hara, 2003; Star, 1999), and the socio-material environment where the work takes place shapes one's subjective experience. Work environment has been suggested to have plenty of importance especially to knowledge workers' well-being and innovativeness. Discussion about environments attracting knowledge workers or "creative class" (Florida, 2002) has centred on urbanity and the cultural events and services a cosmopolitan city can offer. However, some creative industry workers or creative professionals have preferred to choose a rural area as their work environment. The most famous example of this is the nest of American innovation, Silicon Valley in northern California, which is located in an area that that originally had a semi-rural

character (Castells, 1996; Benner, 2002). Silicon Valley, the birthplace of both Microsoft and Apple, proves that sometimes leaving built environment and constituted societies behind can end up being a fruitful solution regarding innovation (Castells, 1996). In the British context case studies of rural "creative clusters" consisting of broad range of small-scale creative practitioners and artisans have been carried out in west Cornwall (Harvey *et al.*, 2012) and Shropshire (Bell and Jayne, 2010).

A body of literature has focused on elaborating the characteristics and differences of urban and green environments and examining the individual psychological experience related to these environments (see Tzoulas *et al.*, 2007 for a review). According to an influential theory within such tradition, the attention restoration theory, the involuntary attention to or "fascination" of nature supports restoration from mental fatigue arising from work situations and recovers the capacity to direct attention (Kaplan and Kaplan, 1989). The natural favourite places are experienced to support reflection on personal matters, positive emotions and helping to forget worries (Korpela *et al.*, 2001). It has been found that everyday unthreatening natural environments foster stress recovery and decreasing of negative emotions more effectively than urban settings (cf. Ulrich *et al.*, 1991). For workers suffering from deteriorated mental well-being, natural work environment offers a chance for recuperation (Korpela, 2009). In sum, there is a prevailing interest in the connection between urban environment and the preoccupations of creative knowledge workers, but also green environments have been found to support workers in various ways.

3. Objectives of the study
This paper examines how periodical telework in rural archipelago environment is experienced by knowledge workers to influence their well-being measured by psychosocial work environment, stress, work engagement and work satisfaction, and whether the possible effects were sustainable. Time management, fragmented work episodes and work intensification are well-being risks that have been associated with knowledge work in previous research (Chesley, 2014; Perlow, 1999; Jett and George, 2003; Gonzalez and Mark, 2004). On the grounds of the research addressing well-being effects of green environments it was assumed that the rural and green environment could reduce the amount of experienced stress, negative feelings and other psychosocial work strain factors (Korpela *et al.*, 2001; Ulrich *et al.*, 1991; Korpela, 2009).

Previous research also suggests that the success of the telework arrangement depends on the leadership culture and the level of trust in the organization (Pyöriä, 2011). This is reflected in telework being more common among those in higher occupational positions, where the issues of autonomy and authority are less at stake. On the other hand, private entrepreneurs also enjoy considerable autonomy. Therefore we also examined, whether the occupational position had any relation to the experienced well-being during the rural telework period. In order to do this we divided the data to subgroups of supervisors, subordinates and private entrepreneurs.

The data for this paper were collected 2010-2011 in a study conducted by the Finnish Institute of Occupational Health. The study was sub-part of the project "Flexible working culture – re-thinking of work, place, time, and life" that was funded by the European Regional Development Fund. The informants of the study were employees and entrepreneurs who spent a working week in the countryside environment of Finnish southwestern and Estonian archipelago. The participants applied themselves for the experiment and the study on the basis of an advert spread

by e-mail newsletters for entrepreneur organizations, newspapers and also by television news. Besides these channels, the informal networks spread the word about the experiment. The appropriate time period and the specific location amongst the several available options were chosen by the participants beforehand.

Total of 49 knowledge workers did the one week's working period in the rural archipelago settings mostly in small groups (two-five persons). In total, three out of the participants chose to apply and participate the experiment alone. The participants were provided with a work space with ordinary office equipment and accommodation in the work location. As the work week and the experiment included the study part, the lodging and the work space were cost-free for the participants. In each work location there was one group of study participants at a time.

We conducted a longitudinal survey among the participants at three points in time: one to three weeks before, at the end of the period, and two-eight weeks after the work period with an electronic survey system. Total of 46 participants answered to the first questionnaire out of which 39 participants answered to all three questionnaires. The number of participants is small, but the longitudinal research design enables studying the change in participants' experiences over a certain time period, which provides an additional dimension to the data.

4. Background of the informants
In the first questionnaire personal data and background information of the participants' work was collected. The participants had various professional backgrounds. A majority of them could be characterized as the so called creative industry or creative professionals. The participants consisted of journalists, advertising experts, textile designers, IT developers, well-being coaches, consultants, health care service providers, architects and researchers, among others. The participants lived in various locations mostly in southern Finland, but some of them also in the northern parts of Finland or in Estonia. More than four-fifths (85 per cent) of them worked in small or medium-sized organizations (one to 49 employees) and one-third of the participants (30 per cent) were private entrepreneurs. The same share (30 per cent) was subordinates and two-fifths (39 per cent) were in a supervising position in their job. One half of the participants were women and the other half were men. The participants were in different phases on their careers, the youngest being 23 and the oldest 66 years of age. The average age of the participants was 44 (SD 11.5 years). All but two participants were of Finnish nationality.

Generally, the participants were already quite acquainted with flexible working practices. Two-thirds of the participants (64 per cent) announced that their working times yielded on a weekly or daily basis on the demand of supervisors or work tasks. Only two participants claimed that there was no yielding of work times at all. Half of the participants (50 per cent) worked during weekends at least on a monthly basis. A minority of 17 per cent performed no weekend work at all. For quite many of the participants (61 per cent) home was also an essential place of work or work station. Over a half of the participants (54 per cent) worked at home on a daily basis, only one respondent denying to work at home at all. Two-thirds (65 per cent) of the respondents worked at a client's place or in another work station of the employer at least occasionally, one-third (33 per cent) of the respondents on a weekly or daily basis. Four-fifths (83 per cent) worked at least occasionally outside the usual work place, e.g. in hotels, coffee shops, congress centres or parks, and almost as many (78 per cent) worked at least occasionally on a vehicle when travelling.

5. Data analysis

Measures were used that were already well established in the research conducted by Finnish research institutes such as Finnish Institute of Occupational Health and the Centre of Statistics. Variables of the psychosocial work environment included the following, based on five-point Likert-type scales ranging from 1-5: how often do you have to hurry to get your work done (5 = very often)? Do you have to interrupt your work tasks because of other intervening matters or busier matters and tasks (5 = constantly)? Is your work mentally […] 1 = easy-5 = very exhausting? Do you have clear objectives and goals defined for your job (5 = never)? Can you influence the things that concern you in your workplace (5 = very little)? Can you influence the amount of work assigned to you (5 = very little)? Can you influence the order in which you perform your work tasks (5 = very little)? Can you influence the length of your working day (5 = very little)? How often do you encounter the sort of situations in your work that cause negative feelings for you, like anger, hate, fear or shame (5 = constantly)?

As variables of well-being we measured stress with five-point Likert-type scale (1 = not at all, 5 = very much). The question is: "Stress means a situation in which a person feels tense, restless, nervous or anxious or is unable to sleep at night because his/her mind is troubled all the time. Do you feel this kind of stress these days?" (Elo *et al.*, 2003). We measured work satisfaction with a five-point Likert-type scale (1 = very satisfied, 5 = very unsatisfied) with the question being: "How satisfied are you with your current job?". We also measured work engagement with nine items ranging from 0 to 6 (6 = always), consisting of vigour, dedication and absorption, three items for each (Schaufeli *et al.*, 2006). We included space for open comments regarding the experiment in each questionnaire.

In order to find out whether there had been changes between the three different time points, a repeated measures analysis of variance (ANOVA) was conducted. Each dependent variable (mental exhaustiveness of work, time pressure, interruptions, levels of job influence, clarity of work goals, negative feelings at work, stress, work engagement and work satisfaction) were modelled separately. If significant change between the three different time points (within-subjects effect $p \leqslant 0.05$) was found, a further analysis was carried out in occupational sub-groups. If Mauchly's test of sphericity reached a level above 0.05, we used the within-subjects effects test with assumed sphericity, and if it did not, we used the Greenhouse-Geisser test. In the analysis by sub-groups we used the Bonferroni test as the *post hoc* test.

6. Results

The repeated measures ANOVA showed that the experienced time pressure at work was significantly lower on average during the rural telework period, and after the period it also stayed at a slightly lower level compared to the original situation ($F(1.548) = 58.934, p < 0.001$). Also, there were less of experienced interruptions at work during the telework period compared to the level before the experiment. Interestingly, the experience of interruptions was also significantly lower after the teleworking period compared to the original level ($F(1.390) = 41.977, p < 0.001$). The experience of negative feelings at work was significantly lower during the experiment, and it also stayed at a slightly lower level after the experiment ($F(2) = 46.275, p < 0.001$). Also, the experienced mental exhaustion was significantly lower during the telework period, but after the period it returned close to the original level ($F(1.400) = 23.134, p < 0.001$). Experiences of job influence and clarity of work goals did not change over the time points (Table I).

Psychosocial work environment	Pre-measurement (SD)	During measurement (SD)	Post-measurement (SD)	ANOVA repeated measures
Mental exhaustiveness of work ($n = 38$)	3.24 (0.82)	2.34 (1.02)	3.29 (0.80)	$F(1.400) = 23.134$*** (1 vs 2***, 1 vs 3 ns, 2 vs 3***)
Time pressure at work ($n = 39$)	3.67 (0.81)	2.08 (1.09)	3.44 (0.85)	$F(1.548) = 58.934$*** (1 vs 2***, 1 vs 3****, 2 vs 3***)
Interruptions at work ($n = 34$)	3.94 (0.95)	2.09 (1.11)	3.47 (0.86)	$F(1.390) = 41.977$***(1 vs 2***, 1 vs 3**, 2 vs 3***)
Influence on things at the workplace ($n = 39$)	1.74 (0.91)	1.51 (0.79)	1.56 (0.75)	ns
Influence on the amount of work ($n = 39$)	2.21 (1.00)	2.03 (1.06)	2.28 (0.97)	ns
Influence on the work order ($n = 39$)	1.82 (1.00)	1.69 (0.98)	1.87 (0.80)	ns
Influence on the length of the working day ($n = 33$)	1.92 (0.98)	1.85 (1.14)	1.90 (1.02)	ns
Clarity of work goals ($n = 39$)	2.08 (0.81)	2.15 (0.87)	2.18 (0.64)	ns
Negative feelings at work ($n = 39$)	2.64 (0.87)	1.46 (0.72)	2.38 (0.75)	$F(2) = 46.275$***(1 vs 2***, 1 vs 3*, 2 vs 3***)

Notes: ns, not significant. 1, pre-measurement; 2, measurement during; 3, post-measurement. ****$p < 0.10$; ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$

Table I.
Repeated measures
ANOVA by
measurement point:
psychosocial work
environment

The experience of stress was significantly lower during the telework period, and it quite did not reach the original level after the experiment, either ($F(2) = 3.852$, $p < 0.05$). This means that for some participants the decrease in the experienced stress was of a more permanent nature. The experienced work satisfaction also slightly ameliorated on average during the rural retreat working period, but returned afterwards close to the original level ($F(2) = 2.812$, $p < 0.10$). There were no significant changes in work engagement (Table II).

We carried out additional analysis for variables that showed significant changes between the measurement points ($p < 0.05$) by dividing the informants to three

Well-being at work	Pre-measurement (SD)	During measurement (SD)	Post-measurement (SD)	ANOVA repeated measures
Stress ($n = 38$)	2.89 (0.98)	2.55 (0.80)	2.68 (0.93)	$F(2) = 3.852$* (1 vs 2*, 1 vs 3****, 2 vs 3 ns)
Vigour ($n = 39$)	3.88 (0.85)	3.99 (0.86)	3.94 (0.92)	ns
Dedication ($n = 39$)	4.43 (1.12)	4.53 (0.94)	4.53 (0.99)	ns
Absorption ($n = 39$)	4.17 (1.10)	4.34 (0.88)	4.27 (0.92)	ns
Work engagement ($n = 39$)	4.16 (0.93)	4.29 (0.82)	4.25 (0.86)	ns
Work satisfaction ($n = 39$)	1.85 (0.67)	1.69 (0.61)	1.87 (0.80)	$F(2) = 2.812$**** (1 vs 2****, 2 vs 3*, 1 vs 3 ns)

Notes: ns, not significant. 1, pre-measurement; 2, measurement during; 3, post-measurement. ****$p < 0.10$; ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$

Table II.
Repeated measures
ANOVA by
measurement point:
well-being

occupational groups: private entrepreneurs ($n = 12$), subordinates ($n = 12$) and supervisors ($n = 15$). The results of this analysis are found in Table III. The test of between-subjects effects shows that the supervisors were generally the most stressed group particularly compared to the group of subordinates ($p = 0.052$). The result almost reaches the level of statistical significance. However, this result was due to the fact that the experienced stress level of the supervisors did not change much over the time points. On the other hand, the private entrepreneurs were originally the most stressed group, and they experienced the most notable decrease in stress of all three groups in the rural archipelago environment compared to the original situation. Their stress level rose again after the experiment but remained lower than the original level. The subordinates in turn showed a slightly decreasing trend of experienced stress both during and after the experiment. These different trends among the occupational sub-groups produced a statistical tendency for interaction ($p = 0.052$).

The group of supervisors experienced the most time pressure of the three groups, as is shown by the test of between-subject effects, especially compared to the group of private entrepreneurs ($p = 0.022$). However, all the groups notably benefited from the flexible work experiment in this regard in relation to their original level of experienced time pressure. Also, the groups of supervisors and private entrepreneurs differed the most from each other in terms of experienced interruptions, the supervisors being the most often interrupted group and the private entrepreneurs the least ($p = 0.006$). During the experiment the decrease of experienced interruptions was notable for all the groups, but the subordinates and supervisors gained relatively the most. However, the decrease in the experienced interruptions seemed to be more permanent for the private entrepreneurs and subordinates than for the supervisors, even though the interaction effect is not statistically significant. Experiences of mental exhaustion at work decreased most notably for private entrepreneurs and supervisors, but also subordinates gained in this respect. The effect was not durable, however. Regarding experiences of negative feelings at work and work satisfaction there were no differences between the occupational sub-groups.

In the open comments of the questionnaires the change of the environment was experienced as enriching and providing new perspectives on work and other areas of life. It supported the reflection on working styles and methods as well as planning for the future. Other experienced benefits were the sense of community and feeling of synergy with colleagues, personal recuperation and efficiency at work:

> This week gave new perspectives to my whole working life.

> The experiment was very eye-opening on how to work in future and with what kind of rhythm. The week was surprising as we had – no preliminary expectations or attitudes.

> The trial period was very successful regarding my work and also the cooperation and sense of community of the colleagues.

> The week was very fruitful. In the future we plan to spend at least one working week somewhere else than the main workplace in order to avoid interruptions from meetings or other intervening factors.

> I believe that my stress level has dropped from the red zone to at least to the yellow zone. – Personally this week has been extremely beneficial for me – I am again on my way towards balance!

The experiment did not proceed completely without shortcomings, which were mostly related to infrastructure. Sometimes the work conditions did not meet

	Pre-measurement		During measurement		Post-measurement				Post hoc
	Mean	SD	Mean	SD	Mean	SD			
Stress									
Private entrepreneur	3.25	0.75	2.42	0.67	2.75	0.87	Within-subjects effects	$F = 4.426$, $p = 0.015$	$3 > 2^a$
Subordinate	2.36	0.81	2.27	0.65	2.09	0.54	Between-subjects effects	$F = 3.212$, $p = 0.052$	$p = 0.55$
Supervisor	3.00	1.13	2.87	0.92	3.07	1.03	Time × occupational position	$F = 2.476$, $p = 0.052$	
Mental exhaustion									
Private entrepreneur	3.18	0.98	2.00	0.45	3.36	0.92	Within-subjects effects	$F = 23.678$, $p < 0.001$	ns
Subordinate	2.83	0.39	2.42	1.08	2.83	0.58	Between-subjects effects	$F = 2.496$, $p = 0.097$	
Supervisor	3.60	0.83	2.53	1.25	3.60	0.74	Time × occupational position	ns	
Time pressure									
Private entrepreneur	3.42	0.90	1.67	0.65	3.08	0.79	Within-subjects effects	$F = 55.694$, $p < 0.001$	$3 > 1$
Subordinate	3.42	0.67	2.08	0.90	3.25	0.75	Between-subjects effects	$F = 4.275$, $p = 0.022$	$p = 0.25$
Supervisor	4.07	0.70	2.40	1.40	3.87	0.83	Time × occupational position	ns	
Interruptions									
Private entrepreneur	3.40	1.26	1.90	1.29	2.70	0.67	Within-subjects effects	$F = 40.523$, $p < 0.001$	$3 > 1$
Subordinate	4.08	0.90	2.00	1.04	3.50	0.80	Between-subjects effects	$F = 6.181$, $p = 0.006$	$p = 0.004$
Supervisor	4.25	0.45	2.33	1.07	4.08	0.51	Time × occupational position	ns	

Notes: ns, not significant. [a]1, private entrepreneur; 2, subordinate; 3, supervisor

Table III.
Repeated measures
ANOVA by
measurement point
and occupational
position

expectations: there were occasional problems with internet or mobile phone connections, or complaints about the ergonomics of office furniture or the level of lodging. The development of the infrastructure to answer to the particular needs of knowledge workers regarding connectivity and office ergonomics remains a future challenge to service providers. Sometimes there was hardly any interaction with locals, which was experienced as a deficiency:

> The conditions were pretty modest, and there were hardly any contacts with locals. [Place X] could have presented itself in some way, perhaps through local enterprises. Marketing!

Some made a conscious decision to work hard and long days, but it paid itself off:

> We consciously put in a lot of work effort, which went very well in a mutually supportive atmosphere. The working days became very long, but it did not matter.

7. Discussion
This paper examined a retreat type telework arrangement, which has received little scientific attention. The goal of this paper was to examine, whether a telework period in a new work environment in countryside had any effect on knowledge workers' well-being, more specifically the experienced psychosocial work environment, stress level, work satisfaction and work engagement, and whether the effects would be sustainable. Even though generally promising more intrinsically rewarding job content, knowledge work has been associated with increased work pressure, such as time pressure, discontinuities and disruptions in the work process (Chesley, 2014; Perlow, 1999; Jett and George, 2003; Gonzalez and Mark, 2004). The development of mobile ICT has enabled detachment of the work process from a fixed workplace, and the opportunities for telework have been expected to support work-life balance and well-being of the employees. However, the empirical research results regarding the effects of telework have been contradictory, and the practice itself has not spread in a manner it has been expected to. The shortcomings of telework, such as isolation, are primarily associated with home-based telework, which has been the main focus of telework research despite of the opportunities for more varied telework practices (Hislop and Axtell, 2007). An emerging trend may be the development of more social flexible working spaces (cf. Spinuzzi, 2012; Bilandzic and Foth, 2013).

Our results indicate that during a telework period in an alternative work environment, rural and natural settings, the strain experienced by the participants at work decreased notably. The participants of the study experienced less time pressure, negative feelings, mental exhaustion and interruptions during the rural work period. In addition, there was a decrease in experienced stress and a slight increase in work satisfaction. Regarding experienced interruptions, negative feelings and time pressure, the improvements were for some participants more permanent than solely the duration of the work period. Even the experienced stress showed a slight change for a more permanent decrease. However, there were no changes regarding job influence, clarity of work goals or work engagement.

Regarding the differences between the three occupational groups, the private entrepreneurs evidenced the most notable decrease in the experienced stress when moving to rural work settings. The supervisors were the group that experienced originally the most time pressure especially if compared to the private entrepreneurs, so possibly for them the work period brought the most significant relief on this regard. The decrease was notable for all the groups, however. The supervisors were also

generally the most interrupted group and the private entrepreneurs the least, but all the groups gained from the experiment in this respect, some private entrepreneurs and subordinates even more permanently. These findings indicate that the experienced benefits of telework are affected by the occupational position. For the private entrepreneurs and supervisors the changes during the experiment were more eminent than for the subordinates. However, on average the changes were more sustainable for the subordinates and private entrepreneurs than for the supervisors. Private entrepreneurs may have been able to sustain the effects of the experiment due to the autonomous nature of their occupation. Supervisors could be assumed to enjoy more work autonomy at least when compared to subordinates and therefore have ability to sustain the effects as well, but perhaps their demanding occupational role challenges their individual influence on their workload. These suggestions would require further examination, however.

The results show that periodical telework in rural retreat settings supports many aspects of well-being at work, given that the necessary work facilities are in order in the telework location. The success of this particular telework arrangement may be partly explained by the background of the participants. The self-applied participants were generally quite familiar with flexible working patterns and therefore it can be assumed that they possessed such tacit skills (Felstead *et al.*, 2005) that assist in adapting to new situations. Being familiar with flexible working practices they may have been relatively able to assess beforehand the suitability of this working arrangement to their personal work patterns.

The complete change of environment and the tranquillity of the countryside may provide a space where reflection on work styles and life in general becomes convenient, which is what the open comments suggest. Also in light of the previous studies regarding the effects of natural environment on well-being (Korpela *et al.*, 2001; Korpela, 2009; Ulrich *et al.*, 1991) it may well be assumed that the green environment played its part in calming down the work pace of the participants and alleviating feelings of exhaustion and negative emotions. The open comments also suggest that for those working in groups the rural retreat environment was a supportive work environment as it facilitated interaction and provided a protected space to work collaboratively away from disruptive elements.

The results of this study have the following theoretical implications. In telework research the concept of telework should not only be utilized in the sense of employees' liberty to work outside the office, but also taking into account the various work environment solutions occurring in practice. Mobile work and telework research should recognize the appearance of new work environments in addition to the already familiar and traditional ones, like main and branch office, home and transportation vehicles and study work processes in relation to their immediate environment (cf. Brown and O'Hara, 2003; Hislop and Axtell, 2007). Although the existing studies on telework (cf. Kelliher and Anderson, 2008, 2010; Maruyama and Tietze, 2012) have provided a valuable range of information on the effects of telework on occupational well-being, their results have in many ways been contradictory. This implies that we need increased attention to the more detailed design and context of various telework practices. We suggest that the particular telework arrangement under this study, retreat type telework, is able to answer particularly well to the challenges regarding time management evident in much knowledge work, time pressure, disruptions and discontinuities (Chesley, 2014; Jett and George, 2003; Gonzalez and Mark, 2004; Perlow, 1999), and therefore support control of the work process. This in turn is

helpful in balancing high job demands and alleviating work pressure (Karasek and Theorell, 1990).

This study has some limitations. First, it lacks statistical analysis of work community support which proved difficult with survey data, as a significant part of the self-applied study participants were private entrepreneurs having no work community in a traditional sense. However, most of the study informants did not participate in the telework experiment alone, and those few who did so, did it intentionally. Therefore a complete professional isolation is suspected not to have been an issue with this experiment. Second, the number of participants in this study remained too low to make statistical generalizations directly applicable to other groups of workers. On the other hand, the self-application of participants to the telework experiment ensured their genuine interest and commitment with the experiment that took place in remote rural and archipelago region. Therefore, even though the sample is small, it can be assumed to have inner validity.

This study has several implications for human resource management. The results support the development towards a more horizontal organization, where personal autonomy and influence on the choice of workplace and the arranging of work tasks is allowed. The study provides useful insights on the utilization of flexible workplace solutions for the purposes of occupational well-being. It supports the development of retreat type telework arrangements especially for the needs of employees suffering from an overtly interruptive and intensive work environment. The retreat type telework design may be beneficial after a particularly intensive work period to regain the balance between work demands and need for recovery. On the other hand, this kind of work arrangement may also be suitable for a creative work phase when time and space are needed to get immersed alone or in groups to the work task, or to build a sense of work community. However, more research is needed about the feasibility of the retreat type telework arrangement for different occupations, different work processes and both individual and group work. This study lends support to telework arrangements that are sensitive to individual needs of workers. In future, analyses of telework should be further contextualized and also opening up to the varieties of the possible work environments.

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