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The influence of procrastination on the relationship between home-based telework and employee well-being



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The influence of procrastination on the relationship between home-based telework and employee well-being

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Abstract

This research concerned the direct effects of home-based telework and procrastination on employee well-being, and the moderating influence of procrastination on the relationship between home-based telework and employee well-being. So far, research on these relationships has been limited and this study challenged the gap in existing literature.

The study contains data of 1246 employees from eight organizations in the Netherlands. Hierarchical multiple regression analysis was used to test the hypotheses.

Results show a significant positive effect of home-based telework on employee well-being (β=.150, sig<.01), which is strongest for high-intensity home-based teleworkers (β=.548, sig<.01). Also a significant negative effect of procrastination on employee well-being (β=-.255, sig<.01) is found. The moderating effect of procrastination on the relationship between home-based telework and employee well-being appears to be only significant for high-intensity home-based teleworkers (β=-.433, sig<.01). As the direct effect of home-based telework decreases till .433 (sig<.01), there are indications that the positive effect of home-based telework on employee well-being disappears when high intensity home-based teleworkers procrastinate.

This study shows the importance of the offering of home-based telework for employee well-being. Simultaneously, negative effects in terms of procrastination should be monitored.

Keywords: well-being, procrastination, home-based telework, telework, working from home, telecommuting, teleworking, flexible work, postponement behavior, JD-R model.

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1. Introduction

Nowadays, organizations are faced with several workforce related challenges due to organizational and economic trends, such as globalization and the 24-hour economy (ten Brummelhuis & Bakker, 2012; Blok, Groenesteijn, Schelvis & Vink, 2012). Furthermore, the economy is changing from industrial manufacturing and agriculture to a knowledge and service driven economy (Blok et al., 2012). This knowledge and service driven economy and the revolution in ICT applications and communication networks makes it more easy for more employees to work at any location at any time (Lee & Brand, 2005). Working from another location than the traditional office is called "telework" (Baruch, 2001).

In the telework literature, four types of telework are often described: (1) home-based telework; (2) satellite office; (3) neighbourhood work centre, and (4) virtual office (Kurland & Bailey, 1999; Wiesenfeld, Raghuram & Garud, 1999). Home-based telework is the most common type of telework (Kurland & Egan, 1999) and therefore the focus of this study. Home-based teleworkers are teleworkers who work from their homes, and use ICT to be in contact with centralized work locations (Hottop, 2002).

Results of the Nationale Enquête Arbeidsomstandigheden of TNO (2012) showed an increase in the amount of home-based telework (HBT) in the period 2005-2011. In 2005, 25% of the employees worked at least 1 hour a week from home and this increased in 2011 to 28%. The hours worked from home increased in this same period from 5.5 hours to 6.2 hours. The study also showed that more older employees than younger employees worked from home, and they are more often highly educated (TNO, 2012). As the results show, home-based telework is becoming more important, and it is expected that this will increase further the coming years.

In recent years, a lot of research has focused on the impact of (home-based) telework. This research shows advantages as well as disadvantages, but the focus of this study lies on the effect of home based telework on employee well-being. The reason for focusing on well-being is that several researchers recommended focusing more on employee-centered outcomes (Boxall, & Macky, 2009; Guest 1997; Nishii & Wright, 2008; Van de Voorde, Paauwe, & Van Veldhoven, 2011). As modern companies perceive their employees as one of the most important components of the company, employee well-being at work should be an important indicator for organizations. Employee well-being at work can be defined as the overall quality of an employee's experience and functioning at work (Warr, 1987). Despite of the importance of this indicator in terms of employee behavior and performance, few research studies have examined the effect of home-based telework on employee well-being. There are, however, indications that there is a positive relationship between HBT and employee well-being (Daniels, Brough, Guppy, Peters-Bean & Weatherstone, 1997; Gajendran & Harrison, 2007; Kurland & Egan, 1999).

Home-based telework can result in a higher feeling of autonomy (Gajendran & Harrison, 2007; Kurland & Bailey, 1999; Reeves, 2003; Tremblay, 2002), as telework increase the flexibility and the 'invisibility from managers and co-workers' of employees. Telework gives employees the feeling that they have less control from management and less judgments and interference from co-workers (Kurland & Bailey, 1999).

However, it is assumed that not every employee is able to deal well with this autonomy as there is less control over the actions of the employees. Because of the major increase in the offering, attractiveness and availability of temptations (like watching TV, playing video games, and surfing on the internet), employees are more likely to procrastination (Steel, 2011). "To procrastinate is to voluntarily delay an intended course of action despite expecting to be worse off for the delay" (Steel, 2007, p. 66). According to Malachowski (2005), employees spend about a quarter of their working day on delaying tasks, which costs organizations about 6.750 euros a year per employee (D'abate & Eddy, 2007). From a financial point of view it is therefore important for organizations to take control over the procrastination behavior of employees, but also because of the physical and psychological costs for employees. Research showed that procrastination is positively related to fear and depression (Beswick, Rothblum, & Mann, 1988; Martin, Flett, Hewitt, Krames, & Szanto, 1996; Strongman & Burt, 2000), shame and guilt (Fee & Tangney, 2000; Steel, 2007, 2011), deteriorated physical health status (Sirois, Melia-Gordon & Pychyl, 2003; Sirois, 2007; Steel, 2011), and negatively related to emotional and affective well-being (Van Eerde, 2003). It is therefore expected that the more people procrastinate, the lower their well-being. Furthermore, although it is expected that home-based telework improves employee well-being, this effect is expected to depend on the degree to which employees procrastinate.

Taken together, this paper will examine the relationship between home-based telework and employee well-being and the effect of procrastination on this relationship. This leads to the following research question:

To what extent is home-based telework positively related to employee well-being and does this relationship differ for employees who procrastinate?

From this, the following conceptual model is deduced (Figure 1).

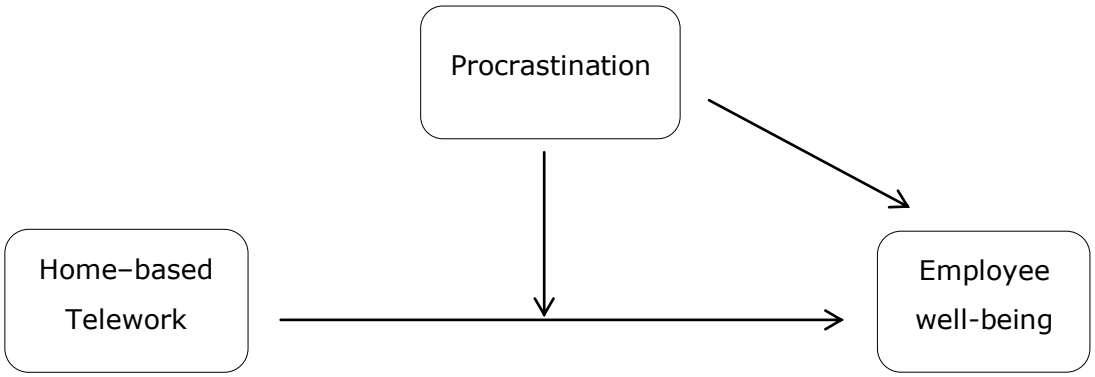


Figure 1. Conceptual model

Relevance for practitioners

There are several reasons why the results of this study are relevant for practitioners. First, this study summarizes the advantages, disadvantages and the effects of home-based telework on employee behavior. Before organizations start to introduce home-based telework, they must be aware of its possible advantages and especially of its possible disadvantages. Second, this study provides insight in the procrastination behavior of employees. This behavior might costs organizations considerable amounts of money (D'Abate & Eddy, 2007), and therefore it is useful for them to know the extent to which employees procrastinate. A third reason why this study is relevant, is the assistance it offers in understanding the problems of procrastination that may come with home-based telework. If practitioners have a better understanding of this relationship, they can take steps to minimize the potential negative impact.

Relevance for academics

There are also several reasons why this study contributes to the research field. One reason is the little amount of existing literature about the relationship between home-based telework and employee well-being. Another reason is the lack of research on procrastination of employees as the majority of literature concentrates on procrastination of students. Also, as far as we know, no research has linked procrastination to home-based telework. For these reasons, this study will contribute to the research field.

In the following section the relevant literature regarding the main variables of this study will be presented and based on the existing theory and prior research, hypotheses are formulated. Subsequently the methods and results are described. Finally, the conclusion, limitations, directions for future research, and practical implications are discussed.

2. Theoretical framework

This study focuses on the effect of home-based telework (HBT) on employee well-being and the influence of procrastination on this relationship. This section will present relevant literature about the main variables (home-based telework, employee well-being and procrastination) and how they are related to each other.

Home-based telework

Various definitions of telework are mentioned in the literature (e.g. Baruch, 2001; Fitzer, 1997; Gareis, 2002). These definitions have in common that work is performed from another location than the traditional office and that they are supported by technological connections. Home-based teleworkers are in this study teleworkers that work from their homes, and use ICT to be in contact with centralized work locations (Hottop, 2002).

Several groups benefit from home-based telework: society, organizations and employees. First, on society level it will positively contribute to traffic problems and air pollution as fewer employees will commute to work (Peters, Tijdens & Wetzels, 2004). Furthermore, it could be a solution for the ageing problem as HBT makes it easier for employees to combine work and private life, which creates more possibilities for parents to (re)enter the labor market.

Second, organizations can benefit from HBT as the employees are supposed to be more productive (e.g. Bailey & Kurland, 2002; Baruch, 2000; Crandall & Gao, 2005; Martínez-Sánchez, Pérez, Pérez, de Luis Carnicer & Jiménez, 2007). Also, literature provides indications that different types of costs are reduced: accommodation- (Daniels, Lamond & Standen, 2000; Green, López, Wysocki & Kepner, 2003; Guimaraes & Dallow, 1999), absenteeism- (Daniels et al., 2000; Green et al. 2003), and overhead and commuting- costs (IDS, 1996; Jackson & Van der Wielen, 1998; Judge & Wantanabe, 1993; Murray, 1995, Nilles, 1998). Literature also supports the reasoning that HBT improves the attractiveness of the organization (Heymans & Van Hoye, 2005), and the position for both potential and current employees, which influences the recruitment, retention and turnover of employees positively (Daniels et al., 2000; Green et al., 2003; Taskin & Edwards, 2007).

Most benefits are visible at individual level, as previous research shows that (home-based) teleworkers are more likely to perceive lower stress-levels (Baruch, 2001; Reeves, 2003; Tremblay, 2002), less feelings of pressure (Bailey & Kurland, 2002; Crandall & Gao, 2005), less work exhaustion (Golden, 2006), and higher employee and job satisfaction (Gajendran & Harrison, 2007; Kurland & Egan, 1999). A frequent mentioned aspect of HBT is the increased flexibility, which makes it possible for employees to organize their life according to their own needs and wishes (Hill, Ferris & Märtinson, 2003; Loudon & Bohle, 1997; Pyöriä,

2011). This makes it easier for employees to combine their job with family needs and household tasks, which is supposed to be positively influencing work-life balance (Bailey & Kurland, 2002; Crandall & Gao, 2005; Guimaraes & Dallow, 1999; Mirchandani, 2000; Standen, Daniels & Lamond, 1999). Another advantage of working from home is that it gives employees the opportunity to work undisturbed by office distractions and politics (Moon & Stanworth, 1997; Fonner & Roloff, 2010), and it increases work productivity and effectiveness (e.g. Bailey & Kurland, 2002; Baruch, 2000; Crandall & Gao, 2005). Home-based telework will also reduce commuting (e.g. Baruch, 2000; Crandall & Gao, 2005; Reeves, 2003; Tremblay, 2002) and, as a consequence, travel-related stress (Kurland & Bailey, 1999). Time saved can be spent on working, which could explain the rise in productivity (Crandall & Gao, 2005), but also on private life and that can enhance the work-life balance (Morganson, Major, Oborn, Verive & Heelan, 2010). Furthermore, home-based telework gives employees more freedom (Blok et al., 2012; Kurland & Egan, 1999), self-control (Blok et al., 2012; Kurland & Bailey, 1999) and autonomy (Gajendran & Harrison, 2007; Kurland & Bailey, 1999; Reeves, 2003; Tremblay, 2002).

An overview of the advantages on the different levels is presented in Table 1.

Table 1

Advantages of telework on society, organizational and individual level

Society level	**Organizational level**	**Individual level**
Reduced traffic congestion	Increased productivity	Decreased stress
Reduced air pollution	Reduced accommodation costs	Decreased feelings of pressure
(Re)entering employees on the labor market	Reduced absenteeism costs	Decreased work exhaustion
	Reduced overhead costs	Increased employee and job satisfaction
	Reduced commuting costs	Increased flexibility
	Improved organizational attractiveness	Better work-life/work-family balance
	Effective recruitment	Decreased office distractions and politics
	Effective retention	Reduced commuting time and traffic-related stress
	Reduced turnover	Increased productivity
		Increased work/leisure time
		More freedom
		More self-control/autonomy

Besides all mentioned advantages, there are also concerns regarding home-based telework. Researchers mentioned social isolation (Cooper & Kurland, 2002; Crandall & Gao, 2005; Metzger & Von Glinow, 1988), increased work-family tension/conflict (e.g. Baines, 2002; Baines & Gelder, 2003; Harting, Kylin & Johansson, 2007; Tietze & Musson, 2005; Tremblay, 2003), increased work hours (Baruch, 2000; Tremblay, 2003), reduction in visibility and decreased career development opportunities (e.g. Mann, Varey & Button, 2000; Tietze & Musson, 2005), damaged social networks (Kurland & Bailey, 1999), feelings of organizational injustice (Kurland & Bailey, 1999), and computer safety issues (Bailey & Kurland, 2002; Crandall & Gao, 2005). It is expected though that the advantages will outweigh the disadvantages.

Concluding, working from home brings several advantages and disadvantages on society-, organizational- and individual level. Despite of all the research on employee-outcomes, limited research has been performed concerning the effect of home-based telework on soft outcome variables like employee well-being at work.

Employee well-being

Due to the consequences of the changing economy from industrial manufacturing and agriculture to a knowledge and service driven economy (Blok et al., 2012), employees are becoming more important for organizations to get the work done. When it comes to people, organizations should not only care about performance but also specific employee-outcomes such as well-being at work (Van de Voorde et al., 2011). Well-being at work refers to the overall quality of an employee's experience and functioning at work (Warr, 1987). As employees experience a higher well-being and thus feel better, organizations will also benefit. According to Grant, Christianson and Price (2007) employee well-being has a significant impact on the survival and performance of organizations by affecting costs related to health care and illness (Danna & Griffin, 1999), organizational citizenship behavior (Podsakoff, MacKenzie, Paine & Bachrach, 2000), turnover, discretionary effort, absenteeism (Spector, 1997), and job performance (Judge, Thoresen, Bono & Patton, 2001; Wright & Cropanzano, 2000).

In research work-related well-being is often operationalized as job satisfaction, but this concept may not capture the subtleties of affective reactions at work as it is one-dimensional and affective well-being is assumed to be multidimensional (Daniels et al., 1997).

A multidimensional measurement of well-being, including work-related affective well-being, is developed by Warr (1990). The full range of two principal axes is covered in this measurement: feelings of arousal and feelings of pleasure. Warr (1990) also distinguish two diagonal axes: anxious-contented (tense, uneasy, worried, calm, contented, and relaxed) and depressed-enthusiastic (depressed, gloomy, miserable, cheerful, enthusiastic, and optimistic).

Figure 1 shows the principal axes for the measurement of well-being.

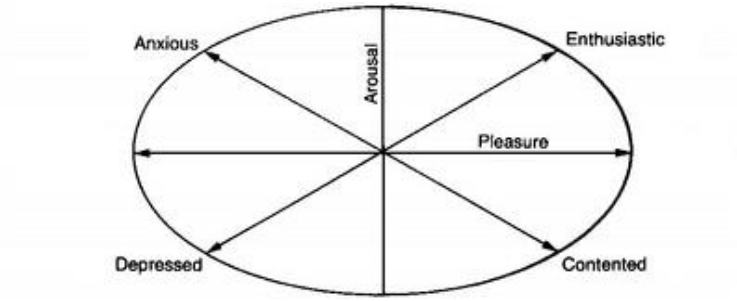


Figure 2. Warr's principal axes for the measurement of well-being

As the workplace changes from a traditional office to a home-based office, it is expected that this would also affect employee's experience and functioning at work. Up to now, the relationship between HBT and employee well-being received little attention from researchers. From a theoretical point, this relationship can be explained by the job demands-resources (JD-R) model of Demerouti, Bakker, Nachreiner and Schaufeli (2001). This theory classifies characteristics of work environments into two broad categories: job demands and job resources. Job demands are those elements of the job that need intense mental or physical effort and are therefore linked to certain psychological and/or physiological costs (Demerouti et al., 2001). Job resources are those social, organizational, psychological, or physical aspects of the job that might stimulate personal development and growth, be functional in achieving work objectives and/or decrease job demands at the associated psychological and physiological costs (Kattenbach, Demerouti & Nachreiner, 2010). The JD-R model also contains two processes. In the first process, job demands lead to constant overtaxing and exhaustion. In the second process, a lack of resources complicates fulfilling the demands of the job, which further leads to withdrawal behavior. Individuals cannot deal with the negative influences of job demands when the external environment lacks resources, which leads to emotional withdrawal from the job (Bakker & Demerouti, 2007; Demerouti et al., 2001; Kattenbach et al., 2010).

Part of home-based telework is the possibility for employees to have flexible working hours, which can be seen as a form of autonomy. Kattenbach et al. (2010) stated that working time flexibility can be categorized into the two categories of working conditions that are recognized by the JD-R model, namely demands and resources. According to them, variations of working time are affecting the overall framing of leisure- and working-time and therefore it should provide additional explanatory value for disengagement and exhaustion.

Autonomy is a central motivator for job satisfaction and intrinsic work engagement (Hackman & Oldham, 1980). In general autonomy refers to the latitude of arranging actions and tasks within a given time-frame but not to the autonomous handling of working-time and to the possibility of varying working time duration and distribution consistent to one's own needs itself (Kattenbach et al., 2010). According to the definition mentioned above, such a time-autonomy can be classified as a job resource because it supports the employees in dealing with everyday efforts on the job and during leisure time. They also suggested that time restrictions (unpredictable time variations and time bureaucracy) can be interpreted as a job demand as it requires energy and effort and so it can be associated to psychological costs.

Besides the theoretical perspective, there is also empirical evidence that supports a link between home-based telework and employee well-being. Hill, Hawkins and Miller already mentioned in 1996 that a better balance between work and private life and more leisure time makes employees more satisfied with their life in general as well as with their job. Several studies have confirmed that there is a positive effect of telework on employee and job satisfaction (Gajendran & Harrison, 2007; Kurland & Egan, 1999). As work-related well-being is often operationalized as job satisfaction (Daniels et al., 1997), it is expected that home-based telework is positively related to employee well-being. This leads to the first hypothesis:

Hypothesis 1:	Home-based telework is positively related to employee well-being

Procrastination

The third main variable in this research is procrastination. Procrastination is about voluntarily delaying an intended course of action despite expecting to be worse off for the delay (Steel, 2007). This is a variable of interest because it is an everyday problem with harmful consequences for both employer and employee (Steel, 2011). It is often associated with delay in work, but not all delay is procrastination. Researchers have acknowledged that delaying a task can sometimes be a rational and intentional decision (Schouwenburg, 2004; Simpson & Pychl, 2009). Examples are task prioritization, getting additional information/resources (Ferrari, 2010), enhancing motivations and reaching a state of cognitive flow (Schraw, Wadkins & Olafson, 2007). It would, however, be problematic when delaying becomes chronic or a trait as there are negative consequences in both practical and psychological ways (Milgram in Ferrari, Johnson & McCown, 1995).

Results of thousands of studies show that the core of procrastination is impulsiveness and related traits as a low self-esteem, poor self-control and distractibility (Steel, 2011). Steel's research on personality profiles showed also the strongest link between impulsiveness and procrastination, which is not surprising when considering the specific characteristics of

impulsivity: urgency, sensation seeking, (lack of) premeditation and (lack of) perseverance (Whiteside & Lynam, 2000; Steel, 2011). Self-control or withstanding the satisfaction of the delay is especially difficult for impulsive persons, because enduring pain in the short term for the sake of benefit in the longer term is something they have little aptitude for (Steel, 2011).

In his book *Uitstelgedrag; waarom we lastige dingen voor ons uit schuiven en hoe we hiervan afkomen,* explains Steel (2011) procrastination in relation to the interplay between the limbic system (instinct) and the prefrontal cortex (reason) of the brains. The limbic system is activated when people are asked what they want to do now and is the source of excitement, joy, reward and fear. Questions about future benefits activate the prefrontal cortex, which is also the place from where we make schedules. The more active this part of the brain is the more patient people are. It gives people the opportunity to visualize different outcomes and helps people, with use of the quick and decisive limbic system, to choose what they are going to do (Steel, 2011).

The limbic system also makes decisions without difficulty, as it urges the instinct to act. It focuses on the immediate and concrete. The prefrontal cortex is more flexible in decision-making, but also more slow and thoughtful than the limbic system. The prefrontal cortex is especially good at making overviews, abstract concepts and more distant purposes. As the limbic system is stimulated by direct sensations such as seeing, feeling or smelling, an increase in impulsive behavior is the result and the 'now' dominates. Future goals of the prefrontal cortex are put aside: despite the fact that we know what we should do, we simply do not do it. Because the limbic system works with an incredible speed and is less accessible to the consciousness, people's desires can just overwhelm them in an unexpected and inexplicable manner. Against these intense desires, people feel powerless and they hardly understand why they do such things (Steel, 2011).

Self-control and self-regulation (Wohl, Pychyl & Bennett, 2010) are important aspects in the postponement of the direct impulses of the limbic system. It is due to this that procrastinators are more often impulsive: impulsivity focuses on life in the 'now'. Desires that can only be fulfilled on the longer term and deadlines for tomorrow are ignored until the future is 'now'. Because the brain is focused on the present and with all the long-term prospects and worries, it is not strange that people struggle with procrastination (Steel, 2011).

Procrastination is also a strategy that brings immediate but temporary relief from difficult or distressing thoughts associated with a task (Tice, Bratslavsky & Baumeister, 2001), but may eventually create more stress if the problems surrounding task completion are still not resolved (Sirious & Tosti, 2012). Ultimately, procrastinators might feel more stressed about their own procrastination, which leads to self-criticism (Sirious & Tosti, 2012; Steel 2011), guilt and shame (Fee & Tangney, 2000; Steel, 2007, 2011). Moreover, procrastination can lead to feelings of anxiety and depression (Beswick et al., 1988; Martin et al., 1996; Strongman &

Burt, 2000). Additionally there are also negative consequences found for emotional and affective well-being (Van Eerde, 2003).

Besides decreased mental health, procrastination also decreases the physical health of employees as they have the tendency to delay getting appropriate diagnostic tests and medical treatments (Sirois et al., 2003; Sirois, 2007; Steel, 2011). Also, the impulsive nature of procrastinators makes them susceptible to bad habits that seduce them into short-term pleasures with a painful setback on the long run, such as smoking and excessive alcohol consumption (Steel, 2011).

Taken this together, it is expected that procrastination negatively influences employee's well-being.

Hypothesis 2:	Procrastination is negatively related to employee well-being

One of the most fatal determinants of procrastination is the opportunity for, and the malice of seduction (Steel, 2011). More than ever, there are so many temptations, beautifully packaged, immediately available and adapted to the needs. Examples are smartphones, TV, and videogames. The easier the access to temptations, the stronger they become, and the longer they dominate people's choices, which inevitably create procrastination. Furthermore, the more attractive the temptation is, the more people procrastinate (Steel, 2011).

It is expected that there are more temptations to overcome at home than in the traditional office as the temptations are immediately available. As there is less control of managers and colleagues on the employees' actions, more is asked from the self-regulation and self-control of employees. As mentioned before, procrastinators have difficulties with self-control. Therefore, employees who are susceptible to these temptations will procrastinate more and that in turn leads to a lower well-being (Steel, 2011). As a result, the positive effect of home-based telework on employee well-being will also decrease. This leads us to the final hypothesis.

Hypothesis 3:	The relationship between home-based telework and employee well-being is negatively moderated by the extent to which employees procrastinate

3. Method

Research design and procedure

A quantitative research design was used to gain insight into the research questions and as the study was carried out at one moment in time, the survey design is a cross-sectional (Bryman, 2008). Figure 3 integrates the hypotheses into the conceptual model.

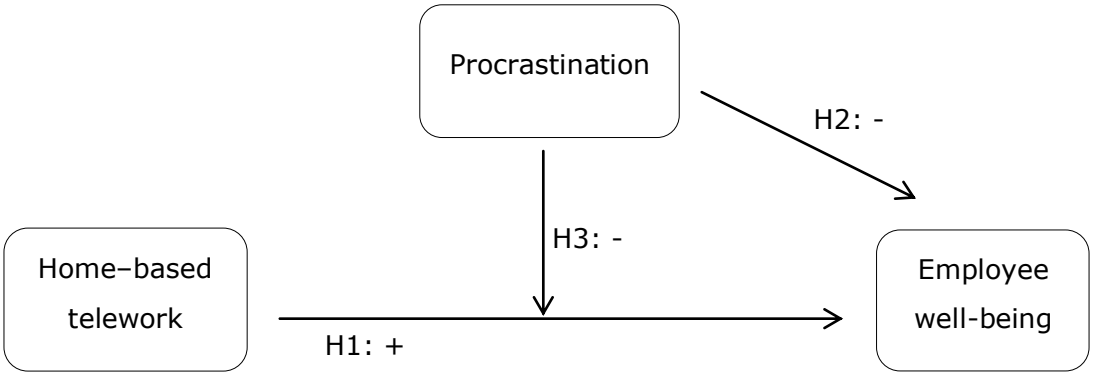


Figure 3. Conceptual model including hypotheses

Procedure

A dataset has been built containing information of employees from eight organizations in the Netherlands. The organizations were part of a variety of sectors such as business services, financial services, life sciences, logistics and wholesale. More organizational characteristics can be found in Table 2.

The quantitative data was gathered through online questionnaires filled out by employees of the participating organizations. This questionnaire included items on home-based telework, procrastination and employee well-being. The respondents were able to fill in the questionnaire anonymously as the questionnaire was digital and this is supposed to reduce the influence of social desirability in answers. In order to increase the response rates, reminders were sent.

Table 2

Sample characteristics organizational level

Organization	Year of establishment	FTE's	Industry	Amount of countries active	Number of respondents	Response rate
Multinational business consultant	1972	2393	Business services	48	107	30%
Dutch insurance company	1807	3914	Financial services	2	371	44%
Multinational IT consultant	2004	240	Business services	26	121	43%
International agriculture trader	1920	3800	Wholesale	22	102	71%
International air cargo Carrier	1958	1100	Logistics	15	63	79%
International biopharmaceutical	1980	18000	Life sciences	55	103	52%
International pharmaceutical	1920	460	Life sciences	44	233	63%
International pharmaceutical	1954	220	Life sciences	-	146	73%

Sample characteristics

The characteristics of the research sample can be seen in Table 3. Remarkable in this table are the high percentage of male respondents (65.0%), and the high educational level (83.1% has a bachelor degree or higher) in the sample. These characteristics should be kept in mind when using the results of this study as they can have an influence on the data.

Table 3

Sample characteristics (N=1246)

Characteristic	Mean	Percentage
Gender		
- Male		65.0
- Female		35.0
Age	41.3	
Home-living children	1.1	
Work experience	17.5	
Tenure	10.1	
Contract hours	37.8	
Actual working hours	44.0	
Educational level		
- Uncompleted elementary education		.0
- Completed elementary education		.1
- Basic vocational education		1.4
- Secondary, intermediate vocational education		5.6
- Secondary, intermediate general education		5.1
- Full secondary, maturity level education		4.6
- Higher Vocational Education – Bachelor		36.5
- University – Academic Bachelor		5.3
- University – Academic Master		34.6
- University – PhD		6.7
Type of employment contract		
-Permanent		94.5
-Contingent		5.1
Management position		
- Yes		41.4
- No		58.6

Measurement instruments

The measurement of the constructs was based on several previously published items, except for the measurement "home-based telework", which was especially developed for this research. Construct validity was tested using a factor analysis. Factors have been chosen with the Kaiser's criterion and the screeplot. Scale reliability was evaluated using Cronbach's alpha. All items used for this study can be found in Appendix 1.

Home-based telework

The questionnaire contained three questions regarding the dependent variable home-based telework (HBT). First was assessed whether the employer of the respondent had offered the opportunity to work from home or not. Second, employees who had the opportunity to work from home were asked whether they made use of that opportunity. These questions were formulated to receive either a 'yes' or a 'no' answer. Third, employees that made use of the

opportunity to work from home were asked how many hours on average they worked from home.

The third question (hours worked from home) was used to measure home-based telework, as from a statistical point of view it is better to use continuous instead of categorical variables.

Employee well-being

Employee well-being was measured with the two scales of affective well-being at work (Warr, 1990): 1) anxiety-contentment and 2) depression-enthusiasm. High scores on these scales indicate positive experiences of work (contentment and enthusiasm) and low scores represent negative experiences of work (anxiety and depression).

For measuring the axis 'work related anxiety-contentment' respondents were asked to think of the past few weeks and indicate how much of the time their job had made them feel tense(R), uneasy(R), worried(R), calm, contented and relaxed. The alpha-coefficient in this study was found to be .85.

For measuring the axis 'work related depression-enthusiasm' respondents were asked to think of the past few weeks and indicate how much of the time their job had made them feel; depressed(R), gloomy(R), miserable(R), cheerful, enthusiastic and optimistic. The alpha-coefficient in this study was found to be .84.

As employees were asked to indicate how much time their job has made them feel a certain emotion, they might under- or overstate their feelings. Therefore, the notion of 'self-validation' of the concept has to be taken into account.

The first three items of both scales are reverse-scored (R) and were re-coded so that a higher score on an item reflected a higher level of well-being. The two scales were combined into one scale in which the individual scores range from (1) 'never' to (6) 'all the time'. The mean score of the 12 items indicate employee well-being and high scores represent a high level of well-being. The alpha-coefficient in this study was found to be .90.

Procrastination

Procrastination was measured with the procrastination scale of Steel (2011). The scale contained nine items and example questions are: "I delay tasks beyond what is reasonable" and "I often regret not getting to tasks sooner". Items were answered on a five-point Likert scale, ranging from 1 (very seldom or not true for me) to 5 (very often true or true for me). Three items were re-coded so that a higher score on an item reflected a higher level of procrastination. Two items ("I do everything when I believe it needs to be done" and " If there is something I should do, I get to it before attending to lesser tasks") were deleted from the scale because they did not contribute to the Cronbach's alpha of the scale, and the corrected item-total correlation was below 0.3. After excluding the variables, the alpha-coefficient of this

scale was found to be .80. Based on the screeplot and the Kaiser's criterion, one component was distinguished.

The variable was measured as the sum score of the items. Originally, the scores had to be divided in five groups but after removing items from the scale this was not possible anymore. Therefore the mean score was used.

Control variables

To control for the possible effects that other variables may have on the statistical results, the following control variables were included in the analyses during testing the hypotheses: age, gender, actual working hours and home-living children. These variables also gave more insight into the characteristics of the sample of respondents.

Statistical analysis

A large dataset was constructed from the questionnaires the respondents filled out. The dataset was checked on consistency, errors and outliers. In total nine respondents were deleted from the dataset which lead to a total of 1246 respondents (response rate 50%) as they did not meet before mentioned criteria. Some answers regarding the age of the respondents were adjusted as some answers contained year of birth instead of age.

As the respondents are from eight different organizations, the ICC scores of the variables used in this study were calculated in order to determine whether the data of the respondents from the different organizations could be merged into one large dataset. The ICC score indicates whether belonging to a certain organization influences the calculated effects. When the ICC score is lower than .01, the data can be merged.

Hierarchical multiple regression was used to test the hypotheses. All variables in the equations were centered around the mean to address problems with multicollinearity that are typical for interaction models with raw scores. Furthermore, the method "excluding pairwise" was used.

4. Results

Descriptive statistics

Table 4 shows the descriptive statistics of all the variables of this study. This table gives more insight into the research sample and statistics of these variables. The main variables of the study are shown in bold. As home-based telework is not measured on a scale, no range, amount of items or Cronbach's alpha (α) can be provided. Employee well-being and procrastination are continuous variables measured on a scale and therefore these variables can be tested on reliability.

Table 4

Descriptives

	Range	Min	Max	Count	Mean	SD	Items	α
Well-being	1- 6	1	6	1019	4.58	.68	12	.896
-Anxiety-contentment	1- 6	1	6	1020	4.30	.79	6	.852
-Depression- enthusiasm	1- 6	1	6	1019	4.85	.69	6	.837
HBT hours (total)	-	0	45	789	8.94	6.90	-	-
-HBT offered	-	-	-	970	-	-	-	-
-HBT not offered	-	-	-	158	-	-	-	-
-HBT used	-	-	-	821	-	-	-	-
-HBT not used	-	-	-	150	-	-	-	-
-HBT low intensity (hours)	-	0	20	745	7.98	4.92	-	-
-HBT high intensity (hours)	-	12	45	36	29.59	9.41	-	-
Procrastination	1-5	1	5	1083	2.06	.52	7	.804

Correlations

The bivariate correlations among gender, age, actual working hours, home-living children, well-being, home-based telework and procrastination are presented in Table 5.

To test for multicollinearity, tolerance values and VIF values have been examined. The tolerance values were above 0.1 and the VIF values were below 10, which mean there is no multicollinearity problem (Pallant, 2007).

Table 5 shows the correlation matrix including the means, standard deviations and the correlations for the variables in the conceptual model and the control variables. It is appropriate to calculate the Point Biserial Correlation Coefficient when the correlations between a continuous variable (like employee well-being) and a dichotomous (in our case gender) are needed. These correlations are in Table 5 indicated with an "a".

Consistent with previous research, the correlation between home-based telework and employee well-being is positive and significant ($r=.128$, $p<0.01$) and the relationship between procrastination and employee well-being is negative and significant ($r=-.259$, $p<0.01$). Both

correlations are rather small (Pallant, 2007). The correlation between HBT and procrastination is not significant (r=-.045, p>0.05).

The results indicate that having a child is positively related to employee well-being (r=.064, p<0.05). Also, men work slightly more hours from home than woman (r=.079, p<0.05), HBT increases somewhat with age (r=.167, p<0.01) and actual working hours are positively related to HBT (r=.309, p<0.01). Men also procrastinate slightly more than women (r=.079, p<0.01), and procrastination decreases slightly with age (r=-.081, p<0.01).

As all control variables correlate significantly with at least one of the main variables (employee well-being, home-based telework and procrastination), all control variables were kept for analyses.

Table 5

Correlation matrix

		Mean	SD	1	2	3	4	5	6
1	Well-being	4.58	.68	(-)					
2	HBT (hours)	8.94	6.90	.128**	(-)				
3	Procrastination	2.06	.52	-.259**	-.045	(-)			
4	Gender1	.65	.48	.030a	.079*a	.079**a	(-)		
5	Age	41.29	9.19	.012	.167**	-.081**	.025a	(-)	
6	Actual hours	44.02	8.75	-.016	.309**	.036	.242**a	-.013	(-)
7	Children	1.05	1.12	.064*	.010	-.085**	.000a	.230**	-.100**

** Correlation is significant at .01 level (2-tailed)

* Correlation is significant at .05 level (2-tailed)

a. Point biserial correlation

[1] 1= Male 0 = Female

Hypotheses

The hypotheses were tested using hierarchical multiple regression analyses, in order to compare a model with only main effects to a model including interaction terms. In this way, the significant improvement of the model after adding the moderating variable can be analyzed. The results of the analyses are shown in Table 6 and Table 7.

Four models were entered. In the first model of the regression analysis the control variables were used to test the effects on the experienced well-being. The second model adds the variable of home-based telework, which tests the influence of the respondents' amount of hours worked from home on the respondents' well-being (hypotheses 1: home-based telework is positively related to employee well-being). The third model tests the effect of procrastination on employee well-being (hypotheses 2: procrastination negatively influences employee well-being). To test the interaction effect in model four, a product variable (HBT*Proc) of the centered and standardized variables was created and added to the regression. This measures

the third hypothesis: the relationship between home-based telework and employee well-being is negatively moderated by procrastination.

All models were controlled for gender, age, actual working hours, and home-living children.

As can be seen in Table 6, the first model (only containing the control variables) is not significant and explains only .05% of variance in employee well-being.

Hypothesis one predicted that the more employees work from home, the higher their well-being and was tested in the second model. Results did support hypothesis 1, showing that home-based telework did exert a significant effect on employee well-being (β=.150, sig=.00). This means that when employees work from home, they experience a 15% higher well-being.

Table 6

Hierarchical regression analysis with employee well-being as dependent variable; Model 1 and Model 2 (N=789)

	Model 1			**Model 2**		
	B	S.E.	β	B	S.E.	B
Control variables						
Gender	.049	.054	.035	.049	.054	.035
Age	.000	.003	-.004	-.002	.003	-.029
Actual hours	-.001	.003	-.018	-.005	.003	-.065
Children	.038	.023	.063	.038	.023	.063
Independent variable						
HBT (hours)				.015	.004	.150**
R^2		.005			.025	
R^2 Change		.005			.020	
Sig.		.425			.003	
F		.968			3.684	
Sig. F Change		.425			.000	

** Correlation is significant at .01 level (2-tailed)

* Correlation is significant at .05 level (2-tailed)

H2 stated the hypothesis that employees who procrastinate more have a lower well-being than employees who procrastinate less, and was tested in the third model. As shown in Table 7, hypothesis 2 is also supported (β=-.255, sig=.00). This means that employees who procrastinate more have a lower (25.5%) well-being than employees who procrastinate less.

In the fourth model (results also included in Table 6), it appears that the relationship between HBT and employee well-being (as stated in hypothesis 3) is not significantly related to procrastination, as the product variable of HBT and procrastination is not significant. With β=.047, the significance level exceeds the .05 mark and the moderator hypothesis is only supported when the interaction is significant (Baron & Kenny, 1986). As this is not the case,

hypothesis 3 has to be rejected. This means that the effect of home-based telework on employee well-being does not differ for employees who procrastinate more or less.

Table 7

Hierarchical regression analysis with employee well-being as dependent variable; Model 3 and Model 4 (N=789)

	Model 3			Model 4		
	B	S.E.	β	B	S.E.	B
Control variables						
Gender	.077	.052	.055	.080	.052	.057
Age	-.003	.003	-.044	-.003	.003	-.045
Actual hours	-.005	.003	-.059	-.005	.003	-.061
Children	.028	.022	.046	.026	.022	.043
Independent variable						
HBT (hours)	.013	.004	.138**	.014	.004	.145**
Procrastination	-.328	.046	-.255**	-.328	.046	-.255**
Interaction						
HBT*Proc				.008	.006	.047
R^2		.089			.091	
R^2 Change		.064			.002	
Sig.		.000			.000	
F		11.630			10.216	
Sig. F Change		.000			.197	

** Correlation is significant at .01 level (2-tailed)

* Correlation is significant at .05 level (2-tailed)

Additional analyses to provide more perspective on the outcomes of the analyses

Additionally, some extra analyses have been performed in order to get more perspective on the outcomes of the analyses. Two variables are looked at more closely: employee well-being and home-based telework. With regard to employee well-being, the influence of HBT and procrastination on the two scales of employee well-being (anxiety-contentment and depression-enthusiasm) was examined. This is interesting as it gives more insight in the emotions involved and provides insights for future research. As it comes to home-based telework, it is investigated whether there are differences in the outcomes of the analyses if different measurements (HBT offered, HBT used, HBT intensity) are used. These insights might influence employers and employees choice to work from home.

Employee well-being

First, the mean scores of the two employee well-being scales are compared. It appears that the mean score of the scale depression-enthusiasm (4.89) is higher than the mean score of the anxiety-contentment scale (4.30). This difference means that respondents feel more depressed, gloomy, miserable, cheerful, enthusiastic, and optimistic than they feel tense, uneasy, worried, calm, contented and relaxed.

Second, the hypotheses are tested using hierarchical multiple regression analyses. A significant effect between home-based telework and employee well-being is found for both well-being scales. The positive effect is larger for the anxiety-contentment scale (β=.151, sig<.01) than for the depression-enthusiasm scale (β=.119, sig<.01). Procrastination is also more negatively related to anxiety-contentment well-being (β=-.255, sig<.01) than to depression-enthusiasm well-being (β=-.206, sig<.01). No support is found for the moderator. More results of these analyses can be found in Appendix 2.

Home-based telework

Additional analyses were performed to get more insight in the home-based telework variable. As mentioned before, HBT was in this study measured with three questions and it is interesting to see whether the measurement influences the outcomes. Therefore, six groups were made: HBT offered, HBT not offered, HBT used, HBT not used, HBT low intensity and HBT high intensity. Employees who worked more than 50% of their contract hours from home were classified as high-intensity home-based teleworkers (Fonner & Roloff, 2010; Gajendran & Harrison, 2007).

Independent sample T-tests are performed to test whether these groups differ significantly from each other on employee well-being, HBT and procrastination. Significant differences on employee well-being are found for employees who have (M=4.60, SD=.66) and do not have the opportunity to work from home, M=4.44, SD=.76; t (173) = 2.32, p=.02 (2-tailed). With regard to procrastination, significant differences are also found for the opportunity offered (M=2.07, SD=.53) and do not offered M=1.97, SD=.51; t (1081) = 2.31, p=.02 (2-tailed). The low intensity home-based teleworkers did differ significant on home-based telework (M=7.98, SD=.67) from high intensity home-based teleworkers, M=29.58, SD=9.41; t (779) = -24.34, p=.00 (2-tailed).

Table 8 shows the mean score and SD of the different groups of home-based telework on employee well-being, home-based telework and procrastination. Remarkable are the scores of the groups 'HBT not offered' and 'HBT high intensity' on procrastination as they are below 2.

Table 8

Mean and SD of the independent and dependent variables; different measurements home-based telework

	Employee well-being		**HBT (hours)**		**Procrastination**	
	Mean	SD	Mean	SD	Mean	SD
HBT offered	4.60	.66	8.95	6.90	2.07	.53
HBT not offered	4.44	.76	-	-	1.97	.51
HBT used	4.60	.65	8.95	6.90	2.07	.53
HBT not used	4.56	.69	-	-	2.08	.49
HBT low intensity	4.60	.66	7.98	4.92	2.08	.53
HBT high intensity	4.72	.67	29.58	9.41	1.94	.58

Additionally, hierarchical regression analysis was used to test whether the outcomes of the hypotheses differ for the distinguished groups of HBT. As the groups 'HBT not offered' and 'HBT not used' do not have data on HBT, it was not possible to include them in these analyses. The results can be found in Appendix 3.

The first hypothesis (home-based telework is positively related to employee well-being) is supported by employees who got the opportunity (β=.079, sig<.05), low-intensity home-based teleworkers (β=.099, sig<.05), and high-intensity home-based teleworkers (β=.548, sig<.01). The opportunity used does not support the effect of home-based telework on employee well-being (β=.021, sig>.05). These results indicate that employees benefit most, in terms of employee well-being, when they work more than 50% of their contract hours from home.

Hypothesis 2 (procrastination is negatively related to employee well-being) is supported by the groups 'opportunity offered' (β=.-,269, sig<.01), 'opportunity used' (β=-.261, sig<.01), and low-intensity home-based teleworkers (β=-.312, sig<.01). The hypothesis is not supported by the high-intensity home-based teleworkers (β=.198, sig>.05), meaning that there is no indication that procrastination of high-intensity home-based teleworkers lead to a decrease in their well-being. Furthermore, the coefficient of this relationship is positive, which indicates that procrastination behavior of the high-intensity home-based teleworkers in this sample is associated with a higher well-being.

The moderating effect of procrastination on the relationship between home-based telework and employee well-being (hypothesis 3) is only significant in the analysis of the high-intensity home-based teleworkers (β=-.433, sig=.01). Moreover, when the moderating effect is added in the analysis, the direct effect between home-based telework and employee well-being decreases from .548 (sig<.01) till .433 (sig<.01). This indicates that this positive effect of home-based teleworkers on employee well-being disappears when high intensity home-based teleworkers procrastinate.

Overall results from this research

The following model derived from the conceptual model shows the relations that have been found (Figure 4).

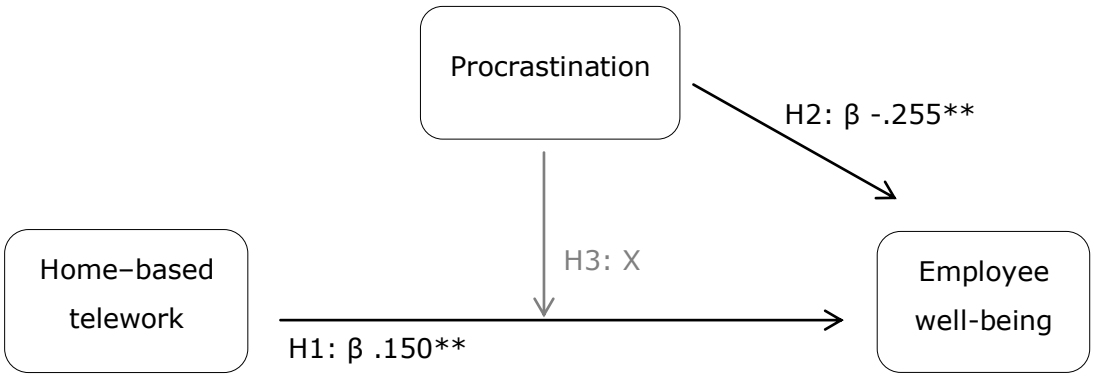


Figure 4. Conceptual model including found relationships, total sample

5. Conclusion and discussion

This study proposed that if employees make use of home-based telework, their well-being will be higher. Procrastination is expected to have a negative effect on employee well-being, and the positive effect of home-based telework on employee well-being was suggested to be moderated by the extent to which employees procrastinate. In total 1246 employees from eight organizations in the Netherlands participated via an online questionnaire. Hierarchical multiple regression analysis was used to test the hypotheses.

Several interesting results emerged in this study. First of all, the results show the importance of the offering of home-based telework, as the employees who do not have the opportunity to work from home differ significantly on employee well-being from employees who do have this opportunity. Employees who do work from home, experience a 15% higher well-being than employees who do not work from home. This effect appears to be the largest for employees who work more than 50% of their contract hours from home. This is in line with research of Gajendran & Harrison (2007), that indicates that high-intensity home-based teleworkers perceive more positive effects of home-based telework than low-intensity workers do. Furthermore, the positive effect of home-based telework appeared to be larger for the anxiety-contentment scale (tense, uneasy, worried, calm, contented, and relaxed) than for the depression-enthusiasm scale (depressed, gloomy, miserable, cheerful, enthusiastic, and optimistic).

Second, employees who procrastinate more have a lower well-being than employees who procrastinate less. This negative effect turns out to be strongest for the anxiety-contentment scale of well-being. Furthermore, the procrastination behavior of the high-intensity home-based teleworkers in this sample is associated with a higher well-being. As the mean score on procrastination of these employees is lower (1.94) than the other employees in this study (2.07), this could indicate that there is a breaking point where the positive relation between procrastination and employee well-being becomes negative. An explanation can be that procrastination can sometimes be an intentional and rational decision (Schouwenburg, 2004; Simpson & Pychl, 2009), as it gives employees time to prioritize tasks, to get additional information/resources (Ferrari, 2010), to enhance motivations, and to reach a state of cognitive flow (Schraw, Wadkins & Olafson, 2007). Low levels of procrastination can therefore also help employees in performing their tasks, and this might lead to an increase of their well-being. Furthermore, it could be that high-intensity home-based teleworkers, because of their experience with working at home, are more able to assess whether they can or cannot postpone tasks. Also, the personality and personal preferences could be of influence. This might explain their lower mean score on procrastination.

In first case, the moderating effect of procrastination on the relationship between home-based telework and employee well-being cannot be proven. An explanation can be the non-significant effect that is found between home-based telework and procrastination, which means that employees who work from home do not procrastinate more than employees who do not work from home. Previous studies showed that home-based telework gives employees the opportunity to work undisturbed by office distractions and politics (Fonner & Roloff, 2010; Moon & Stanworth, 1997). This indicates that there are also many distractions at the traditional office, which could lead to procrastination. This could be a reason for the rejection of the moderating hypothesis.

However, the moderating effect appeared to be proven for the high-intensity home-based teleworkers. As a consequence of this moderating effect, the direct effect of home-based telework on employee well-being is decreased till the same strength as the moderating effect. This indicates that when high intensity home-based teleworkers procrastinate more, the positive effect of home-based teleworkers on employee well-being disappears. An explanation could be that high-intensity home-based teleworkers have, in general, a low score on procrastination, which enhances their well-being. As they procrastinate more, this positive relation can turn into a negative relation, which will suppress the positive effect of home-based telework on employee well-being. This study shows even that the positive effect disappears.

Furthermore, the characteristics of respondents can have an influence on the results. Most respondents are male, who procrastinate slightly more than women. Moreover, the average age is 41.3 and home-based telework slightly increases and procrastination slightly decreases with age. For the specific group high-intensity home-based teleworkers no significant relationships are found between these characteristics and the main variables of this study. However, it could be that other individual characteristics that are not included in this study, like educational level, also have an influence on the results. According to Steel (2011), procrastinators are more often low educated. In this study most respondents are highly educated, which might explain the low scores on procrastination.

Moreover, the ICC score on the question 'HBT offered/not offered' was higher than .01, which indicates that belonging to a certain organization influences the calculated effects. To control for this influence, multilevel analysis is necessary.

In general, the employees in this research sample showed little procrastination. Already mentioned are the possible influences of the high educational level, the ability to assess whether tasks can be postponed or not, personality, and personal preferences. Furthermore, employees might procrastinate less as managers and colleagues are less willing to grant extensions. In addition, projects are more extensive, less predictable, and difficult to fulfill last minute. Moreover, employees might work with short-term goals, which limits procrastination (Steel, 2011).

In conclusion, there is a significant positive effect of home-based telework on employee well-being. This effect turned out to be strongest for high-intensity teleworkers. Furthermore, there is a significant negative effect of procrastination on employee well-being. Finally, the moderating effect of procrastination on the relationship between home-based telework and employee well-being appeared to be only significant for high-intensity home-based teleworkers. There are indications that the positive effect of home-based teleworkers on employee well-being disappears when high intensity home-based teleworkers procrastinate.

6. Limitations

As with all research, this study was not without limitations. One limitation is the level of analysis. This study has been performed with only data measured on the individual level and organizational level data is not been taken into account. When individual and organizational data are both used within one study, a multilevel analysis would be a more suitable approach.

Furthermore, the variation in the data has been slightly tainted by the organizations that participated in this study. For example, most respondents were male, highly educated and the average age was quite high. This leads to a decreased variation of respondents and workforce characteristics.

Another limitation are the measurement scales of home-based telework and procrastination. The scale of home-based telework is especially developed for this research, and therefore this is the first time it is used. Moreover, other types of telework, like satellite office, neighbourhood work centre, and virtual office (Kurland & Bailey, 1999; Wiesenfeld et al., 1999), were not measured. To measure procrastination, the scale of Steel (2011) was used, but this scale measures general procrastination instead of work-related procrastination. A measurement for work-related procrastination was not found, as most scales were focused on students. Furthermore, the questions in the scale of Steel (2011) are also somewhat outdated as they do not take into account the changing time image. As more employees can work wherever and whenever they want, procrastination can also be a intentional and rational decision (Schouwenburg, 2004; Simpson & Pychl, 2009). This could change the measurement of procrastination and it might influence the data and the outcomes.

Self-reporting measurements are used in this study, which might lead to social desirability in answers. The negatively formulated items of procrastination could also stimulate this social desirability and can also have a negative effect on the validity of the answers (Schriesheim & Hill, 1981). Furthermore, the risk of 'systematic error' within the scale increases (Jackson, Wall, Martin & Davids, 1993).

Finally, it was not possible to gain insight in potential variation in the results over time, as all data were collected with one questionnaire (a cross-sectional design). Respondents could be influenced by external factors, and this cross-sectional design did not facilitate a judgment on the causal relationship between the independent variables and the dependent variable.

7. Directions for further research

To validate the results of this study, more research will be needed.

Further research can concentrate on more variation of respondents and workforce characteristics as this might influence the data and the outcomes. Besides data on individual level, organizational level data can be added to the study and multilevel analysis can be performed. Other control variables, like educational level, may also be included.

Following this study, several questions are raised. As mentioned in the conclusion/discussion, it could be that there is a breaking point were the positive relation between home-based telework and employee well-being becomes negative. Future research has to examine whether this is the case and where this breaking point lies.

The measurements of employee well-being and home-based telework also led to differences in the results, and therefore it would be interesting to examine these differences in more dept to explain why the results differ. The other types of telework (Kurland & Bailey, 1999; Wiesenfeld et al., 1999) can also be included in future studies. Furthermore, it could be interesting to examine the influence of personality and personal preferences.

With regard to procrastination, a new measurement for work-related procrastination can be developed and validated. The relations with home-based telework and employee well-being can also be re-examined with this new measurement.

Finally, to gain an understanding of time trends on the variables a longitudinal research design will be needed.

8. Practical implications

There are several practical implications for this study. First, several advantages and disadvantages of home-based telework are discussed in the theoretical framework. This insight can help organizations in their decision-making to introduce home-based telework. The findings of this study indicates that home-based telework is mainly a good thing and that it is recommended to give employees the opportunity to work from home as this will increase their well-being.

Furthermore, this study provides insight into the amount of procrastination of Dutch employees. A mean score of 2.06 on a 5-point scale was found, which means that employees in this research sample seldom procrastinate.

Moreover, no significant relationship is found between home-based telework and procrastination, and the moderating effect is also non-significant. This means that employees who work from home do not differ on procrastination from employees who work in the traditional office. Practitioners can use this information to convince managers of the advantages of home-based telework. Managers often have difficulties with trusting their employees, but this study indicates that they can be trusted when it comes to procrastination. Therefore, this study contributes to raising the confidence of managers in its employees.

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10. Appendix

Appendix 1. Measurement variables

Home-based telework: questions
Does your employer offers you the opportunity to work from home? • Yes • No
If yes: Do you make use of the opportunity to work from home? • Yes • No
If yes: How many hours per week on average do you work from home?

Employee well-being: questions
Think of the past few weeks and indicate how often your job made you feel;
Tense (R)
Uneasy (R)
Worried (R)
Calm
Contented
Relaxed
Depressed (R)
Gloomy (R)
Miserable (R)
Cheerful
Enthusiastic
Optimistic

Employee well-being: answer possibilities
Never
Occasionally
Some of the time
Much of the time
Most of the time
All of the time

Procrastination: questions
I delay tasks beyond what is reasonable.
I do everything when I believe it needs to be done. (R)
I often regret not getting to tasks sooner.
There are aspects of my life that I put off, though I know I shouldn't.
If there is something I should do, I get to it before attending to lesser tasks.(R)
I put things off so long that my well-being or efficiency unnecessarily suffers.
At the end of the day, I know I could have spent the time better.
I spend my time wisely. (R)
When I should be doing one thing, I will do another.

Procrastination: answer possibilities
Very seldom or not true of me
Seldom true of me
Sometimes true of me
Often true of me
Very often true or true of me

Control variables: questions	
Age	What is your year of birth?
Gender	What is your gender? • Men • Woman
Working hours	How many hours do you actual work each week? (nb. Including any overtime or extra hours)
Home-living children	How many children do you have living at home?

Appendix 2. Additional analyses - employee well-being

Table 1

Hierarchical multiple regression analysis with anxiety-contentment well-being as dependent variable (N=765).

	Model 2			Model 3			Model 4		
	B	S.E.	β	B	S.E.	β	B	S.E.	β
Control variables									
Gender	.079	.062	.048	.113	.061	.068	.116	.061	.070
Age	.002	.003	.025	.001	.003	.010	.001	.003	.010
Actual hours	-.014	.004	-.156**	-.014	.003	-.150**	-.014	.003	-.152**
Children	.032	.027	.045	.020	.026	.028	.017	.026	.025
Indep. variable									
HBT (hours)	.017	.004	.151**	.016	.004	.139**	.017	.004	.146**
Procrastination				-.385	.054	-.255**	-.384	.054	-.255**
Interaction									
HBT*Proc							.010	.007	.046
R²		.039			.103			.105	
R² Change		.020			.064			.002	
Sig.		.000			.000			.000	
F		3.490			7.714			6.747	
Sig. F Change		.000			.000			.195	

** Correlation is significant at .01 level (2-tailed)
* Correlation is significant at .05 level (2-tailed)

Table 2

Hierarchical multiple regression analysis with depression-enthusiasm well-being as dependent variable (N=765).

	Model 2			Model 3			Model 4		
	B	S.E.	β	B	S.E.	β	B	S.E.	β
Control variables									
Gender	.019	.055	.013	.042	.054	.029	.044	.054	.030
Age	-.007	.003	-.086*	-.007	.003	-.098**	-.007	.003	-.099**
Actual hours	.004	.003	.054	.005	.003	.059	.005	.003	.057
Children	.044	.024	.071	.036	.023	.057	.034	.023	.055
Indep. variable									
HBT (hours)	.012	.004	.119**	.011	.004	.109**	.012	.004	.155**
Procrastination				-.272	.048	-.206**	-.271	.048	-.205**
Interaction									
HBT*Proc							.007	.007	.038
R²		.028			.069			.070	
R² Change		.012			.041			.001	
Sig.		.001			.000			.000	
F		4.067			8.841			7.732	
Sig. F Change		.003			.000			.300	

** Correlation is significant at .01 level (2-tailed)
* Correlation is significant at .05 level (2-tailed)

Appendix 3. Additional analyses - home-based telework

Table 1
Hierarchical multiple regression analysis with employee well-being as dependent variable and home-based telework offered and procrastination as independent variables (N=1083).

	Model 2			**Model 3**			**Model 4**		
	B	S.E.	β	B	S.E.	β	B	S.E.	β
Control variables									
Gender	.052	.046	.037	.083	.044	.058	.083	.044	.058
Age	.000	.002	-.007	-.002	.002	-.025	-.002	.002	-.025
Actual hours	-.002	.003	-.022	-.002	.002	-.021	-.002	.002	-.021
Children	.036	.020	.059	.024	.019	.040	.024	.019	.039
Indep. variable									
HBT offered	.153	.061	.079*	.194	.059	.100**	.192	.060	.099**
Procrastination				-.346	.040	-.269**	-.346	.040	-.269**
Interaction									
HBToffered*Proc							-.023	.118	-.198
R²		.011			.082			.082	
R² Change		.006			.071			.000	
Sig.		.041			.000			.000	
F		2.323			14.882			12.749	
Sig. F Change		.013			.000			.847	

** Correlation is significant at .01 level (2-tailed)
* Correlation is significant at .05 level (2-tailed)

Table 2
Hierarchical multiple regression analysis with employee well-being as dependent variable and home-based telework used and procrastination as independent variables (N=937)

	Model 2			**Model 3**			**Model 4**		
	B	S.E.	β	B	S.E.	β	B	S.E.	β
Control variables									
Gender	.050	.049	.035	.079	.048	.056	.081	.048	.057
Age	.000	.003	-.004	-.002	.002	-.021	-.001	.002	-.020
Actual hours	-.002	.003	-.020	-.001	.003	-.018	-.002	.003	-.020
Children	.037	.021	.062	.027	.020	.044	.025	.020	.042
Indep. variable									
HBT used	.040	.063	.021	.039	.061	.021	.043	.061	.021
Procrastination				-.336	.042	-.261**	-.337	.042	-.261**
Interaction									
HBToffered*Proc							-.034	.122	.009
R²		.006			.073			.073	
R² Change		.000			.067			.000	
Sig.		.402			.000			.000	
F		1.024			11.447			9.813	
Sig. F Change		.531			.000			.778	

** Correlation is significant at .01 level (2-tailed)
* Correlation is significant at .05 level (2-tailed)

Table 3
Hierarchical multiple regression analysis with employee well-being as dependent variable; low-intensity home-based teleworkers (N=724).

	Model 2			Model 3			Model 4		
	B	S.E.	β	B	S.E.	β	B	S.E.	β
Control variables									
Gender	.009	.054	.006	.042	.052	.031	.043	.052	.031
Age	-.001	.003	-.018	-.002	.003	-.031	-.002	.003	-.031
Actual hours	.002	.003	.020	.001	.003	.014	.001	.003	.014
Children	.035	.023	.059	.017	.022	.029	.017	.022	.029
Indep. variable									
HBT low intensity (hours)	.013	.006	.099*	.014	.005	.103**	.014	.005	.103**
Procrastination				-.389	.046	-.312**	-.388	.046	-.311**
Interaction									
HBTlow*Proc							.003	.009	.011
R^2		.015			.110			.111	
R^2 Change		.008			.095			.000	
Sig.		.067			.000			.000	
F		2.072			13.933			11.943	
Sig. F Change		.017			.000			.739	

** Correlation is significant at .01 level (2-tailed)
* Correlation is significant at .05 level (2-tailed)

Table 4
Hierarchical multiple regression analysis with employee well-being as dependent variable; high-intensity home-based teleworkers (N=33).

	Model 2			Model 3			Model 4		
	B	S.E.	β	B	S.E.	β	B	S.E.	β
Control variables									
Gender	.409	.220	.290	.353	.222	.250	.151	.210	.107
Age	.000	.009	-.005	.001	.009	.018	.000	.008	.007
Actual hours	.005	.009	.094	.005	.009	.086	.000	.008	.008
Children	.116	.113	.160	.125	.112	.172	.183	.100	.114
Indep. variable									
HBT high intensity (hours)	.038	.011	.548**	.041	.011	.589**	.030	.011	.433*
Procrastination				.225	.176	.198	.177	-.158	.156
Interaction									
HBThigh*Proc							-.050	.018	-.433*
R^2		.378			.431			.613	
R^2 Change		.256			.052			.183	
Sig.		.034			.030			.002	
F		2.920			2.898			4.984	
Sig. F Change		.004			.160			.004	

** Correlation is significant at .01 level (2-tailed)
* Correlation is significant at .05 level (2-tailed)