Katrine Tollevik Listau

Work engagement: A double-edged sword?

A study on the relationship between work engagement, job resources, and the work-home interaction

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Norwegian University of Science and Technology

NTNU
Norwegian University of
Science and Technology

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Abstract

The aim of this study was to investigate how being engaged at work affects employees' work-home interaction (WHI). Few studies examining this relationship have included both the positive and negative aspects of the intercept between the work and home domain or examined the individual subscales of engagement in relation to this interaction. Using the Conservation of Resources theory as a theoretical framework, this study contributes to existing research by examining the relationship between the work engagement subscales (i.e. vigor, dedication, and absorption) and both work-home facilitation (WHF) and work-home conflict (WHC). Furthermore, this study also examined the effects of job autonomy and social support from supervisor on these outcomes, in addition to whether they might moderate the relationship between engagement and the WHI. In order to test the hypotheses, a PLS-SEM analysis was conducted using a large sample of academics from the Norwegian university sector ($n = 4378$). The results indicated that vigor and dedication had a positive effect on work-home facilitation and a negative effect on work-home conflict. In contrast, absorption was not significantly related to WHF, but had a positive effect on WHC. Furthermore, both social support and autonomy had a positive effect on WHF and a negative effect on WHC. However, the results also indicated that job autonomy may enhance the effect of absorption on both WHF and WHC. Job autonomy therefore seems to increase both positive and negative spillover effects between the work and home domains.

Keywords: work engagement, work-home conflict, work-home facilitation, ARK, job autonomy, social support from supervisor, COR theory

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Introduction

In a world where technological innovations increase the flexibility of when and where work can be executed, the ability to successfully balance work and home life has been highlighted as one of the primary social challenges of our era (Guest, 2002). A lack of such a balance, typically defined as increased work-home conflict, has been shown to cause adverse outcomes for both individuals and organizations (Allen, Herst, Bruck, & Sutton, 2000; Amstad, Meier, Fasel, Elfering, & Semmer, 2011). However, managing multiple roles can also provide arenas for personal growth and increase favorable outcomes like better mental health and increased job satisfaction, through work-home facilitation (Karatepe & Bekteshi, 2008; McNall, Nicklin, & Masuda, 2010). Fostering a positive work-home balance has therefore not only become more important to individual employees, it is also becoming an important strategy for organizations in order to attract the most qualified employees and create a happy, engaged, and productive workforce (Batt & Valcour, 2003; Byrne, 2005).

In fact, in an ever changing, competitive marked, organizations are increasingly dependent upon their workforce in order to stay successful. They need employees who feel energetic, enthusiastic and absorbed in their work. In other words, they need employees who feel engaged (Schaufeli, 2013). Work engagement has therefore become a popular concept both in the world of business and academia due to its relationship with a number of positive organizational outcomes; such as increased employee performance (Salanova, Agut, & Peiró, 2005), organizational commitment (Hakanen, Schaufeli, & Ahola, 2008) and well-being (Schaufeli, Taris, & van Rhenen, 2008). However, although work engagement has been defined as a positive psychological state consisting of vigor, dedication, and absorption (Schaufeli & Bakker, 2004), researchers have noted one potential downside to engagement. They question whether employees may become so engrossed in their work that this negatively affects other parts of their lives, such as their work-home balance (George, 2011; Halbesleben, 2011). Others have argued that since highly engaged employees usually are in a positive mood and have better access to job resources, they are likely to experience a positive work-home balance through increased work-home facilitation (Culbertson, Mills, & Fullagar, 2012; Siu et al., 2010). With this in mind, Rodríguez-Muñoz, Sanz-Vergel, Demerouti, and Bakker (2014) call for more research on this subject in order to "better understand how work engagement relates to experiences lived outside the work domain" (p. 279).

One occupational group that might be especially susceptible to both positive and negative work-related outcomes is academics. According to Bellamy, Morley, and Watty

(2003), employees working in higher education seem to be mainly driven by intrinsic factors, such as job autonomy and flexibility, and thus consider their work as a calling, and not just a job. However, studies have also indicated that academics' workload is increasing (Harman, 2003), and that employees in the academic sector therefore stretch their work time in order to accommodate these enhanced demands (Houston, Meyer, & Paewai, 2006). This has further been found to lead to an increase in their levels of stress and work-home conflict (Bell, Rajendran, & Theiler, 2012). Nevertheless, studies have shown that having certain job resources, such as job autonomy and social support, may reduce feelings of stress amongst this occupational group (Boyd et al., 2010; Gillespie, Walsh, Winefield, Dua, & Stough, 2001). Examining the effects of work engagement and job resources on academics' work-home balance may therefore be of particular relevance.

Using a large sample of academic workers from the university sector in Norway, this present study examines the effects of work engagement on the work-home interaction. This thesis thereby contributes to existing research in several ways: Firstly, in examining the relationship between engagement and the work-home interaction, only a few studies have included both the positive (i.e. facilitating) and negative (i.e. conflict) aspects of the intercept between work and home life (Hakanen, Rodríguez-Sánchez, & Perhoniemi, 2012; Hakanen & Peeters, 2015). Considering that studies have indicated that conflict and facilitation are orthogonal rather than opposite constructs (e.g. Innstrand, Langballe, & Falkum, 2010), it is important to investigate both of these constructs' relationship with engagement in order to get a full understanding of how being engaged at work affects employees' personal lives. Furthermore, as far as this author is aware, few studies have investigated which parts of work engagement is most important to this interaction. Considering that research has indicated that the work engagement subscale, absorption, can be related to another negative type of heavy work investment, namely workaholism (Hakanen et al., 2012; Schaufeli et al., 2008), examining the subscales of engagement separately might provide a deeper insight into its relationship with the work-home interaction. Finally, in order to further explore the relationship between work engagement and work-home facilitation and conflict, this study examines the possible moderating effects of two job resources (i.e. job autonomy and social support from supervisor) on this relationship. At the present time, few studies have investigated such effects on the relationship between work engagement and the work-home interaction (Halbesleben, Harvey, & Bolino, 2009). Nevertheless, based on previous research findings indicating that having job autonomy and social support from a supervisor is positive for employees' work-home balance (e.g. Demerouti & Geurts, 2004; Grzywacz & Butler,

2005; Siu et al., 2014), this study examines whether these resources might help engaged employees to better manage their multiple role responsibilities and improve their work-home balance. This thesis thereby contributes to existing research by examining the research question: How does being engaged at work affect employees' work-home interaction? And is this relationship moderated by job autonomy and social support from supervisor?

Theoretical Framework

The Work-Home Interaction

The most commonly held definition of the balance between work and home life, describes this interaction as a "lack of conflict or interference between work and family roles" (Greenhaus & Beutell, 1985). Conflict or interference between these roles is defined as:

> … a form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible in some respect. That is, participation in the work (family) role is made more difficult by virtue of participation in the family (work) role (Greenhaus & Beutell, 1985, p. 77).

This interference, as indicated by the definition, may be bidirectional, such that not only may work interfere with home life (work-home conflict), but also home life may interfere with work life (home-work conflict). Conversely, in accordance with the development of positive psychology (Seligman & Csikszentmihalyi, 2000), research has found that the work-home balance is more than just a lack of conflict; there is also a positive, facilitating component. In other words, work can have a positive effect on home life and home life can have a positive effect on work life (Grzywacz & Marks, 2000).

Most research on this intercept has previously focused on the family element of employees' non-work life, the main reason for this being that for many individuals the family is the most important non-work domain (Brough & O'Driscoll, 2005). However, this often does not include the broader needs and responsibilities that employees have outside of work. In order to accommodate both the positive (facilitating) and negative (conflict) aspects, the bidirectionality of effects, as well as the broader non-work domain, researchers have therefore adopted the term "work-home interaction" (WHI) defined as: "a process in which one's functioning (and behavior) in one domain (e.g. home) is influenced (positively or negatively) by quantitative or qualitative demands/resources from the other domain (e.g. work)" (Demerouti & Geurts, 2004, p 287). Since the emphasis of this thesis is on how being engaged at work affects academics' work-home interaction, this study will focus on the positive and negative effect that work may have on individuals' non-work life (i.e. work-home facilitation and conflict).

Linking the work and home domain. Although research has found evidence for the existence of several linking mechanisms between work and non-work domains, such as spillover and segmentation theories (Edwards & Rothbard, 2000), these have been criticized

for not providing a conceptual basis for understanding the dynamics of the work-home interaction (Innstrand, 2009). For instance, according to segmentation theory, work and home life may be actively separated so that the two domains do not influence each other. Although this separation was originally viewed as the result of a natural division between work and home life, a prevalent view is that this occurs through an active attempt by the individual to separate the work and home domains in order to deal with work-related stress (Edwards & Rothbard, 2000). Spillover theory, on the other hand, argues that the boundaries between work and home are permeable, so that the experiences of one domain influences attitudes, behaviors, values, and skills in the other domain (Edwards & Rothbard, 2000). The work-home literature has found support for both segmentation and spillover effects (e.g. Byron, 2005; Demerouti & Geurts, 2004). However, although these theories have been used to explain *how* the relationship between work and home life is linked, they do not explain *why* conflict or facilitation occurs (Innstrand, 2009). Therefore, in order to better explain the mechanisms behind the work-home interaction, researchers have used stress theories, such as the conservation of resources (COR) theory (Hobfoll, 1989), as a heuristic model in order to better address this interaction.

Conservation of resources theory. The basic tenet of COR theory is that people have a deeply rooted motivation to obtain, retain, and protect what they value, labeled as resources. Resources are defined as "… those objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means for attainment of these objects, personal characteristics, conditions, or energies" (Hobfoll, 1989, p. 516). *Objects* (e.g. a home) are valued through their physical nature or their ability to acquire secondary status value, *personal characteristics* (e.g. traits and skills such as self-efficacy and leadership abilities) are valued to the extent that they aid in stress resistance, *conditions* (e.g. marriage or tenure) are regarded as resources to the extent that they promote access to other resources, and *energy* resources (e.g. time for work/family) have value in that they aid in the acquisition of other resources (Hobfoll, 1989). Both work and home life comprise of a range of such resources that are valued and sought after, such as "learning opportunities", "support from co-workers", "free time", and "time with loved ones" (Hobfoll, 1989). According to Hobfoll (1989), losses and gains of these resources are especially important because in addition to having an instrumental value, they also have a symbolic value by defining social identity.

According to COR theory, psychological stress occurs because there is (a) a net loss of resources, (b) threat of a net loss of resources, or (c) a lack of resource gain following an investment of resources (Hobfoll, 1989). Thus, both perceived and actual loss of resources or

a lack of gain is enough to produce stress. When confronted with threats of loss, individuals are predicted to strive to minimize the net loss of resources. This can be achieved by investing resources that they possess (e.g. energy resources) or by calling on resources available to them from their environment (e.g. social support). For instance, energy resources can be invested or retained in order to enhance resource acquisition, protect against resource loss, or combat resource loss cycles once they begin. However, according to COR theory, resources are not equally distributed, which implies that those who lack strong resource pools are more likely to experience spirals of resource loss. Consequently, if an individual is not able to combat such a resource loss cycle, this may lead to a state of chronic stress, such as burnout (Langballe, Innstrand, Aasland, & Falkum, 2011). When not confronted with threats, individuals are therefore predicted to strive to develop resource surpluses in order to buffer against the possibility of future loss (Hobfoll, 1989). Such resource surpluses are further expected to create positive experiences, such as increased well-being and better health (Salanova, Schaufeli, Xanthopoulou, & Bakker, 2008).

COR theory integrates work and home life through the concept of resources that connects the different domains in a common economy in which resources are exchanged (Innstrand, 2009). It thereby provides a dynamic framework for understanding the work-home interaction, as it not only describes what individuals do when confronted with stress, but also predicts their behavior in the absence of threats (Innstrand, 2009). In this thesis, COR theory will therefore be used as a framework for understanding the dynamic processes behind the work-home interaction. Other relevant theories will, however, also be presented in order to give a better overview of previous research into these concepts.

Work-home conflict. According to COR theory, work-home conflict (WHC) occurs because resources are lost, threatened, or fail to give the anticipated return in the process of juggling both work and home life (Innstrand, 2009). Research has shown that experiencing such interrole conflicts can have detrimental effects on individual employees as well as organizations. In terms of work-related outcomes, studies have shown that WHC tends to result in negative outcomes such as low job satisfaction (Allen et al., 2000), lack of organizational commitment, absenteeism (Hammer, Bauer, & Grandey, 2003), turnover intentions (Boyar, Maertz, Pearson, & Keough, 2003), and burnout (Langballe et al., 2011). Furthermore, WHC has been related to several stress-related outcomes on the individual level, including depression (Grzywacz & Bass, 2003), anxiety and substance abuse (Frone, 2000). Work-home conflict can thereby place an enormous toll on both individuals and their social environment.

Several studies have explained the link between role stressors in a domain and work-home conflict, through role theory and resource drain theory (see meta-analysis; Hecht & Allen, 2011). Role theory implies that, (1) work and family roles result from the expectations of others and what is believed to be appropriate behavior for a particular position (e.g., subordinate or spouse), and that (2) both work and family domains entail multiple roles where numerous demands are placed on the individual (Kahn et al., 1964, cited in Hecht & Allen, 2011, p. 685). In an attempt to meet these various work and family role expectations, many individuals may therefore succumb to role pressures. Resource drain theory, on the other hand, views resources such as time, attention, and energy (physical and psychological) as finite (Edwards & Rothbard, 2000). Role stress, caused by for example ambiguity in the work role, drains the amount of resources an individual has and leaves fewer resources to deal with role demands in the other domain (e.g. home). This coincides with COR theory, which argues that as more strain is experienced in one domain, fewer resources are available to fulfill one's role in another domain. Thus, experiencing high workload may for instance leave fewer resources available for family demands. However, COR theory also posits that those with greater resources are less vulnerable to resource loss and more capable of resource gain (Hobfoll, 1989).

Work-home facilitation. Work-home facilitation (WHF) emerged as a concept in the work-home literature in line with the positive psychology movement (Seligman & Csikszentmihalyi, 2000; Siu et al., 2010) and an increased focus on positive organizational scholarship, which "purposely illuminates how contexts and processes, and their interactions, are related to positive states in individuals, groups, and organizations" (Cameron & Dutton, 2003, cited in Wayne, Grzywacz, Carlson, & Kacmar, 2007, p. 65). Positive organizational scholarship focuses on enablers, such as individual capabilities and organizational processes, which contribute to positive organizational outcomes. In line with this focus, researchers called for a more balanced approach to the work-home interface by examining the benefits of multiple role memberships (Greenhaus & Powell, 2006). Such positive synergies between work and home life has since been explored under a variety of different labels, such as enrichment, positive spillover, enhancement, and facilitation (Culbertson et al., 2012; Greenhaus & Powell, 2006; Wayne et al., 2007). In this thesis the term facilitation will be used.

Work-home facilitation refers to the experience that participation in one role is made better or easier due to participation in another role (Wayne, Musisca, & Fleeson, 2004). According to COR theory, facilitation follows when resources contribute to the exchange of

gains between life domains (Hobfoll, 1989; Innstrand, 2009). Researchers have identified four broad categories of such gains that individuals can acquire in a life domain. These include *developmental gains* (i.e. the acquisition of skills, knowledge, values, or perspectives), *affective gains* (i.e. alterations in moods, attitudes, confidence, or other aspects of emotion), *capital gains* (i.e. acquisition of economic, social, or health assets), and *efficiency gains* (i.e. enhanced focus or attention induced by multiple role responsibilities) (Carlson, Kacmar, Wayne, & Grzywacz, 2006). Thus, facilitation occurs when gains acquired in one domain improves performance in another domain by enhancing basic processes vital to domain performance, such as problem solving or interpersonal communication (Innstrand, 2009; Wayne et al., 2007). In their dual-model of instrumental and affective pathways to work-home facilitation, Greenhaus and Powell (2006) argue that in addition to the direct instrumental effects that work can have on performance in another domain, it could also be the cause that resources operate more indirectly via positive affect. That is, experiences gained at work may produce positive affect towards one's work role in the form of enthusiasm, alertness, and high energy. In turn, positive affect from the work role may produce positive affect in the home. This argument is in line with COR theory, which assumes that when individuals develop resource surpluses, they are likely to experience positive outcomes such as increased well-being (Hobfoll, 1989). These positive resources are further anticipated to accumulate, creating a positive spiral of resources, which in turn, is likely to have positive health-promoting effects.

Researchers have identified several such positive effects related to work-home facilitation. According to McNall et al. (2010), these can be organized into work related, non-work related, and health related outcomes. In line with Greenhaus and Powell's (2006) dual path-model to work-home facilitation, McNall et al. (2010) argue that employees may experience more positive emotions about their work if resources acquired at work (e.g. self-esteem) result in a positive mood which is transferred into the home domain. Furthermore, as posited by COR theory, they also argue that the resources acquired at work (or at home) may buffer the effects of stressful circumstances that otherwise negatively influence both physical and psychological well-being and satisfaction. The results of their meta-analytic review of studies on work-family enrichment and family-work enrichment, supported these arguments by finding that work-family enrichment significantly increased employees' job satisfaction, affective commitment, life satisfaction, and health (McNall et al., 2010).

Studies have thereby demonstrated that work-home facilitation has a distinct and substantial contribution to the work-home interaction, and that work-home facilitation and

work-home conflict have different antecedents and outcomes. In order to create a positive work-home balance it is therefore important to both strengthen work-home facilitation and reduce work-home conflict (Greenhaus & Powell, 2006; Voydanoff, 2004). Furthermore, in line with the findings that facilitation results from resources which are transferred from one domain to another, facilitation has also been tied to another resource-filled concept, namely work engagement (Siu et al., 2010; Timms et al., 2015).

Work Engagement

Although a popular subject in academia over the last decade, researchers have still not reached a consensus on the definition of engagement (Shuck, 2011). Nevertheless, despite the fact that there are several definitions of work engagement in the literature, the one that has been most commonly used is the one by Schaufeli and Bakker (2004), which defines work engagement as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (p. 295). V*igor* refers to an experience of high energy, mental resilience while working, and a willingness to invest effort in one's job, and persevere even in the face of challenges. *Dedication* refers to a high sense of significance, enthusiasm and involvement in one's work, while *absorption* is characterized by being happily engrossed in one's work, in a way that makes time pass quickly and which makes it difficult to detach oneself from work.

A recent longitudinal study by Seppälä et al. (2015) found support for Schaufeli and Bakker's (2004) conceptualization of work engagement as "a persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual or behavior" (p.295). Using a three-wave dataset over a 7-year time period, Seppälä et al. (2015) found that 69-77% of the variance in Finnish dentists' work engagement was explained by the component reflecting stability. These results remained stable even for participants who changed their jobs during the measurement period. Based on these finings, Seppälä et al. (2015) therefore argue that work engagement is a highly stable state of mind. However, studies with shorter time-lags (i.e. from a few days to a few weeks) have shown that engagement fluctuates within shorter periods of time (Bakker & Bal, 2010; Sonnentag, 2003). Seppälä et al. (2015) therefore specify that the stability of work engagement seems to depend on the time frame within which it is measured.

Research has linked the fluctuations in work engagement to the amount of job demands and job resources that employees have in their work environment (Bakker & Bal,

2010; Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007; Bakker & Demerouti, 2007; Schaufeli, Bakker, & van Rhenen, 2009). Job demands, such as role conflict, workload, and work pressure, are aspects of the job that require sustained physical, emotional, or cognitive effort (Demerouti, Nachreiner, Bakker, & Schaufeli, 2001). These have been found to be unrelated to engagement (Schaufeli & Bakker, 2004; Schaufeli et al., 2009). Job resources, on the other hand, are the physical, psychological, social or organizational aspects of a job that (a) help to achieve work goals, (b) reduce job demands and the associated physiological and psychological costs, or (c) help stimulate personal growth, learning, and development (Bakker & Demerouti, 2007). Examples of such job resources include task variety, performance feedback, job autonomy, and social support. These have been found to be the most important predictors of work engagement, especially in circumstances where employees are confronted with high job demands (Bakker et al., 2007).

Rather than exist in isolation, COR theory posits that resources tend to aggregate (Hobfoll, 2002). For instance, employees working in a resourceful work environment are likely to reinforce their beliefs in their own capabilities and to feel positive about meeting their goals (Salanova, Schaufeli, Xanthopoulou, & Bakker, 2008). Having resources is therefore linked to having other resources in the future, which in turn may lead to an accumulation of reciprocal "gain spirals" (Salanova et al., 2008). Research has found support for this concept, by finding that job resources (e.g. job autonomy) led to personal resources (e.g. self-efficacy), and vice versa (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). Moreover, job resources and personal resources have been shown to have a positive impact on work engagement, which, in turn, seems to reinforce both types of resources (Hakanen, Perhoniemi, & Toppinen-Tanner, 2008; Xanthopoulou et al., 2009). These resource spirals have further been predicted by COR theory to create "resource caravans", which, as previously mentioned, can result in positive personal outcomes, such as better coping, engagement, and well-being (Salanova et al., 2008). This argument is supported by studies indicating that work engagement leads to positive individual outcomes like increased well-being and life satisfaction (Hakanen & Schaufeli, 2012; Hakanen et al., 2012; Shimazu & Schaufeli, 2009).

Furthermore, research shows that compared to their colleagues, employees who are highly engaged perform better (Salanova, Agut, & Peiró, 2005), show more positive extra-role behaviors like organizational citizenship behavior (Babcock-Roberson & Strickland, 2010), are more committed to their organization (Hakanen, Schaufeli, & Ahola, 2008), and are less often absent (Schaufeli, Bakker, & van Rhenen, 2009). From an organizational

perspective, work engagement is thereby associated with a lot of positive, proactive behaviors that benefits organizations' work environment, performance and bottom-line.

However, diverting from the positive view of engagement, some researchers have begun to question whether being engaged at work is solely beneficial to the individual or if this type of heavy work investment could lead to detrimental outcomes in the long run, such as workaholism (Bakker et al., 2011; George, 2011; Halbesleben, 2011). Workaholism has been defined as the tendency to work excessively hard and to be obsessed with work, which manifests itself though working compulsively (Schaufeli et al., 2008). Although work engagement and workaholism have been shown to be distinct concepts with different antecedents and outcomes (e.g. Hakanen et al., 2012), some similarities do exist. For instance, in their study investigating work engagement, workaholism, and burnout, Schaufeli et al. (2008) found that the engagement subscale, absorption, was also significantly related to workaholism. Furthermore, their results indicated that both engagement and workaholism were significantly related to working hours and working overtime. However, although the concepts may seem similar at first glance, Schaufeli et al. (2008) argue that their underlying motivation differs fundamentally. Workaholics are argued to be motivated by a compulsive inner drive and a strive to meet external standards of self-worth, which they have internalized. Engaged employees, however, work hard because for them, work is motivating, challenging and fun (Schaufeli, 2013). A more recent study by van Beek, Taris, and Schaufeli (2011) found support for this argument by finding that engaged employees were mainly driven by an intrinsic motivation, while workaholics seemed to have adopted external standards of self-worth and therefore engaged in job activities for their instrumental value. This underlying motivation seems to further have a significant effect on whether the hard work leads to positive or negative outcomes, seeing that as compared to their workaholic colleagues, engaged employees generally seem to experience good mental health and social functioning (Shimazu, Schaufeli, Kamiyama, & Kawakami, 2014; Shimazu & Schaufeli, 2009). Researchers have therefore argued that work engagement represents a "good" way of working hard, whilst workaholism represents a "bad" way of working hard (Mäkikangas, Schaufeli, Tolvanen, & Feldt, 2013). Nevertheless, despite these findings, researchers question whether the tendency to be highly involved and work hard might negatively affect other parts of engaged employees' lives, such as their work-home balance (George, 2011; Halbesleben et al., 2009; Halbesleben, 2011).

Work engagement and the WHI. In line with the positive view of work engagement, researchers investigating the relationship between engagement and the work-home interaction

(WHI) have mostly focused on the positive way in which being engaged at work can benefit employees' home lives through work-home facilitation (Clark, Michel, Stevens, Howell, & Scruggs, 2014; Culbertson et al., 2012; Rodríguez-Muñoz et al., 2014). For instance, Siu et al. (2010) found that work engagement was significantly related to work-family enrichment. Their study revealed that work engagement partially mediated the relationship between job resources (i.e. family-friendly organizational policies, supervisor support, colleague support, and job autonomy) and work-family enrichment, thus providing support for Greenhaus & Powell's (2006) dual-model of instrumental (i.e. job resources) and affective (i.e. positive mood) spillover. Other studies have also found support for these arguments. For instance, in their longitudinal study investigating work engagement and work-family facilitation on a within-individual level, Culbertson et al. (2012) found that daily work engagement was related to positive affect at home, which in turn, led to higher levels of daily work-family facilitation. Similarly, Rodríguez-Muñoz et al. (2014) found that daily work engagement had a direct effect on daily happiness, in addition to influencing partners' daily happiness through employees' daily happiness. Based on the results of these studies, and in support of Greenhaus and Powell's (2006) affective pathway, researchers have suggested that positive affect seems to serve as an explanatory mechanism linking work engagement to work-home facilitation. These findings are also support the argument of COR theory, which posits that those who have more resources are less vulnerable to resource loss and more capable of resource gain (Hobfoll, 1989). Therefore, based on the findings of previous research, this study predicts that employees who experience their work as engaging will also perceive their work to have a positive effect on their home life.

Hypothesis 1: Work engagement (i.e. vigor, dedication, absorption) is significantly related to work-home facilitation (WHF)

However, although several studies point towards the positive impact that work engagement may have on work-home facilitation, according to a study by Halbesleben et al. (2009), it may also have a negative impact on individuals' personal lives. Drawing upon COR theory (Hobfoll, 1989), Halbesleben et al. (2009) argue that individuals who are highly engaged in their work may have more difficulty balancing the demands of multiple roles, thereby causing a negative impact on their work-home interaction through increased work-home conflict. Although COR theory have been used as a framework for understanding work engagement, through resources gain spirals, Halbesleben et al. (2009) use a less studied tenet

of COR theory (i.e. resource investment) to argue why engaged employees might experience more work-home conflict than their colleagues. As previously mentioned, COR theory posits that individuals have to invest their resources in order to obtain new ones (Hobfoll, 1989). Although engaged employees are argued to have higher levels of job resources, Halbesleben et al. (2009) argue that they are likely to reinvest these excess resources back into work by doing their jobs exceptionally well or by performing extra-role behaviors. This devotion of psychological attention and energy to investments in the workplace is further argued to reduce the amount of resources employees have available to address obligations in their home life (Edwards & Rothbard, 2000), thereby increasing their work-home conflict. The results of Halbesleben et al.'s study (2009) found support for this argument by finding that work engagement at Time 1 led to higher levels of work-family conflict one year later, and that this relationship was mediated by organizational citizenship behaviors.

Only a few other studies have recently tested Halbesleben et al.'s (2009) findings. In a 7-year follow-up study investigating the long-term effects of workaholism and engagement on a large sample of Finnish dentists, Hakanen and Peeters (2015) found that engagement and work-family enrichment mutually predicted each other, and that while workaholism was positively related to work-home conflict, engagement was negatively related to WHC. This further builds on the previous findings of a study by Hakanen et al. (2012), which also found that work engagement was positively related to work-home enrichment and negatively related to work-home conflict. Hakanen and Peeters (2015) explained these inconsistent findings by, for instance, arguing that dentists with higher education may have more resources available to them, compared to Halbesleben et al.'s (2009) sample, which mostly consisted of hairstylists and firemen. Therefore, in line with COR theory, Hakanen and Peeters (2015) suggest that these resources may have buffered against the possible negative effects of engagement on the work-home interaction.

Although these findings point towards a favorable relationship between engagement and the work-home interaction, in line with the findings by Halbesleben et al. (2009), this study examines whether, in addition to having a positive influence on work-home facilitation, work engagement may also at the same time be positively related to work-home conflict. There are several reasons as to why this might be the case. First of all, studies have shown that work-home facilitation and conflict are two distinct constructs (Butler, Grzywacz, Bass, & Linney, 2005), thus making it possible for individuals to experience high or low levels of both at the same time. For instance, in a study examining occupational differences in relation to the work-home interaction, Innstrand, Langballe, and Falkum (2010) found that those who

reported the most work-home conflict, also reported the most work-home facilitation. In their study, bus drivers reported the least amount of conflict and facilitation, while church ministers reported both high levels of work-home conflict and high levels of work-home facilitation. Innstrand, Langballe, and Falkum (2010) explained these results by arguing that the role of church ministers is characterized by highly permeable borders between work and home life and that this profession may therefore differ from many others in that it is hard to resign from the role. Furthermore, although they have high demands, church ministers also describe their work as personally rewarding, challenging, and deeply meaningful (Innstrand, Langballe, & Falkum, 2010). According to Siu et al. (2010), the underlying factor of this finding should therefore be work engagement since "those experiencing the most work-family conflict were more likely to be highly engaged, hence they experienced higher levels of facilitation" (p. 478). Like church ministers, academics have been found to have high levels of job demands, such as high workload and task overload (Gillespie et al., 2001; Houston et al., 2006). However, although they often experience strain as a result of these demands, academics also generally experience high levels of commitment and job satisfaction (Bellamy et al., 2003; Harman, 2003). Like church ministers, academics are therefore argued to have a high intrinsic motivation and experience their work as very meaningful, rather than be primarily motivated by extrinsic factors such as salary or working conditions (Bellamy et al., 2003; Innstrand, Christensen, Undebakke, & Svarva, 2015). Due to their high levels of demands and resources, academics may therefore be more susceptible to both positive (i.e. work-home facilitation) and negative (i.e. work-home conflict) work-related outcomes. The second hypothesis for this study is therefore as follows:

Hypothesis 2: Work engagement (i.e. vigor, dedication, absorption) is significantly related to work-home conflict (WHC)

The role of job resources. Just as job and personal resources have been identified as key antecedents to the motivational process leading up to work engagement (Bakker et al., 2007), these have also been shown to be necessary in order for employees to manage a positive balance between their work and home life (e.g. Demerouti & Geurts, 2004; Voydanoff, 2004). More specifically, having social support and control over one's work seem especially important in order to foster a positive work-home interaction (Grzywacz & Butler, 2005; Kossek, Pichler, Bodner, & Hammer, 2011; Wadsworth & Owens, 2007).

Social support is a key resource in the COR model (Hobfoll, 1989). It can emanate from various sources, including the work organization (e.g. supervisors, colleagues, or the organization as a whole), family members (e.g. partner or spouse) and friends or neighbors (Brough, Hassan, & Driscoll, 2014). According to COR theory, social support serves two major functions, by protecting existing available resources and enabling individuals to obtain new resources. As previously mentioned, COR theory posits that those who have the most resources will be less vulnerable to resource loss and more capable of resource gain. This further implies that those who lack strong resource pools are also more vulnerable to further loss (Hobfoll, 2002). As such, having a strong social network may provide a safety net when strain occurs. Studies on the work-home interaction have found evidence supporting this theory, by finding social support as an important antecedent to both work-home conflict and facilitation (Kossek et al., 2011; Wadsworth & Owens, 2007). For instance, Hecht and Allen (2009) found that social support had a significant negative relationship with both work-family conflict and family-work conflict. Furthermore, the results of Wayne, Randel, and Stevens' (2006) study indicates that social support has a positive relationship with work-home facilitation. Thus, having social support at work (or at home) seem to provide individuals with the instrumental resources and emotional support needed in order to successfully balance multiple roles (i.e. reduce conflict) and create a positive spillover into other domains (i.e. increase facilitation).

Job autonomy, measured as the extent to which employees have autonomy and influence over how their work should be carried out (Näswall et al., 2010), has also been tied to the work-home interaction. Studies have found that job autonomy significantly contributed to positive feelings of work spillover effects into family life (e.g. Demerouti & Geurts, 2004; Grzywacz & Butler, 2005). For instance, Grzywacz and Marks (2000) found that decision latitude, a concept which is similar to job autonomy, was strongly related to positive work-to-family and family-to-work spillover. This supports the findings of Voydanoff (2004) who found that autonomy was related to work-family facilitation. Furthermore, although the results have been slightly mixed (Batt & Valcour, 2003), studies have also found significant negative relationships between job autonomy and work-home conflict (e.g. Parasuraman, Purohit, Godshalk, & Beutell, 1996). Thus, it seems that having some degree of control over how their work is to be executed, is positive for employees' work-home balance. Therefore, in line with previous research findings, this thesis predicts that having job autonomy and social support from supervisor will benefit academics' work-home interaction.

Hypothesis 3: Job autonomy and social support from supervisor is significantly related to work-home facilitation (WHF)

Hypothesis 4: Job autonomy and social support from supervisor is significantly related to work-home conflict (WHC)

Furthermore, in addition to having a direct positive effect on the work-home interaction, I will also argue that job autonomy and social support from supervisor may moderate the relationship between work engagement and work-home facilitation and conflict. At the present time, few studies have examined possible moderating effects on the relationship between work engagement and the work-home interaction (Halbesleben et al., 2009). However, Halbesleben et al. (2009) found that engaged employees who also scored highly on the personality trait conscientiousness, experienced less work-home conflict than their non-conscientious engaged colleagues. Halbesleben et al. (2009) therefore argue that certain resources might enable employees to better balance their work and family obligations. Although no research seem to have been conducted on the possible moderating effect of job resources on the relationship between engagement and the WHI, studies have found that having social support and job control can help employees cope with high demands and stress (Bakker et al., 2007; Boyd et al., 2010; Gillespie et al., 2001; Valcour, 2007). Based on previous research findings indicating the positive effect of these resources, this thesis examines whether job autonomy and social support from supervisor might help engaged employees to better manage their multiple role responsibilities, and thereby improve their work-home interaction. The last hypotheses of this study are therefore as follows.

Hypothesis 5: Job autonomy and social support from supervisor significantly moderates the relationship between work engagement (i.e. vigor, dedication, absorption) and work-home facilitation (WHF).

Hypothesis 6: Job autonomy and social support from supervisor significantly moderates the relationship between work engagement (i.e. vigor, dedication, absorption) and work-home conflict (WHC).
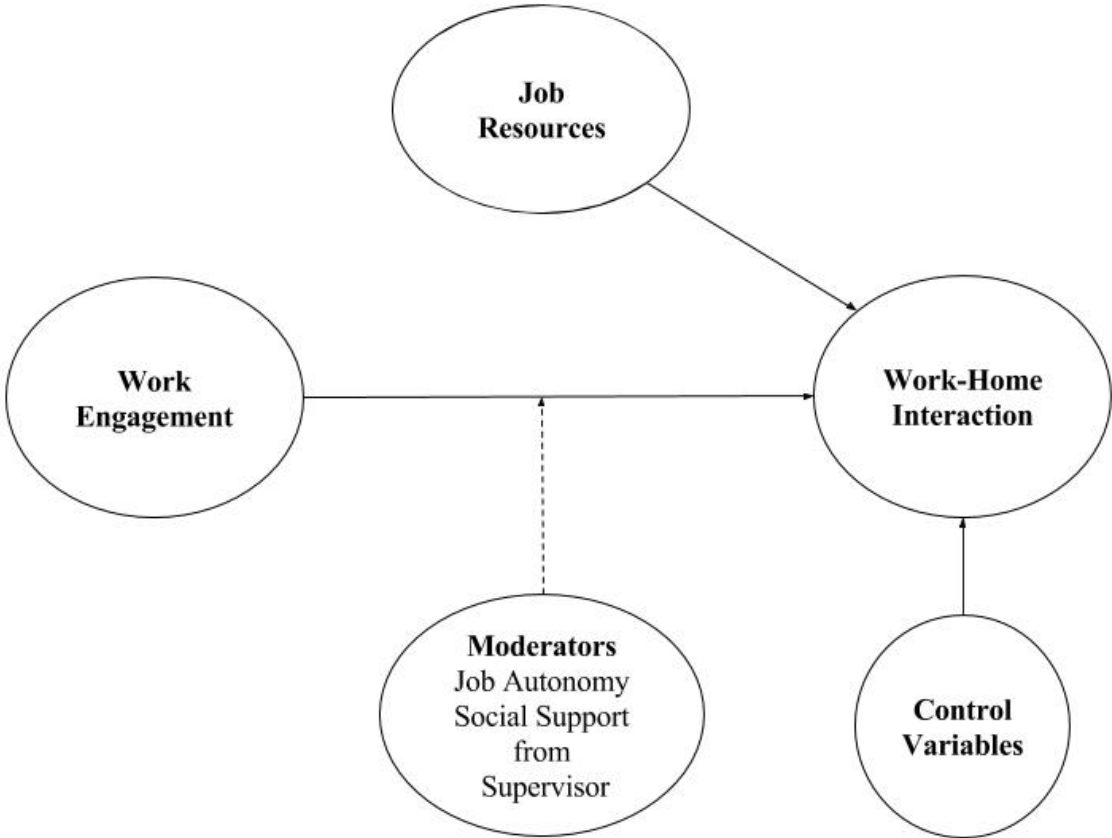
Figure 1. The study's research model

Methods

Study Design

The data for this thesis stems from a work environment and climate study, developed by and for the university sector in Norway, called the ARK Intervention Program (Norwegian acronym for "Working environment and working climate surveys"). ARK is a research-based tool for work environment surveys and implementation of interventions, as well as a base for research (Undebakke, Innstrand, Anthun, & Christensen, 2015). The intervention program can be divided into five phases consisting of 1) preparing the organization for the implementation and anchoring the process in management, 2) screening using the KIWEST questionnaire, 3) development of action based on the results from the survey and in cooperation with the employees, 4) implementation of actions, and 5) evaluations of the process as a whole.

The KIWEST (Knowledge-Intensive Work Environment Survey Target) is an important part of the ARK Intervention Program. It is a survey especially adapted for application in knowledge-intensive workplaces, which includes the most important psychosocial factors for academic work environments. The data for this thesis was collected from October 2013 until June 2015. The questionnaires were sent by e-mail to all employees in the participating universities having more than a 20% position with regular pay. The e-mail included a link to a web form survey and a one-page cover letter stating the purposes of the survey and ensuring confidentiality. The survey was open for responses over a 3-week period. Two reminders were sent during this time.

For the purposes of this thesis, a total of 4378 respondents were included in the analyses. The participants consisted of employees working as research and university personnel in the university sector in Norway. Of these 56.5 per cent ($n = 2474$) were men and 45.5 per cent ($n = 1903$) were women. Most of the participants were between the ages of 50-59 (28%), 40-49 (27%), and 30-39 (19%) years old.

Measures

The KIWEST questionnaire is based on 30 validated measures of psychosocial working conditions. The items used for the purpose of this thesis, consisted of work engagement (i.e. vigor, dedication, and absorption), job autonomy, social support from supervisor, work-home conflict, and work-home facilitation. See the Appendix for the total scales of the study variables.

Work engagement. The feeling of engagement at work was measured using a Norwegian translation of the 9-item version of the Utrecht Work Engagement Scale (UWES), developed by Schaufeli, Bakker, & Salanova (2006). The scale consists of nine items measuring the subscales vigor, dedication, and absorption. The subscales were each measured by three items that were recorded on a 7-point scale ranging 0 ("*Never*") to 6 ("*Every day*"). Vigor was measured using questions such as "I feel strong and energetic at work", while dedication and absorption was measured using questions like "I get inspired by my work", and "I get carried away by my work". A high score on these items indicates that the respondents experience a high degree of work engagement.

Job autonomy. The extent to which employees have the freedom to decide how their work should be carried out, was assessed using four items; such as "I have sufficient degree of influence in my work" (Näswall et al., 2010). The responses were measured on a five-point scale ranging from 1 ("*Strongly disagree*") to 5 ("*Strongly agree*"). High scores indicate that employees feel they have autonomy and influence on how the work is to be carried out.

Social support from supervisor. The extent to which employees perceive that their immediate supervisor provides them with social support was measured by three items, such as "My immediate superior gives me the help and support I need from her/him" (Pejtersen, Kristensen, Borg, & Bjorner, 2010). Responses were measured on a five-point scale ranging from 1 ("*Strongly disagree*") to 5 ("*Strongly agree*"). The ARK Intervention Program had included an alternative 6 ("*Not applicable*"). This option was removed from the dataset by recoding it as a missing value. High scores therefore indicate that respondents feel a high degree of support from their closest superior.

Work to family conflict and work to family facilitation. Employees' experience of work-home facilitation and conflict and was measured using a scale developed by Wayne et al. (2004) and adapted for use in Norway by Innstrand et al. (2009). The scale consisted of eight items. Four of these items measured whether respondents experience work-home conflict, using questions such as "My job makes me feel too tired to do the things that need attention at home". Work to home facilitation was measured by questions such as "The things I do at work help me deal with personal and practical issues at home". Responses were measured on a five-point scale ranging from 1 ("*Strongly disagree*") to 5 ("*Strongly agree*"). High scores on the items related to work-home conflict indicate that work has a negative impact on home life, while high scores on the items related to work-home facilitation indicate that work has a positive effect on home life.

Control variables. In their study of gender differences in the work-home interaction among a wide range of occupations in Norway, Innstrand et al. (2009) found that women experienced both more work-home conflict and facilitation. This may indicate that the border between work and home life is more permeable among women or, alternately, that these roles are more segmented among men (Innstrand et al., 2009). In this thesis the demographic variables, gender and age are therefore included as control variables.

Statistical Analysis

In order to test the hypotheses derived from the study's research model depicted in Figure 1, a structural equation modeling analysis using partial least squares (PLS-SEM) was conducted using XLSTAT (Addinsoft, 2015). Structural equation modeling involves the application of statistical methods that simultaneously analyze multiple variables and thus enables the researcher to incorporate unobservable variables measured indirectly by indicator variables (Hair, Hult, Tomas, Ringle, & Sarstedt, 2014). For the purpose of this thesis, PLS-SEM was chosen over the more widely applied covariance-based SEM (CB-SEM) due to its superiority in analyzing complex structural models involving many indicators and model relationships. Although CB-SEM has some advantages, such as providing a single goodness-of-fit criterion, its use is most effective when the focus of the study is on theory testing. Therefore, due to the complexity of the model, and that the aim of this thesis was exploratory with a focus on prediction, PLS-SEM was judged to be the most appropriate choice (Hair et al., 2014).

A PLS-SEM analysis was first conducted in order to test the direct effects of the work engagement subscales (i.e. vigor, dedication, and absorption), job autonomy and social support from supervisor, as well as the control variables (i.e. gender and age) on the outcome variables (see Figure 2). In order to assess the significance of these relationships, each path coefficient's respective p-value was examined with a significance threshold of .05. However, considering that PLS-SEM is a nonparametric test (i.e. it does not assume that the data is normally distributed), a nonparametric bootstrap procedure was also executed in order to estimate 95% confidence intervals for each path coefficient. The confidence intervals are defined by their lower and upper bounds, whereby an estimated coefficient is assumed to be significant if zero does not fall into its confidence interval. Since the path coefficients' p-values do concur with the results of the bootstrap confidence intervals, I choose to report the p-values along with beta coefficients.
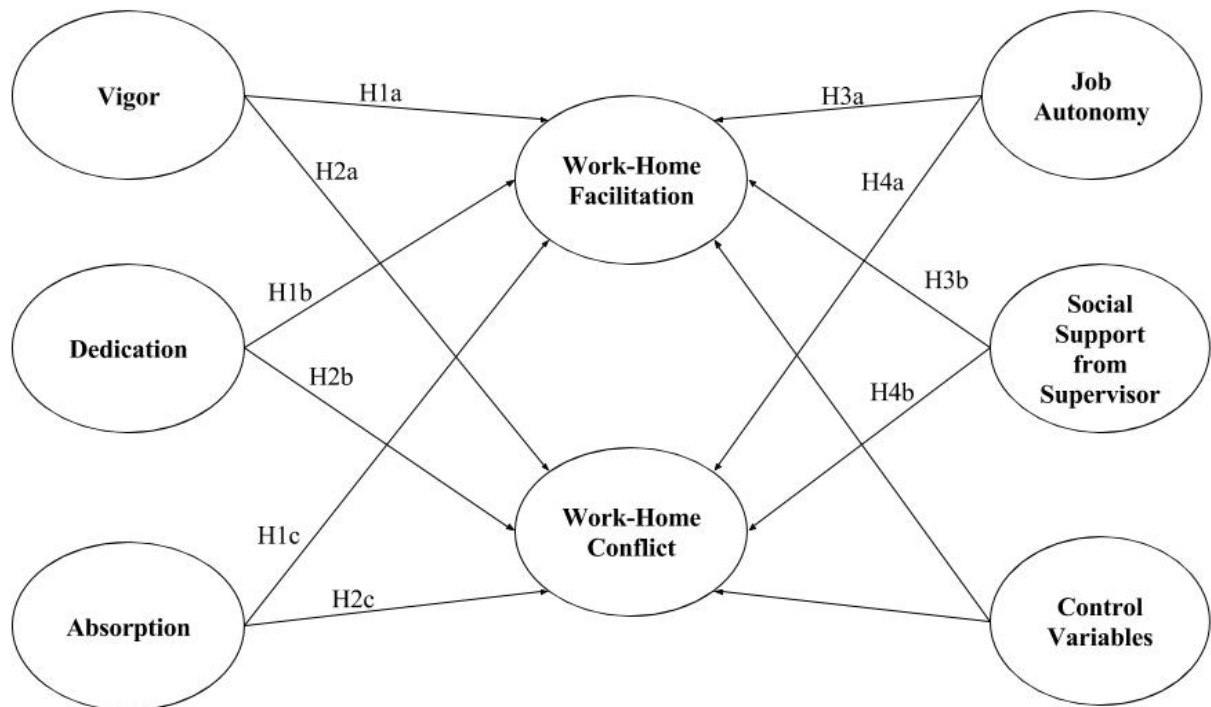
Figure 2. Hypothesized main effects between the exogenous and endogenous latent variables

In order to test whether job autonomy and social support from supervisor significantly moderates the relationship between work engagement (i.e. vigor, dedication, and absorption) and work-home conflict and facilitation (Hypotheses 5-6), a moderation PLS-SEM analysis was conducted. Moderating effects occur when a moderator (e.g. an independent variable, such as job autonomy) changes the strength or direction of a relationship between two constructs in the model (Hair et al, 2014). As the moderators in this study are metrically measured (i.e. continuous), the product indicator approach was selected, as recommended by Chin (1998). This approach involves multiplying each (mean-centered) indicator of the exogenous latent variable (e.g. vigor) with each indicator of the moderator variable (e.g. social support from supervisor), which then becomes the indicators of the interaction term (Hair et al., 2014). Thus, interaction-effects were created for each of the three work engagement variables (i.e. vigor, dedication, and absorption) and the two moderator variables (i.e. job autonomy and social support from supervisor). These interaction effects were further examined at a higher significance threshold of $p < 0.1$, due to the more exploratory nature of these hypotheses (Hair et al., 2014).

The PLS-SEM model was analyzed and interpreted sequentially in two stages, by first examining the measurement model, followed by an assessment of the structural model. This was to ensure that the measures were valid and reliable before attempting to draw conclusions regarding the relationships among the constructs.

Results

Descriptive Statistics

The descriptive statistics (see Table 1) indicate that on average, the participants'
answers to the items measuring work engagement (i.e. vigor, dedication, and absorption), job
autonomy and social support from supervisor, lay slightly above the median score. The items
measuring work-home facilitation (WHF) lay quite close to the median, while work-home
conflict (WHC) on average lay slightly beneath the median score, indicating that participants
on average disagreed (= 2) or answered "neither/nor" (=3) to questions regarding WHC and
WHF. In addition, the descriptive statistics show that items measuring job autonomy had a
lower standard deviation than the other variables, indicating that there were slightly less
fluctuations in how the participants answered these questions.

Table 1.
Descriptive Statistics of Study Variables

Variables	Min	Max	Mean	SD
Vigor				
Item 1	0	6	4.63	1.12
Item 2	0	6	4.63	1.12
Item 3	0	6	4.92	1.20
Dedication				
Item 4	0	6	4.98	1.11
Item 5	0	6	4.88	1.14
Item 6	0	6	4.91	1.19
Absorption				
Item 7	0	6	4.95	1.05
Item 8	0	6	4.69	1.17
Item 9	0	6	3.97	1.49
Job Autonomy				
Item 1	1	5	3.72	0.91
Item 2	1	5	4.00	0.77
Item 3	1	5	4.15	0.73
Item 4	1	5	3.59	0.84
Social support supervisor				
Item 1	1	5	3.83	0.91
Item 2	1	5	3.68	1.04
Item 3	1	5	3.29	1.14
Work-home facilitation				
Item 1	1	5	2.71	0.91
Item 2	1	5	3.16	0.92

Item 3	1	5	3.83	0.70
Item 4	1	5	2.99	0.92
Work-home conflict				
Item 1	1	5	3.37	1.05
Item 2	1	5	2.95	1.07
Item 3	1	5	2.93	1.01
Item 4	1	5	3.19	1.12

PLS-SEM Analysis

  Measurement model. To start with, the reflective measurement models need to be assessed for their reliability and validity. Reliability is measured through the construct measures' indicator reliability and internal consistency reliability, while validity is measured through convergent validity and discriminant validity.

  Internal consistency (i.e. homogeneity and unidimensionality) describes the extent to which all the items in a test measure the same concept or construct. It is a necessary condition in PLS-SEM, as it implies that changes in one indicator will cause changes in others (Hair et al., 2014). The traditional criterion for internal consistency is Cronbach's alpha, which provides an estimate of the reliability based on the inter-correlations of the observed indicator variables (Hair et al., 2014). However, Cronbach's alpha assumes that all indicators are equally important in expressing the latent variables, which is not always the case (Hair et al., 2014). Thus, Chin (1998) suggests that Dillion-Goldstein's rho (D.G rho) is a better measurement of reliability than Cronbach's alpha, as it is based on the results from the model (i.e. the loadings) rather than on the correlations observed between the manifest variables in the dataset. The internal consistency condition is considered fulfilled if the D.G rho values for the indicators are greater than 0.70, which is the case for this study (see Table 2). Some variables, such as the work engagement subscales, exhibited values above 0.90, which according to Hair et al. (2014), is not recommended as this might indicate that the items of a construct measure the same thing (i.e. are redundant). However, they did not overstep the critical value of 0.95.

  Convergent validity is the extent to which a measure correlates positively with alternative measures of the same construct. As indicators of reflective constructs are considered as different approaches to measure the same construct, indicator measures of a specific construct should share a high proportion of variance. To establish convergent validity, the outer loadings of the indicators are considered, as well as the average variance extracted (AVE). At a minimum, all outer loadings should be significant. However, a

common rule of thumb is that the outer loadings should be 0.70 or higher (Hair et al., 2014). This is due to the fact that the latent variable should explain a substantial part of each indicators variance. According to the assessment of the indicator reliability, 23 of the 24 reflective indicators showed outer loadings above 0.70. However, one of the items related to work-home facilitation exhibited a lower loading of 0.31. Furthermore, an AVE value of 0.50 or higher indicates that on average, the construct explains more than half of the variance of its indicators. Almost all of the variables showed AVE values above the critical value of 0.50, which provides support for these measures' convergent validity. However, work-home facilitation showed a slightly lower AVE of 0.47. Thus, WHF did not technically meet the convergent validity criteria. Nevertheless, considering the AVE values of work-home facilitation were only just below the recommended limit of 0.50, the item was not removed, as it was considered to be relevant for the work-home facilitation scale.

Table 2.
Measurement Model

Variables	Loading	D.G rho	AVE
Vigor		0.92	0.79
Item 1	0.90		
Item 2	0.91		
Item 3	0.86		
Dedication		0.93	0.82
Item 4	0.93		
Item 5	0.94		
Item 6	0.85		
Absorption		0.90	0.75
Item 7	0.90		
Item 8	0.88		
Item 9	0.81		
Job autonomy		0.87	0.62
Item 1	0.82		
Item 2	0.76		
Item 3	0.75		
Item 4	0.82		
Social support supervisor		0.91	0.77
Item 1	0.89		
Item 2	0.91		
Item 3	0.85		
Work-home facilitation		0.77	0.47
Item 1	0.77		
Item 2	0.82		
Item 3	0.31		
Item 4	0.73		
Work-home conflict		0.87	0.62

Item 1	0.71
Item 2	0.83
Item 3	0.79
Item 4	0.81

Lastly, two approaches were used to assess the construct's discriminant validity (i.e. the extent to which a construct is truly distinct from other constructs by empirical standards). First, the cross loadings of the indicators were examined to assess whether the indicators' outer loadings on the associated construct are greater than its loadings on all the other constructs. However, as this criterion is considered to be rather liberal, the Fornell-Larcker criterion was applied as a second approach. This criterion requires that the squared correlations of all other construct should be lower than each construct's AVE (Hair et al., 2014). According to this criterion, the constructs all displayed adequate discriminant validity (see Table 3).

Table 3.
Discriminant Validity Test of Study Variables

	Variables	1	2	3	4	5	6	7
1.	Vigor	1	0.571	0.386	0.116	0.069	0.112	0.107
2.	Dedication	0.571	1	0.577	0.136	0.078	0.151	0.076
3.	Absorption	0.386	0.577	1	0.087	0.044	0.090	0.027
4.	Job autonomy	0.116	0.136	0.087	1	0.206	0.089	0.109
5.	Social support supervisor	0.079	0.092	0.051	0.224	1	0.079	0.062
6.	Work-home facilitation	0.112	0.151	0.090	0.089	0.061	1	0.066
7.	Work-home conflict	0.107	0.076	0.027	0.109	0.065	0.066	1
Mean AVE		0.795	0.828	0.753	0.626	0.793	0.476	0.626

After assessing the model's reliability and validity, the measurement model was therefore found to be satisfactory. The next step was thus to examine the structural model of the PLS-SEM analysis.

Structural model. First, the effects of the work engagement subscales on the outcome variables, work-home conflict (WHC) and work-home facilitation (WHF), were examined. Hypothesis 1 predicted a significant relationship between vigor, dedication, and absorption

and work-home facilitation. The results indicated that dedication (b = .248, p < .01) had the strongest effect on WHF, while vigor (b = .057, p < .01) had a slightly weaker effect. Absorption however, was not significantly related to WHF (see Table 4). This hypothesis was therefore only partially supported. Furthermore, Hypothesis 2 predicted a significant relationship between work engagement (i.e. vigor, dedication, and absorption) and work-home conflict. The findings revealed a significant positive relationship between absorption and WHC (b = .137, p < .01), and significant negative relationships between vigor (b = -.236, p < .01), dedication (b = -.093, p < .01), and WHC. Hypothesis 2 was therefore supported (see Table 4).

Secondly, assessing the direct effects of job autonomy and social support from supervisor revealed a significant positive value of .131 (p < .01) between autonomy and work-home facilitation, and a significant negative value of .220 (p < .01) between autonomy and work-home conflict. The results also indicated a significant positive relationship between social support from supervisor and work-home facilitation (b = .133, p < .01) and a significant negative relationship between social support from supervisor and work-family conflict (b = -.089, p < .01). Thus, Hypotheses 3 and 4 were both supported.

Furthermore, evaluating the study's control variables, gender and age, revealed that women experience both a higher work-home conflict (b = .103, p < .01) and a higher work-home facilitation (b = .110, p < .01) than men. Age showed a significant negative relationship with work-home conflict (b = -.103, p < .01), indicating that the older the participants were the less WHC they experienced. However, age was not significantly related to WHF (see Table 4).

In addition to statistical significance, the effects sizes and the coefficient of determination (R^2), were also examined in order to evaluate the influences of the predictors on the outcome variables (Hair et al., 2014). According to Keith (2006), beta coefficients above .05 are considered small but meaningful influences, beta's above .10 as moderate, while those above .25 are considered large influences. Thus, based on these criteria the beta coefficients reported in this study all exhibited meaningful influences, with vigor's effect on facilitation and dedication's effect on facilitation having the smallest and largest influence, respectively (see Table 4). Lastly, in order to evaluate the structural model, the coefficient of determination (R^2) was examined for both the study's outcome variables. Work-home conflict exhibited an R^2 value of .197, while work-home facilitation exhibited a slightly higher R^2 value of .203. This indicates that the model accounts for about 20 per cent of the outcome

variables' variance. Thus, the model predicted an adequate amount of variance in the endogenous latent variables.

Table 4.
Main Effects of Study Variables on Work-Home Facilitation and Conflict

Variables	Value	Bootstrap	
		Lower bound (95%)	Upper bound (95%)
Work-home facilitation			
Vigor	.057***	0.015	0.102
Dedication	.248***	0.195	0.298
Absorption	.004	-0.037	0.044
Job autonomy	.131***	0.096	0.166
Social support supervisor	.133***	0.100	0.166
Gender	.110***	0.083	0.135
Age	-.010	-0.022	0.039
Work-home conflict			
Vigor	-.236***	-0.277	-0.194
Dedication	-.093***	-0.145	-0.045
Absorption	.137***	0.097	0.177
Job autonomy	-.220***	-0.250	-0.189
Social support supervisor	-.089***	-0.122	-0.059
Gender	.103***	0.076	0.129
Age	-.103***	-0.131	-0.076

WHF: $R^2 = .203$, WHC: $R^2 = .197$
Note. ***$p < .01$, two-tailed.

Moderated PLS-SEM

Evaluating the interaction effects revealed the following results, as shown in Table 5. Hypothesis 5 predicted that job autonomy and social support from supervisor would significantly moderate the relationship between the work engagement subscales and work-home facilitation (WHF). The results indicated that social support from supervisor significantly moderated the effect of dedication on WHF ($b = .060$, $p < 0.1$, sig) and that job autonomy significantly moderated the effect of absorption on WHF ($b = .062$, $p < .05$). However, none of the other interaction effects were significant (see Table 5). Therefore, Hypothesis 5 was only partially supported. Furthermore, contrary to this study's prediction, only job autonomy significantly moderated the effect of absorption on WHC ($b = .050$, $p < 0.1$, sig). This effect was positive, indicating that job autonomy increased the effect of absorption on WHC. As can be seen from Table 5, none of the other interaction effects were significant. Hypothesis 6 was therefore also only partially supported.

Table 5.
Interaction Effects on Work-Home Facilitation and Conflict

Variables	Value	Bootstrap	
		Lower bound (95%)	Upper bound (95%)
Work-home facilitation			
Vigor-Autonomy	-.028	-0.089	0.034
Vigor-Social Support	-.003	-0.064	0.055
Dedication-Autonomy	-.010	-0.080	0.075
Dedication-Social Support	.060*	-0.012	0.131
Absorption-Autonomy	.062**	0.000	0.124
Absorption-Social Support	-.023	-0.078	0.038
Work-home conflict			
Vigor-Autonomy	-.053	-0.110	0.005
Vigor-Social Support	.009	-0.047	0.063
Dedication-Autonomy	.000	-0.065	0.063
Dedication-Social Support	-.045	-0.102	0.017
Absorption-Autonomy	.050*	0.000	0.099
Absorption-Social Support	-.006	-0.057	0.042

Note. **$p < .05$, two-tailed. *$p < 1.0$, two-tailed.

Discussion

The aim of this study was to examine how being engaged at work affects academics' work-home interaction through both work-home facilitation and work-home conflict. The results of the analyses indicated that work engagement is mostly positive for employees' work-home balance, but that individuals may become so engrossed in their work that this negatively affects other parts of their lives. Furthermore, although previous research has found support for moderator effects which aid employees in managing multiple role responsibilities (Halbesleben et al., 2009), the results of this study indicated only partial support for such effects. In contrast to the expectations of this study, it further seemed that having job autonomy increased both positive and negative spillover effects from work to home life. These results will now be discussed in light of previous theory and research. Study limitations and implications, as well as suggestions for future research are also presented.

The Effects of Being Engaged

Previous studies on work engagement and the work-home interaction have found support for Greenhaus & Powell's (2006) dual-model of instrumental and affective pathways, whereby work engagement contributes to work-home facilitation through job resources and positive emotions that spill over into employees' home domains (Culbertson et al., 2012; Rodríguez-Muñoz et al., 2014; Siu et al., 2010). This present study provides further support for these findings, as the work engagement subscales, vigor and dedication, were found to be positively related to work-home facilitation. Absorption was, however, not significantly related to work-home facilitation. More specifically, it seems that feeling dedicated to one's job is the most important dimension in order for engaged employees to experience positive spillover effects from work to their home life, while vigor had weaker effects on this relationship. This indicates that feeling inspired, enthusiastic, and proud of one's job may be the triggering factor of engagement that leads employees to develop the positive emotions and resource surpluses which contribute to making them better companions and more interesting persons at home. This finding stands in contrast to the argument by Moazami-Goodarzi, Nurmi, Mauno, and Rantanen (2014), who argued that due to its energetic characteristics, vigor would be more likely to facilitate performance and quality of life in other life domains, rather than feelings of dedication and absorption.

Nevertheless, dedication's substantial effect on work-home facilitation could be explained by the reciprocal gain spirals posited by COR theory, which argue that having

certain resources makes it easier for individuals to obtain other resources (Hobfoll, 1989). For instance, experiencing one's work as meaningful and exciting (i.e. dedication) may boost individuals' personal resources, thereby initiating a positive gain spiral further leading to increased work-home facilitation. Personal resources are described as positive self-evaluations that refer to individuals' sense of ability to control and successfully influence their environment (Hobfoll, Johnson, Ennis, & Jackson, 2003). Self-efficacy is one such personal resource, which involves individuals' belief in their own ability to successfully meet demands in a broad array of contexts (Chen & Gully, 2001). Greenhaus and Powell (2006) argue that work which leads to increases in self-esteem, self-efficacy and self-confidence may enhance performance in the home domain because it stimulates motivation, performance, and goal setting. In line with this argument, researchers have found that persistent positive experiences and accumulation of success increases individuals' self-efficacy beliefs (Chen & Gully, 2001). This is further found to increase work-home facilitation (Wayne et al., 2007). Similarly, studies on work engagement have found that not only do job and personal resources (e.g. self-efficacy) predict work engagement, but this relationship is reciprocal (Llorens, Schaufeli, Bakker, & Salanova, 2007; Xanthopoulou et al., 2009). Therefore, based on COR theory's reciprocal gain spirals, one possible explanation for the findings of this study could be that feeling dedicated and enthusiastic about one's job increases individuals' self-efficacy beliefs, which in turn increases their work-home facilitation. However, further longitudinal research is needed in order to establish whether self-efficacy might serve as an explanatory mechanism by partially mediating the relationship between work engagement and work-home facilitation.

Although work engagement seems to be mostly positive for individuals, the results of this study also indicate that being engaged may to some extent negatively affect academics' work-home balance due to them being highly absorbed in their work. In their study, Halbesleben et al. (2009) argued that engaged employees reinvest their excess resources back into work, thus reducing the amount of resources they have available to deal with demands at home. This tendency to invest more in job resources was further suggested to stem from these resources being perceived to be (1) more difficult to invest in family due to employees having less discretion in how they invest in their work, and because (2) work investments might be more easily justified due to the possible material resources that can result from them in the long run. However, the results of this study indicate that engaged employees may also, perhaps unconsciously, invest their resources by being absorbed in their work. This study thereby builds on the results of Halbesleben et al. (2009), who found that engaged employees

participated more in organizational citizenship behaviors, which further lead to increased work-home conflict. However, as Halbesleben et al. (2009) mention, the resource investment part of COR theory is less explored in the literature. Future studies are therefore needed in order to gain further insight into how engaged employees invest their resources, both consciously and unconsciously, and how this affects other parts of their lives.

Moreover, the relationship between absorption and work-home conflict can be related to previous studies which have found this particular dimension to be significantly related to workaholism (Hakanen et al., 2012; Schaufeli et al., 2008; van Beek et al., 2011). This relationship has been argued to stem from the similarities between engagement and workaholism in that they are both types of heavy work investment (Schaufeli et al., 2008). However, although both workaholics and engaged employees work hard (Hakanen et al., 2012; Schaufeli et al., 2008), studies have found that they differ fundamentally in terms of their underlying motivation (van Beek et al., 2011). This difference seems to have a significant effect on whether the hard work leads to positive or negative outcomes, considering that recent studies have found that workaholism and work engagement, amongst other, had opposite effects on the work-home interaction (Clark et al., 2014; Hakanen & Peeters, 2015). In support of these arguments, the results of this study indicated that the engagement subscales, vigor and dedication, have significant negative relationships with work-home conflict. More specifically, vigor was found to have the strongest effect on work-home conflict of all three dimensions, while dedication had the weakest effect. It may therefore seem that feeling energetic and vigorous about one's job might outweigh the negative effect of absorption, thereby causing an overall positive effect on the work-home interaction. This finding further supports the arguments of COR theory, which posits that those who have more resources are better protected against stress and resource loss (Hobfoll, 1989).

However, why did Halbesleben et al. (2009) find that work engagement predicted work-home conflict? As also argued by Hakanen & Peeters (2015) in their study of Finnish judges, the different demographical backgrounds of the participants in this and Halbesleben et al.'s (2009) study might have influenced the amount of resources the participants have access to. For instance, while the sample in Halbesleben et al.'s (2009) study largely consisted of firemen, hairdressers and other working professionals in the United States, the sample for this study consisted of academics working in Norwegian universities. Thus, while the participants of this study all had a higher education, only parts of the sample of Halbesleben et al. (2009) had a college or graduate degree. Furthermore, knowledge-intensive working environments,

such as that of academics, may give employees access to a higher degree of job resources, such as flexibility and job autonomy (Bellamy et al., 2003; Gillespie et al., 2001). One could therefore speculate whether academics may have access to more job and personal resources, thus making it easier for engaged employees to manage their multiple role responsibilities in a way that does not interfere with their work-home balance. Furthermore, another possible explanation could be that significant cultural differences between the Unites States and Norway also affect the results. According to OECD's Better Life Index, Norway ranks among the top five countries in terms of work-life balance, while the U.S. ranks among the bottom eight (OECD, 2015). This ranking indicates that, in Norway, full-time workers devote 65 per cent of their day on average to personal care (i.e. eating, sleeping, etc.) and leisure (i.e. socializing with friends and family, etc.), while full-time workers in the United States devote less time to such activities (60%). In addition, Norway has quite an extensive Working Environment Act which, amongst other, guarantees paid leave for family purposes (Arbeidsmiljøloven, 2005, §12-5). Norway therefore seem to have a much more supportive work-family culture than the United States. According to Voydanoff (2004), a work-family supportive culture enhances employees' flexibility in coordinating work and family responsibilities, by legitimizing their efforts to meet family needs and by creating the perception that career penalties are not associated with using available policies. As a result, the cultural differences between Norway and the U.S. may therefore have affected the amount of flexibility employees perceive that they have to manage their different responsibilities in a way that is beneficial for both their work and home life. However, future research is needed in order to draw any conclusions regarding how cultural differences might impact antecedents and outcomes of the work-home interaction.

Job Autonomy and Social Support

In addition to investigating the direct effects of work engagement on the work-home interaction, this thesis also examined the effects of job autonomy and social support from supervisor. In line with COR theory and previous research findings (Demerouti & Geurts, 2004; Grzywacz & Marks, 2000; Grzywacz & Butler, 2005; Parasuraman et al., 1996), the results indicated that both job resources had a positive effect on academics' work-home interaction, by increasing work-home facilitation and reducing work-home conflict. More specifically, the results indicated that although both resources had similar effects on work-home facilitation, job autonomy had a greater effect on academics' work-home conflict than

supervisory social support. One possible explanation to this finding could be that although social support has been highlighted as an important buffering resource in COR theory (Hobfoll, 1989), researchers also argue that the source of support plays an important role in determining its effectiveness as a resource (Lu, Siu, Spector, & Shi, 2009; O'Driscoll, Brough, & Kalliath, 2004). For instance, in their study, Lu et al. (2009) examined the impact of support from supervisor, work colleagues, and spouse or partner on work-family enrichment among Chinese dual-career parents. They found that spousal support was the most important source of social support for increasing work-family enrichment. Therefore, Lu et al. (2009) argue that one's partner might, for instance, be able to provide more kinds of social support (i.e. both instrumental and emotional support), whereas supervisors or colleagues may only be able to offer limited types of support (e.g. only instrumental). In relation to this present study, one might speculate whether other sources of support, such as support from colleagues, may be more important to academics rather than that of the supervisor, due the independent nature of their work. However, more longitudinal research is needed in order to establish the type of resources that are most important to this occupational group.

Furthermore, although previous research has found mixed results in terms of the effects of job autonomy on work-home conflict (Batt & Valcour, 2003; Voydanoff, 2004), researchers have highlighted the importance of this job resource to academics (Boyd et al., 2010). For instance, previous research has found that academics as an occupational group often experience task overload as a result of having to balance multiple responsibilities at work, such as teaching, research, and administrative duties (Gillespie et al., 2001). Therefore, having control over how their work is executed may be especially important for academics in order to manage their resources in a way that reduces loss and increases resource gain (Hobfoll, 1989).

In addition to investigating the direct effects of work engagement on the work-home interaction, this thesis also examined whether job autonomy and social support from supervisor moderates these relationships. The results of this study indicated that social support from the supervisor increased the effects of dedication on work-home facilitation. Perceiving their supervisor as supportive thereby seemed to enhance positive spillover effects from work to home life for dedicated employees. However, social support did not significantly moderate the relationship between any of the engagement dimensions and work-home conflict. This finding may be related to a previous study by Seiger and Wiese (2009) indicating that social support may work better as a direct antecedent to work-home conflict, rather than as a buffering resource. However, as indicated by Kossek et al. (2011) in their

meta-analysis, general social support seem to operate differently in terms of its relationship with work-home conflict, compared to more specific work-family social support. It could therefore also be that more work-family specific supervisory support would have had a greater buffering effect on employees' work-home conflict. Future studies may therefore benefit from taking care in construct definition and measurement related to workplace social support and work-home conflict linkages (Kossek et al., 2011).

Furthermore, in contrast to the expectations of this study, the results indicated that job autonomy increased the effects of absorption on both work-home facilitation and work-home conflict. Job autonomy thereby seems to enhance both positive and negative spillover effects between employees' work and home domain. This may indicate that while job autonomy as a resource is beneficial to employees' work-home interaction in its own right, it may increase the permeability of the border between the work and home domain among engaged employees, thus leading to more work-home conflict as well as work-home facilitation. This speculation is partly supported by a previous diary study by Butler et al. (2005), which found that having job control increased the effects of work demands on work-home conflict. It also supports the argument of Hakanen and Peeters (2015), who argue that the flexible and autonomous work arrangements that have become widespread among knowledge workers, may have both positive and negative consequences. For while job autonomy may enhance positive outcomes, such as work engagement, this boundaryless work tendency may also pave way for more excessive working and workaholic tendencies, with further detrimental consequences for well-being (Hakanen & Peeters, 2015). Although more research is needed before one can draw any conclusions regarding the possible downsides to job autonomy, this study finding does indicate the importance of including work contextual factors in future investigations of work engagement and its possible outcomes.

The Influence of Gender and Age

Lastly, in addition to the main variables in the model, this study also measured the effects of gender and age in relation to the work-home interaction. The results indicated that women experienced both more work-home conflict and work-home facilitation than men. This finding coincides with previous research, such as Innstrand et al.'s (2009) study on gender-specific perceptions of the work-family interaction among different occupational groups in Norway. Although their study found some occupational differences, the results indicated that women in general experienced significantly more work-home conflict and work-home facilitation than men. According to Rothbard (2001), this indicates a more

permeable boundary between work and home among women, or alternatively a more prevalent role segmentation among men. Although these gender differences could stem from women, for instance, having more responsibilities in the home than men, Norwegian couples have been found to be highly equal in sharing home responsibilities (Rydenstam & Vaage, 2008). Therefore, instead of arguing that these differences stem from a lack of gender equality, Innstrand et al. (2009) argue that they may be caused by differences related to traditional gender roles and work identity. According to identity theory (Wiley, 1991), conflict between behaviors that confirm different identities of similar salience or inadequate performance of behaviors that confirm highly salient identities might produce stress. Furthermore, whereas a strong work identity concurs with the traditional male gender role as breadwinner, this is not consistent with the traditional female gender role as homemaker (Livingston & Judge, 2008; Simon, 1995). Both work-home conflict and facilitation is therefore perhaps more likely to be experienced by women, due to work and family identities having equal salience. However, Innstrand et al. (2009) highlight that a growing social value placed on men's involvement in the home, might eventually erode these gender differences.

Lastly, in addition to finding significant differences between men and women in their experience of the work-home interaction, this study also found that age was significantly related to work-home conflict. Thus, the older the participants were, the less work-home conflict they experienced. Although this present study did not account for the family structure of the participants, this finding could perhaps be related to previous research indicating that individuals who have no or older children, have more flexibility in terms of their work-home balance, and therefore experience less work-home conflict (e.g. Byron, 2005; Innstrand, Langballe, Espnes, Aasland, & Falkum, 2010).

Study Limitations

Although, this study provides some interesting further insight into the relationship between work engagement and the work-home interaction, it is important to mention some limitations. First of all, although the size of the sample provides support for the generalizability of the findings, the sample was quite homogenous, considering that the participants consisted of academics working in Norwegian universities. As previously mentioned, Norway has a much more supportive work-life culture compared to other countries like the U.S. Although other knowledge workers in the Nordic countries may have similar working conditions, one should therefore be careful not to generalize the findings of

this thesis too far beyond the sample of this study. Secondly, the design of the study was cross-sectional. Thus, in contrast to longitudinal studies where data collection occurs over a longer period of time, the data for this study was collected at one specific time point. This limits the ability of this study to draw conclusions regarding cause-effect relationships among the study variables. It also increases the risk of common method bias, whereby effects occur due to the measuring instruments rather than the constructs being measured (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, the fact that the KIWEST measures are based on previously validated scales from the occupational health literature (Innstrand et al., 2015), provides some further support for the validity and reliability of this study. Nevertheless, it is important to mention that one of the items related to work-home facilitation exhibited a lower loading than what is recommended. Although this was judged not to pose a significant problem in this study, future research should perhaps use a modified version of this scale (Innstrand et al., 2009).

Furthermore, when conducting a PLS-SEM analysis, it is important to be aware of what is called the PLS-SEM bias. This bias stems from the fact that the PLS-SEM algorithm calculates the construct scores as exact linear combinations of the associated observed indicator variables (Hair et al., 2014). Considering that indicator variables always contain some degree of measurement error, this error is present in the latent variable scores and is thus ultimately reflected in the estimated path coefficients, thereby inducing a bias on the model estimates. The result of this bias is that the true path model relationships are frequently underestimated, while the parameters for the measurement models (i.e. the loadings) are overestimated. However, simulation studies have shown that the PLS-SEM bias is usually at very low levels (e.g. Reinartz, Haenlein, & Henseler, 2009), and that while the estimates produced by PLS-SEM are biased, they also on average exhibit a higher level of statistical power than CB-SEM offers (Hair et al., 2014). Therefore, although PLS-SEM has some weaknesses, it is better at exploratory research due to its less restrictive requirement in terms of model complexity and data characteristics.

Implications and Suggestions for Future Research

Despite the limitations of the study, this thesis does provide some insight into the topic of work engagement and the work-home interaction that should be of interest to future research. Firstly, the results of this study indicate that increasing employees' feelings of dedication is the most important part of engagement in order to increase their work-home facilitation, while feeling vigorous has an important buffering effect on work-home conflict.

These findings provide support for studies indicating that work-home facilitation and work-home conflict are orthogonal constructs with different antecedents and outcomes (e.g. Innstrand, Langballe, & Falkum, 2010). Secondly, even though work engagement overall seemed to be positive for employees' work-home interaction, the findings of this study also indicate that engaged employees may become so absorbed in their work that this causes a negative spillover effect into their home lives. Considering that COR theory argues that resource loss is more salient than resource gain (Hobfoll, 2011), this finding indicates some important suggestions for for future research. For instance, in a study on daily work engagement and proactive behavior, Sonnentag (2003) found that daily recovery time was important to future daily work engagement. However, if being absorbed in work increases employees' work-home conflict, this may give them less time to recover, which may perhaps further impact their future levels of engagement. Future studies should therefore investigate the possible short term and long term effects of being absorbed in work.

Furthermore, although absorption has been validated as part of the work engagement scale, researchers have questioned whether this dimension is really a key part of work engagement (Hakanen et al., 2012; Schaufeli et al., 2008). They have argued that vigor and dedication may be the two core dimensions of work engagement, while absorption perhaps is not a unique feature of engagement, but instead might be a sign of workaholic tendencies (Hakanen et al., 2012; Schaufeli et al., 2008). Schaufeli et al.'s (2008) study found support for this argument by finding that in removing the absorption component, virtually no loss of information occurred in terms of relationships with the outcome variables. The results of this present study provides some further support for these arguments, considering that while vigor and dedication benefited academics' work-home interaction, the absorption dimension was not only positively related to WHC, but was also not significantly related to WHF. This finding highlights the importance of also examining the subscales of engagement as separate indicators, since this might provide valuable insight into its relationships with important outcome variables (Schaufeli et al., 2006).

Conclusion

Although work engagement has been highlighted for its positive relationships with important organizational outcomes, this study indicates that being absorbed at work may come at a cost to employees' work-home balance. Consistent with the findings of Halbesleben et al. (2009), it therefore seems that work engagement does in fact have the potential to create interrole conflicts. It further seems that job autonomy might enhance this effect by making the border between the work and home domains more permeable. However, in line with the positive view of engagement, the results of this study also indicate that the benefits of feeling vigorous and dedicated to one's job may outweigh the detrimental effect of absorption, thus creating an overall favorable relationship between work engagement and the work-home interaction. It therefore seems that work engagement as a whole is not a double-edged sword. However, further studies are needed before one can draw any definitive conclusions.

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Appendix

Scales and Items of Study Variables

Scale	Item	Response option
Work engagement, Vigor	At my work, I feel bursting with energy	B
	At my work, I feel strong and vigorous	
	When I get up in the morning, I feel like going to work	
Work engagement, Dedication	I am enthusiastic about my job	B
	My job inspires me	
	I am proud of the work that I do	
Work engagement, Absorption	I feel happy when I am working intensely	B
	I am immersed in my work	
	I get carried away when I'm working	
Job autonomy	I have a sufficient degree of influence in my work	A
	I can make my own decisions on how to organize my work	
	There is room for my to take my own initiatives at work	
	I manage my own work situation in the direction I want	
Social support from supervisor	My immediate superior listens to me when I have problems at work	A
	My immediate superior gives me the help and support I need from her/him	
	My immediate superior talks with me about how well I carry out my work	
Work-home facilitation	The things I do at work help me deal with personal and practical issues at home	A
	The things I do at work make me a more interesting person at home	
	Having a good day at work makes me a better companion when I get home	
	The skills I use at work are useful for things I have to do at home	
Work-home conflict	My job reduces the effort I can give to activities at home	A
	Stress at work makes me irritable at home	
	My job makes me feel too tired to do the things that need attention at home	
	Job worries or problems distract me when I am at home	

A: Strongly disagree, disagree, neither/nor, agree, strongly agree.
B: Never, a few times a year or less, once a month or less, a few times a month, once a week, a few times a week, every day.