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ORIGINAL ARTICLE

Work Engagement: A Double-Edged Sword? A Study of the Relationship between Work Engagement and the Work-Home Interaction Using the ARK Research Platform

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The aim of the present study was to investigate how being engaged at work affects academics' work-home interaction. Using the Conservation of Resources theory as a theoretical framework, the study contributes to existing research by examining the relationship between the work engagement subscales (i.e. vigour, dedication, and absorption) and both work-home facilitation and work-home conflict. In order to test the hypotheses, a Partial Least Squares-Structural Equation Modelling analysis was conducted using a large sample of academics from the Norwegian university sector (N = 4378). The results indicated that vigour and dedication had a positive relationship with work-home facilitation and a negative relationship with work-home conflict. In contrast, absorption was not significantly related to work-home facilitation, but was positively associated with work-home conflict. Thus, we conclude that work engagement seems to have the potential to create both positive and negative outcomes.

Keywords: work engagement; work-home conflict; work-home facilitation; ARK Research platform; PLS structural equation analysis

In an ever changing, competitive market, organisations 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 been defined as "a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication, and absorption" (Schaufeli & Bakker, 2004, p. 295). *Vigour* 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 characterised 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. Due to its relationship with a number of positive organisational outcomes, such as increased employee performance (Christensen, Dyrstad, & Innstrand, 2015), organisational commitment (Hakanen, Schaufeli, & Ahola, 2008), and well-being (Schaufeli, Taris, & van Rhenen, 2008), work engagement has become a popular concept, both in the world of business and of academic research. However, 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 are usually 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). Rodríguez-Muñoz, Sanz-Vergel, Demerouti, and Bakker (2014) therefore 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).

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 organisations (Allen, Herst, Bruck, & Sutton, 2000; Amstad, Meier, Fasel, Elfering, & Semmer, 2011). However, managing multiple roles can also provide arenas for personal growth and increase favourable outcomes, such as better mental health and increased job satisfaction, through work-home facilitation (Karatepe & Bekteshi, 2008; McNall, Nicklin, & Masuda, 2010). Fostering a positive work-home balance is, therefore, not only important to individual employees, it is also becoming an important strategy for organisations in order to attract the most

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qualified employees and create a happy, engaged, and productive workforce (Batt & Valcour, 2003; Byrne, 2005).

One occupational group that might be especially susceptible to both positive and negative work-related outcomes is academics. Studies have indicated that employees working in higher education seem to generally experience high levels of commitment and job satisfaction (Harman, 2003) and to be largely driven by intrinsic factors, such as having job autonomy and flexibility in their work (Bellamy, Morley, and Wattym 2003). However, studies have also indicated that academics' workload is increasing (Harman, 2003) and that employees in the academic sector often stretch their work time in order to accommodate these enhanced demands (Houston, Meyer, & Paewai, 2006). This has been further found to lead to an increase in their levels of stress and work-home conflict (Bell, Rajendran, & Theiler, 2012). By having high degrees of both job demands and job resources, academics might therefore be more susceptible to both positive and negative work related outcomes (Hakanen, Schaufeli, & Ahola, 2008). Examining the effects of work engagement on academics' work-home balance may therefore be of particular relevance.

Using the Conservation of Resources (COR) theory (Hobfoll, 1989) as a theoretical framework, the present study contributes to existing research in several ways. Firstly, when examining the relationship between work engagement and work-home interaction, few studies have included both the positive (i.e. facilitating) and negative (i.e. conflict) aspects of the interaction between work and home life (Hakanen, Rodríguez-Sánchez, & Perhoniemi, 2012; Hakanen & Peeters, 2015). Considering that studies have indicated that conflict and facilitation are distinct rather than opposite constructs (e.g. Innstrand, Langballe, & Falkum, 2010), it is important to investigate both relationships (i.e. work-home facilitation and work-home conflict) in order to get a full understanding of how being engaged at work may affect employees' private lives. Secondly, few studies have examined which parts of engagement are most important to this interaction. For instance, studies have found that one of the work engagement subscales, 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 therefore provide a deeper insight into its relationship with the work-home interaction. Using a large sample of academic workers from the university sector in Norway, the present study thereby contributes to the existing literature by examining the relationship between vigour, dedication, and absorption at work and academics' work-home interaction.

Theoretical Framework

Work-Home Interaction (WHI) has been defined as "a process in which one's functioning (and behaviour) 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). This interaction, as indicated by the definition, may be bidirectional, meaning that not only may work influence home life (e.g. work-home conflict), but also home life may influence work life (e.g. home-work facilitation). However, since the aim of this study was to examine the relationship between being engaged at work and 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).

In order to better understand the interaction between work and home life and its relationship with work engagement, we draw upon the Conservation of Resources (COR) theory (Hobfoll, 1989). The basic tenet of COR theory is that people have a deeply rooted motivation to obtain, retain, and protect what they value, labelled 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). Both work and home life are comprised of a range of such resources that are valued and sought after, such as "learning opportunities", "support from co-workers", and "time with loved ones". 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 (Hobfoll, 1989).

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 actual and perceived loss of resources is enough to produce stress. When confronted with threats of loss, individuals are therefore predicted to strive to minimise 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). However, according to COR theory, resources are not equally distributed. This implies that those who lack strong resource pools are more vulnerable to spirals of resource loss. Consequently, if an individual is not able to combat a resource loss cycle, this may lead to a state of chronic stress, such as burnout (Langballe, Innstrand, Aasland, & Falkum, 2011). On the other hand, individuals with a surplus of resources have been found to be more 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" and "resource caravans" (Salanova et al., 2008). Such resource surpluses are further expected to create positive experiences, such as increased well-being and better health (Hobfoll, 1989; Salanova et al., 2008).

For instance, in line with COR theory's resource gain perspective, research has shown that participating in multiple roles at work and at home can lead to beneficial outcomes, such as increased job satisfaction, affective commitment, life satisfaction, and better health (McNall

et al., 2010). Such positive synergies between work and home life has been explored under a variety of different labels, such as enrichment, positive spill over, enhancement, and facilitation (Culbertson et al., 2012; Greenhaus & Powell, 2006; Wayne et al., 2007). In this study, the term facilitation will be used. Work-home facilitation (WHF) refers to the experience where 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). Studies have found evidence for several types of gains, including both instrumental (e.g. acquisition of skills and knowledge) and affective gains (e.g. alterations in moods, attitudes, or confidence) (Carlson, Kacmar, Wayne, & Grzywacz, 2006; Greenhaus & Powell, 2006; Wayne et al., 2007). These have been found to improve performance in other domains by enhancing basic processes vital to domain performance, such as problem solving or interpersonal communication (Wayne et al., 2007).

Another positive outcome that has been linked to having high levels of resources is work engagement (Bakker & Bal, 2010; Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007; Bakker & Demerouti, 2007; Schaufeli, Bakker, & van Rhenen, 2009). Studies have found that job and personal resources have a positive impact on work engagement, which, in turn, seems to reinforce both types of resources. Work engagement is therefore argued to facilitate the mobilization of resources as engaged employees are more likely to create resourceful work environments for themselves (e.g. ask a colleague for help) (Hakanen, Perhoniemi, & Toppinen-Tanner, 2008; Xanthopoulou et al., 2009). These resource spirals have been further found to lead to positive individual outcomes, such as increased well-being, mental health, and life satisfaction (Hakanen & Schaufeli, 2012; Hakanen et al., 2012; Shimazu & Schaufeli, 2009). Current research, thus, indicates that work engagement is largely beneficial for both individuals and organisations.

In line with this positive view of engagement, research investigating the relationship between engagement and the work-home interaction (WHI) has mostly focused on the 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 partially mediated the relationship between job resources (i.e. family-friendly organisational policies, supervisor support, colleague support, and job autonomy) and work-family enrichment. In another study, 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. Previous research thereby indicate that work engagement can contribute to work-home facilitation through both instrumental (i.e. job resources) and affective pathways. In line with the findings of previous research, the present study therefore predicts that employees who experience their work as engaging will also perceive their work to have a positive effect on their home life. The first hypotheses of this study is, therefore, as follows:

Hypothesis 1: Work engagement is positively related to work-home facilitation (WHF)
a: Vigour is positively related to WHF
b: Dedication is positively related to WHF
c: Absorption is positively related to WHF

However, diverting from the positive view of engagement, some researchers have begun to question whether the tendency to be highly involved and hardworking might also negatively affect employees' work-home balance, by increasing their work-home conflict (George, 2011; Halbesleben et al., 2009; Halbesleben, 2011). 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 work and home life (Innstrand, 2009). For instance, experiencing high workload may leave fewer resources available for family demands, thus creating a conflict between the work and home domains. Such inter-role conflicts have been found to have detrimental effects on both individual employees and organisations, by causing negative outcomes such as depression (Grzywacz & Bass, 2003), low job satisfaction (Allen et al., 2000), absenteeism (Hammer, Bauer, & Grandey, 2003), turnover intentions (Boyar, Maertz, Pearson, & Keough, 2003), and burnout (Langballe et al., 2011). Work-home conflict can thereby place an enormous toll on both individuals and their social environment.

Although COR theory has been used to explain how work engagement can lead to positive outcomes for individuals (Salanova et al., 2008), in a study by Halbesleben et al. (2009), a less studied tenet of COR, resource investment, was used to argue why engaged employees might experience more work-home conflict than their colleagues. Halbesleben et al. (2009) argue that highly engaged individuals are likely to invest their excess resources back into work by doing their jobs exceptionally well or by performing extra-role behaviours. 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, thereby increasing their work-home conflict (Edwards & Rothbard, 2000). 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 organisational citizenship behaviours.

However, in contrast to Halbesleben et al.'s (2009) findings, a more recent study by Hakanen and Peeters (2015) indicated that work engagement had the opposite effect on the work-home interaction. In their 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.

Although these recent findings point towards a favourable 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, church ministers reported high levels of both work-home conflict and work-home facilitation. Innstrand, Langballe, and Falkum (2010) explain these results by arguing that the role of church ministers is characterised by highly permeable borders between the work and home domains, and that this profession therefore differs 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 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 a high workload and task overload (Gillespie, Walsh, Winefield, Dua, & Stough, 2001; Houston, Meyer, & Paewai, 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, Morley, & Watty, 2003; Harman, 2003). Like church ministers, academics are, therefore, argued to have a high intrinsic motivation, and to experience their work as very meaningful, rather than being primarily motivated by extrinsic factors, such as salary or working conditions (Bellamy et al., 2003; Innstrand, Christensen, Undebakke, & Svarva, 2015). Because of having 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. Thus, the second hypotheses of this study is as follows:

Hypothesis 2: Work engagement is positively related to work-home conflict (WHC)
a: Vigour is positively related to WHC
b: Dedication is positively related to WHC
c: Absorption is positively related to WHC

Methods

Study Design

The data for this study 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"). The ARK Intervention Program 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 KIWEST (Knowledge-Intensive Work Environment Survey Target) is an important part of this program. It is a work environment questionnaire especially adapted for application in knowledge-intensive workplaces, and includes the most important psychosocial factors for academic work environments.

The data for this study 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. Of the 18,599 persons invited to take the survey, 12,170 persons responded, thus giving a response rate of 65 per cent.

For the purposes of this study, a total of 4378 respondents were included in the analyses. The participants consisted of employees working as academic staff in the university sector in Norway (e.g. professors, researchers, associate professors, postdoc). PhD students and other university staff were excluded from the sample in order to ensure the interpretability of the results, as we believe these might be subjected to different job resources and demands than other academic staff. All of the participants had higher education, with a master's or doctorate degree. Of the participants, 56.5 per cent ($n = 2474$) were men and 45.5 per cent ($n = 1903$) were women. Most were between the ages of 50–59 (28%), 40–49 (27%), and 30–39 (19%).

Measures

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, and Salanova (2006). The scale consists of nine items measuring the subscales of vigour, 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*"). Vigour was measured using questions such as "I feel strong and energetic at work", while dedication and absorption were 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.

Work-home conflict and work-home facilitation. Employees' experiences of work-home facilitation and conflict were 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-home facilitation was originally measured by four questions such as "The things I do at work help me deal with personal and practical issues at home". However, one of the items displayed a weak loading during the preliminary analyses (i.e. "Having a good day at work makes me a better companion when I get home"). Based on recommendations from previous studies (e.g. Innstrand et al., 2009), this item was therefore removed. Three items thereby measured work-home facilitation. 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. Previous research has indicated that demographic variables such as gender, age, and family structure have a significant effect on individuals' work-home balance (e.g. Byron, 2005; Innstrand et al., 2009; Innstrand, Langballe, Espnes, Aasland, & Falkum, 2010). As the data for this study was collected as part of a working environment survey, family structure was not available as a demographic. However, gender and age were both included as control variables.

Statistical Analysis

Firstly, descriptive analyses, as well as a correlation analysis, were conducted using SPSS. Then, in order to test the hypotheses derived from the study's research model, a Partial Least Squares-Structural Equation Modelling (PLS-SEM) analysis was conducted using XLSTAT (Addinsoft, 2015). Structural equation modelling involves the application of statistical methods that simultaneously analyse multiple variables and, thus, enables the researcher to incorporate unobservable variables measured indirectly by indicator variables (Hair, Hult, Tomas, Ringle, & Sarstedt, 2014). A PLS-SEM analysis was chosen over the more widely applied Covariance-Based SEM (CB-SEM), due to its superiority in handling complex models and non-normally distributed data (Hair et al., 2014).

The PLS-SEM analysis was conducted in order to test the direct effects of the work engagement subscales (i.e. vigour, dedication, and absorption), as well as the control variables (i.e. gender and age), on the outcome variables. 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. Since the path coefficients' p-values do concur with the results of the bootstrap confidence intervals, we choose to report the p-values along with beta coefficients.

The PLS-SEM model was analysed 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.

To start with, the reflective measurement model was assessed for its 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. According to Chin (1998), 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. In this study, Dillion-Goldstein's rho (D.G rho) was therefore applied.

Results

Descriptive Statistics

Table 1 displays the means, standard deviations, and the correlations between the study variables. As can be seen from this table, the correlation analysis indicated that all of the work engagement subscales (i.e. vigour, dedication, and absorption) correlated positively with work-home facilitation and negatively with work-home conflict.

PLS-SEM Analysis

Measurement model. 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,

Table 1: Mean, Standard Deviations, and Correlations among Study Variables (N = 4378).

Variables	M	SD	1	2	3	4	5
1. Vigour	4.73	1.03					
2. Dedication	4.92	1.05	.74*				
3. Absorption	4.54	1.09	.58*	.71*			
4. Work-home facilitation	3.17	0.60	.31*	.37*	.27*		
5. Work-home conflict	3.11	0.85	–.32*	–.26*	–.12*	–.21*	
6. Gender			.33*	.10	.00	.06*	.06*
7. Age			.12*	.08*	.01	–.02*	–.07*

*p < .05, two-tailed.
Note. Gender was dummy coded with 1 = females, 0 = males.

according to Hair et al. (2014), is not recommended, as this might indicate that the items of a construct are redundant. However, they did not overstep the critical value of 0.95.

Convergent validity was established by examining the outer loadings of the indicators, as well as the average variance extracted (AVE). According to the assessment of the indicator reliability, all of the reflective indicators showed outer loadings above the recommended level of 0.70 (Hair et al., 2014). Furthermore, all of the variables showed AVE values above the critical value of 0.50, which provides support for the measures' convergent validity.

The Fornell-Larcker criterion was applied to assess the construct's discriminant validity. This criterion requires that the squared correlations of all other constructs 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**).

Structural model. As can be seen in **Table 4**, dedication (b = .309, p < .01) had the strongest relationship with WHF, while vigour (b = .117, p < .01) had a slightly weaker relationship. Absorption however, was not significantly related to WHF. The second hypothesis predicted a positive relationship between vigour, dedication, absorption, and work-home conflict. The findings revealed a significant positive relationship between absorption and WHC (b = .139, p < .01), and significant negative relationships between vigour (b = –.287, p < .01), dedication (b = –.167, p < .01), and WHC (see **Figure 1**).

Assessing the study's control variables, gender and age, revealed that women experience both higher work-home conflict (b = .130, p < .01) and higher work-home facilitation (b = .079, p < .01) than men. Age showed a significant negative relationship with work-home conflict (b = –.051, 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**).

Finally, evaluating the effect sizes revealed that the beta coefficients reported in this study all exhibited meaningful influences, with vigour's relationship with facilitation

Table 2: Study Variables' Internal Consistency and Convergent Validity.

Variables	Loading	D.G rho	AVE
1. Vigour		0.92	0.79
UWES1	0.90		
UWES2	0.91		
UWES3	0.86		
2. Dedication		0.93	0.82
UWES4	0.93		
UWES5	0.94		
UWES6	0.85		
3. Absorption		0.90	0.75
UWES7	0.90		
UWES8	0.88		
UWES9	0.80		
4. Work-home facilitation		0.82	0.61
WHF1	0.78		
WHF2	0.81		
WHF4	0.74		
5. Work-home conflict		0.87	0.62
WHC1	0.72		
WHC2	0.82		
WHC3	0.79		
WHC4	0.81		

Table 3: Discriminant Validity Test of Study Variables.

Variables	1	2	3	4	5
1. Vigour	**0.79**				
2. Dedication	0.57	**0.82**			
3. Absorption	0.38	0.57	**0.75**		
4. Work-home facilitation	0.12	0.15	0.08	**0.61**	
5. Work-home conflict	0.10	0.07	0.02	0.08	**0.62**

Note. The squared correlations are below the diagonal, while the diagonal elements (in bold) are the AVE estimates.

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

		Bootstrap Confidence Intervals	
Variables	**Value**	**Lower bound (95%)**	**Upper bound (95%)**
1. Work-home facilitation			
Vigour	.117**	0.069	0.162
Dedication	.309**	0.258	0.364
Absorption	–.011	–0.056	0.035
Gender	.079**	0.051	0.109
Age	–.010	–0.036	0.019
2. Work-home conflict			
Vigour	–.287**	–0.331	–0.244
Dedication	–.167**	–0.221	–0.118
Absorption	.139**	0.097	0.182
Gender	.130**	0.101	0.157
Age	–.051**	–0.080	–0.022

WHF: R^2 = .166, WHC: R^2 = .137.
Note. **p < .01, two-tailed.

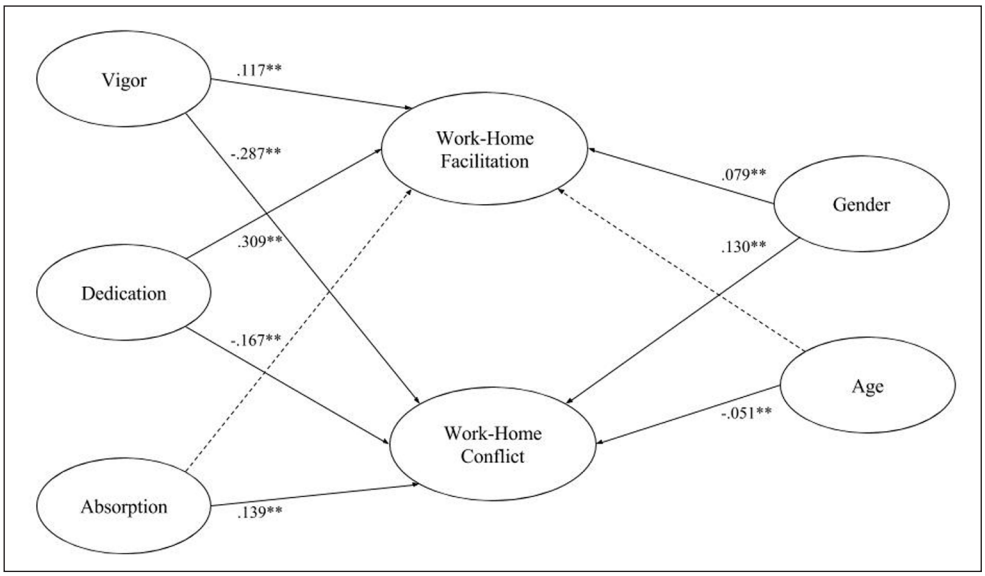

Figure 1: Displays the significant effects of the PLS-SEM analysis. The gender variable was dummy coded with 0 = males and 1 = females.
**p < .01, two-tailed; ---p > .05, two-tailed.

and dedication's relationship with facilitation having the smallest and largest association, respectively (see **Table 4**) (Keith, 2006). Work-home conflict exhibited a coefficient of determination (R^2) value of .137, while work-home facilitation exhibited a slightly higher R^2 value of .166. This indicates that the model accounts for around 16 per cent of the outcome variables' variance.

Discussion

The aim of this study was to examine the relationship between being engaged at work and employees' work-home interaction through both work-home facilitation and work-home conflict. In line with the prediction of this study, the results indicated that feelings of vigour and dedication was positively related to work-home facilitation. Hypotheses 1a and 1b was therefore supported. However, absorption was not significantly related to WHF. Hypothesis 1c was therefore not supported. Vigour and dedication both displayed negative relationships with WHC, thus hypotheses 2a and 2b were not supported. Nevertheless, the PLS-SEM results indicated that absorption was positively related to work-home conflict. Although this supports our hypothesis 2c, these results stand in contrast to the correlation analysis, which indicated a negative relationship between absorption and WHC. An alternative explanation for these findings could be the potential presence of a suppression effect among the variables due to the high correlation between the engagement subscales. A positive or net suppressor effect indicates a variable that has a negative correlation with the dependent variable, but positive beta coefficients in a regression equation (Tabachnick & Fidell, 2000). Overall,

the results of this study indicate that work engagement is mostly positive for employees' work-home balance, but that individuals may become so absorbed in their work that this negatively influence their home lives.

Previous studies on work engagement and work-home interaction have found that work engagement contributes to work-home facilitation through job resources and positive emotions that spill over into employees' home lives (Culbertson et al., 2012; Rodríguez-Muñoz et al., 2014; Siu et al., 2010). The present study provides support for these findings, as the work engagement subscales, vigour and dedication, were found to be positively related to work-home facilitation. More specifically, it seems that feeling dedicated to one's job might be the most important dimension in order for engaged employees to experience positive spill over effects from work to their home life, while vigour had a weaker association with WHF. This indicates that feeling inspired, enthusiastic, and proud of one's job may be the triggering factor that leads employees to develop the positive emotions and resource surpluses that 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 (2015) in their longitudinal study of the relationship between core self-evaluations, vigour, and work-family enrichment. They argued that due to its energetic characteristics, vigour would be more likely to facilitate performance and quality of life in other life domains, rather than feelings of dedication and absorption. It would therefore be interesting for future research to investigate the long-term effects of vigour, dedication, and absorption at work in relation to work-home facilitation in order to determine their individual contributions to the work-home interaction.

However, in line with COR theory and Halbesleben et al.'s (2009) argument, the results of this study also indicate that being engaged is negatively related to employees' 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. The results of this study indicate that engaged employees may also, perhaps unconsciously, invest resources by being engrossed in their work. This study thereby builds on the results of Halbesleben et al. (2009), which found that engaged employees participated more in organisational citizenship behaviours, further leading 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 their work and private lives.

Nevertheless, the relationship between absorption and work-home conflict can be related to previous studies, which 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 others, 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, vigour and dedication, had significant negative relationships with work-home conflict. More specifically, vigour was found to have the strongest relationship with work-home conflict of all three dimensions, while dedication had the weakest relationship. It therefore seems that feeling energetic and vigorous about one's job may outweigh the negative effect of absorption, thereby causing an overall positive relationship with 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). It also highlights the importance of examining the subscales of work engagement separately, in order to gain a deeper insight into its relationship with important outcomes.

Why did Halbesleben et al. (2009) then find that work engagement predicted work-home conflict? One possible explanation could be that significant cultural differences between the Unites States and Norway affect the amount of freedom that the participants have in managing their work and home domains. 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). In addition, Norway has quite an extensive Working Environment Act which, amongst other things, 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 legitimising 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 influence antecedents and outcomes of work-home interaction.

In addition to the main variables in the model, this study also measured the effects of gender and age in relation to work-home interaction. The results indicated that women experienced both more work-home conflict and

more work-home facilitation than men did. 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, their results indicated that women, in general, experience significantly more work-home conflict and work-home facilitation than men do. Considering that Norwegian couples have been found to be highly equal in sharing home responsibilities (Rydenstam & Vaage, 2008), Innstrand et al. (2009) argue that work-home conflict and facilitation is 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, the results of this study 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

This study provides further insight into the relationship between work engagement and work-home interaction by examining the subscales of engagement separately on a large sample of academic workers. However, it is important to mention some limitations. First, although the size of the sample provides support for the generalisability of the findings, the sample was quite homogenous considering the participants consisted of academics working in Norwegian universities. For instance, the mean level of work engagement among the participants in this study was rather high with quite a small variation. This could limit the opportunities for generalisation. Furthermore, as previously mentioned, Norway has a much more supportive work-life culture compared to other countries, such as the U.S. Although other knowledge workers in the Nordic countries may have similar working conditions, one should be careful not to generalise the findings too far beyond the sample of this study. Secondly, the design of the study was cross-sectional. This increases the risk of common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) and greatly limits the ability of this study to draw conclusions regarding cause-effect relationships among the study variables. Although this study provides some interesting insight, longitudinal research is therefore needed before one can draw any conclusions regarding the effect of the work engagement subscales on work-home facilitation and work-home conflict. Nevertheless, the fact that the KIWEST measures are based on previously validated scales from the occupational health literature (Innstrand et al., 2015) provides support for the validity and reliability of this study.

Lastly, we argue in this study that the relationship between work engagement and the work-home interaction can largely be explained by the amount of job and personal resources that individuals have, as well as how these resources are reinvested. This link is however dependent upon previous research indicating the importance of resources to these constructs. Future research would therefore benefit from including job resources as mediating variables in order to explain the relationship between work engagement and the work-home interaction.

Implications and Suggestions for Future Research

Despite its limitations, the present study provides insight into the relationship between work engagement and work-home interaction that should be of interest for future research. Firstly, the results of this study indicate that increasing employees' feelings of dedication might be the most important part of engagement for increasing their work-home facilitation, while feeling vigorous has a significant negative relationship with work-home conflict. These findings provide support for studies indicating that work-home facilitation and work-home conflict are distinct 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 spill over 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 future research. For instance, in a study on daily work engagement and proactive behaviour, 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 individuals 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 vigour 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 provide some further support for these arguments, given that, while vigour 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, as this might provide valuable insight into its relationships with important outcome variables.

Conclusion

Although work engagement has been highlighted for its positive relationships with important organisational 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 seems that work engagement does in fact have the potential to create inter-role conflicts. However, in line with the positive view of engagement, the results of this study also indicate that feeling vigorous and dedicated to one's job might be beneficial for individuals' home life, by having positive relationships with work-home facilitation and negative relationships with work-home conflict. It therefore seems that work engagement may come with both pros and cons, thus highlighting the importance for future studies of examining the subscales of work engagement separately, in order to gain a full understanding of the possible consequences attached to being engaged at work.

Competing Interests

The authors have no competing interests to declare.

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