

Proactive Vitality Management, Work Engagement, and Creativity: The Role of Goal Orientation

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This study tested the hypothesis that individuals can proactively manage their own energetic, affective, and cognitive resources in order to be creative at work. Building on proactivity and creativity literatures, we propose a theoretical model in which employees who proactively manage their vitality are more engaged in their work and show improved creative performance. We also tested the boundary conditions of this process. Participants were Dutch employees from various occupations who filled out a background questionnaire and five weekly surveys. The results of multilevel modelling analyses offered support for our model. Weekly proactive vitality management was positively related to changes in weekly creativity through changes in weekly work engagement. As predicted, learning goal orientation strengthened and performance goal orientation weakened the links between proactive vitality management and engagement, and between engagement and creativity. We discuss the theoretical contributions, and indicate how these findings can be used in daily working life.

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INTRODUCTION

It is generally assumed that organisations need to be creative in order to stay ahead of a changing marketplace and competitors. This is easier said than done. Creative employees need to pose questions that challenge common wisdom. They also need to observe well and scrutinise the behaviours of customers, suppliers, and competitors to identify new ways of doing things. Moreover, creative ideas originate when people are flexible in their thinking and persistent (Nijstad, De Dreu, Rietzschel, & Baas, 2010)—two strategies that demand considerable energetic, affective, and cognitive resources.

In the present study, we argue that employees are not creative all the time and may need to proactively manage their own resources to reach creativity. More specifically, we use the proactivity literature (Frese & Fay, 2001; Parker, Williams, & Turner, 2006) to argue that employees who proactively build energy, inspiration, and motivation (i.e., “proactive vitality management”; Op den Kamp, Tims, Bakker, & Demerouti, 2018) will be more engaged and creative at their work. For example, individuals may actively work on their own motivation during or after working hours by networking to meet people with different ideas and perspectives. Similarly, individuals may take a walk in the park during the workday with the intention to change one’s psychological state, or may visit an art gallery with the goal to find new inspiration. We also investigate the boundaries of this proactive behaviour by examining the impact of learning versus performance goal orientation.

With this research, we aim to make the following contributions. First, whereas most scholars have focused on more distal environmental and personality factors as predictors of (work-related) creativity, we focus on a more proximal predictor of creativity—proactive vitality management. Second, although previous research has shown that energy, positive affect, and focus relate positively to creativity, most scholars have overlooked the possibility that employees may *proactively manage* such energetic, affective, and cognitive resources to be creative. This bottom-up approach originates from the proactivity literature and could be an important addition to more common top-down approaches to creativity. Third, we use a 5-week follow-up study design to test whether proactive behaviour aimed at vitality management is positively related to creativity, through work engagement. We complement previous cross-sectional and longitudinal survey studies on proactivity, work engagement, and creativity with a weekly follow-up study and aim to show that employees can influence their own creativity, from week to week. The design of our study implies that we do not have complete control over causality. However, we will control for previous levels of the outcome variables in the analyses. When we refer to a causal or indirect relationship in this article, the reader should be aware that causality is assumed and cannot be claimed. Finally, we contribute to the goal setting and goal orientation literatures by

investigating how goal orientation, as a motivational moderator variable, influences this creativity process. Since goal orientation determines employees' self-regulatory tactics, including their effort, persistence, and learning strategies (Brett, Uhl-Bien, Huang, & Carsten, 2016), goal orientation potentially has important implications for how proactive vitality management is related to work engagement and how engagement is related to creativity.

THEORETICAL BACKGROUND

In a highly competitive business world where the rate of change has been accelerating, organisations constantly need new ways to create value for their customers. Therefore, modern organisations are interested in creativity and new methods to facilitate creative performance. Creativity refers to the generation of ideas, insights, or problem solutions that are both novel and potentially useful (Amabile, 1997; Anderson, De Dreu, & Nijstad, 2004). Research suggests that organisations can stimulate creativity by structural interventions. For example, organisational factors like support for innovation, job complexity, climate for excellence, and supervisor empowerment are positively related to creativity (Anderson, Potočnik, & Zhou, 2014). Thus, managers could presumably follow a top-down approach and stimulate creativity by designing resourceful and challenging jobs that signal an innovation climate. In addition, research has revealed that personality factors like openness to experience and proactive personality are positively related to creativity (Feist, 1998; Ma, 2009). This suggests that managers could also stimulate creativity by implementing adequate personnel selection procedures.

It is important to note that personality and work environments are able to predict creativity, but that more proximal predictors are needed in order to explain how personal and environmental characteristics influence creativity. Daniels (2006) has argued that individuals must "enact" job characteristics such as autonomy in order for stable job characteristics to have an impact on organisational outcomes. By using the freedom to work with self-chosen methods on a certain day, people feel a sense of volition, and this may be the reason why autonomy ameliorates strain, frees the mind, and fosters creativity on that day. The same is true for personality factors. Openness to new experiences is a relatively distal predictor of creativity (Ma, 2009), but it may explain how some individuals learn from challenging tasks whereas others who are less open to new experiences become stressed. Similarly, proactive personality (Kim, Hon, & Lee, 2010) and creative self-efficacy (Tierney & Farmer, 2002) are positively related to creativity, but if individuals do not express these personality characteristics in certain situations or during certain timeframes, they are not likely to be creative in those situations and timeframes. Indeed, research has shown that personality often has its influence

on creativity through proximal variables like positive affect and behavioural strategies that facilitate creative idea production (Shalley, Zhou, & Oldham, 2004).

Proactive Vitality Management

Our starting point is that creative ideas demand considerable energetic, affective, and cognitive resources because creativity requires flexible thinking and persistence (Nijstad et al., 2010). Loosely connected ideas and impressions can only lead to a creative solution if individuals have sufficient psychological resources to flexibly switch between options and to persist until the solution has been found. Indeed, previous research has provided ample evidence for the contention that cognitive, affective, and energetic resources are important for creativity (Baas, De Dreu, & Nijstad, 2008; Hennessey & Amabile, 2010; Ning, Wu, Runco, & Pina, 2015).

For example, De Dreu and his colleagues have provided convincing evidence for the contention that cognitive resources like attention and concentration are crucial for creativity (De Dreu, Nijstad, Baas, Wolsink, & Roskes, 2012). The authors assessed working memory capacity (WMC) by asking participants to engage in several trials of a delayed serial recognition task. The persons who scored higher on WMC turned out to perform better on a creative insight task. In contrast, participants whose WMC was taxed showed reduced creative performance. These findings were replicated in another study among semi-professional cellists who were asked to improvise on three music themes (De Dreu et al., 2012; Study 3).

In addition, research has shown that affective and energetic resources are important for creativity (Amabile, Barsade, Mueller, & Staw, 2005; Kark & Carmeli, 2009). Amabile and her colleagues used a daily event sampling method to investigate more than 200 employees working in one of 27 project teams for which creativity was a possible and desirable outcome (e.g., developing new products, solving complex client problems). Participants completed an average of 52 daily questionnaires. The findings showed that self-reported positive affect and coders' ratings of positive affect in participants' daily narratives were predictive of coders' identifications of spontaneously reported creative thought and problem solving in the narratives.

The central proposition in the present study is that individuals can *proactively manage* their own, volatile energetic, affective, and cognitive resources in order to improve their own well-being and performance (Op den Kamp et al., 2018). Proactivity has more generally been defined as “self-initiated and future-oriented action that aims to change and improve the situation or oneself” (Parker et al., 2006, p. 636). We define proactive vitality management as a specific form of proactive behaviour aimed at oneself by improving

one's own physical and psychological state. Building on Parker, Bindl, and Strauss (2010), we argue that proactive vitality management fits well within the elaborate framework of proactive motivation provided by these authors. More specifically, whereas proactive goal generation and striving refer to more general proactive goal-driven processes, proactive vitality management may be seen as a specific form of proactivity that may indeed fall under the proactive goal generation process, and more specifically under the umbrella of proactive person-environment fit behaviour (Bindl & Parker, 2010; Parker & Collins, 2010). Namely, proactive vitality management has a clear goal (being able to function at work and achieve work-related goals), and people strive to achieve this goal by engaging in self-initiated strategies to manage their physical and mental energy. When using proactive vitality management, people are not changing the work environment, but rather they are changing (aspects of) *themselves* to achieve a different future (cf. Parker et al., 2010). Due to the proactive nature of proactive vitality management, it is expected that individuals engage in this behaviour when they think they can perform the behaviour that is needed ("can do motivation"), have a reason to behave in a proactive way ("reason to motivation), and feel they have the resources to engage in the behaviour ("energized to motivation"; Parker et al., 2010).

As proactive vitality management entails individual, goal-oriented behaviour, we propose that individuals may proactively manage their physical and mental energy according to their personal needs and preferences (i.e., how, where, and when). For example, whereas some employees may use mindfulness to manage their physical and cognitive resources so that they are fit for work (Quoidbach, Hansenne, & Mikolajczak, 2010; Kühnel, Zacher, De Bloom, & Bledow, 2016), others may visit a museum to find new inspiration, or take a walk in the park with the intention to change one's psychological state (Sianoja, Syrek, De Bloom, Korpela, & Kinnunen, 2018). These examples refer to differences between individuals in proactive vitality management. Also, the same person may at certain times proactively search for interactions with colleagues in order to discuss work and find inspiration, and at other times decide to ignore colleagues, phone calls, and e-mails to be able to concentrate. The latter examples refer to differences in proactive vitality management *within* individuals, from time period to time period. All these forms of proactive vitality management may prepare employees to deal effectively with their work tasks.

It should be noted that not all activities are equally effective or beneficial for all individuals at all times. Individual preferences or work-schedule factors may influence whether specific proactive vitality management strategies work or not (cf. Oerlemans & Bakker, 2014; Sonnentag, Venz, & Casper, 2017). Moreover, research suggests that engaging in preferred activities requires less effort and may be most beneficial in terms of physical and mental energy

(Trougakos & Hideg, 2009). Accordingly, we propose that proactive vitality management may promote various work-related outcomes—regardless of the specific behavioural strategies people choose to employ.

Employees who manage their energy, positive affect, and inspiration through activities in and outside the workplace have a range of resources that can be invested in work. Thus, proactive vitality management has the potential to foster work engagement—a work-related state that is characterised by vigour, dedication, and absorption (Schaufeli & Bakker, 2004). Vigour refers to high levels of energy and resilience while working, as well as the willingness to invest considerable effort in one's work. Dedication means that a person is strongly involved in work and experiences a sense of significance, enthusiasm, and challenge. Finally, absorption is characterised by being fully concentrated and happily engrossed in work activities, whereby time passes quickly (Bakker, Demerouti, & Sanz-Vergel, 2014). Previous research has indeed suggested that energetic, affective, and cognitive resources are important for work engagement. For example, quantitative diary studies have shown that positive affect and energy in the morning facilitate work engagement during the workday (e.g., Sonnentag, Dormann, & Demerouti, 2010; Ten Brummelhuis & Bakker, 2012). In addition, recent research has shown that daily inspiration and optimism are important drivers of daily work engagement (Tims, Bakker, & Xanthopoulou, 2011; Breevaart, Bakker, Hetland, Demerouti, Olsen, & Espevik, 2014). We propose that individuals may proactively manage these volatile resources with the intention to change their work engagement. Hence,

Hypothesis 1: Proactive vitality management is positively related to work engagement.

Work engagement is positively related to creativity, because engaged employees are flexible in their thinking and invest considerable effort in their work (e.g., Bakker & Xanthopoulou, 2013; Koch, Binnewies, & Dormann, 2015; Eldor & Harpaz, 2016). When employees are highly engaged in their work, they are open to new ideas on how to optimise and change their work processes. Work engagement provides employees with intrinsic task motivation that is a necessary component for reaching creative solutions (Amabile, 1997). That is, those who are engaged will be motivated to use their skills and expertise that are needed to perform creatively (Bakker & Xanthopoulou, 2013). Furthermore, the positive experience of work that is part of feeling engaged can also be linked to the propositions of broaden-and-build theory (Fredrickson, 2001), which states that positive affect allows individuals to widen their thoughts and actions making them more likely to think outside of the box and explore alternatives when they find their work enjoyable and interesting.

In their study among employees working in industry, trading, business services, and health care, Demerouti, Bakker, and Gevers (2015) showed that employees who regularly optimise their work environment by seeking job resources (i.e., job crafting) show better creative performance because they are more engaged in their work. We expand this literature by arguing that proactive vitality management can foster creativity, because it increases employee work engagement. Given the above reasoning that proactive vitality management is likely to be related to work engagement because of the mobilised energy, positive affect, and inspiration, we expect that work engagement acts as an explanatory mechanism between proactive vitality management and creativity. That is, resources are important predictors of work engagement (Bakker et al., 2014) and the positive emotions that are part of work engagement allow individuals to be flexible, explorative, and creative (Fredrickson, 2001). Research indeed supports this assertion, showing that work engagement explains the relationship between job resources and personal initiative (Hakanen, Riku, & Toppinen-Tanner, 2008), creativity (Bakker & Xanthopoulou, 2013), and innovative behaviour (Park, Song, Yoon, & Kim, 2014). However, because cognitive, affective, and energetic resources are linked directly to creativity (Baas et al., 2008; Hennessey & Amabile, 2010; Ning et al., 2015), we expect that proactively creating opportunities to gain these resources may also result in a direct relationship between proactive vitality management and creativity.

Hypothesis 2: Proactive vitality management is indirectly positively related to creativity through work engagement.

The Role of Goal Orientation

Goal orientation (GO) theory outlines how individuals use adaptive or maladaptive self-regulatory behaviours in achievement settings. Accordingly, people hold one of three types of GOs: Learning goal orientation (LGO)—a desire to develop mastery through learning, seeking challenges, and acquiring new skills; performance-prove GO (PPGO)—a desire to prove competence to gain favourable evaluations from others; and performance-avoidance GO (PAGO)—a desire to avoid displays of incompetence that could lead to negative judgments (VandeWalle, 1997; Dragoni & Kuenzi, 2012; Gong, Kim, Lee, & Zhu, 2013; Brett et al., 2016). In the present study, we focus on LGO and PAGO, because these two orientations are expected to have predictable and rather differential effects on the creativity process.¹

¹Unfortunately, in the present study, the scale measuring PPGO had low internal consistency (Cronbach's alpha = .57), and thus it was impossible to calculate reliable interaction terms. We therefore decided to exclude PPGO from our theoretical and empirical analyses.

GO has a powerful impact on job performance and creativity, because GO determines employees' self-regulatory tactics, including their effort, self-set goals, feedback seeking, persistence, and learning strategies (Brett et al., 2016). Since GOs influence approach/avoidance motivation and openness to experience (Payne, Youngcourt, & Beaubien, 2007), GOs have important implications for (a) how proactive vitality management relates to work engagement, and (b) how work engagement relates to creativity.

Proactive Vitality Management and Work Engagement

When employees proactively manage their vitality, they have an abundance of affective, cognitive, and energetic resources to carry out their work tasks (e.g., positive affect, focus, inspiration, energy). These resources will particularly be invested in work when employees have a strong desire to develop mastery at work through learning. Employees who hold learning goals seek work-related challenges (Porath & Bateman, 2006), and are enthusiastic about the initiatives they undertake (Janssen & Van Yperen, 2004). They will actively search for possibilities to use and develop a variety of skills, and this will have a positive impact on work engagement. In contrast, employees who lack learning goals will spend their mental and energetic resources on ongoing work activities and will not search for ways to enrich their work or make it more exciting. Moreover, those low in LGO will not persist when confronted with hindrances or challenge job demands.

Furthermore, when employees hold performance avoidance goals, they may proactively manage their resources but the potential of these resources will not be used to go the extra mile. Employees high in PAGO primarily aim to circumvent displays of incompetence that could lead to negative judgments or embarrassment (VandeWalle, 1997). They avoid taking new initiatives at work in order to prevent the risk of failure (Belschak & Den Hartog, 2010). This means that for employees high in PAGO, the affective, cognitive, and energetic resources mobilised through various activities will not lead to more work engagement. In contrast, employees low in PAGO are not afraid of making mistakes and will be able to allocate all the new resources to their work tasks. Therefore, they are more likely to be dedicated to work and get immersed in their work activities (i.e., be work engaged) when they have proactively managed their vitality in or outside the work domain.

Hypothesis 3: The positive relationship between proactive vitality management and work engagement is moderated by goal orientation. More specifically, this relationship is (a) stronger when employees have a learning goal orientation, and (b) weaker when employees have a performance avoidance goal orientation.

Work Engagement and Creativity

Work engagement is positively related to creativity, because engaged employees are persistent and show cognitive flexibility (Koch et al., 2015; Eldor & Harpaz, 2016). This flexibility and persistence will particularly lead to creative performance when combined with a desire to develop mastery at work through learning, because creativity is often the result of a long trial-and-error process. Employees high in LGO question the status quo (Porath & Bateman, 2006), and will be most likely to be creative when they persist in the face of difficulties (i.e., high work engagement; Schaufeli & Bakker, 2010). People who are engaged in their work find their job tasks interesting and challenging, which combined with LGO is channelled towards more creativity. When engagement is combined with a low LGO, employees will have the motivation but not the right mindset to work on their innovative ideas. Low LGO individuals will not use their engagement to search for performance feedback, and therefore, work engagement will not unleash creative performance.

When employees want to avoid failure and negative social comparison evaluations, their work engagement is also not likely to influence creativity. The reason for this is that using engagement in the development of creative solutions to work problems does not guarantee success and is associated with the risk of setbacks, disappointments, and failures. Accordingly, “avoidance-oriented individuals may shy away from creative challenges” (Hirst, Van Knippenberg, & Zhou, 2009, p. 284). Thus, even when they have high levels of engagement, a performance avoidance goal orientation will prevent engagement from influencing creativity. When individuals hold a PAGO, creativity becomes a risk that they are unwilling to take.

Hypothesis 4: The positive relationship between work engagement and creativity is moderated by goal orientation. More specifically, this relationship is (a) stronger when employees have a learning goal orientation, and (b) weaker when employees have a performance avoidance goal orientation.

METHOD

Procedure and Participants

Student research assistants recruited the participants of the study via network sampling (Demerouti & Rispens, 2014), which involved contacting companies from their own professional networks, using social media to promote the research, and making use of snowball sampling to find additional participants. This technique has the potential to lead to a heterogeneous

sample and sufficient variance in the study variables. Participants were employees who worked in various Dutch organisations. Out of 118 employees who were contacted, 107 employees (46 men and 61 women) completed at least three out of five weekly surveys and formed the final sample for the analyses (response rate = 91%). Respondents completed an average of 4.68 ($SD = .60$) of the five weekly surveys. The mean age of the participants was 39.49 years ($SD = 12.53$). On average, they worked 33.92 ($SD = 7.54$) hours per week and they had a mean tenure of 8.67 years ($SD = 9.36$). The majority of the respondents had completed higher-level (university) education (39.3%), followed by applied education (29.9%), and middle-level applied education (15%). They worked in occupational sectors including healthcare (39.3%), government (10.3%), commerce (7.5%), administration (7.5%), industry (6.5%), construction (5.6%), or other sectors such as finance, education, or communication.

Upon agreement to participate, employees received an e-mail invitation with a link to the online survey and information introducing the study and ensuring confidentiality and voluntary participation. To increase the response rate, they were also told that upon completion of the questionnaires, they enrolled in a raffle for 25 gift vouchers of ten euros each. Furthermore, they were informed that once they would participate, they could receive a summary of the results via e-mail after the completion of the research. The survey was sent on Friday morning of every week. At week 1, respondents completed a survey containing demographics and the trait-level (i.e., goal orientation) scales as well as a survey containing all week-level scales (i.e., proactive vitality management, work engagement, and creativity). At weeks 2–5, the survey comprised only the week-level scales. Before presenting the week-level items, we asked respondents to think of their previous work week overall while filling in the questionnaires.

Trait-level Survey

Goal orientation was measured with Vandewalle's (1997) questionnaire on work-domain goal orientation. A six-item subscale was used to measure learning goal orientation (e.g., "I am willing to select a challenging work assignment that I can learn a lot from"; $\alpha = .76$), and a four-item subscale was used to measure performance avoidance goal orientation (e.g., "I prefer to avoid situations at work where I might perform poorly"; $\alpha = .79$). Items were rated on a scale ranging from 1 = totally disagree to 6 = totally agree.

Weekly Survey

All the items in the weekly survey were taken from validated scales, and were adjusted to the week-level. Participants could respond to the items on a scale ranging from 1 = totally disagree to 7 = totally agree.

Week-level proactive vitality management was measured with the eight-item instrument developed by Op den Kamp et al. (2018). Research on the psychometric properties of this scale has provided ample evidence for its reliability and validity. Two survey studies (total $N = 813$) and two diary studies (total $N = 379$) among employees from various occupational sectors showed that proactive vitality management can be reliably measured (mean Cronbach's $\alpha = .88$) with eight items that load on one overall factor. Providing evidence for convergent validity, daily proactive vitality management was moderately strong and positively related to Fritz, Lam, and Spreitzer's (2011) measure of (work-related) strategies and micro-breaks. Moreover, proactive vitality management was positively related to relevant personal characteristics (e.g., proactive personality and self-insight) and showed moderately strong positive relationships with job crafting and relaxation. Furthermore, proactive vitality management was positively related to cognitive liveliness and (creative) work performance (criterion validity). Sample items are: "Last week, I tried to inspire myself", "Last week, I motivated myself", and "Last week, I made sure I felt energetic during my work". In the present study, Cronbach's α ranged from .76 to .88 over the 5 weeks.

Week-level work engagement was measured with the week-level version (Bakker & Bal, 2010) of the nine-item Utrecht Work Engagement Scale (Schaufeli, Bakker, & Salanova, 2006). Sample items are: "Last week, at work, I felt bursting with energy", and "Last week, I was enthusiastic about my work". Cronbach's α ranged from .91 to .94 over the 5 weeks.

Week-level creativity was measured with Tierney, Farmer, and Graen's (1999) nine-item employee creativity scale. Sample items are: "Last week, I demonstrated originality in my work", and "Last week, I identified opportunities for new products/processes". Cronbach's α ranged from .93 to .95 over the 5 weeks.

Analytical Approach and Preliminary Analyses

Data comprised a multilevel structure (i.e., week-level measurements nested within employees). Therefore, we conducted multilevel analyses with MLwiN in order to test our hypotheses. One series of analyses was conducted with week-level work engagement as the dependent variable, and one series with week-level creativity as dependent variable. Prior to the analyses, we calculated the intra-class correlations for our two dependent variables, which shows the amount of variance attributed to between-level (between persons) variation. This was 56 per cent in week-level work engagement, and 57 per cent in week-level creativity, suggesting that considerable within-level (within

persons) variation in the dependent variables remained to be explained by week-level variations in the independent variables. Furthermore, we found that a two-level null model (i.e., a model with the intercept as the only predictor) fit the data better than a one-level null model for both dependent variables, which provides additional justification to the use of multilevel analyses.

We conducted multilevel confirmatory factor analyses (MLCFA) in Mplus (Muthén & Muthén, 1998–2011) to test the discriminant validity of proactive vitality management vis-à-vis work engagement. The analyses revealed that a two-factor model, in which all proactive vitality management items loaded on one latent factor, and all work engagement items loaded on a second latent factor, fit substantially better to the data compared to a one-factor model in which all items loaded on the same factor, $\Delta\chi^2(2) = 654.00, p < .001$. This means that the two concepts can clearly be empirically distinguished from each other.

Between-level predictors (i.e., goal orientation) were grand-mean centred and within-level (week-level) predictors were group-mean centred (Ohly, Sonnentag, Niessen, & Zapf, 2010). To control for potential carry-over effects of one's prior levels of work engagement and creativity, both dependent variables were controlled for their levels of the previous week (i.e., week-level work engagement and week-level creativity were controlled for lagged work engagement and lagged creativity). Following previous practice (Oerlemans and Bakker, 2014), both lagged variables were grand-mean centred. The use of lagged variables rendered the data of one week missing, which resulted in the use of 378 observations for both analyses.

Each regression analysis was built on the basis of four nested models introducing successively the intercept (Null model), the lagged control variable and the predictor (Model 1), the two moderators (Model 2), and the two hypothesised interaction effects (Model 3; see Tables 2 and 3). Prior to the analyses, we tested whether the slope between the independent variables (e.g., proactive vitality management and work engagement) and the dependent variables (e.g., work engagement and creativity, respectively) varied across respondents. The slope variance was significant in both cases, justifying the introduction of between-level variables (i.e., goal orientation scales) so as to test cross-level interaction effects on the week-level dependent variables.

RESULTS

Descriptive Statistics

Means, standard deviations, and intercorrelations for all study variables are presented in Table 1. To calculate intercorrelations, week-level variables were aggregated over the 5 weeks. For exploratory purposes, we use all five weeks for the correlation analyses, while our multilevel analyses below discard the first week because of the use of lagged variables.

Testing Hypotheses

Proactive vitality management was hypothesised to relate positively to work engagement (Hypothesis 1), and to creativity via work engagement (Hypothesis 2). Analyses revealed (see Model 1; Table 2) that week-level proactive vitality management positively related to week-level work engagement, also after controlling for lagged work engagement ($estimate = .455$, $SE = .052$, $p < .01$), providing support for Hypothesis 1. Furthermore, we used the Monte Carlo method (Selig & Preacher, 2008) to assess the indirect relationship of week-level proactive vitality management with week-level creativity via week-level work engagement. This was found to be positive ($CI_L = .149$, $CI_U = .302$), supporting Hypothesis 2. These findings and the findings below are also summarised in Figure 1.

According to Hypothesis 3, the link between proactive vitality management and work engagement should be stronger for employees with a high learning goal orientation and weaker for employees with a high performance avoidance goal orientation. The interaction term of week-level proactive vitality management and learning goal orientation was positively related to week-level work engagement ($estimate = .313$, $SE = .089$, $p < .01$), while the interaction term of week-level proactive vitality management and performance avoidance goal orientation was negatively related to week-level work engagement ($estimate = -.211$, $SE = .059$, $p < .01$; see Table 2). Simple

TABLE 1
Means, Standard Deviations and Inter-Correlations for the Study Variables ($N = 107$
Employees and $N = 501$ Occasions)

	<i>M</i>	<i>SD</i>	1	2	3	4	5
<i>Trait-level</i>	4.51	.72	–				
1. Learning goal orientation							
2. Performance avoid goal orientation	5.05	.92	.25**	–			
<i>Week-level</i>	5.24	.54	.27**	.09	–	.44**	.28**
3. Proactive vitality management							
4. Work engagement	5.00	.85	.23*	.21*	.55**	–	.47**
5. Creativity	4.37	1.02	.26**	.10	.49**	.53**	–

Note. Correlations below the diagonal refer to the between-level of analysis, while correlations above the diagonal refer to the within-level of analysis; means and standard deviations refer to the between-level of analysis.

* $p < .05$

** $p < .01$

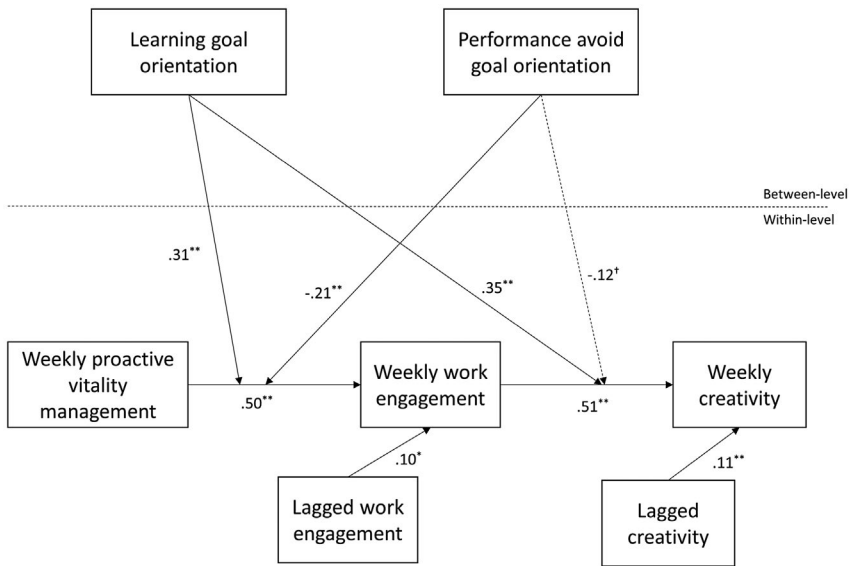


FIGURE 1. The model of proactive vitality management and creativity: Summary of multilevel regression coefficients based on Table 2 (Model 3) and Table 3 (Model 3). ** $p < .01$, * $p < .05$, † $p = .06$.

slope tests revealed that the positive link between week-level proactive vitality management and week-level work engagement was stronger when learning goal orientation was 1 *SD* higher than the mean ($estimate = .718$, $SE = .082$, $p < .01$) than when learning goal orientation was 1 *SD* lower than the mean ($estimate = .274$, $SE = .083$, $p < .01$; see Figure 2), providing support for Hypothesis 3a. Furthermore, the positive link between week-level proactive vitality management and week-level work engagement was weaker when performance avoidance goal orientation was 1 *SD* higher than the mean ($estimate = .302$, $SE = .063$, $p < .01$) than when performance avoid goal orientation was 1 *SD* lower than the mean ($estimate = .690$, $SE = .087$, $p < .01$; see Figure 3), providing support for Hypothesis 3b.

According to Hypothesis 4, the link between work engagement and creativity should be stronger for high learning goal orientation and weaker for high performance avoidance goal orientation. The interaction term of week-level work engagement and learning goal orientation was positively related to week-level creativity ($estimate = .346$, $SE = .079$, $p < .01$). Simple slope tests revealed that the positive link between week-level work engagement and week-level creativity was stronger when learning goal orientation was 1 *SD* higher than the mean ($estimate = .753$, $SE = .079$, $p < .01$) than when learning goal orientation was 1 *SD* lower than the mean ($estimate = .269$,

TABLE 2
Multilevel Estimates for Models with Week-Level Work Engagement as Dependent Variable

Model	M1			M2			M3		
	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	5.027	.078	64.449**	5.025	.076	66.118**	5.018	.074	67.811**
Work engagement previous week	.090	.044	2.046*	.088	.044	2.000*	.104	.044	2.363*
Week-level proactive vitality management (PVM)	.455	.052	8.750**	.451	.052	8.673**	.496	.053	9.359**
Learning goal orientation				.162	.111	1.460	.198	.110	1.800
Performance avoidance goal orientation				.137	.086	1.593	.136	.084	1.619
PVM × learning							.313	.089	3.517**
PVM × avoidance							-.211	.059	-3.577**
-2 × log			872.421			866.329			849.464
Δ -2 × log			392.539**			6.092*			16.865**
df						2			2
Within-person variance	.350	.030	28%	.350	.030	28%	.335	.029	31%
Between-person variance	.543	.089	11%	.507	.084	17%	.485	.081	21%
						R ²			R ²

Notes. N = 107 employees and N = 378 occasions. The null model is not presented due to space constraints.

* p < .05

** p < .01

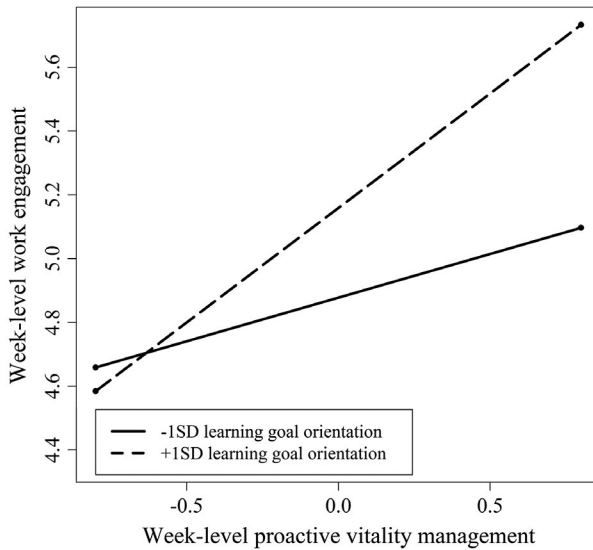


FIGURE 2. The link between week-level proactive vitality management and week-level work engagement moderated by learning goal orientation.

$SE = .079, p < .01$; see Figure 4), supporting Hypothesis 4a. The interaction term of week-level work engagement and performance avoidance goal orientation was negatively related to week-level creativity ($estimate = -.119, SE = .061, p = .06$). However, although the effect was in the predicted direction, it was not significant. This effectively rejects Hypothesis 4b. We note that we reran all analyses controlling for age, gender, and tenure but none of these analyses altered any of the results (see Figure 1 for a summary).^{2,3}

²We have tested the direct effect of proactive vitality management on creativity and this was only significant when proactive vitality management was the only predictor in the regression equation ($estimate = .30, SE = .06, p < .05$). When proactive vitality management was added as a predictor in the regression analysis of Table 3, the effect became non-significant ($estimate = .07, SE = .06, p = .25$). We note that our Monte Carlo analytic approach is incompatible with the notion of full vs. partial mediation. Therefore, based on existing methodological literature (Rucker, Preacher, Tormala, & Petty, 2011), we stay away from discussions around partial vs. full mediation, and we simply refer to the effect of proactive vitality management on creativity as an indirect effect.

³We have conducted additional analyses with work engagement being the predictor of proactive vitality management and the effect was significant ($estimate = .49, SE = .06, p < .01$). However, findings were non-significant for the two interaction effects on proactive vitality management—the interaction between work engagement and learning goal orientation ($estimate = .07, SE = .08, p = .38$), and the interaction between work engagement and performance avoid goal orientation ($estimate = -.11, SE = .06, p = .07$).

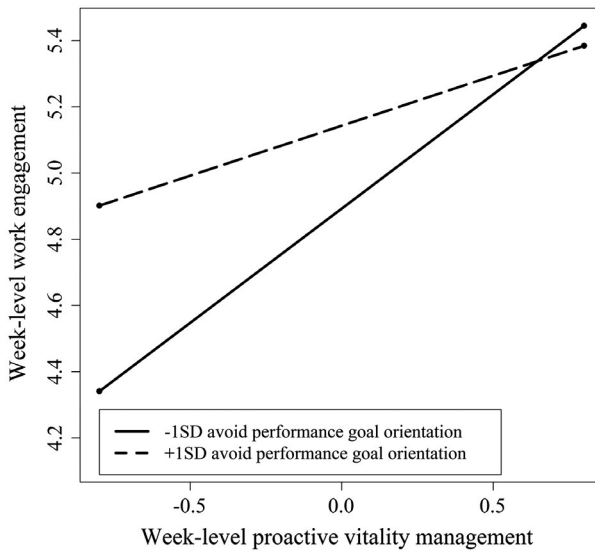


FIGURE 3. The link between week-level proactive vitality management and week-level work engagement moderated by performance avoidance goal orientation.

DISCUSSION

In this paper, we argued that employees might proactively manage their own vitality to reach creativity. We followed a heterogeneous sample of employees during 5 weeks, and asked them to report their weekly frequency of proactive vitality management, as well as their weekly levels of work engagement and creativity. The results showed that participants experienced more work engagement and indirectly improved their creative performance in the weeks they proactively managed their own positive affect, energy, and concentration (i.e., vitality). Employees high in learning goal orientation profited most from this process, whereas employees high in performance avoidance goal orientation profited least. In what follows, we will discuss the most important contributions of this study.

Contributions to Theory

A first important contribution of the present study is that it shows that proactively managing vitality is an important predictor of creativity, through work engagement—on a weekly basis. When employees proactively choose to engage in activities during or after work that offer them energy, positive affect, or inspiration, they have more resources available to dedicate to

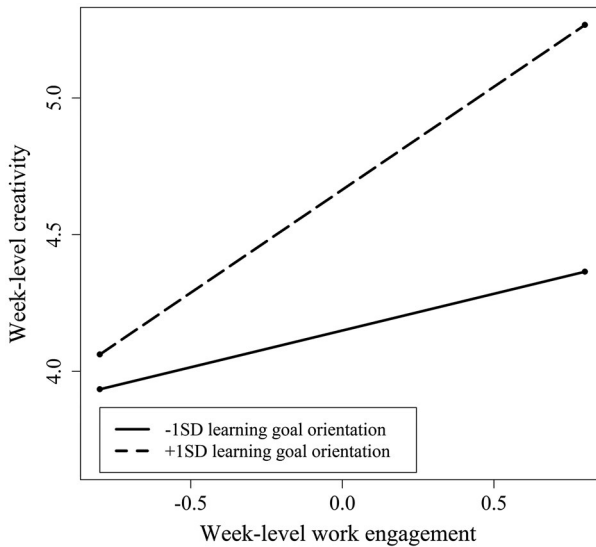


FIGURE 4. The link between week-level work engagement and week-level creativity moderated by learning goal orientation.

their work. These resources fuel the work engagement that can then be used to improve creative performance. Our findings expand the proactivity and work engagement literatures by showing the relevance of a proximal predictor of creativity—proactive vitality management. Whereas most scholars have focused on more distal environmental and personality factors as predictors of creativity (Feist, 1998; Ma, 2009; Anderson et al., 2014), we show that employees can take personal initiatives to be creative. Research in which the proactive vitality management construct was validated (Op den Kamp et al., 2018) has suggested that people may engage in a range of activities in order to increase their resources, including having lunch outside the office for a change of scenery, engaging in sports activities before work to get energised, and listening to preferential music genres to become relaxed or focused. Although earlier research has shown that energy, positive affect, and focus relate positively to creativity (Baas et al., 2008; Hennessey & Amabile, 2010; Ning et al., 2015), most scholars have overlooked the possibility that employees may proactively mobilise such volatile resources to be creative. Whereas most previous proactivity research has investigated self-initiated, future oriented, and change-oriented behaviour (Parker et al., 2010) aimed at changing the environment, proactive vitality management is a new form of proactive behaviour that is aimed at changing the self (see also, Grant & Ashford, 2008). Proactive vitality management is directed to

TABLE 3
Multilevel Estimates for Models with Week-Level Creativity as Dependent Variable

Model	M1			M2			M3		
Variables	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	4.407	.090	48.967**	4.406	.086	51.232**	4.407	.091	48.429**
Creativity previous week	.143	.041	3.488**	.144	.041	3.512**	.110	.039	2.820*
Week-level work engagement	.527	.059	8.932**	.531	.059	9.000**	.511	.057	8.965**
Learning goal orientation				.362	.127	2.850*	.368	.133	2.767*
Performance avoidance goal orientation				.055	.097	.567	.058	.102	.569
Work engagement × learning							.346	.079	4.380**
Work engagement × avoidance							-.119	.061	-1.950
-2 × log			948.184			938.617			919.891
Δ -2 × log			477.627**			9.567*			18.726**
df			2			2			2
			R ²			R ²			R ²
Within-person variance	.412	.035	38%	.413	.035	39%	.371	.032	44%
Between-person variance	.746	.119	16%	.669	.109	25%	.760	.119	15%

Notes. N = 107 employees and N = 378 occasions. The null model is not presented due to space constraints.

* p < .05

** p < .01

creating an internal state that allows one to focus, think, and feel inspired. This bottom-up approach to creativity could be an important addition to more common top-down approaches.

It should be noted that the present study focused specifically on the predictive validity of proactive vitality management for a specific type of performance: creativity. It is highly likely that proactive vitality management will also be able to predict other performance indicators, including in-role performance and organisational citizenship behaviour (OCB). High-level in-role performance demands considerable effort, engagement, and motivation (Bakker et al., 2014), which could be proactively mobilised by employees. In addition, employees are most likely to show extra-role behaviours (OCB) when they have a surplus of energetic and motivational resources. Future research should investigate the predictive validity of proactive vitality management for these other performance indicators.

Second, we used a repeated measures design to test whether proactive behaviour aimed at managing vitality relates to creativity, through work engagement. Thus, we complement previous survey studies (see, for a review, Shalley et al., 2004) with a 5-week follow-up study and show that employees may be able to influence their own creativity, on a weekly basis. In the weeks employees proactively manage their vitality, they become sufficiently engaged in their work to be creative. However, in the weeks they do not look for inspiration or try to experience positive emotions, their levels of work engagement are relatively low, and do not offer the fuel needed to be creative at work.

At this point, we would like to discuss the possibility that work engagement may also predict proactive vitality management (i.e., reversed causation). Indeed, several scholars have argued and shown that positive affect—particularly high-activated positive affect (i.e., feelings of being inspired, energised, and enthused) that is rather similar to work engagement—is positively related to proactive behaviour (e.g., Den Hartog & Belschak, 2007; Bindl, Parker, Totterdell, & Hagger-Johnson, 2012). Bindl and colleagues argue that high-activated positive affect prompts forward-thinking, change-oriented behaviour, and can be considered the fuel (the energy) of the self-starter. Using Job Demands-Resources theory, Bakker and Demerouti (2017) have argued that employees who are engaged in their work are motivated to stay engaged, and therefore use proactive behaviours (e.g., job crafting) to optimise their own work environment. This means that proactive vitality management is most likely a predictor as well as an outcome of work engagement. In the present study, we treated proactive vitality management as the predictor of work engagement (and indirectly of creativity), because our theoretical arguments clearly suggested that proactive vitality management logically interacts with learning and avoids performance goal orientation in predicting work engagement. Future research may want to test the complete sequence of

proactive vitality management predicting work engagement, which, in turn, may predict proactive vitality management. Previous recovery research has clearly indicated that engaged workers know when to recharge, in order to stay engaged (Sonnentag et al., 2017).

A third theoretical contribution of the current study is that it shows how goal orientation, as a motivational moderator variable, influences the creativity process. The findings were generally consistent with our hypotheses. When employees have a learning goal orientation, they profit most from their proactive behaviour, because this orientation helps them to seek work-related challenges (Porath & Bateman, 2006). They use their inspiration and energy to actively search for possibilities to use and develop a variety of skills, and this will have a positive impact on work engagement and creative performance. In contrast, when employees hold a performance avoidance goal orientation, proactively managing vitality does not help to be more engaged and creative. The reason for this is presumably that individuals who avoid making mistakes prefer not to be enthusiastic about new initiatives or to take the risk of failures by suggesting new solutions for existing problems. Consistent with this interpretation, Zhou (2003) demonstrated that employees were more creative when interacting with creative colleagues, but only when their supervisors did not engage in close monitoring. Moreover, the findings revealed that creativity only crossed over between co-workers when supervisors provided developmental feedback. Thus, in order to be creative, employees need to be in a learning mode, and should not be closely monitored or judged.

It should be noted that proactive vitality management has some similarities, but is not the same as recovery. Whereas recovery from work refers to reducing or eliminating job stress to replenish depleted resources (Sonnentag & Fritz, 2015), proactive vitality management is intentional and anticipatory behaviour and may also occur when people feel already rested. Second, most recovery activities are carried out during off-job time (i.e., in the evening or weekend, during vacation), while proactive vitality management can be done at any time, any place (e.g., during lunchtime at work, early in the morning at home, in the night while going out). Third, proactive vitality management aims at finding inspiration through small positive interventions in one's daily work or private life. For example, people can try to find new inspiration through reading books (Bal, Butterman, & Bakker, 2011), using social media, and watching a TED talk on YouTube during work, or by indulging in artwork at a fair—and they do not need to experience job stress to motivate them to engage in such activities. Recovery activities are aimed at detaching from work to reduce physical and psychological strain symptoms (Sonnentag & Fritz, 2015).

The present study investigated the moderating role of goal orientation, but did not examine the role of the work environment. It should be noted

that the participants in our study all had a reasonable work schedule in that they worked on average less than 40 hours a week. This may imply a built-in sort of slack resources in participants' work life—they could afford time. If individuals have 60-hour work weeks, they may have less time for proactive vitality management, although such behaviours may be even more important for work engagement and creativity during long working hours. Long work weeks may also have important implications for when and where employees should proactively manage their vitality. Future research among other samples and in other cultural contexts may test the impact of context on proactive vitality management.

Practical Implications

Our findings have practical implications for individual employees and for managers. A first implication is that we should make employees aware of the importance of individual proactive vitality management. Organisations may want to offer professional training and smartphone applications through which employees learn what the best activities are for them to improve their vitality. In order to be creative, employees need to be engaged. Employees can proactively optimise their own levels of work engagement by engaging in a range of activities during work and during off-job time. For example, while at work, they can decide to have lunch with colleagues outside the office in order to get a fresh view on existing work problems. They may also take short micro breaks during the workday in order to increase their levels of energy (Trougakos & Hideg, 2009). During off-job time, they may actively engage in sports activities or read a book with the intention to change their mood state. Moreover, our construct validity research (Op den Kamp et al., 2018) indicates that employees may engage in a range of activities that raise their levels of energy, positive affect, and concentration.

Second, managers may facilitate the process of proactive vitality management, by creating a work-family culture that prevents overwork and offers opportunities to choose for flexible working times (Thompson, Beauvais, & Lyness, 1999). Such a culture would also offer employees more autonomy during work and leisure time for activities that foster resources. Third, the findings indicate that learning goal orientation is crucial for the relationship between proactive vitality management and work engagement and creativity. Organisations that are highly dependent on creative performance may want to select employees on the basis of their goal orientations, or could offer their employees training in which they learn to focus on learning from mistakes (Noordzij, van Hooft, van Mierlo, van Dam, & Born, 2013).

Strengths and Limitations

The present study has some limitations that should be acknowledged. First, we used one source of information, which may raise concerns regarding the validity of the findings. However, we combined the survey method with repeated measurements using a weekly questionnaire, and created a theoretically valid cross-level interaction model. Specifically, we integrated two different methods and analysed relationships of proactive vitality management with work engagement and creative performance after controlling for previous (week) levels of work engagement and creative performance—alleviating problems of common method bias. Although we do think that future research may profit from using objective outcomes of the creativity process, we are confident that we used a robust test of our hypotheses. It seems highly unlikely that our participants would have been able to produce exactly the theoretically predicted interaction patterns if they would have been inclined to please the researchers and would have tried to produce consistent answers. Thus, we believe that demand characteristics are not a major threat to the validity of our findings. A second possible limitation is that students were asked to collect data, which resulted in a convenience sample. This means that our sample may not be representative of the working population. However, Demerouti and Rispens (2014) have argued that student-recruited samples may actually enhance external validity, because this approach facilitates labour-intensive research designs, and results in heterogeneous samples at relatively low costs. Moreover, since we analysed how within-person effects are different for groups scoring low versus high on goal orientations, we are less concerned about representative mean scores on the study variables.

A third limitation of our study is the low reliability of the subscale intended to measure performance-prove goal orientation. The low internal consistency did not allow us to investigate in a robust fashion how this goal orientation dimension would interact with proactive vitality management. Note, however, that the performance avoidance goal orientation dimension is arguably most different from learning goal orientation, and offered perhaps the best contrasting analysis. Indeed, our findings were consistent with our theoretical analysis. Nevertheless, it is interesting and relevant to test how performance-prove goal orientation interacts with proactive vitality management in the prediction of work engagement and creativity. Finally, we used self-reports of creativity, which is suboptimal, because participants may give socially desirable responses and indicate that they are creative. However, we analysed *changes* in creativity, and focused on deviations from participants' "baseline". The fact that we analysed how changes in self-reported creativity could be predicted by changes in work engagement and proactive vitality management means that social desirability cannot explain our findings. In addition, previous research has shown

that self-rated creativity is positively related to biographical information about specific creative behaviours (e.g., designing gardens, writing stories, building websites, composing music; Batey & Furnham, 2008), and to expert-ratings of creativity (Kaufman, Beghetto, & Watson, 2016).

CONCLUSION

This study shows that employees can manage their own volatile resources, in the form of increasing positive affect, inspiration, and energy. In the weeks employees proactively managed their vitality, their work engagement was higher, as well as their creative performance. Particularly employees high in learning goal orientation seem to profit most from this process, whereas employees high in performance avoidance goal orientation seem to profit least. These findings underscore the importance of employee proactive initiatives. While employers are responsible for healthy working environments, employees are also responsible for their own vitality, and may mobilise their vitality proactively in order to stay engaged and be creative.

REFERENCES

- Amabile, T.M. (1997). Motivating creativity in organizations: On doing what you love and loving what you do. *California Management Review*, 40, 39–58.
- Amabile, T.M., Barsade, S.G., Mueller, J.S., & Staw, B.M. (2005). Affect and creativity at work. *Administrative Science Quarterly*, 50, 367–403.
- Anderson, N., De Dreu, C.K.W., & Nijstad, B.A. (2004). The routinization of innovation research: A constructively critical review of the state-of-the-science. *Journal of Organizational Behavior*, 25, 147–173.
- Anderson, N., Potočník, K., & Zhou, J. (2014). Innovation and creativity in organizations a state-of-the science review, prospective commentary, and guiding framework. *Journal of Management*, 40, 1297–1333.
- Baas, M., De Dreu, C.K.W., & Nijstad, B.A. (2008). A meta-analysis of 25 years of mood-creativity research: Hedonic tone, activation, or regulatory focus? *Psychological Bulletin*, 134, 779–806.
- Bakker, A.B., & Bal, M.P. (2010). Weekly work engagement and performance: A study among starting teachers. *Journal of Occupational and Organizational Psychology*, 83, 189–206.
- Bakker, A.B., & Demerouti, E. (2017). Job Demands-Resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, 22, 273–285.
- Bakker, A.B., Demerouti, E., & Sanz-Vergel, A.I. (2014). Burnout and work engagement: The JD-R approach. *Annual Review of Organizational Psychology and Organizational Behavior*, 1, 389–411.
- Bakker, A.B., & Xanthopoulou, D. (2013). Creativity and charisma among female leaders: The role of resources and work engagement. *International Journal of Human Resource Management*, 24, 2760–2779.

- Bal, P.M., Butterman, O.S., & Bakker, A.B. (2011). The influence of fictional narrative experience on work outcomes: A conceptual analysis and research model. *Review of General Psychology, 15*, 361–370.
- Batey, M., & Furnham, A. (2008). The relationship between measures of creativity and schizotypy. *Personality and Individual Differences, 45*, 816–821.
- Belschak, F., & Den Hartog, D. (2010). Pro-self, prosocial, and pro-organizational foci of proactive behaviour: Differential antecedents and consequences. *Journal of Occupational and Organizational Psychology, 83*, 475–498.
- Bindl, U.K., & Parker, S.K. (2010). Proactive work behavior: Forward-thinking and change-oriented action in organizations. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology* (pp. 567–598). Washington, DC: American Psychological Association.
- Bindl, U.K., Parker, S.K., Totterdell, P., & Hagger-Johnson, G. (2012). Fuel of the self-starter: How mood relates to proactive goal regulation. *Journal of Applied Psychology, 97*, 134–150.
- Breevaart, K., Bakker, A.B., Hetland, J., Demerouti, E., Olsen, O.K., & Espevik, R. (2014). Daily transactional and transformational leadership and daily employee engagement. *Journal of Occupational and Organizational Psychology, 87*, 138–157.
- Brett, J.F., Uhl-Bien, M., Huang, L., & Carsten, M. (2016). Goal orientation and employee resistance at work: Implications for manager emotional exhaustion with the employee. *Journal of Occupational and Organizational Psychology, 89*, 611–633.
- Daniels, K. (2006). Rethinking job characteristics in work stress research. *Human Relations, 59*, 267–290.
- De Dreu, C.K.W., Nijstad, B.A., Baas, M., Wolsink, I., & Roskes, M. (2012). Working memory benefits creative insight, musical improvisation, and original ideation through maintained task-focused attention. *Personality and Social Psychology Bulletin, 38*(5), 656–669.
- Demerouti, E., Bakker, A.B., & Gevers, J. (2015). Job crafting and extra-role behavior: The role of work engagement and flourishing. *Journal of Vocational Behavior, 91*, 87–96.
- Demerouti, E., & Rispens, S. (2014). Improving the image of student-recruited samples: A commentary. *Journal of Occupational and Organizational Psychology, 87*, 34–41.
- Den Hartog, D.N., & Belschak, F.D. (2007). Personal initiative, commitment and affect at work. *Journal of Occupational and Organizational Psychology, 80*, 601–622.
- Dragoni, L., & Kuenzi, M. (2012). Better understanding work unit goal orientation: Its emergence and impact under different types of work unit structure. *Journal of Applied Psychology, 97*, 1032–1048.
- Eldor, L., & Harpaz, I. (2016). A process model of employee engagement: The learning climate and its relationship with extra-role performance behaviors. *Journal of Organizational Behavior, 37*, 213–235.
- Feist, G.J. (1998). A meta-analysis of personality in scientific and artistic creativity. *Personality and Social Psychology Review, 2*, 290–309.

- Fredrickson, B.L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, *56*, 218–226.
- Frese, M., & Fay, D. (2001). Personal initiative (PI): An active performance concept for work in the 21st century. In B.M. Staw & R.M. Sutton (Eds.), *Research in organizational behavior* (Vol. 23, pp. 133–187). Amsterdam: Elsevier Science.
- Fritz, C., Lam, C.F., & Spreitzer, G.M. (2011). It's the little things that matter: An examination of knowledge workers' energy management. *Academy of Management Perspectives*, *25*, 28–39.
- Gong, Y., Kim, T.Y., Lee, D.R., & Zhu, J. (2013). A multilevel model of team goal orientation, information exchange, and creativity. *Academy of Management Journal*, *56*, 827–851.
- Grant, A. M., & Ashford, S. J. (2008). The dynamics of proactivity at work. *Research in Organizational Behavior*, *28*, 3–34.
- Hakanen, J.J., Perhoniemi, R., & Toppinen-Tanner, S. (2008). Positive gain spirals at work: From job resources to work engagement, personal initiative and work-unit innovativeness. *Journal of Vocational Behavior*, *73*, 78–91.
- Hennessey, B.A., & Amabile, T.M. (2010). Creativity. *Annual Review of Psychology*, *61*, 569–598.
- Hirst, G., Van Knippenberg, D., & Zhou, J. (2009). A cross-level perspective on employee creativity: Goal orientation, team learning behavior, and individual creativity. *Academy of Management Journal*, *52*, 280–293.
- Janssen, O., & Van Yperen, N.W. (2004). Employees' goal orientations, the quality of leader-member exchange, and the outcomes of job performance and job satisfaction. *Academy of Management Journal*, *47*, 368–384.
- Kark, R., & Carmeli, A. (2009). Alive and creating: The mediating role of vitality and aliveness in the relationship between psychological safety and creative work involvement. *Journal of Organizational Behavior*, *30*, 785–804.
- Kaufman, J.C., Beghetto, R.A., & Watson, C. (2016). Creative metacognition and self-ratings of creative performance: A 4-C perspective. *Learning and Individual Differences*, *51*, 394–399.
- Kim, T., Hon, A.H.Y., & Lee, D.R. (2010). Proactive personality and employee creativity: The effects of job creativity requirement and supervisor support for creativity. *Creativity Research Journal*, *22*, 37–45.
- Koch, A.R., Binnewies, C., & Dormann, C. (2015). Motivating innovation in schools: School principals' work engagement as a motivator for schools' innovation. *European Journal of Work and Organizational Psychology*, *24*, 505–517.
- Kühnel, J., Zacher, H., De Bloom, J., & Bledow, R. (2016). Take a break! Benefits of sleep and short breaks for daily work engagement. *European Journal of Work and Organizational Psychology*, *26*, 481–491.
- Ma, H. (2009). The effect size of variables associated with creativity: A meta-analysis. *Creativity Research Journal*, *21*, 30–42.
- Muthén, L.K., & Muthén, B.O. (1998–2011). *Mplus user's guide*. Sixth edition. Los Angeles, CA: Muthén & Muthén.
- Nijstad, B.A., De Dreu, C.K.W., Rietzschel, E.F., & Baas, M. (2010). The dual pathway to creativity model: Creative ideation as a function of flexibility and persistence. *European Review of Social Psychology*, *21*, 34–77.

- Ning, H., Wu, M., Runco, A., & Pina, J. (2015). More mind wandering, fewer original ideas: Be not distracted during creative idea generation. *Acta Psychologica, 161*, 110–116.
- Noordzij, G., Hooft, E.A., Mierlo, H., Dam, A., & Born, M.P. (2013). The effects of a learning-goal orientation training on self-regulation: A field experiment among unemployed job seekers. *Personnel Psychology, 66*, 723–755.
- Oerlemans, W.G., & Bakker, A.B. (2014). Why extraverts are happier: A day reconstruction study. *Journal of Research in Personality, 50*, 11–22.
- Ohly, S., Sonnentag, S., Niessen, C., & Zapf, D. (2010). Diary studies in organizational research: An introduction and some practical recommendations. *Journal of Personnel Psychology, 9*, 79–93.
- Op den Kamp, E.M., Tims, M., Bakker, A.B., & Demerouti, E. (2018). Proactive vitality management in the work context: Development and validation of a new instrument. *European Journal of Work and Organizational Psychology, 27*, 493–505.
- Park, Y.K., Song, J.H., Yoon, S.W., & Kim, J. (2014). Learning organization and innovative behavior: The mediating effect of work engagement. *European Journal of Training and Development, 38*, 75–94.
- Parker, S.K., & Collins, C.G. (2010). Taking stock: Integrating and differentiating multiple proactive behaviors. *Journal of Management, 36*, 633–662.
- Parker, S.K., Bindl, U.K., & Strauss, K. (2010). Making things happen: A model of proactive motivation. *Journal of Management, 36*, 827–856.
- Parker, S.K., Williams, H., & Turner, N. (2006). Modeling the antecedents of proactive behavior at work. *Journal of Applied Psychology, 91*, 636–652.
- Payne, S.C., Youngcourt, S.S., & Beaubien, J.M. (2007). A meta-analytic examination of the goal orientation nomological net. *Journal of Applied Psychology, 92*, 128–150.
- Porath, C.L., & Bateman, T.S. (2006). Self-regulation: From goal orientation to job performance. *Journal of Applied Psychology, 91*, 185–192.
- Quoidbach, J., Berry, E.V., Hansenne, M., & Mikolajczak, M. (2010). Positive emotion regulation and well-being: Comparing the impact of eight savoring and dampening strategies. *Personality and Individual Differences, 49*, 368–373.
- Rucker, D.D., Preacher, K.J., Tormala, Z.L., & Petty, R.E. (2011). Mediation analysis in social psychology: Current practices and new recommendations. *Social and Personality Psychology Compass, 5*, 359–371.
- Schaufeli, W.B., & Bakker, A.B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior, 25*, 293–315.
- Schaufeli, W.B., & Bakker, A.B. (2010). Defining and measuring work engagement: Bringing clarity to the concept. In A.B. Bakker, & M.P. Leiter (Eds.), *Work Engagement: A Handbook of Essential Theory and Research* (pp. 10–24). New York: Psychology Press.
- Schaufeli, W.B., Bakker, A.B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement, 66*, 701–716.

- Selig, J.P., & Preacher, K.J. (2008, June). Monte Carlo method for assessing mediation: An interactive tool for creating confidence intervals for indirect effects [Computer software]. Available from <https://quantpsy.org/>.
- Shalley, C.E., Zhou, J., & Oldham, G.R. (2004). The effects of personal and contextual characteristics on creativity: Where should we go from here? *Journal of Management*, *30*, 933–958.
- Sianoja, M., Syrek, C.J., De Bloom, J., Korpela, K., & Kinnunen, U. (2018). Enhancing daily well-being at work through lunchtime park walks and relaxation exercises: Recovery experiences as mediators. *Journal of Occupational Health Psychology*, *23*, 428–442.
- Sonnentag, S., Dormann, C., & Demerouti, E. (2010). Not all days are created equal: The concept of state work engagement. In A.B. Bakker & M.P. Leiter (Eds.), *Work engagement: A handbook of essential theory and research* (pp. 25–38). New York, NY: Psychology Press.
- Sonnentag, S., & Fritz, C. (2015). Recovery from job stress: The stressor-detachment model as an integrative framework. *Journal of Organizational Behavior*, *36*, S72–S103.
- Sonnentag, S., Venz, L., & Casper, A. (2017). Advances in recovery research: What have we learned? What should be done next? *Journal of Occupational Health Psychology*, *22*, 365–380.
- Ten Brummelhuis, L.L., & Bakker, A.B. (2012). Staying engaged during the week: The effect of off-job activities on next day work engagement. *Journal of Occupational Health Psychology*, *17*, 445–455.
- Thompson, C.A., Beauvais, L.L., & Lyness, K.S. (1999). When work-family benefits are not enough: The influence of work-family culture on benefit utilization, organizational attachment, and work-family conflict. *Journal of Vocational Behavior*, *54*, 392–415.
- Tierney, P., & Farmer, S.M. (2002). Creative self-efficacy: Its potential antecedents and relationship to creative performance. *Academy of Management Journal*, *45*, 1137–1148.
- Tierney, P., Farmer, S.M., & Graen, G.B. (1999). An examination of leadership and employee creativity: The relevance of traits and relationships. *Personnel Psychology*, *52*, 591–620.
- Tims, M., Bakker, A.B., & Xanthopoulou, D. (2011). Do transformational leaders enhance their followers' daily work engagement? *The Leadership Quarterly*, *22*, 121–131.
- Trougakos, J.P., & Hideg, I. (2009). Momentary work recovery: The role of within-day work breaks. In S. Sonnentag, P.L. Perrewé & D.C. Ganster (Eds.), *Research in occupational stress and well-being: Current perspectives on job-stress recovery* (Vol. 7, pp. 37–84). Bingley: Emerald.
- VandeWalle, D. (1997). Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement*, *57*, 995–1015.
- Zhou, J. (2003). When the presence of creative coworkers is related to creativity: Role of supervisor close monitoring, developmental feedback, and creative personality. *Journal of Applied Psychology*, *88*, 413–422.