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## Proactive Vitality Management and Creative Work Performance: The Role of Self-Insight and Social Support

### ABSTRACT

Integrating proactivity and creativity literatures, we argue that people can perform more creatively at work when they proactively manage their levels of vitality. Proactive vitality management is defined as individual, goal-oriented behavior aimed at managing physical and mental energy to promote optimal functioning at work. We hypothesize that this process may be facilitated by being aware of one's own state and by support from others. A total of 242 employees participated in a weekly diary study for three consecutive weeks, yielding 610 observations. Results of multilevel analyses show that participants reported more creative work performance during weeks in which they had proactively used vitality management. In addition, in line with our predictions, self-insight and social support for creativity in the workplace acted as cross-level moderators and strengthened the relationship between proactive vitality management and creativity. We conclude that a proactive approach regarding physical and mental energy is an important bottom-up strategy that may foster creativity in work settings.

**Keywords:** creative work performance, proactive vitality management, self-insight, social support.

### PRACTITIONER POINTS

- *Individuals may proactively manage their vitality to promote creativity in their work*
- *Organizations may facilitate this process by encouraging their employees and providing ample opportunity for proactive vitality management*
- *Interventions may be developed to encourage people to proactively work on their levels of vitality and to stimulate awareness of personal needs and preferences in this process.*
- *Organizations may want to promote a social work environment in which individuals may seek support and feedback on their ideas from their colleagues or supervisors.*

Imagine a scientist who wants to write the introduction to an article about some interesting new findings. The scientist, however, feels unable to focus and lacks the (positive) energy to get creative juices flowing to come up with a decent paragraph to start her article with. In this situation, an individual wants to perform creatively at work, but is somehow lacking the physical and mental energy needed to achieve this in that very moment. Research suggests that physical and mental energy may be essential for creativity (e.g., De Dreu, Nijstad, Baas, Wolsink, & Roskes, 2012; Fredrickson, 2001; Kark & Carmeli, 2009). The question that constitutes the basis of the present study is: To what extent can individuals promote their own levels of creative work performance? Or, more specifically, can people proactively mobilize the physical and mental energy needed to perform creatively at work?

Although some people may display more creativity than others (e.g., due to certain personality traits), most scholars assume that everyone has some creative potential (cf. Amabile, 1997). In this article, we argue that people may promote their own level of creativity through *proactive vitality management*, defined as individual, goal-oriented behavior aimed at managing physical and mental energy to promote optimal functioning at work (Op den Kamp, Tims, Bakker, & Demerouti, 2018). The researcher mentioned above may use

proactive vitality management throughout the day (i.e., both during and outside of working hours) to help her achieve work goals and be creative. To illustrate, she may start the workday with a nutritious breakfast or incorporate ten minutes of exercise or meditation into her morning routine to prepare for the workday ahead. During her train commute to work, she may read relevant scientific or practitioner journal articles to promote a driven and inspired mindset. While working, she could purposefully put on some relaxing music or turn off her phone and e-mail for some hours to be better able to think and concentrate. Or, she may decide to go for a walk or a fresh cup of coffee (cf. microbreaks; Fritz, Lam, & Spreitzer, 2011) to clear her mind and empower herself physically and mentally for the task at hand (e.g., writing the paper's introduction). These are only some examples of strategies that individuals may purposefully employ to manage their vitality. As such, strategies may vary between persons and also within persons (i.e., from moment to moment), corresponding to individual and momentary needs and preferences.

The goal of the present study was twofold. First, we investigate whether proactive vitality management and creative work performance are indeed related by examining their potential relationship over the course of three consecutive workweeks. In addition, we incorporate characteristics of both the person and the work environment into the study to examine whether proactive vitality management is more effective for certain people and in specific situations. In this process, we propose that it is important to be aware of one's own state and to be supported by the external environment. We examine the influence of self-insight (i.e., the understanding of one's own feelings, thoughts, and behaviors; Grant, Franklin, & Langford, 2002), as it may promote the awareness of personal needs and preferences regarding how and when to boost physical and mental energy for work. Self-insight may, therefore, help individuals to use proactive vitality management more effectively. However, an unsupportive environment may hinder individuals in their attempt to boost creative work performance. Therefore, we examine the availability of social support for creativity (Madjar, Oldham, & Pratt, 2002), as it may help and encourage people to direct their efforts and energy into the creative process.

Our research contributes to the literature because it is one of the first studies to highlight the idea that people are not passive or reactive agents in the creative process and may proactively influence their own levels of creativity (cf. De Stobbeleir, Ashford, & Buyens, 2011). We introduce proactive vitality management as a specific form of goal-oriented, individual behavior that may complement the influence of more "distal" factors that can affect creative work performance, such as organizational climate or job complexity (for an overview see, for example, Anderson, Potočnik, & Zhou, 2014). Second, our approach expands upon energy-management studies (e.g., Fritz et al., 2011) and complements proactive perspectives that are focused more directly on work and the work environment (e.g., job crafting; Wrzesniewski & Dutton, 2001), as proactive vitality management involves behavior that is directed at the self and on proactively managing physical and mental energy to promote work goals. Third, we respond to recent calls to integrate both between- and within-person approaches in organizational behavior research by using a multilevel, weekly diary design (Bakker, 2015; Ilies, Aw, & Pluut, 2015). Taking into account the within-person level allows us to examine physical and mental energy as valuable but volatile resources that people may aim to replenish or gain from time to time (cf. Schippers & Hogenes, 2011) to promote their work. Thus, we assume that people engage in proactive vitality management more during some workweeks (e.g., to deal with challenging tasks or a heavy workload) than during other workweeks. Fourth and finally, to provide a more integrative perspective, we have extended the within-person research design by incorporating personal and situational factors (i.e., between-person variables) that may play a role in the process of proactive vitality management and creativity at work.

#### PROACTIVE VITALITY MANAGEMENT AND CREATIVE WORK PERFORMANCE

Modern organizations must constantly adapt to deal with changing circumstances and competitive markets. In this adaptive process, creative employees who come up with new and useful ideas regarding work procedures or products are key to organizational effectiveness and competitive advantage (Harari, Reaves, & Viswesvaran, 2016; Unsworth & Parker, 2003). There have been many studies on factors that may facilitate or hinder creative work performance (Anderson et al., 2014). For example, research suggests that certain personal characteristics promote creativity, such as being open to new experiences (e.g., Xu, Jiang, & Walsh, 2016) or having a learning goal orientation (e.g., Hirst, Van Knippenberg, & Zhou, 2009). In addition, contextual factors may play a role as well and may influence employee creativity. Research has shown that people perform more creatively, for example, when their work is challenging, and when they have a considerable amount of autonomy in their jobs (e.g., Oldham & Cummings, 1996). Moreover, job

descriptions in which creativity is explicitly stated as a requirement or the perception that creativity is expected may stimulate creative work performance (Unsworth & Clegg, 2010; Unsworth, Wall, & Carter, 2005), as this “creativity requirement” may motivate employees to direct their attention and efforts toward creative goals.

While such personal and contextual predictors of creativity can be of great value, they function as relatively distal influences on creative work performance, that is, further from the individual and the creativity process. To illustrate, it may well be that the scientist who is trying to write an introduction to a new paper is open to new experiences (i.e., favorable personal characteristic for creativity) and works for a research institution that emphasizes practising innovative science (i.e., a creativity requirement). These factors may provide a fruitful basis for creative work performance, but do not directly influence whether or not the scientist manages to come up with a captivating introduction to a new research article in any specific moment. Research indicates that physical and mental energy may be essential for creativity to arise. For example, research suggests that energy and vitality relate positively to employee creativity (Atwater & Carmeli, 2009; Kark & Carmeli, 2009), most likely because vitality promotes and enables active involvement in creative behavior. Furthermore, mental energy and cognitive factors such as working memory capacity, cognitive persistence, and attention have been found to promote creative thoughts and ideas because they enable “focused and systematic combining of elements and possibilities” (De Dreu et al., 2012; p. 656; Nijstad, De Dreu, Rietzschel, & Baas, 2010). Higher levels of energy and cognitive capacity may thus be helpful to direct attention toward relevant stimuli, to focus on the problem at hand, and to gather information. Moreover, various scholars have argued that positive energy or moods (e.g., joy, enthusiasm) broaden people’s thought–action repertoires and may promote cognitive variation and flexibility, which can promote creativity (e.g., Amabile, Barsade, Mueller, & Staw, 2005; Baas, De Dreu, & Nijstad, 2008; Fredrickson, 2001). Taken together, these studies suggest that physical and mental energy are valuable resources that may be needed for creativity to arise. We propose that people may *proactively manage* these resources when and how they feel the need to, for example in anticipation of challenging work tasks, problems that need to be solved, or when pursuing creative endeavors (Op den Kamp et al., 2018). In this process, the individuals themselves take control and are actively involved in activities to manage their levels of physical and mental energy. In turn, this may help them to perform (more) creatively in their work.

*Hypothesis 1.* Proactive vitality management is positively related to creative work performance. During weeks in which individuals engage in vitality management, they will be able to perform more creatively at work.

#### SELF-INSIGHT

Although there may certainly be individual differences in the extent to which people proactively engage in vitality management, an important assumption that underlies our research is that, in general, “people strive to retain, protect and build resources” (Hobfoll, 1989, p. 513). However, it may be that for some people, working on their levels of vitality is more effective than for others. That is, while most individuals may be able to recognize a personal need for physical and mental energy from time to time, people with a higher level of self-insight may be more accurate in assessing their feelings, needs, and preferences in this process. Self-insight is seen as a personal characteristic that is defined as the understanding of one’s own feelings, thoughts, and behavior (Grant et al., 2002). Self-insight may thus help people to more effectively use proactive vitality management. More specifically, they may signal a need for this type of self-regulatory behavior earlier and more accurately than people with lower self-insight. Moreover, self-insight may promote awareness of what will work in terms of behavioral strategies (i.e., how, when, and where). In addition, self-insight has the potential to positively influence the link between proactive vitality management and creative work performance for at least two more reasons. First, self-insight has been identified as “an important metacognitive process for stimulating adaptive, self-directed change” (Cowden & Meyer-Weitz, 2016, p. 1134; see also, Carver & Scheier, 1998). Therefore, higher levels of self-insight may facilitate the process of proactively using vitality management to promote work goals (i.e., a form of adaptive, self-directed change). Second, research suggests that people with more self-insight are more likely to believe that they will achieve their goals and live up to their potential (Cowden & Meyer-Weitz, 2016), which could motivate them to proactively use vitality management strategies to pursue their (creative) goals and reach higher levels of creativity (cf. creative self-efficacy; Tierney & Farmer, 2002). In this process, individuals with more self-insight tend to focus on their work goals and actively monitor goal process. Moreover, they use feedback to sustain

or develop progress regarding performance and goal achievement (Cowden & Meyer-Weitz, 2016; Grant, 2001). All these qualities may boost the effectiveness of proactive vitality management for creative work performance.

*Hypothesis 2.* The positive relationship between proactive vitality management and creative work performance is moderated by self-insight such that this relationship is stronger when employees have more self-insight.

#### SOCIAL SUPPORT FOR CREATIVITY

Social support refers to supportive interactions between individuals and includes aspects such as helping, proving information, advice and emotional support (House, 1981). Support from social contacts may motivate working individuals and enhance well-being by promoting goal achievement and personal growth (Bakker & Demerouti, 2017; Grant & Parker, 2009) and by satisfying the need to belong, that is, the human desire for relatedness (Deci & Ryan, 2000).

In the current study, we argue that a specific form of social support, the availability of social support for creativity in the workplace (Madjar et al., 2002), may facilitate the link between proactive vitality management and creative work performance. Employees may, for example, explore the potential value of their ideas by discussing them with others. Moreover, in further developing and perfecting a creative thought or idea, supportive colleagues could be of great help in providing feedback and advice. Individuals who proactively use vitality management strategies may be able to think (more) creatively and have the potential to come up with new ideas to improve work products and services. However, when colleagues or supervisors do not support employees in this process, their creative potential may yield less value. Laboratory studies have indeed shown that expecting critical or even threatening evaluations from others may undermine creative performance (e.g., Amabile, Goldfarb, & Brackfield, 1990). In contrast, creativity is promoted when employees feel safe and supported (Oldham & Cummings, 1996) and thus confident enough to come up with ideas and communicate about them. Emotional support may help relieve some of the tension and stress by managing potential uncertainty about one's idea and possible problems to be solved in the creative process (Madjar, 2008) and may bring strength and motivation to persist. In addition, the process may be facilitated by input from surrounding others, reflecting the informational aspect of social support. This input could refer to actual information, knowledge, and feedback, but may also represent different perspectives and the activation of cognitive processes that help form associations between concepts (Madjar, 2008; Paulus & Yang, 2000). Thus, when people feel they can discuss their new and original thoughts at work to improve or find support for them, this may motivate individuals to direct their proactive vitality management toward creative endeavors and may thus translate their creative potential into higher levels of creative work performance.

*Hypothesis 3.* The positive relationship between proactive vitality management and creative work performance is moderated by social support for creativity such that this relationship is stronger when employees experience more social support for creativity at work.

#### METHOD

##### PROCEDURE AND PARTICIPANTS

Data were collected in the Netherlands with the help of student-assistants who sent online questionnaires to working individuals in their network (i.e., network sampling; Demerouti & Rispens, 2014). This method allowed us to test our hypotheses in a heterogeneous sample consisting of individuals working in various types of professions and organizations in the Netherlands. In total, 242 individuals filled out a general survey measuring self-insight and social support for creativity. Subsequently, they participated in a three-week diary study that assessed their proactive vitality management and creative work performance on a weekly basis, yielding a total of 610 observations (i.e., an average of 2.5 observations per participant). The mean age of the participants was 35.67 (SD = 13.55), and 44.2% of the sample was male. Of all participants, 42.1% had completed higher vocational training and 27.4% held a university degree. As the present study concerns weekly assessments of work-related constructs, participants were required to work at least four days per week to be able to participate. Indeed, most participants worked full-time (according to Dutch standards;  $M = 37.71$  hours per week,  $SD = 7.22$ ) in a wide range of professions and sectors relatively representative for the Dutch population, including finances (15.3%), health care (12.4%), hotel and catering

(10.0%), business (7.6%), education (7.2%), government (6.0%) trade, and commerce (6.0%) and, to a lesser extent, in other sectors such as the creative industry and construction work. Of all participants, 50.9% had a permanent work contract (as opposed to a temporary contract) and 27.9% of the participants occupied a supervisory position.

#### PERSON-LEVEL MEASURES

*Self-insight* was measured using the eight-item subscale of the Self-Reflection and Insight Scale (SRIS; Grant et al., 2002). Example items are “I usually know why I feel the way I do” and “I’m often aware that I’m having a feeling, but I often don’t quite know what it is” (reversed-scored) and were responded to on a six-point scale (1 = *totally disagree*, 6 = *totally agree*). Cronbach’s alpha was  $\alpha = .78$ .

*Social support for creativity* was assessed with three items based on the questionnaire developed by Madjar et al. (2002). For efficiency reasons, we decided to merge highly similar items of the original six-item scale. The resulting three items we used were “people at work give me useful feedback about my ideas concerning the workplace,” “I can discuss my work-related ideas with people at work in order to improve them,” and “people at work are almost always supportive when I come up with a new idea about my job” (1 = *totally disagree*, 7 = *totally agree*). Cronbach’s alpha was  $\alpha = .81$ .

#### WEEK-LEVEL MEASURES

*Proactive vitality management* was measured with eight items developed by the authors, converted for use on the week level. Participants were asked to report on the extent to which they had used vitality management strategies to promote their work in the past week. Example items are “Last week, I made sure that I felt energetic during my work” and “Last week, I motivated myself” (1 = *totally disagree*, 7 = *totally agree*). All eight items can be found in Appendix. Cronbach’s alpha ranged from .88 to .92 over the three weeks. To further support the measurement instrument, we conducted a multilevel confirmatory factor analysis (MLCFA) over the eight weekly items. The results of the MLCFA generally indicated a good fit to the data (CFI = .95, TLI = .92, RMSEA = .06, SRMR within = .06, SRMR between = .11). Moreover, all items had substantial standardized loadings on the latent construct, with coefficients ranging from .54 to .88 (all  $p$ 's < .001). In addition, item-level ICCs (i.e., the amount of variance that can be attributed to the person level) ranged from .26 to .40, indicating that a considerable amount of variance remains to be explained on the within-person level. So, the MLCFA results show that proactive vitality management can be measured adequately and reliably on a weekly level and justify the use of a multilevel research design. The eight-item scale was developed and validated in earlier studies (Op den Kamp et al., 2018). The results of these studies also confirmed the one-factor model and showed that the scale is reliable (Cronbach’s alpha was  $\alpha = .88$ , on average). Moreover, the findings showed that the scale has convergent validity, as it was moderately correlated with other proactive constructs (e.g., proactive personality:  $r = .36$ ,  $p < .001$ ); it has discriminant validity as it was unrelated to, for example, psychological detachment ( $r = .03$ ,  $p = .473$ ) and has criterion validity as it was related to well-being (e.g., cognitive liveliness:  $r = .48$ ,  $p < .001$ ) and various (work) outcomes (e.g., in-role performance:  $r = .30$ ,  $p < .001$ , and objective performance on the remote associations test:  $r = .14$ ,  $p < .05$ ).

*Creative work performance* was assessed using five items developed by Zhou and George (2001), converted for use on the week level. An example item is “Last week, I came up with creative solutions to problems” (1 = *totally disagree*, 5 = *totally agree*). Cronbach’s alpha ranged from .86 to .90 over the 3 weeks.

#### CONTROL VARIABLES

Proactive personality, creative requirement, and job autonomy were included into the study and the analysis as controls because of their potential influence on proactive vitality management and creative work performance. Proactive personality and job autonomy may affect people’s tendency or opportunity to proactively engage in vitality management. In addition, both control variables have been linked to creativity in earlier studies (e.g., Kim, Hon, & Crant, 2009; Oldham & Cummings, 1996). Moreover, creative requirement is seen as an important determinant of employee creativity (Unsworth et al., 2005) and may thus directly influence our hypothesized effects as well. Creative requirement was measured by asking participants to what extent they are evaluated on creativity in their work (i.e., suggesting that creativity is expected or even required). Response options ranged from 1 (*not at all*) to 5 (*to a very high degree*). A six-item version of the Proactive Personality Scale (PPS; Bateman & Crant, 1993), validated by Claes, Beheydt, and Lemmens (2005), was used to measure proactive personality. An example item is “I excel at identifying opportunities”

(1 = *totally disagree*, 5 = *totally agree*). Cronbach’s alpha was  $\alpha = .81$ . We measured job autonomy on a weekly basis using three items developed by Bakker, Demerouti, and Verbeke (2004), based on Karasek’s (1985) job content instrument. An example item is “Last week, I could decide myself how to execute my work” (1 = *totally disagree*, 5 = *totally agree*). Cronbach’s alpha ranged from .77 to .88 over the three weeks.

STRATEGY OF ANALYSIS

The data in the current study comprised a multilevel structure with weeks nested within persons. Therefore, we conducted multilevel analysis with HLM 7.01 software (Raudenbush, Bryk, & Congdon, 2013) to test our hypotheses. Prior to testing our hypotheses, we calculated the intra-class correlations (ICC) for both week-level variables, which shows how much of the variance can be attributed to the person level. In line with our expectations, 42% of the variance in proactive vitality management could be attributed to the between-person level and a comparable amount (46% of the variance) was found for creative work performance. These findings indicate that a considerable amount of variance in these variables remained to be explained by the within-person level, justifying the multilevel design of the current study and supporting a multilevel analysis approach.

In addition, we tested whether the slope between the independent variable (proactive vitality management) and the dependent variable (i.e., creative work performance) varied across participants. The slope variance was significant (variance component = .13,  $p < .001$ ), justifying the introduction of person-level variables (i.e., self-insight and social support for creativity) into the analyses to examine cross-level interaction effects. Testing (cross-level) moderation hypotheses requires the inclusion of the main effects of the moderators into the analysis (Aiken, West, & Reno, 1991). Therefore, we controlled for the main effects of self-insight and social support for creativity when testing hypotheses 2 and 3. We conducted multilevel regression analysis based on four nested models introducing successively the intercept (Null model), the predictor (Model 1), the two moderators (Model 2), and their two hypothesized cross-level interaction effects (Model 3).

In the multilevel regression analyses, the person-level variables (i.e., self-insight, social support for creativity, proactive personality, and creative requirement) were grand-mean-centered, and the week-level predictor (proactive vitality management) and control variable (job autonomy) were group-mean-centered (Ohly, Sonnentag, Niessen, & Zapf, 2010). Both the outcome variable (i.e., weekly creative work performance) and the control variable “time” remained uncentered. However, as the time variable proved to be an insignificant predictor of creative work performance and explained no variance, we decided to exclude this variable from further analyses (Hox, 2010).

RESULTS

DESCRIPTIVE STATISTICS

Means, standard deviations and correlations of the variables in the current study are presented in Table 1.

TABLE 1. Descriptive Statistics and Correlations

Variables	M	SD	1	2	3	4	5	6	7
<i>Person level</i>									
1. Self-insight	4.61	.64	—						
2. Social support for creativity	5.27	1.07	.06	—					
3. Proactive personality	3.55	.52	.16***	.13**	—				
4. Creative requirement	2.92	1.07	-.01	.14***	.27***	—			
<i>Week level</i>									
5. Proactive vitality management	5.01	.81	.19**	.18**	.18***	.07	—		
6. Creative work performance	3.08	.63	.05	.16***	.36***	.27***	.44***	—	
7. Job autonomy	3.72	.73	.18**	.23***	.22***	.10*	.38***	.39***	—

Note.  $N = 242$  employees and  $n = 610$  observations. *Self-insight* was scored on a 6-point scale; *social support for creativity* and *proactive vitality management* were measured using a 7-point scale and *proactive personality*; *creative requirement*, *job autonomy*, and *creative work performance* were scored on a 5-point scale. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .



## MULTILEVEL CONFIRMATORY FACTOR ANALYSES

Prior to testing our hypotheses, we used Mplus software (Muthén & Muthén, 1998–2012) to conduct several relevant multilevel confirmatory factor analyses (MLCFAs). First, to examine the measurement model and check for construct validity and independence of our variables, we tested a measurement model containing four factors: creative work performance (five items); proactive vitality management (eight items); self-insight (eight items); and social support for creativity (three items). The multilevel measurement model in which all items of all the variables in our model loaded on their respective latent factors fits the data well (CFI = .93, TLI = .91, RMSEA = .06, SRMR within = .05, SRMR between = .06). In addition, all factors had significant factor loadings ( $p < .01$ ).

Second, we wanted to test thoroughly whether we could empirically distinguish the predictor in our model (proactive vitality management) from the outcome (creative work performance). Therefore, we conducted two multilevel confirmatory factor analyses (MLCFAs) to compare a model in which the items of each construct load on their own respective latent factor to a model in which all items load on one overall latent factor. The model in which the indicators of the two constructs loaded on two separate factors had a good fit to the data (CFI = .93, TLI = .92, RMSEA = .06). Moreover, this model fits the data significantly better than the one-factor model ( $\Delta\chi^2 = 359.06$ ,  $\Delta df = 1$ ,  $p < .001$ ; Sattora–Bentler Scaled  $\Delta\chi^2 = 51.37$ ,  $\Delta df = 1$ ,  $p < .001$ ). Taken together, these results show that proactive vitality management can be empirically distinguished from creative work performance.

## HYPOTHESES TESTING

Proactive personality, creative requirement, and weekly level of job autonomy were included in our analyses as control variables. However, when we analyzed our data again and tested our hypotheses without including the control variables, the results support our hypotheses in the same way. That is, including the control variables did not change the significance of any of the main or interaction effects in our multilevel regression models. As participants' scores on creativity could not be attributed to having a proactive personality, job autonomy, or a creative requirement in one's work, we decided to present the results from the more parsimonious models without the control variables. The results of the multilevel analyses showed that weekly proactive vitality management related positively to weekly creative work performance ( $\gamma = .30$ ,  $SE = .036$ ,  $p < .001$ ), providing support for hypothesis 1 (see Table 2).

According to hypothesis 2, the relationship between proactive vitality management and creative work performance will be stronger for individuals with higher levels of self-insight. While controlling for their main effects, the interaction term of weekly proactive vitality management and self-insight was positively related to weekly creative work performance ( $\gamma = .12$ ,  $SE = .056$ ,  $p < .05$ ), providing initial support for hypothesis 2. We conducted simple slopes tests to further examine the interaction effect. These tests showed that the relationship between proactive vitality management and creative work performance was stronger when self-insight was 1 SD higher than the mean (estimate = .35,  $SE = .038$ ,  $p < .001$ ) than when

TABLE 2. Results of Multilevel Analyses

Variables	Null model		Model 1		Model 2		Model 3	
	$\gamma$	SE	$\gamma$	SE	$\gamma$	SE	$\gamma$	SE
Intercept	3.06**	0.04	3.07**	.04	3.06**	.04	3.06**	.04
Weekly proactive vitality management (PVM)			.30**	.04	.30**	.04	.28**	.04
Self-insight					.02	.06	.02	.06
Social support for creativity					.13**	.04	.13**	.04
Weekly PVM $\times$ self-insight							.12*	.06
Weekly PVM $\times$ social support for creativity							.11**	.03
Variance level-2	.258		.277		.261		.264	
Variance level-1	.308		.261		.261		.252	
Deviance	1283.62		1228.45		1224.13		1218.69	

Note.  $N = 242$  employees and  $n = 610$  observations. \* $p < .05$ , \*\* $p < .01$ .

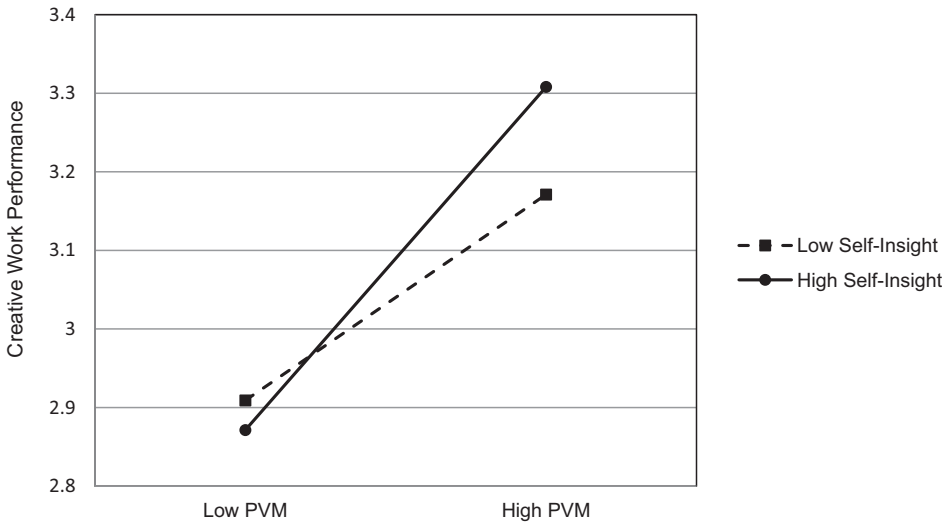


FIGURE 1. Moderation effect of self-insight on the relationship between proactive vitality management (PVM) and creative work performance.

self-insight was 1 SD lower than the mean (estimate = .21, SE = .050,  $p < .001$ ; see Figure 1), providing further support for hypothesis 2.

Hypothesis 3 stated that the link between proactive vitality management and creative work performance will be stronger when there is more support for creativity available in the workplace. While controlling for their main effects, the interaction term of weekly proactive vitality management and social support for creativity was positively related to weekly creative work performance ( $\gamma = .11$ , SE = .034,  $p < .01$ ), providing initial support for hypothesis 3. Simple slopes tests showed that the relationship between proactive vitality management and creative work performance was stronger when social support for creativity was 1 SD higher than the mean (estimate = .36, SE = .054,  $p < .001$ ) than when social support for creativity was 1 SD lower than the mean (estimate = .20, SE = .048,  $p < .01$ ; see Figure 2), further supporting hypothesis 3. In short, the results indicate that both self-insight and support for creativity moderate the proactive vitality management—creative work performance relationship. See Figure 3 for an overview model of all tested relationships.

## DISCUSSION

The present study suggests that people may take control over their creative work outcomes by proactively managing their levels of physical and mental energy. We examined weekly fluctuations in proactive vitality management behavior and creative work performance, within the context of more stable personal and environmental influences on this process. Our findings suggest that people may unleash their creative potential by proactively working on their levels of vitality. This process is facilitated when individuals are aware of their own state (i.e., self-insight), and when their social work environment supports them.

## CONTRIBUTIONS

The present study advances existing knowledge in various ways. First, the findings may contribute to our understanding of the creative process. People who engage in proactive vitality management may reach a state of mind, physically and mentally, in which they can perform (more) creatively. Such behavior is conceptually closer related to the outcome than traditional predictors of creativity, such as personality traits and work characteristics (Anderson et al., 2014). Because people personally undertake action when they feel the need to or when the task at hand asks for it, proactive vitality management may complement these more distal and often relatively stable factors that have been linked to creativity (e.g., job autonomy or work climate). Moreover, proactively managing vitality may enable optimal use of such favorable conditions. To



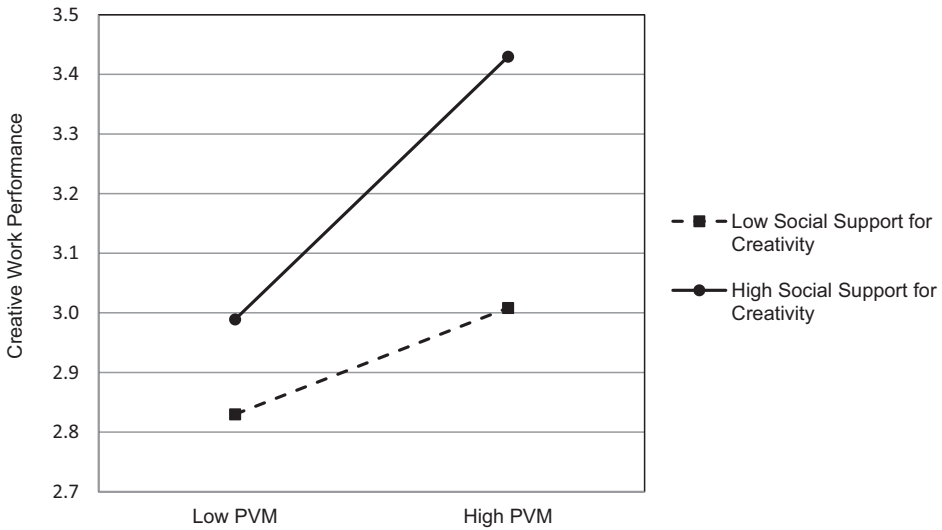


FIGURE 2. Moderation effect of social support for creativity on the relationship between proactive vitality management (PVM) and creative work performance.

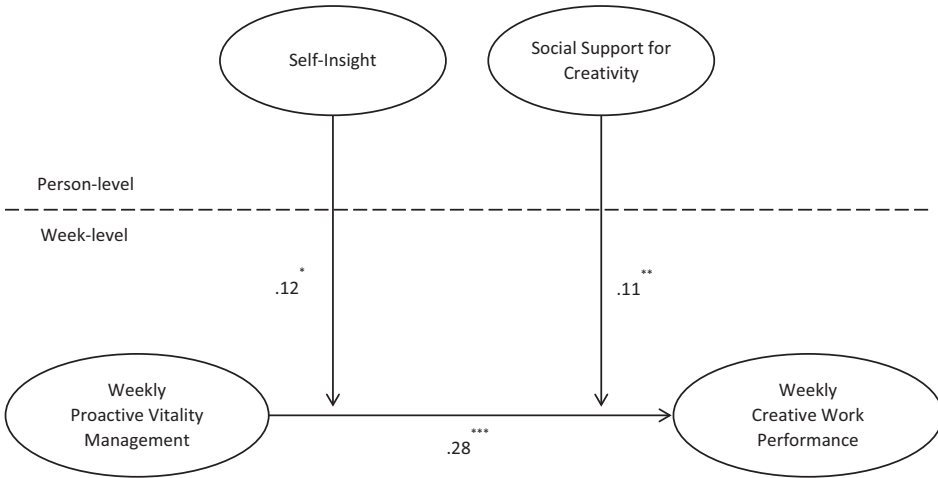


FIGURE 3. Proposed model of proactive vitality management and creative work performance.

illustrate, when intelligent, open-minded individual works in a resourceful environment but fails to manage their physical and mental energy in a certain week, the chances of coming up with new and useful ideas during that week are likely to become smaller. In addition, as the current findings suggest, personal and environmental factors may facilitate the creative process by boosting the influence of proactive vitality management on creative work performance.

Second, proactive vitality management may complement the literature on proactivity, commonly defined as “self-initiated and future-oriented action that aims to change and improve the situation or oneself” (Parker, Williams, & Turner, 2006, p. 636). So far, proactive perspectives have primarily focused on (improving) the job or the work environment and to a lesser extent on directly promoting the self. Through proactive

vitality management, individuals may promote their own physical and mental state to achieve goals and perform more creatively at work (i.e., self-initiated and goal-oriented behavior). Such behavior may thus complement existing proactive approaches, such as job crafting (Tims & Bakker, 2010; Wrzesniewski & Dutton, 2001), voice (LePine & Van Dyne, 1998), and feedback-seeking behaviors (De Stobbeleir et al., 2011).

Third, we combine the proactivity literature with studies that have already provided some indication that certain specific strategies may be helpful to restore physical energy at work (e.g., microbreaks; Fritz et al., 2011; Zacher, Brailsford, & Parker, 2014), or to diminish fatigue after work (cf. recovery; Sonnentag & Fritz, 2015). While recovery activities and microbreaks are mainly used to replenish resources in reaction to strain from work (i.e., a reactive process), we focused on a more anticipatory, proactive process in which individuals purposefully manage or boost their levels of vitality to improve subsequent work performance. Moreover, proactive vitality management refers to managing more than physical energy alone, as vitality also includes a mental component of feeling positive and cognitively alert (Ryan & Frederick, 1997), which is important for (creative) work performance as well. People may use proactive vitality management both during and outside working hours and may choose to employ certain strategies based on individual and momentary needs (e.g., in anticipation of complex work tasks) and preferences (e.g., exercising vs. meditating; seeking solitude vs. inspirational colleagues). Subsequently, as the current findings suggest, such behavior is associated with higher creative work performance, especially when people are more aware of their own state and when they feel supported by their social environment.

#### LIMITATIONS AND FUTURE RESEARCH

We have tested our hypotheses using a multilevel design including multiple, consecutive workweeks. This design allowed us to examine within-person fluctuations in proactive vitality management in relation to creative work performance, and the role of personal and contextual characteristics that may strengthen the proactive vitality management-creative work performance relationship. The research sample consisted of a relatively heterogeneous group of participants, which promotes both the generalizability and the relevance or applicability of the findings. A limitation of the study is that we cannot infer causality from the current findings, even though we have been able to identify relevant and meaningful patterns in the data that correspond to theory and to our hypotheses. Because we measured our constructs on a weekly basis, retrospective bias was reduced because of the relative proximity of the measurement to the behavior that is reflected upon. However, even *within* weeks there may be fluctuations in the extent to which individuals proactively work on their vitality to promote their work, which calls for future research that zooms in on the process even further, such as daily diary studies or even the sampling of behaviors and experiences within workdays (i.e., experience sampling studies).

Another limitation is that we have examined the constructs of interest in this study using self-report measures. It may be valuable to investigate creative work performance using less subjective measurements. However, work-related objective measures of creativity are difficult to realize in practice and are a recurring subject of discussion (e.g., Zhou & Shalley, 2003). As an alternative to objective measures, researchers have often used supervisor ratings of creativity (e.g., De Stobbeleir et al., 2011; Oldham & Cummings, 1996; Tierney, Farmer, & Graen, 1999; Zhou & George, 2001). However, such studies usually concern general levels of creative potential or performance. As was also pointed out by Binnewies and Wörnlein (2011), it may be difficult for supervisors to adequately observe *fluctuations* in creative work performance within their employees. So, while supervisor ratings of creativity may be very valuable, our diary approach made us opt for a self-report format to measure creative work performance. This approach is further supported by research showing that self-rated creativity is positively related to biographical information about specific creative behaviors (e.g., building websites, publishing research, composing music Batey & Furnham, 2008), and to creativity as rated by experts (Kaufman, Beghetto, & Watson, 2016).

Although the current findings show that proactive vitality management is relevant for creativity at work, it is expected that such behavior may influence a wider array of outcomes. As it is defined, proactive vitality management entails goal-oriented, individual behavior that is aimed at increasing physical and mental energy to promote optimal functioning at work. In future studies, it may be valuable to incorporate other relevant, potential outcomes, such as in-role job performance, productivity, or goal achievement.

#### PRACTICAL IMPLICATIONS

The current findings may be useful for many working individuals (i.e., employees, freelancers, managers). Individuals may proactively use various vitality management strategies to improve their own

levels of creative performance. Besides professions that are generally seen as “creative,” such as writers, filmmakers, or artists, there are many work scenarios conceivable in which creativity is warranted. For example, when the CEO of a large company has to pitch a new organizational strategy to the board that will ensure innovative advantage to stay ahead of competition; when an intensive care nurse wants to protect patient healthcare in times of reorganization and budget cuts by coming up with more efficient work procedures; or when a school teacher has a classroom full of unfocused students and tries to come up with a novel and exciting way to motivate them to do their homework and to learn new things.

Our results corroborate earlier studies in which (aspects of) vitality have been linked to creative performance (e.g., De Dreu et al., 2012; Fredrickson, 2001; Kark & Carmeli, 2009) and emphasize the importance of a proactive approach in the creative process. To stimulate this, interventions may be developed to encourage people to proactively work on their levels of vitality and to stimulate awareness of personal needs and preferences in this process. Moreover, supervisors may facilitate this process by stimulating their employees to use proactive vitality management and by providing them with the opportunity to engage in preferential strategies (e.g., providing a certain degree of job autonomy). Moreover, our findings show that self-insight may play a valuable role in boosting the influence of proactive vitality management on creative work performance. Being unaware of, or unable to assess personal feelings and potential needs regarding physical and mental energy may weaken the effectiveness of proactive vitality management. These insights suggest that people may benefit from engaging in self-reflection or other forms of training (cf. Saunders et al., 2007) to promote their own levels of self-insight. Third, besides being aware of one’s own state, the current findings suggest that social support for creativity in the workplace may facilitate the proactive vitality management—creative work performance relationship. An unsupportive work environment (e.g., having uninterested, overly conventional, critical, or even undermining co-workers) might diminish the relationship between proactive vitality management and creativity. As a manager, it may thus be valuable to take the current findings into account and promote a social work environment in which individuals can share and discuss their ideas. In addition, individuals themselves may actively seek feedback and support for their ideas from colleagues or their managers (cf. De Stobbeir et al., 2011; Tims & Bakker, 2010; Wrzesniewski & Dutton, 2001).

## CONCLUSION

In a knowledge economy where competition is fierce, creativity is generally seen as an important facet of work performance. Which factors promote or hinder creative work performance has been a focus of many scientific studies over the years. However, while a predominant part of the working force consists of employees rather than managers or CEOs, the creativity literature traditionally focuses on how managers may foster employee creativity. Our research suggests that people may take control and make themselves more creative in their work by proactively managing their own levels of vitality. The scientist who was struggling to write the introduction to her article may find comfort in the fact that she is no exception (Grant & Pollock, 2011). However, the current findings suggest that perhaps proactively engaging in vitality management may help individuals to reach their work-related goals.

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APPENDIX

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<b>Items weekly proactive vitality management</b>	
1	Last week, I made sure that I felt energetic during my work
2	Last week, I made sure that I could focus well on my work
3	Last week, I motivated myself
4	Last week, I made sure that I could approach my work with a fresh pair of eyes
5	Last week, I tried to inspire myself
6	Last week, I made sure that I had enough space in my head to think
7	Last week, I made sure to approach my work with a positive mindset
8	Last week, I made sure that I could do things that make me enthusiastic

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