Finding Peace of Mind When There Still Is So Much Left Undone—
A Diary Study on How Job Stress, Competence Need Satisfaction, and Proactive Work Behavior Contribute to Work-Related Rumination During the Weekend

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Unfinished work tasks have been identified as a significant job-related stressor in recent occupational stress research. Extending this research, we examine how and when not finishing one’s tasks by the end of the work week affects work-related rumination at the weekend. Drawing on control theory, we examined competence need satisfaction as a mediating mechanism that links unfinished tasks at the end of the work week to work-related rumination at the weekend. Furthermore, we scrutinized whether proactive work behavior within the work week may neutralize the detrimental effects of unfinished tasks on competence need satisfaction and rumination. Using diary methodology, we collected weekly observations from 58 employees at the beginning and at the end of the work week over a period of 12 consecutive weeks, yielding 377 matched observations. Multilevel modeling analyses provided evidence for the assumed indirect effect at the intraindividual level. Higher levels of unfinished tasks were associated with lower levels of competence need satisfaction during the weekend. Competence need satisfaction, in turn, was negatively related to work-related rumination. Proactive work behavior attenuated the detrimental effects of unfinished tasks on competence need satisfaction and rumination at the weekend. These results imply that proactive work behavior facilitates switching off mentally during the weekend as it may restore competence need satisfaction in the face of unfinished tasks.

Keywords: unfinished tasks, competence need satisfaction, proactive work behavior, work-related rumination, diary study

A considerable volume of research on goal attainment suggests that not attaining personally relevant goals impairs affective well-being (e.g., Gabriel, Diefendorff, & Erickson, 2011; Harris, Daniels, & Briner, 2003; see Klug & Maier, 2015 for meta-analytic evidence). In the domain of occupational health research, recent studies have provided evidence that incomplete work goals (Smit, 2015) and unfinished tasks (Syrek & Antoni, 2014) at the end of the work day may encroach upon leisure time and impede unwinding from job demands. More specifically, empirical evidence links unfinished tasks to a lack of psychological detachment (Smit, 2015; Weigelt & Syrek, 2017) and work-related rumination (Syrek, Weigelt, Peifer, & Antoni, 2017). Work-related rumination—that is, having perseverative thoughts about unresolved work-related issues—has been found to result in higher levels of negative affect (Wang et al., 2013), sleep impairment (Syrek et al., 2017), and cardiovascular stress indicators (Vahle-Hinz, Bamberg, Dettmers, Friedrich, & Keller, 2014; Zoccola, Rabideau, Figueroa, & Woody, 2014). Likewise, not being able to detach from work (which implies rumination to some degree; see Binnewies, Sonnentag, & Mojza, 2009) is positively associated with exhaustion, fatigue, and need for recovery (Kinnunen, Feldt, Siltaloppi, & Sonnentag, 2011; Querstret, Cropical, Kruger, & Heron, 2016; Siltaloppi, Kinnunen, & Feldt, 2009).
Given this host of evidence on the negative well-being consequences of rumination and related processes, it is surprising how little is known about how and when job stressors—such as unfinished tasks—actually affect work-related rumination. We address this gap in the literature and investigate a specific mechanism likely to be involved in the detrimental effects of unfinished tasks on work-related rumination, that is, an impaired competence need satisfaction. Drawing on control theory (Carver & Scheier, 1982, 1990) and self-determination theory (Deci & Ryan, 2000), we explain how competence need satisfaction (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000) links unfinished tasks to negative thoughts about work during the weekend. Our basic premise is that unfinished tasks at the end of work foster rumination by conveying a sense of failure, and hence, lack of competence need satisfaction. Furthermore, we investigate whether the detrimental effect of unfinished tasks on work-related rumination can be buffered by making use of alternative sources of competence need satisfaction. Proactive work behavior refers to “self-initiated and future-oriented action that aims to change and improve the situation or oneself” (Parker, Williams, & Turner, 2006, p. 636). Given that proactive behavior means that employees take charge of the situation and actively initiate change, this type of discretionary behavior at work is highly relevant for experiences of personal mastery (Cangiano & Parker, 2016) beyond core task accomplishment. Our study follows up on research that has taken an integrative perspective on the roles of task performance and proactive behavior as well as their compensatory effects on the satisfaction of basic needs (Fay & Sonnentag, 2012). We extend this stream of research by taking a closer look at how unfinished tasks and proactive work behavior affect competence need satisfaction and work-related rumination during nonwork time, that is, during the weekend. In sum, the experience of failure in core tasks and—at the same time—a sense of progress, accomplishment, and improvement through proactive work behavior should result in the restoration of competence need satisfaction. In turn, restored competence need satisfaction should facilitate “switching off” during the weekend.

This study aims at enhancing our understanding of how and when unfinished tasks are associated with rumination in at least two ways: First, we specify competence need satisfaction as a linking mechanism between unfinished tasks and rumination. Second, we examine proactive work behavior as compensatory action that allows for competence need satisfaction despite failure to accomplish core work tasks. In this sense, our study contributes to our understanding of the relative roles of goal attainment in core and proactive tasks and how proactive work behavior might contribute to reducing work-related rumination. Importantly, we extend current approaches beyond short-term effects of extrarole behaviors on well-being at the day level (Fay & Hüttges, 2016; see also Koopman, Lanaj, & Scott, 2016), and we consider spillover effects which may take some time to unfold (Fay & Sonnentag, 2010). From an intervention perspective, our study informs science and practice on leverage points for prevention and health promotion strategies specific to dealing with stressors such as unfinished tasks. Our theoretical model is depicted in Figure 1. In the following sections, we derive the assumptions within this moderated mediation model.

Figure 1. Hypothesized intraindividual-level moderated mediation model.

Linking Unfinished Tasks as a Job-Related Stressor to Work-Related Rumination

Unfinished business has been of interest as a source of motivated behavior from the early days of psychology. In the 1920s, Zeigarnik (1927) studied the effects of interrupting participants while working on different tasks during an experiment. Afterward she asked participants to recall the tasks they had worked on in the prior session and found that preventing participants from finishing certain tasks resulted in better memory for these unfinished tasks. Recently, the notion of this so-called Zeigarnik effect has been applied from experimental psychology to field research on occupational stress (Syrek & Antoni, 2014).

In general terms, rumination refers to recurrent thoughts about an issue, that are present even in the absence of external demands requiring these thoughts (Martin & Tesser, 1996). More specifically, we focus on work-related rumination as our focal outcome (Querstret & Cropley, 2012). Although, there might be positive ways of thinking and reminding about work in terms of positive work reflection (Binnewies et al., 2009) and creatively thinking about work in terms of problem-solving pondering (Cropley & Zijlstra, 2011), we focus on rumination in terms of negative ways of thinking about work. This approach is in line with our aim to follow up on research on the detrimental effects of unfinished tasks on work-related rumination. Our basic premise is that unfinished tasks at the end of work foster rumination by conveying a sense of failure, and hence, lack of competence need satisfaction. Furthermore, we investigate whether the detrimental effect of unfinished tasks on work-related rumination can be buffered by making use of alternative sources of competence need satisfaction.

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tasks. Work-related rumination has been considered as a short-term strain reaction (see for instance, rumination as one facet of irritation, Mohr, Müller, Rigotti, Aycan, & Tschan, 2006). In essence, rumination can be described as a cognitive state, accompanied by (negative) affective experiences (see Cropley & Zijlstra, 2011). Syrek et al. (2017) provide evidence that rumination is a key mechanism that links unfinished tasks to employee health and shows that rumination may capture the tension resulting from unattained goals. These authors applied experience sampling methodology and studied intraindividual links between unfinished tasks reported on Friday and experienced sleep impairment during the weekend over a period of 12 consecutive weeks. In the present study, we build on their main finding that unfinished tasks are positively linked to rumination. The question remains unanswered how and when unfinished tasks initiate rumination. Given that the link between rumination and indicators of (impaired) well-being or health is well established (see research reviewed in the preceding text), we focus on the antecedents and mechanisms that lead to rumination. More specifically, we examine the relationship between unfinished tasks and rumination as a precursor of health-impairing effects. Cropley and Zijlstra (2011) distinguish between three facets of work-related rumination, namely affective rumination, problem-solving pondering, and psychological detachment—a state that implies the absence of ruminative thoughts. As we expect, unfinished tasks to signal lack of competence and consequently to result in negative tension (Martin, Tesser, & McIntosh, 1993), we focus on affective rumination as a cognitive state. Affective rumination is characterized “by the appearance of intrusive, pervasive, recurrent thoughts, about work, which are negative in affective terms” (Cropley & Zijlstra, 2011, p. 10). Given that the other two facets of work-related rumination either lack the negative affective quality (problem-solving pondering, Cropley & Zijlstra, 2011; Querstret & Cropley, 2012) or are unspecific about the valence of thoughts about work (psychological detachment, Binnewies et al., 2009), we believe affective rumination is the best way to conceptualize the short-term cognitive-emotional reactions to unfinished tasks. Hence, throughout this article, work-related rumination refers to the affective facet (i.e., negatively tinted cognitions) of rumination only, if not explicitly stated otherwise.

So far, we have emphasized the relevance of job-related unfinished tasks as a source of work-related rumination over the weekend as signaling short-term strain reactions. Our study offers the opportunity to replicate the positive association between unfinished tasks and rumination found in prior research (Syrek & Antoni, 2014; Syrek et al., 2017). We examine this direct link as part of our analysis in order to test the replicability of this relationship. To further advance this line of research we set out to consider and examine the psychological mechanisms that explain how unfinished tasks as reported at the end of the work week affect rumination. For this purpose, we turn to the function of goal accomplishment for basic human needs.

Unfinished Tasks as a Threat to Competence Need Satisfaction

In the preceding text we have referred to prolonged cognitive representation of unfinished tasks as the mechanism that creates work-related rumination, which in turn impairs well-being. However, the pattern of results in the study by Syrek et al. (2017) suggested that prolonged cognitive representation cannot be the only mechanism here. In their week-level experience sampling study, these authors found that though unfinished tasks at the end of the work week were positively associated with affective rumination and problem-solving pondering (i.e., creatively thinking about work-related issues) during the weekend, the latter did not predict sleep impairment. As problem-solving pondering also implies prolonged cognitive representation, but lacks the negative valence implied in affective rumination (Cropley & Zijlstra, 2011), the prolonged activation alone might not suffice to explain the adverse effects. Hence, in this article, we make a case for an alternative psychological mechanism: Unfinished tasks at the end of the work week may signal a failure of attaining the higher order goal of competence need satisfaction, and ultimately result in a negative view of the self.

From the perspective of stress as offense to self (Semmer, Jacobshagen, Meier, & Elfering, 2007), failure in job-tasks is theorized to be related to evaluation of the self. If an employee fails to live up to their personal standards, self-esteem is threatened (“stress through insufficiency,” Semmer et al., 2007, p. 46). Given the pivotal role of competence with regard to self-evaluations, we expect unfinished tasks at the end of the work week to act as an indicator of personal failure to achieve work-related goals. Control theory (Carver & Scheier, 1982, 1990) underscores that making progress toward personally relevant goals is crucial for individuals’ well-being. For example, Gabriel et al. (2011) found low levels of goal attainment satisfaction to be associated with increases in negative affect and decreases in positive affect. These results corroborate the general argument inherent in our line of reasoning that failure to attain personally relevant goals has significant impact on how employees think and feel about themselves.

We consider competence need satisfaction to be linked to unfinished tasks as “the need for competence is fulfilled by the experience that one can effectively bring about desired effects and outcomes” (Reis et al., 2000, p. 420). According to Sheldon and Elliot (1999), “competence refers to the feeling that one is effective and able in one’s behavior, rather than ineffectual and inept” (p. 484). Facing unattained goals on Friday afternoon when leaving work signals having missed at least some of the specific goals set for the current week (Smit, 2015). Hence, from a theoretical point of view, unfinished tasks are likely to act as a threat to experiencing the self as competent, because progress toward finishing important tasks (and the lack thereof) has direct implications for competence need satisfaction (Carver & Scheier, 1982, 1990; Sheldon & Elliot, 1999). We therefore assume a negative effect of unfinished tasks on subsequent competence need satisfaction.

Drawing on experimental lab research (Martin & Tesser, 1996) and applied field research on unfinished tasks and rumination (Smit, 2015; Syrek & Antoni, 2014; Syrek et al., 2017), we expect that unfinished tasks yield sustained effects that linger after work or may even build up during the weekend, once employees have opportunities for reflection about the most recent work week. On the one hand, mere prolonged cognitive representation of unfinished tasks per se might impair switching off immediately after work. However, these detrimental effects of prolonged cognitive representation can be expected to decline over time. On the other hand, self-critical reflection about failure as reflected in competence need satisfaction and the lack thereof might have more
sustained effects and take effect not before a significant time lag has passed. For this reason, we assume that the effects of unfinished tasks reach beyond Friday afternoon and spill over into the weekend. More specifically, we suggest that unfinished tasks trigger reflection about competence need satisfaction during the weekend. Wang et al. (2013) argued that the motivation to finish the task remains during leisure time and it is therefore rather “a matter of time until the distraction attempts dissipate and rumination thoughts surface” (p. 991). Given that this study is aimed at tapping into intrapersonal psychological processes, we specify our hypotheses at the within-person level.

*Hypothesis 1:* At the intrapersonal level, unfinished tasks at the end of the week are negatively related to competence need satisfaction during the weekend.

**Competence Need Satisfaction as a Driver of Work-Related Rumination**

So far, we have argued that unfinished tasks at the end of the work week signal a failure of attaining core task goals and hence the goal of positive evaluations of the self in terms of competence need satisfaction. Drawing on control theory (Carver & Scheier, 1982, 1990), we further expect that the discrepancy between wanting to achieve a certain goal and having achieved the goal only partly will in turn foster work-related rumination. Our focus on competence need satisfaction as a predictor of rumination appears warranted as prior research has demonstrated that in particular competence need satisfaction is linked to short-term responses in affect and self-esteem (Heppner et al., 2008). As we have outlined above, lower levels of competence need satisfaction are expected to result from failure to attain core task goals within the work week. This discrepancy between aspired image of the self and actual level of competence need satisfaction implies negative self-evaluations (Semmer et al., 2007) and, hence, is likely to be accompanied by negative thoughts circling around (resolving) this discrepancy (Martin et al., 1993). Consequently, we propose that competence need satisfaction and rumination during the weekend are negatively related. In line with this notion, empirical evidence shows that work-related competence need frustration accounts for an increase in psychosomatic complaints within a period of 12 months (Trépanier, Fernet, & Austin, 2016). Given the relevance of competence need satisfaction for rumination and related outcomes, we postulate the following:

*Hypothesis 2:* At the intrapersonal level, competence need satisfaction is negatively related to work-related rumination during the weekend.

Following the rationale outlined in the preceding text, we specify competence need satisfaction as a mediator variable between unfinished tasks and work-related rumination. The indirect link between unfinished tasks and work-related rumination via competence need satisfaction is in line with general assumptions in the self-concordance model (Sheldon & Elliot, 1999). The model suggests that basic need satisfaction, particularly competence need satisfaction, is the linking mechanism between attainment of self-concordant goals and well-being in terms of affect and satisfaction with life. More specifically, “Attainment-to-well-being effects are mediated by need satisfaction, i.e., daily activity-based experiences of autonomy, competence, and relatedness” (Sheldon & Elliot, 1999, p. 48). Sheldon and Elliot (1999) presented empirical evidence for basic need satisfaction as a mediator through a series of longitudinal studies among students. Given that rumination is a precursor of well-being, our study can be considered a more specific test of the proposed link between goal attainment, need satisfaction, and well-being in an occupational field setting. Consequently, we state the following:

*Hypothesis 3:* At the intrapersonal level, unfinished tasks at the end of the week are indirectly linked to work-related rumination during the weekend via competence need satisfaction during the weekend.

**How Unfinished Tasks and Proactive Work Behavior Interact to Predict Competence Need Satisfaction**

Current research on proactivity and well-being is particularly concerned with the bivariate links between proactive work behaviors and employee well-being (Cangiano & Parker, 2016; Strauss, Parker, & O’Shea, 2017). Two main research perspectives on this link can be distinguished: On the one hand, building on self-determination theory, it has been theorized that proactive work behavior fosters well-being as it can be a means to the end of psychological need satisfaction (Cangiano & Parker, 2016; Strauss & Parker, 2014; Wu, Deng, & Li, 2017). In particular, through setting and achieving proactive goals, individuals are likely to satisfy their need for competence. On the other hand, it has been argued that proactive work behavior is energy consuming, potentially resource-draining, and therefore may be associated with high psychological costs (e.g., Belschak & Hartog, 2010; Bolino, Valcea, & Harvey, 2010). In line with this perspective, Fay and Hüttges (2016) found that proactive work behavior is associated with increased levels of strain in terms of increased cortisol levels at the day level. Similarly, Strauss et al. (2017, Table 2) reported a positive association of proactive behavior and job strain. In sum, on the one hand there are theoretical arguments for well-being enhancing effects of proactive work behavior. On the other hand, empirical evidence points to strain enhancing effects, which might imply that well-being is likely to suffer from proactive work behavior—at least in the short run. To reconcile these contradictory lines of research, we propose studying proactive work behavior not in an isolated way in terms of main effects, but in its interplay with unfinished tasks (Fay & Sonnentag, 2012). Fay and Sonnentag (2012) provided empirical evidence that employees engage in proactive work behavior particularly when individuals’ sense of competence is low due to failure in core tasks. This finding suggests that proactive behaviors offer opportunities for success, which in turn is conducive to their need for competence. Arguably, although proactive work behavior might be a means to competence need satisfaction, investing time in extrarole efforts may come at the cost of spending less time on core tasks (Fay & Sonnentag, 2010, 2012). In turn, this may result in less progress in core tasks in the short run, and might even increase the levels of unfinished tasks at the end of the work week. In line with this reasoning, empirical evidence from research on helping behavior (another form of discretionary work behavior) suggests that higher

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1 We thank an anonymous reviewer for raising this issue.
levels of daily helping behavior come at the cost of lower progress toward core task goals. Reduced work goal progress, in turn, was associated with impaired well-being (Koopman et al., 2016). Unlike other kinds of work-related behaviors, proactive behaviors are self-initiated and can be expected to be in line with personal goals and values (i.e., self-concordant, Sheldon & Elliot, 1999). Hence, proactive behavior might contribute to the satisfaction of basic psychological needs particularly when perceived goal progress in core work tasks is low (Fay & Sonnentag, 2012).

Theorizing on rumination, Martin and Tesser (1996) suggested that “the best way to terminate rumination is to attain the goal that is driving the rumination” (p. 42). Alternatively, substitute activities might compensate for deficits in the very same psychological needs. This assumption has been supported empirically in classic experimental lab research (Lissner, 1933; Mahler, 1933; see Martin et al., 1993 for an overview). For instance, building on the Zeigarnik effect, Lissner (1933) interrupted participants while working on a focal task, then offered a second task as a substitute action, and recorded whether participants resumed the original task after finishing the substitute task. The more difficult and the more similar substitute tasks, the less likely participants were to resume the original task. These results suggest that substitute actions may reduce tension created by unfinished tasks as they have the potential to regain basic need satisfaction in the face of deficits. We apply this general principle to the domain of work-related rumination. We therefore expect that high levels of proactive behavior compensate for low levels of goal accomplishment in core tasks (i.e., high levels of unfinished tasks). Hence, we expect that unfinished tasks and proactive behavior interact to predict competence need satisfaction. More specifically, we suggest that a combination of high levels of unfinished tasks and low levels of proactive work behavior is associated with the lowest levels of competence need satisfaction. In comparison to this pattern, a configuration of high levels of unfinished tasks and high levels of proactive work behavior at the same time should be associated with higher levels of competence. Competence need satisfaction, in this case, should be more similar to situations when low levels of unfinished tasks are present, irrespective of proactiveness. Stated in terms of a moderation effect, taking charge should weaken the detrimental link between unfinished tasks and competence need satisfaction.

**Hypothesis 4:** At the intraindividual level, proactive work behavior throughout the week alleviates the negative effect of unfinished tasks at the end of the week on competence need satisfaction during the weekend.

Consequently, we consider whether the indirect effect specified in Hypothesis 3 is dependent upon proactive work behavior. Through this compensatory mechanism to retain competence need satisfaction, proactive work behavior can further reduce the negative indirect effect of unfinished tasks on rumination.

**Hypothesis 5:** At the intraindividual level the indirect link between unfinished tasks at the end of the week and work-related rumination during the weekend is moderated by proactive work behavior. High levels of proactive work behavior attenuate the positive indirect link between unfinished tasks and work-related rumination.
Table 1
Means, Standard Deviations, and Correlations Among Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>( M )</th>
<th>( SD )</th>
<th>ICC ( \alpha ) Level 1</th>
<th>( \alpha ) Level 2</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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</thead>
<tbody>
<tr>
<td>1. Gender (male = 0, female = 1)</td>
<td>.74</td>
<td>.44</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<tr>
<td>2. Age</td>
<td>37.04</td>
<td>9.41</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<td>3. Tenure in years</td>
<td>7.07</td>
<td>6.61</td>
<td>—</td>
<td>—</td>
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<td>—</td>
<td>—</td>
<td>—</td>
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<tr>
<td>4. Unfinished tasks</td>
<td>2.44</td>
<td>1.00</td>
<td>.65</td>
<td>.89</td>
<td>.99</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<tr>
<td>5. Proactive work behavior</td>
<td>2.95</td>
<td>.78</td>
<td>.46</td>
<td>.84</td>
<td>.93</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<tr>
<td>6. Competence need satisfaction (weekend)</td>
<td>3.59</td>
<td>.59</td>
<td>.55</td>
<td>.76</td>
<td>.98</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<tr>
<td>7. Affective rumination</td>
<td>1.63</td>
<td>.59</td>
<td>.49</td>
<td>.84</td>
<td>.95</td>
<td>—</td>
<td>—</td>
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Note. Correlations below the diagonal are person-level correlations (\( N = 58 \), except for gender, age, and tenure \( N = 57 \)), correlations above the diagonal are week-level correlations (\( N = 377 \)). Correlations in bold type are significant at \( p < .05 \). ICC = intra-class correlation; \( \alpha \) Level 1 = Multilevel alpha at the intra-individual level; \( \alpha \) Level 2 = Multilevel alpha at the inter-individual level.

Measures

Within our week-level diary surveys we applied validated rating scales from prior research adapted for the purposes of study to capture focal variables. All scales ranged from 1 (strongly disagree) to 5 (strongly agree). Variables referring to the work week were captured on Friday. Experiences during the weekend were measured on Monday.

Unfinished tasks (Friday). We applied a five-item scale developed and validated by Syrek and Antoni (2014) to measure unfinished tasks at the end of the week. A sample item was “I have not finished important tasks that I had planned to do this week.”

Proactive work behavior (Friday). We focus on taking charge (Morrison & Phelps, 1999) as one aspect of proactive work behavior that refers to—literally—taking actions to effect organizationally functional change. Accordingly, taking charge encompasses actual behaviors beyond the oral communication of ideas (Parker & Collins, 2010). We applied a set of four items from Morrison and Phelps (1999) to measure taking charge during the past week. We adapted the items to a self-rating format in past tense by substituting “this person often tries/makes [. . .]” by “I tried/made [. . .]” Participants rated to which degree they had engaged in the behaviors described by the items throughout the last work week.

We selected four out of 10 items to reduce workload for the participants. Our main goal in choosing the items was to maintain the breadth of behaviors captured by the original scale; thus, we left out items that captured very similar behaviors. We used the following items: “I tried to adopt improved procedures for doing my job,” “I made constructive suggestions for improving how things operate within the organization,” “I tried to implement organizational rules or policies that are nonproductive or counterproductive.” We dropped four other items of the original scale that deal with improved or more effective work procedures, structures, or technologies (for the individual’s job, work unit, or company) because they are very similar to the first two items we selected. Further, we left out two other items that assessed behaviors such as correcting or eliminating faulty or redundant procedures, which are similar to the last two items we selected.

Competence need satisfaction during the weekend (Monday). We measured competence need satisfaction during the weekend on Monday using three items adapted from Van den Broeck, Vansteenkiste, De Witte, Soenens, and Lens (2010). Although some of the original items refer explicitly to work, work-related tasks, or the job itself, items in our study were adapted to refer to competence need satisfaction in more general terms. The items were as follows: “During the weekend did you have the feeling that you can accomplish even the most difficult tasks?” “During the weekend did you have the feeling that you are good at the tasks you have to do?” and “During the weekend did you have the feeling that you are competent at the things you do?”

A work basic need satisfaction scale and general basic need satisfaction items (Sheldon, Elliot, Kim, & Kasser, 2001) had been included in the baseline survey to facilitate choice of the most reliable items. We chose the three highest loading items from the comprehensive set of items for assessment of competence need satisfaction at the week level.²

Work-related rumination during the weekend (Monday). We applied a five-item scale (Cropley, Michalianou, Pravettoni, & Millward, 2012) on Monday to measure the affective facet of rumination experienced during the weekend. An example item is “This weekend, I became tense when I thought about work-related issues.”

To examine the reliability of the focal scales, we conducted multilevel confirmatory factor analyses in MPlus 8 (Muthén & Muthén, 1998–2017). We compared concurring models, specifying homologous factorial structure at the intra-individual and the inter-individual level. More specifically, we compared a four-factor model, in which all focal items loaded on their respective factors (unfinished tasks, proactive work behavior, competence during the weekend, rumination during the weekend) with competing one-factor, two-factor, and three-factor models. According to conventions for interpreting model fit (Hu & Bentler, 1999), our four-factor model had acceptable to good fit to the data, \( \chi^2(226) = 332.22 \), comparative fit index (CFI) = .968, Tucker–Lewis index (TLI) = .962, root mean square error of approximation (RMSEA) = .035, standardized root-mean square residual (SRMR) \( \text{Within} = .038, \text{SRMR} \text{Between} = .072 \). The four-factor model was superior in comparison to the alternative models (fit indices for the best fitting alternative model: \( \Delta \chi^2(112) = 966.77 \); \( \chi^2(334) = 1298.99 \), CFI = .771, TLI = .740, RMSEA = .088, SRMR \( \text{Within} = .113, \text{SRMR} \text{Between} = .274 \). Given that the pattern of factor loadings was in line with the hypothesized factorial structure, multilevel

² Detailed information on the factorial structure is available from Oliver Weigelt.
alpha for each scale was calculated following procedures introduced by Geldhof, Preacher, and Zyphur (2014) implemented in R by Huang (2016). Multilevel alphas ranged from .76 to .89 at the intrapersonal level and from .93 to .99 at the interindividual level. Reliability was hence satisfactory at both levels of analysis. For all focal scales, respective items were averaged to form composite scores for use as predictor, moderator, mediator, or criterion variables in multilevel regression analysis.

**Regular work at the weekend.** As part of the survey on Mondays we asked participants to indicate using a binary response format (no/yes), whether they had worked during the weekend as part of their regular working hours. We captured this information for use as a control variable to rule out that our results may be biased. A negligibly small portion of observations (11 out of 377) indicated that participants had worked during the weekend.

**Analytic Strategy and Procedures**

We applied multilevel modeling for repeated measures (Raudenbush & Bryk, 2002). Within the context of our study, effects on Level 1 refer to within-person fluctuations over multiple weeks. We calculated intraclass correlations (ICC) for our focal variables to gain insights into what extent these experiences and behaviors underlie fluctuations within individuals across time, which is a prerequisite for multilevel modeling. The ICC(1) for our focal outcome rumination was .53. Additional analyses yielded an ICC(1) of .65 for unfinished tasks, an ICC(1) of .47 for competence need satisfaction, and a corresponding value of .44 for proactive work behavior. Hence, our multilevel approach was warranted (Singer & Willett, 2003).

Throughout all models, we centered the intrapersonal level (Level 1) predictors at the person-mean. Our analyses consequently refer to deviations from the average level of each variable over multiple weeks for each person (Enders & Tofghi, 2007). We applied the “lme4” and the “mediation” libraries for the R statistics package (Bates, Mächler, Bolker, & Walker, 2015; Tingley, Yamamoto, Hirose, Keele, & Imai, 2014) and followed recommendations for specifying random coefficient models using R (Bliwise & Ployhart, 2002). We built models step by step, beginning with the least complex null model. As a precaution against potential violations of multilevel modeling assumptions we specified autocorrelation and heteroscedasticity (see Bliwise & Ployhart, 2002) in preliminary analyses using the “nlme” library (Pinheiro & Bates, 2000). As both specifications did not improve fit of the statistical models these elements were omitted in the focal models for reasons of parsimony. We specified time trends as a predictor to control for the ordering of observations, to account for potential growth effects over the period of 3 months, and to rule out that our estimates of intrapersonal effects may be biased by interindividual patterns of change. In line with recommendations in the multilevel literature (Paccagnella, 2006), we also included the person-moms of our focal predictors as covariates at the individual level to account for effects at the between-person level of analysis and disentangle them from the within-person level (Chen, Bliwise, & Mathieu, 2005).

We examined our focal moderated mediation model using a series of multilevel models. First, competence need satisfaction at the weekend was regressed on unfinished tasks and taking charge in Model 1. In Model 2, we also included the interaction term of unfinished tasks and proactive work behavior. In line with recommendations for modeling moderated mediation effects upon multilevel data (Bauer, Preacher, & Gil, 2006), we specified the slopes of unfinished tasks and proactive work behavior as random and set the interaction as fixed. Second, in Model 3 work-related rumination was regressed on the same set of predictors as contained in Model 1 (main effects of unfinished tasks and proactive work behavior). In Model 4 we added our focal mediator (i.e., competence need satisfaction at the weekend). The “mediation” library allows for an estimation of the indirect, direct, and total effects between unfinished tasks and work-related rumination based on these focal models which specify the a-path (Model 2) and the b-path (Model 4) of the indirect effect respectively (MacKinnon, 2008). The library provides 95% confidence intervals (CI) for the estimated coefficients based on resampling procedures (i.e., bootstrapping).

**Results**

**Indirect Effect of Unfinished Tasks on Work-Related Rumination via Competence Need Satisfaction**

As is shown in Table 2, our analyses yielded a significant negative relationship between unfinished tasks at the end of the work week and competence need satisfaction at the weekend (γ = −.14, p < .01, CI [−.24, −.05]; a-path of the indirect effect) in Model 2. This supports Hypothesis 1. In line with Hypothesis 2, the results of Model 4 in Table 2 provide evidence that there is a significant negative relationship at the intrapersonal level between competence need satisfaction at the weekend and work-related rumination at the weekend (γ = −.17, p < .01, CI [−.29, −.05]; b-path of the indirect effect). Our analysis of the indirect association between unfinished tasks and work-related rumination via competence need satisfaction specified in Hypothesis 3 yields a significant average indirect effect (γ = .03, p = .01 CI [−.01, .05]), a total effect (γ = .09, p = .03, CI [.01, .17]), and no direct effect (γ = .06, p = .14, CI [−.02, .14]).

**Interaction of Unfinished Tasks and Proactive Work Behavior**

Beyond the significant negative effect of unfinished tasks on competence need satisfaction, Model 2 in Table 2 presents evidence that unfinished tasks and proactive behavior interact to predict competence need satisfaction (γ = .12, p = .02, CI [.03, .22]). The inclusion of the interaction improves the model fit beyond Model 1, Δdeviance(1) = 5.76, p = .02. The pattern of the interaction is presented in Figure 2 and supports our proposition stated in Hypothesis 4: The detrimental effects of unfinished tasks on competence need satisfaction are alleviated when employees show high levels of proactive work behavior. The pattern of results reveals that a high level of unfinished tasks combined with low proactive behavior is associated with the lowest level of competence need satisfaction. Higher levels of unfinished tasks have no effect on competence if an individual simultaneously engages in proactive behavior more often than usual.

Finally, to address Hypothesis 5, we estimated the indirect effect of unfinished tasks on work-related rumination for low versus high levels of proactive work behavior (moderated mediation effect). For low levels of proactive behavior (i.e., one standard deviation
reasoning that it is worthwhile considering the interplay of unfin-

below the mean) the indirect effect is positive and significant ($\gamma = .04, p = .01, CI [.01, .08]$). In contrast, for high levels of proactive behavior (i.e., one standard deviation above the mean) the indirect effect is not significant ($\gamma = .01, p = .23, CI [-.01, .04]$).

We found no main effect of proactive behavior on work-related rumination ($\gamma = .00, p = .01, CI [-.08, .07]$). This finding suggests that proactive work behavior alone does not yield a direct effect on work-related rumination. This finding is line with our line of reasoning that it is worthwhile considering the interplay of unfinished tasks and proactive work behavior, instead of main effects from both domains.

### Supplemental Analyses

We conducted additional analyses to account for potential alternative explanations. First, as competence need satisfaction and rumination during the weekend were assessed concurrently, their order in our mediation model could be reversed. Thus, we probed an indirect link between unfinished tasks and weekend competence need satisfaction via rumination, applying the same analytic strategy as for our focal model. As a result, we found no significant evidence for the alternative indirect effect ($\gamma = -.02, p = .07, CI [-.04, .01]$). Hence, these results bolster our theoretical assumption that competence instead of rumination acts as a mediator.

Second, to ensure that ratings on Monday actually referred to rumination during nonwork time, we repeated our focal analyses controlling for regular work during the weekend. Given that analyses produced results almost identical to our main analyses, that the pattern of results remained unchanged upon inclusion of controls, and that regular work during the weekend did not significantly relate to either competence need satisfaction or work-related rumination, we omitted weekend work from our final models for reasons of parsimony (see Becker et al., 2015).

Third, expecting to be back at work on Monday may remind employees of their unfinished tasks and hence may color or even bias their retrospective ratings of experienced competence and rumination during the weekend. To address this concern, we reran our focal analyses adding a single item measure tapping into negative anticipation of the work week as an alternative explanation for the association between unfinished tasks and rumination during the weekend. The item was “In the coming work days, I will be confronted with unpleasant tasks.” We reran Models 1 through 4 (see Table 2) and included anticipation of unpleasant tasks as an additional predictor at the intraindividual level (person-mean centered). Anticipation of unpleasant tasks did not yield significant effects on competence ($\gamma = -.05, p = .14, CI [-.12, .02]$) and on rumination ($\gamma = -.05, p = .13, CI [-.01, 15]$) and on rumination ($\gamma = .07, p = .06, CI [-.01, 15]$) and on rumination ($\gamma = .07, p = .09, CI [-.01, 15]$) in either model. Moreover, the overall pattern of results, especially the coefficients of unfinished tasks, competence and proactive work behavior did not change, when negative anticipation of tasks was included. Hence, anticipation of work tasks can be ruled out as an alternative explanation of the direct and indirect links between unfinished tasks and rumination. In sum, these findings bolster our focal conclusions.
Discussion

In this study, we set out to scrutinize how and when unfinished tasks at the end of the work week foster work-related rumination at the weekend. We examined competence need satisfaction as a major mechanism that translates a lack of goal accomplishment to work-related rumination. We further considered, whether proactive work behavior within the work week acts as a means of compensation for deficits in goal attainment in core tasks. Finally, our study was aimed at extending insights beyond immediate well-being outcomes and took a closer look at how the interplay of unfinished tasks and proactive work behavior explains spillover into the weekend in terms of rumination.

First, our study replicates the finding that unfinished tasks are intraindividually related to rumination (Syrek & Antoni, 2014; Syrek et al., 2017; see also Smit, 2015). Our results suggest that the detrimental effects of unfinished tasks with regard to rumination are robust. Going beyond replication, we extend this line of research by providing evidence that competence need satisfaction explains why unfinished tasks at the end of the work are linked to work-related rumination at the weekend. In line with our rationale based on control theory (Carver & Scheier, 1982, 1990), self-determination theory, and the stress-as-offense-to-self perspective. Our results suggest that unfinished tasks at the end of the work week trigger lower levels of competence need satisfaction at the weekend. The fulfillment of basic psychological needs provides a major psychological mechanism explaining why failure in goal attainment as captured in unfinished tasks at the end of the work week may trigger rumination and in turn impair well-being during the weekend (Gagné & Deci, 2005; Newman, Tay, & Diener, 2014). Importantly, we offer an explanatory mechanism that extends beyond mere prolonged cognitive representation. Our results suggest that rumination is closely connected to feelings of insufficiency (Semmer et al., 2007) after personal failure.

Second, we have addressed potential boundary conditions of the Zeigarnik effect (Zeigarnik, 1938) in the domain of job stress and rumination. More specifically, we have considered whether proactive work behavior acts as a substitute with regard to basic need satisfaction in the face of unfinished tasks. Our results imply that proactive work behavior may act as a means of compensation when employees fail to attain specific core task goals as it acts as substitute in the service of fulfilling basic psychological needs.

Our finding is in line with recent theorizing by Strauss and Parker...
(2014) that proactivity may not be confined to direct immediate effects on basic need satisfaction in the short run, but may also play a role with regard to satisfaction of basic needs and precursors of well-being at the weekend jointly with other variables, such as progress in core tasks. Furthermore, our results are in line with Fay and Sonnentag (2012), who found that employees become proactive particularly in situations of low competence in core tasks to achieve competence-related goals. In essence, our results suggest that finishing core tasks and proactive work behavior differ with regard to the psychological function they have for employees. Whereas goal attainment in core tasks is focal and mandatory for self-evaluations, proactive work behavior is self-started and future-oriented and acts in a compensatory way in the face of failure in core tasks (see Fay & Sonnentag, 2012 for an in-depth discussion).

Third, our study is among the first to consider the dynamic interplay of unfinished tasks and proactive work behavior and how it affects employees beyond immediate effects at the day level. Our study contributes to clarify the processes that unfold over time. Our results suggest that the detrimental effects of unfinished tasks on employee experiences may not be confined to short-lived associations but spill-over into the weekend or may take some time to unfold over time (Frese & Zapf, 1988; Mitchell & James, 2001). This perspective is in line with the notion of ruminative thoughts (Martin & Tesser, 1996) and holds promise to offer a clearer picture of the temporal aspects and the psychological processes involved. From a methodological perspective, we complement research using chronic measures of proactive work behavior, job stress and well-being in surveys (Strauss et al., 2017) and studies applying episodic measures within day-level experience sampling methodology (Fay & Hüttges, 2016; Fay & Sonnentag, 2012). In sum, this study provides encouraging evidence that an integration of concepts, lines of research, and methodological approaches from the proactive behavior and occupational stress literature is worthwhile from both theoretical and practical perspectives.

Practical Implications

Our results also contribute to further develop general intervention strategies aimed at ways to restore competence need satisfaction in the face of failure in core tasks (Smit, 2015). Most approaches within the domain of work and organizational psychology favor strategies aimed at reducing job demands, strengthening job resources or targeting leisure time recovery behaviors (Hahn, Binnewies, Sonnentag, & Mojza, 2011). Recently, Smit (2015) has identified planning how to tackle yet unattained goals the next day, as a way of coping with the detrimental effects of unfinished tasks. Our study complements these approaches by considering proactive work behavior as another leverage point for intervention, which might not require extra effort in the employees’ leisure time or incur additional costs to the organization. In the face of unfinished tasks on Friday, reflection of the progress one has made in other domains besides core tasks has the potential to restore a sense of competence in the face of failure in core tasks. From a practical perspective, human resource practices that encourage and permit engagement in proactive work behavior may not only be worthwhile with regard to overall functioning and performance of organizations, but can be expected to contribute to at least certain precursors of employee well-being in concert with work goal progress. Besides creating climates of openness for proactivity (e.g., Baer & Frese, 2003), organizations might facilitate proactive work behavior through a job design that provides employees with autonomy and by fostering leadership styles that create a sense of responsibility for making improvement oriented change happen (for a review, see Strauss & Parker, 2014).

Strengths and Limitations

A key strength of our study is that we have applied a strong methodology to test our hypotheses. We used a longitudinal week-level diary design over a period of several months, gathered a high number of repeated observations, analyzed data at the intraindividual level, and separated the measurements of predictors and outcomes within 1 week. However, we rely on retrospective reports across several days which may not be as accurate as momentary assessments (Mitchell, Thompson, Peterson, & Cronk, 1997). Given that the intraindividual level was our focus within this study, potential bias at the interindividual level can be expected to be held constant over time and hence not affect our focal results at the intraindividual level. In our supplemental analysis section, we have tried rule out several alternative explanations for the pattern of results found. For instance, bias due to anticipation of forthcoming unpleasant tasks (which may include being reminded of yet unfinished tasks) awaiting the employee on Monday can be ruled out as a third variable that inflates our focal effects.

Our study yielded a substantial amount of missing data which might limit our inferences due to lower than optimal statistical power. Given that providing full data required participants to fill in more than 20 consecutive self-reports over a period of 3 months, missing data could have hardly been avoided. Yet, on average each person provided more than six matched observations per person covering a period of nearly 2 months. In our supplemental analyses, we did not find evidence that the amount of missing data is linked to any of our focal variables and may systematically inflate our results. We further report confidence intervals based on resampling procedures as a precaution against bias due to unbalanced data. We, therefore, believe that despite this imperfection our study still provides a solid base for our focal conclusions.

We have argued that unfinished tasks capture progress toward specific instrumental goals (and the lack thereof) and that competence need satisfaction is an indicator of offense to the self, attributed to failure in goal attainment by the end of the work week. We have refrained from capturing more detailed information on current instrumental goals of each participant and more general evaluations of the self, such as self-esteem or self-efficacy, as this strategy would have come at the cost of higher burden to our participants. Although, in our line of argument, we have referred to the distinction between progress in core tasks and opportunities for mastery beyond core tasks, such as engaging in proactive work behavior, our global measures do not provide detailed information on the underlying goals and respective progress toward goal accomplishment in both domains. Nevertheless, our rather holistic approach in a naturalistic field setting is compatible with and supplements empirical work from research in more controlled settings (e.g., Smit, 2015).

Although we have argued that it is the self-initiated and future-oriented nature of proactive work behavior that gives rise to the compensatory effects in the face of unfinished tasks, we cannot
rule out, that perceptions of a higher volume of work done during the week are responsible for the interaction.\(^5\) Assessing perceptions of work volume or comparing the relative roles of proactive work behavior and organizational citizenship behavior within one study might allow for more firm conclusions.

Similar to prior studies on unfinished tasks, our sample consisted of highly educated individuals, who have taken the effort to participate in our study over the course of 3 months. Although our analyses were focused on relationships at the intraindividual level (i.e., holding idiosyncrasies of the participants constant), the pattern of results may vary considerably dependent upon individual differences (Smit, 2015; Smit & Barber, 2016) and demographics. Future research should scrutinize the degree to which our results generalize to employees in different contexts, which may differ quite substantially with regard to their objectives (George & Dana, 2011).

We have provided strong theoretical and empirical arguments in favor of unfinished tasks resulting in lower levels of competence need satisfaction and in turn higher levels of work-related rumination by separating measurement of unfinished tasks during the work week and competence during the weekend. The asymmetries between the work week on the one hand and the weekend on the other hand, prevented us from applying more rigorous approaches, such as cross-lagged panel analyses based on day-level data. Hence, our study does not allow strong inferences about the direction of causality. However, our week-level design is aligned with theoretical arguments on the occurrence and timing of causes and the unfolding of effects over time and our study is among the first to directly tap into how and when unfinished tasks affect the “affect system” (p. 284). Following this line of reasoning, unmet goals (irrespective of who or what is responsible for this failure) shall result in rather negative affective evaluations. On the other hand, several authors (Semmer et al., 2007; Sheldon & Elliot, 1999) have suggested that failure to attain goals acts as a threat to the self, particularly when individuals attribute failure internally. Hence, the extent to which unfinished tasks are detrimental to employee competence need satisfaction and rumination may vary considerably. For instance, in the face of situational constraints (Frese & Zapf, 1994; Peters & O’Connor, 1980; Spector & Jex, 1998) unfinished tasks may preclude self-evaluations to a lesser extent.\(^6\) Given that proactive work behavior are often aimed at tackling the source of job stress (Fay & Sonnentag, 2002) and may in the long run successfully eliminate some stressors via changes in procedures (e.g., avoiding red tape), the interplay between job stressors, attributions, proactive work behavior and employee strain over time and within different time frames deserves more attention in future research (Fay & Sonnentag, 2010).

Moreover, we have made a case for work-related rumination as the outcome that captures best the affectively laden cognitions associated with unfinished tasks. Future research might aim at a more comprehensive picture on how finishing tasks (or not) and competence need satisfaction relate to other facets of thinking about work in leisure time, such as problem-solving pondering (Cropley & Zijlstra, 2011) or positive work reflection (Binnewies et al., 2009).

Our study also calls for research efforts that extend our week-level approach and, for instance, measure predictors, mediators, and criteria at different points in time. Furthermore, combining week-level assessments with daily diary observations are a viable avenue to inform more precisely, the theory on issues of timing and optimal lags for studying proactive behavior and its consequences for the individual (Dormann & Griffin, 2015; George & Jones, 2000). This approach also holds promise to facilitate precision in theory development regarding unfinished tasks, proactive work behavior, and work-related rumination.

Given that we have provided evidence in favor of proactive work behavior as an effective means to restore competence need satisfaction and hence prevent work-related rumination, researchers might look for different kinds of compensatory behaviors that have the potential to restore competence need satisfaction, for instance, resuming work outside of working hours at the weekend (Fenner & Renn, 2004; Weigelt & Syrek, 2017). In sum, despite the insights our study offers, there remains a substantial amount of unfinished business waiting to be tackled. We hope our study contributes to inspire further discussion on the interplay of job stress, proactivity, rumination, and employee well-being.

\(^5\) We thank an anonymous reviewer for raising this issue.

\(^6\) We thank an anonymous reviewer for raising this issue.

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