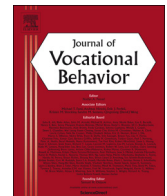


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Daily job crafting and momentary work engagement: A self-determination and self-regulation perspective

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ABSTRACT

The present study investigates the possible mechanisms involved in the link between daily job crafting and daily work engagement. Using self-determination theory, we hypothesize that daily job crafting is positively related to daily work engagement through momentary need satisfaction and momentary engagement. Additionally, using self-regulation theory, we predict that daily job crafting is negatively related to daily work engagement, through momentary energy depletion and (reduced) momentary work engagement. Participants from various occupational sectors ($N = 66$) responded to a daily diary questionnaire ($N = 261$) as well as momentary, task-related items ($N = 1539$) using a day reconstruction method at the end of each of four working days. The results of multilevel modeling were generally supportive of the hypotheses. We conclude that daily job crafting can have both positive and negative implications for daily work engagement, and discuss the practical implications of our findings.

1. Introduction

Employees may optimize their own work environment by proactively changing their job demands and resources (Tims, Bakker, & Derks, 2013; Wrzesniewski & Dutton, 2001). Such ‘job crafting’ behavior improves the fit between the employee and the job, and fosters work engagement because employees make their own work more interesting and meaningful. Recent studies have indicated that employees can even make small adjustments to their work environment on a daily basis (Demerouti, Bakker, & Halbesleben, 2015; Petrou, Demerouti, Peeters, Schaufeli, & Hetland, 2012; Tims, Bakker, & Derks, 2014). On the days employees seek challenges and mobilize their job resources (e.g., social support, performance feedback), they feel more engaged in their work and perform better.

Although most studies so far have suggested that job crafting leads to desirable outcomes, the process that accounts for these effects is still unclear. Also, we do not know what happens when employees *reduce* their job demands. Whereas some studies have produced no relationship between the job crafting behavior of reducing job demands and work engagement (e.g., Tims, Bakker, & Derks, 2013), others have found a positive relationship (e.g., Demerouti, Xanthopoulou, Petrou, & Karagounis, 2017), or a negative relationship (e.g., Demerouti et al., 2015; Petrou et al., 2012). What is the underlying process that explains the relationship between job crafting and engagement? In the present study, we thoroughly investigate this process using a quantitative diary design.

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Specifically, we combine the daily diary method with a day reconstruction method to examine how various types of job crafting behaviors are related to daily work engagement, through momentary experiences during work activities (i.e. within-person fluctuating experiences at the activity level). We use self-determination (Deci & Ryan, 2000) and self-regulation (Bolino, Valcea, & Harvey, 2010) theories to substantiate our hypotheses.

We aim to make three main contributions. First, we combine quantitative daily diary and day reconstruction methods to verify whether engagement fluctuates as a function of work activities, and find out whether employees may influence their own momentary and daily work engagement by crafting their jobs. This innovative micro-approach informs the work engagement literature, and will help to design individual-level interventions. For example, our study illustrates how employees can reconstruct their workdays and informs employees how they may proactively influence the psychological experience of various work activities. Second, we integrate job crafting and self-determination theories to find out how employees truly determine their own well-being, from day to day. Although self-determination theory proposes that people are inherently proactive, research using this theory has merely established that the provision of environmental resources satisfies employees' basic needs (Gagné & Vansteenkiste, 2013). Thus, it remains largely unknown whether employees can proactively craft their own jobs in order to satisfy their basic psychological needs (see also, Bakker & Van Woerkom, 2017).

A third contribution of this study is that we conceptualize how and why daily job crafting behaviors are related to daily work engagement using self-determination and role theories. Although previous research has established a link between job crafting and psychological needs satisfaction (Van Wingerden, Bakker, & Derks, 2017), the analysis was limited to a small group of employees that was exposed to a job crafting intervention. Research has not yet established which specific needs (i.e. autonomy, competence, and relatedness) can be satisfied through job crafting. In addition, while previous research has almost exclusively emphasized the beneficial outcomes of job crafting (Dierdorff & Jensen, 2018), we propose that daily job crafting may require considerable effort and thus may also have unfavorable effects by draining employees' energy resources. Our mediation analysis will inform theory by showing which job crafting strategies satisfy which needs, and by testing the novel hypothesis that job crafting activities may cost energy and undermine work engagement.

1.1. Theoretical background

Although managers traditionally play an important role in the process of designing jobs for their employees (Oldham & Fried, 2016), employees may also make proactive changes to their job boundaries themselves. Wrzesniewski and Dutton (2001) have referred to this behavior as “job crafting”, defined as “the physical and cognitive changes individuals make in the task or relational boundaries of their work” (p. 179). For example, employees may take on additional tasks, or decide to interact more often with certain colleagues while avoiding others during job performance (Berg, Wrzesniewski, & Dutton, 2010). Job crafting is an informal process workers may use to shape their work practices so that these practices align with their idiosyncratic preferences, abilities, and values. Such job crafting behaviors are expected to increase the meaningfulness of work and contribute to work identity (Wrzesniewski & Dutton, 2001). In their survey study, Slemp and Vella-Brodrick (2013) showed that task, relational, and cognitive crafting were each positively related to strengths use, job satisfaction, and organizational citizenship behavior.

When people are proactive, they challenge the status quo rather than passively adapting to existing conditions (Crant, 2000). Proactive individuals take the initiative to improve their current circumstances – they envision and plan a different future by changing the self and/or the environment (Parker, Bindl, & Strauss, 2010). Parker and Collins (2010) identified three categories of individual-level proactive behavior at work, namely (a) proactive P-E fit behavior, with the goal to achieve a better fit between one's own characteristics and those of the internal work environment; (b) proactive work behavior, with the goal to improve the internal organizational environment; and (c) proactive strategic behavior, which involves taking control and bringing about change to improve the organization's strategy and its fit with the external environment.

Tims, Bakker, and Derks (2012, 2013) propose a job demands–resources approach of job crafting, which is closely linked to Parker and Collins' (2010) first two categories of individual-level proactive behavior. Specifically, Tims and colleagues argue that job crafting can take each of four forms: (a) increasing structural job resources; (b) increasing social job resources; (c) increasing challenge job demands; and (d) decreasing hindrance job demands. By proactively adjusting their job demands and resources, employees optimize the working environment so that there is a better fit between person and environment, and work becomes more interesting and meaningful. Since top-down organizational interventions to improve employee engagement and organizational performance often seem partly ineffective (Biron, Karanika-Murray, & Cooper, 2012), organizations have started to recognize that bottom-up redesign approaches initiated by job holders themselves should be promoted and combined with approaches initiated by the organization (Demerouti & Bakker, 2014).

A recent meta-analysis (Rudolph, Katz, Lavigne, & Zacher, 2017) shows that job autonomy, social support, and a range of other job resources can help facilitate job crafting. In addition, it has been argued and shown that leaders play an important role as well, by empowering their followers (Thun & Bakker, 2018; Wang, Demerouti, & Le Blanc, 2017). Further, in line with proactive work behavior theory, research has generally shown that job crafting behaviors have favorable consequences. Tims et al. (2012) found that self-reports of job crafting correlated positively with colleague-ratings of employee work engagement (i.e. a positive and fulfilling state of mind that is characterized by vigor, dedication, and absorption – see below), employability, and job performance. Only reducing hindrance demands was unrelated to engagement and outcomes. In another study, Tims, Bakker, and Derks (2013) found that job crafting (i.e., increasing social and structural job resources) had a positive relationship with changes in well-being (work engagement, job satisfaction, and reduced burnout), through an improved work environment. Increasing challenge job demands was positively related to work engagement and negatively related to burnout, but reducing hindrance job demands was unrelated to

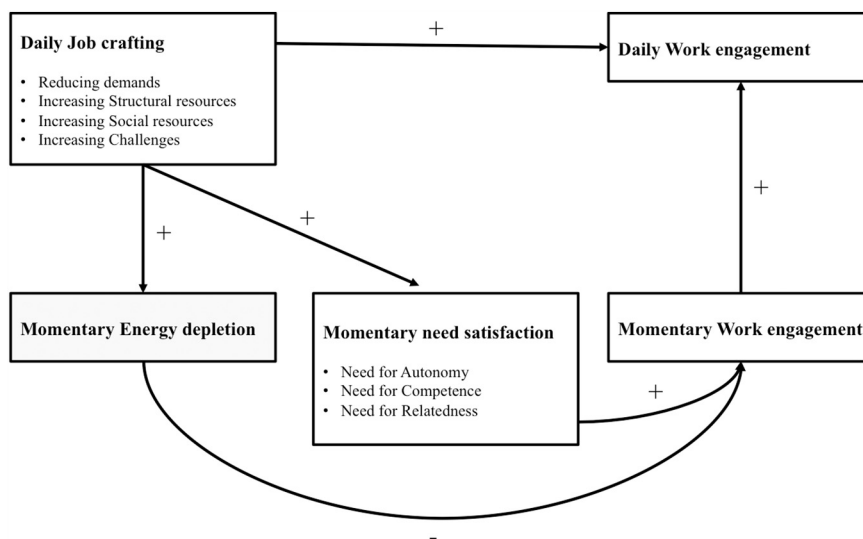


Fig. 1. Hypothetical model of daily job crafting.

employee well-being (see also, Vogt, Hakanen, Brauchli, Jenny, & Bauer, 2016).

Daily diary research has generally confirmed this pattern of findings at the within-person level. Petrou et al. (2012) found that daily fluctuations in job crafting were related to daily fluctuations in work engagement. Specifically, it was shown that the more employees sought job resources and challenges on a specific day, the more engaged they were in their job during that day. In contrast, and inconsistent with the findings of Tims et al. (2012) and Tims, Bakker, & Derks (2013), the more employees simplified their work on a specific day, the less engaged they were on that day – possibly due to reduced challenges. Tims et al. (2014) found that daily job crafting was positively related to work enjoyment, and indirectly to performance. Unfortunately, reducing hindrance job demands was not included in the latter diary study and therefore its impact on daily work enjoyment is unknown. In the present study, we build on the proactive work behavior and job crafting literatures, and expand previous quantitative diary research. We argue that employees will feel more engaged on the days they craft their jobs, because on these days, there will be a better fit between the person and the job (see also Fig. 1). Stated formally:

Hypothesis 1. Daily job crafting is positively related to daily work engagement.

1.2. Trait, state, and momentary work engagement

Kahn (1990) argued that people can use varying degrees of their selves, physically, cognitively, and emotionally, which has implications for their experiences and job performance. More specifically, he reasoned that when people express and employ their personal selves at work, they are engaged or “fully ... psychologically present during particular moments of role performances.” (p. 692). Schaufeli, Salanova, González-Romá, and Bakker (2002) built on this work, and referred to work engagement as “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (p. 74). Engaged workers are full with energy and enthusiastically involved in their work activities. Research has shown that work engagement is positively related to important organizational outcomes, including in-role performance (e.g., Halbesleben & Wheeler, 2008), client satisfaction (e.g., Salanova, Agut, & Peiró, 2005), and financial results (Harter, Schmidt, & Hayes, 2002; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009).

Whereas enduring work engagement refers to how engaged employees feel in relation to their work in general and over longer periods of time, daily work engagement reflects a transient state of mind that exists on a given moment and fluctuates within the same individual over short periods of time (Sonnentag, Dormann, & Demerouti, 2010). The within-person approach is particularly valuable to find differences between occasions or activities that coincide with high or low levels of work engagement. For example, an architect may feel extremely vigorous, dedicated, and absorbed on the day he is designing a new building, whereas engagement levels may show a steep decline on the days he is confronted with bureaucratic work (cf. Van Woerkom, Oerlemans, & Bakker, 2016).

In a typical diary study, participants fill out short questionnaires over several days (Fuller et al., 2003). This procedure allows study participants to report events, affective states, and cognitions in close temporal proximity to the actual occurrence of these events, affective states, and cognitions (Binnewies & Sonnentag, 2013). As a consequence, retrospection bias is reduced. Another advantage of the diary approach is that individuals are studied in their everyday environment, allowing for an ecologically valid assessment. Research has shown that the amount of variance in work engagement that may be attributed to within-person fluctuations is 42% on average (Xanthopoulou & Bakker, 2012). Daily fluctuations in employee work engagement are a function of the daily changes in job and personal resources (for a review, see Bakker, 2014). Particularly on the days employees have access to many resources, they are able to cope well with their daily job demands (Kühnel, Sonnentag, & Bledow, 2012).

Interestingly, Kahn (1990) realized that employees may show different levels of engagement from moment to moment, and his “... specific concern was the moments in which people bring themselves into or remove themselves from particular task behaviors” (p. 692). His guiding assumption was that “... people are constantly bringing in and leaving out various depths of their selves during the course of their workdays. They do so to respond to the momentary ebbs and flows of those days” (p. 693). Kahn argued that general assessments of employee engagement do not capture the essence of what it means to be psychologically present in particular moments or situations. Doing so would require investigating employees' experiences and situations during the discrete moments that make up their work lives. Whereas daily diary studies assess the level of work engagement during a certain day, previous research has largely ignored Kahn's fundamental view of engagement as a *momentary* experience. We propose that the day reconstruction method (DRM) may be used to assess momentary work engagement and its situational predictors.

Kahneman, Krueger, Schkade, Schwarz, & Stone (2004) argued that by carefully reconstructing one's day into episodes, individuals are able to call upon their episodic memory to accurately remember their affective experiences during each episode. To this end, the DRM asks individuals to reconstruct in chronological order all episodes of the day. A particular episode is operationalized by the time an activity began and ended, the domain where such an activity took place (e.g., at home or at work), and social interactions that may have occurred during such episodes. After carefully reconstructing all episodes of a particular day, participants are asked to indicate their affective experiences for each episode (Oerlemans & Bakker, 2013). We argue that the overall daily experience of work engagement can be reliably predicted by the momentary states of engagement experiences during each of the work activities employees carried out, because daily engagement should reflect the experiences during all short episodes of the day.

Hypothesis 2. Experiences of momentary work engagement during work activities are positively related to daily work engagement.

1.3. Self-determination

According to self-determination theory, people have three innate psychological needs, namely the needs for autonomy, competence, and relatedness (Deci & Ryan, 2000). The need for *autonomy* implies that people have a universal urge to be causal agents and to experience volition (deCharms, 1968). The need for *competence* concerns people's inherent desire to be effective in dealing with the environment (White, 1959), and the need for *relatedness* or belongingness implies the universal propensity to interact with, be connected to, and experience caring for other people (Baumeister & Leary, 1995). Research of the past decades has indeed shown that satisfaction of these three needs fosters well-being and performance, whereas frustration of the needs fosters job strain and impaired performance (Gagné & Vansteenkiste, 2013). In a student setting, fulfillment of the needs for autonomy, competence, and relatedness was related to well-being on a day-to-day basis (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000).

When crafting their jobs, employees optimize their job demands and job resources, which increases the likelihood that the workplace satisfies one's needs for autonomy, competence, and relatedness. Does this ‘self-determination’ also occur at the day or momentary level? Previous research has shown that job crafting has a positive impact on job resources (Tims, Bakker, & Derks, 2013); and there is evidence that job resources satisfy the basic needs (Gagné & Vansteenkiste, 2013; Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008). Van Wingerden et al. (2017) found in their intervention study that participants, who learned how to craft their jobs, satisfied their basic needs (assessed with an overall index) and were more engaged in their work. We build on these findings and argue that three specific types of daily job crafting behaviors are related to different forms of momentary need satisfaction at the task level, which, in turn, enhance momentary engagement during work tasks.

It is important to notice that finding meaning in work is one of the most important reasons to engage in job crafting (Wrzesniewski & Dutton, 2001). We argue that employees may, for example, experience more relatedness during their work tasks on days when they proactively craft their social resources, as it will help them to connect and interact with colleagues. Moreover, employees may experience more autonomy and competence in their work tasks, particularly on days when they proactively craft their structural resources. For instance, when proactively seeking opportunities to learn new things, employees are likely able to deal more effectively with their work tasks and perform better (Rudolph et al., 2017). Moreover, when employees proactively seek more variety and flexibility in their work, this may also fulfill the need to act as causal agents and experience more volition (autonomy) in their work tasks (Tims, Bakker, & Derks, 2013). Employees may also experience more autonomy in their work tasks on days when they proactively increase their job resources and lower their job demands. By reducing workload or emotional demands, employees experience higher levels of volition and choice during the execution of their work tasks. Thus, job crafting may satisfy various basic psychological needs. Based on this reasoning, we hypothesize (see also Fig. 1).

Hypothesis 3. Daily job crafting (increasing social job resources, increasing structural job resources, increasing challenge job demands, and reducing hindrance job demands) is positively related to momentary work engagement via momentary satisfaction of basic psychological needs.

1.4. Negative consequences of Job crafting

Although most studies indicate that job crafting relates positively to work engagement, some studies found that job crafting – particularly reducing job demands – was unrelated or negatively related to work engagement (e.g., Demerouti et al., 2015; Petrou et al., 2012). How can these mixed findings be explained? One obvious reason is that reducing job demands reflects withdrawal behavior, indicating a lack of enthusiasm for what one does. However, it is also conceivable that job crafting requires considerable self-regulation on behalf of the employees. Employees who actively change the context of their jobs through job crafting may increase

flexibility and adaptability, but such self-regulation also requires energy. As the ability to self-regulate is limited, job crafting behaviors may result in a loss of energy.

In addition, role theory (Katz & Kahn, 1978) posits that organizations function well when individuals enact the roles they are expected to enact. Although all employees have some latitude in how they carry out their work, role theory stipulates that there are limits on the set of behaviors role incumbents are expected to enact (Dierdorff & Jensen, 2018). When role incumbents proactively change the content or context of their work, they may fail to conform and reject sent role expectations. This may create friction between proactive and less proactive employees and result in conflict (Bolino et al., 2010; Luvison & Cummings, 2017). Thus, job crafting is not only effortful, but may also result in role conflicts. Consistent with this theoretical view, Berg, Grant, and Johnson (2010) found in their qualitative study that job crafting is associated with increased stress, disappointment, and intermittent feelings of regret. Also, Tims, Bakker, and Derks (2015) showed that reducing job demands creates arguments with colleagues, and is associated with increased disengagement.

Thus, we argue that job crafting requires substantial amounts of self-regulation or self-control, leading to energy depletion. On days when employees proactively engage in job crafting behaviors, this may lead to energy costs when engaging in (effortful) work tasks during that day. In turn, this form of energy depletion is expected to be negatively associated with momentary engagement during work activities (see Fig. 1).

Hypothesis 4. Daily job crafting is negatively related to momentary work engagement, through (an increase in) momentary energy depletion during work activities.

Taken all hypotheses together, we propose a sequential mediation model that is outlined in Fig. 1. Thus, our final hypothesis is:

Hypothesis 5. Daily job crafting is related to daily work engagement through (i) momentary need satisfaction and momentary energy depletion, and (ii) momentary work engagement.

2. Method

2.1. Participants and procedure

Dutch employees were contacted in 2015 via social media (e.g., LinkedIn, Twitter) to participate in the current study. Those who agreed to take part in the study were instructed to fill in the diary questionnaire at the end of each workday, via daily emails. Participants received a personal login code with which they could log onto a website and fill in both the general questionnaire and the daily diaries. The general questionnaire was only filled in once, and included demographic questions (e.g., age, gender, educational level, work hours), as well as a scale to assess general work engagement. Thereafter, participants were instructed to fill in a daily diary questionnaire (including daily job crafting behaviors, daily work engagement), and to reconstruct their work tasks during each workday using a day reconstruction method (Kahneman et al., 2004). In particular, participants were asked to reconstruct their workday by filling in the time they had spent on each of their work tasks in chronological order (see further below). In addition, participants indicated their levels of (a) momentary psychological need satisfaction, (b) momentary energy depletion, and (c) momentary engagement during each of the work tasks.

A total of 95 participants signed up to take part in the current study. The final sample consisted of 66 participants (response is 69%), of which 36 were female (55%) and 30 were male, with a mean age of 46 years ($SD = 10.01$). Participants completed on average four out of five days (Mean = 3.95, $SD = 1.46$). During each day, participants filled in a daily diary ($N = 261$) as well as momentary, task-related measures ($N = 1539$) with a day reconstruction method at the end of their workday. Most participants worked in the educational sector (27.3%) and in consultancy (27.3%), followed by the governmental sector (10.6%), health care (9.1%), science (7.6%), and other sectors (18.1%). The educational level was generally high, with 60.6% of the participants holding a university degree, and 30.3% holding a higher educational degree. Most participants were either married (66.7%), or living together with their partner (18.2%). The average work experience of participants was 21 years ($SD = 9.77$), and participants worked on average 34 h per week ($SD = 8.14$).

2.2. Measures

2.2.1. General Questionnaire

General work engagement was measured with the nine-item version of the Utrecht Work Engagement scale (UWES; Schaufeli, Bakker, & Salanova, 2006). The UWES assesses the three dimensions of work engagement, vigor, dedication, and absorption. Here is an example item for each dimension: “At my work, I feel bursting with energy” (vigor), “My work inspires me” (dedication), and “I am immersed in my work” (absorption). Participants could respond to the items using a seven-point frequency scale, ranging from 0 (never) to 6 (always). All items were summed to form one index of work engagement. The scale showed good internal consistency. Cronbach's alpha = 0.93.

2.2.2. Daily diary

Daily job crafting was based on the job crafting questionnaire developed by Tims et al. (2012). We measured each of the scales with the same items as included in the original questionnaire, but items were adapted to measure the job crafting behaviors on a daily basis. Unfortunately, because of a mistake during the programming of the questionnaire, “increasing challenge job demands” was

measured with three instead of five items. An example is “Today, I tried to make my work more challenging by examining the underlying relationships between aspects of my job”. Increasing structural resources was assessed with five items, for example: “I tried to learn new things at work today”. Increasing social resources was also measured with five items, for instance: “Today, I asked colleagues for advice”. Finally, decreasing hindrance job demands was measured with six items, including: “Today, I ensured that my work was emotionally less intense”. Items could be answered on a five-point scale (1 = did not apply to me today, 5 = totally applied to me today). The subscales increasing structural resources ($\alpha = 0.71\text{--}0.85$), increasing social resources ($\alpha = 0.70\text{--}0.78$), and decreasing hindrance demands ($\alpha = 0.75\text{--}0.89$) all showed good reliabilities across the days. However, increasing challenge job demands was not assessed in a reliable way ($\alpha = 0.33\text{--}0.67$). We therefore decided to exclude this variable from all further analyses. A multilevel confirmatory factor analysis using the items of the three reliable job crafting scales resulted in acceptable fit indices for the three-factor model ($\chi^2 = 266.03$; $p < .001$; CFI = 0.91, TLI = 0.89, RMSEA = 0.05, RMR-within = 0.07). This means that the three job crafting behaviors increasing structural job resources, increasing social job resources, and decreasing hindrance job demands could be empirically distinguished on a daily basis.

Daily work engagement was measured with the daily version (Breevaart, Bakker, Demerouti, & Hetland, 2012) of the UWES (Schaufeli et al., 2006). Like for the general survey, each dimension is measured with three items, for example “Today, I felt bursting with energy” (vigor), “Today, my job inspired me” (dedication), and “Today, I was immersed in my work” (absorption). Participants could respond to the items using a seven-point scale (0 = strongly disagree, 6 = strongly agree). Cronbach's alpha's ranged from 0.89 to 0.98.

2.2.3. Day reconstruction

Work activities. Participants were asked to report in chronological order the time they spent on each of their daily work activities from the start until the end of their workday. To make it easier for the participants to fill out the form, a drop-down list with eight categories of tasks was presented, which included: working on core tasks, administration, responding to e-mail, contact with clients, meeting with colleagues, having a break alone, having a break with colleagues, and interaction with colleagues. However, participants could also indicate a unique activity by selecting the option “other”, which gave them the option to indicate a specific activity that did not fit the above categories. On average, participants spent about 3 h and 15 min of their day on core work tasks (SD = 2:48), 22 min on administration (SD = 0:46), 32 min on e-mail (SD = 0:45), 1 h and 36 min on contact with clients (SD = 1:36), 1 h and 52 min on meetings with colleagues (SD = 1:12), 10 min on taking a break alone (SD = 0:24), 17 min on taking a break with colleagues (SD = 0:23), 18 min on other types of interactions with colleagues (SD = 0:48), and 1 h and 52 min on other types of activities (SD = 2:42). Altogether, employees reported a total of 9 h and 14 min per day on work tasks, and reported on average four (out of five) workdays ($M = 3.95$, $SD = 1.46$). On a weekly basis, participants thus reported to work for 36 h and 10 min ($3.95 \text{ days} \times 9 \text{ h and } 14 \text{ min}$) on work tasks, which is very similar to the self-reported average of 34 work hours per week ($SD = 8.14$). We are therefore fairly confident that we captured a representative workweek for participants using the DRM method, at least in terms of time spent. After a reconstruction of their time spent on work activities, employees were asked to fill out their subjective experiences for each of the recorded activities in terms of (a) momentary psychological need satisfaction, (b) momentary energy depletion, and (c) momentary work engagement.

Momentary psychological need satisfaction was measured with one item for each of the three dimensions proposed by Deci and Ryan (2000). Here are the three items: “Through this work activity, I satisfied my need for autonomy” (autonomy), “Through this work activity, I satisfied my need for relatedness” (relatedness), and “Through this work activity, I satisfied my need for competence” (competence). Respondents could answer the three items on a ten-point scale (1 = not satisfied, 10 = totally satisfied). The internal consistency of the three items across activity types was acceptable ($\alpha = 0.71$). However, in the current study, we analyzed each item as a distinct type of need satisfaction.

Momentary energy depletion was assessed with the item: “How much energy did this activity cost you?” with a ten-point scale (1 = no energy whatsoever, 10 = all of my energy).

Momentary work engagement was measured with three items: “During this activity I felt bursting with energy”, “I was enthusiastic during this activity”, and “I was totally absorbed in this activity”. The answering scale varied from 0 (totally disagree) to 6 (totally agree). The three items showed good internal consistency across activities ($\alpha = 0.86$).

2.2.4. Control variables

As previous research indicated that demographic variables such as age, work experience, and tenure can be related to job crafting (Tims, Bakker, & Derks, 2013), we controlled for these variables. Moreover, we controlled for general levels of work engagement because these may be predictive of higher average levels of daily and momentary work engagement (e.g., Ten Brummelhuis & Bakker, 2012). Finally, time spent on different types of work activities may impact subjective experiences of momentary need satisfaction and momentary work engagement. For example, employees may not be so engaged in their work when performing administrative duties as compared to spending time on one's core work tasks. Therefore, we also included time spent on activity types as controls in further analyses.

2.2.5. Statistical analysis

The data have a hierarchical structure with work tasks and workdays nested within persons. To account for the dependency in the data, we performed multilevel structural equation modeling (MLSEM) with Mplus, version 7 (Muthén & Muthén, 1998–2012). In particular, MLSEM was used to assess whether daily job crafting behaviors would relate to daily levels of work engagement via momentary psychological need satisfaction, momentary energy depletion, and momentary work engagement at the work-task level.

We used observed variables to avoid overly complex modeling, and thus our analysis should be seen as a form of path modeling rather than structural equation modeling with latent variables.

The use of traditional multilevel modeling to analyze mediation effects suffers from a conflation of between and within effects (Preacher, Zyphur, & Zhang, 2010). Alternatively, aggregating within-person data to a higher level to conduct traditional multilevel mediation analyses is also problematic, because it assumes that the within-group variability is zero (Barr, 2008). Moreover, aggregation effectively gives small groups and large groups – in our case, a person who fills out the diary once versus a person who fills out the diary more times – equal group weight in determining the parameter estimates. As MLSEM can overcome these limitations, we performed MLSEM analyses as proposed by Preacher and colleagues to assess the hypothesized mediation effects. All daily and momentary variables in this study were centered at the grand mean, so that we were able to include general work engagement in the model. Note, however, that the findings at the within person level remained unaffected when the data was person-mean centered. The findings of person-mean centering are available upon request.

We modeled two levels (person, day) instead of three levels (person, day, moment) to avoid overly complex modeling. Daily scores for momentary states during work activities were calculated by dividing the sum of the products of time spent on each activity \times the score for the momentary state during the specific activity by the total number of reported work hours on that particular day. For example, when participants reported 2 activities of 2 h with a score of 5 for momentary work engagement, and 2 activities of 1:30 h with a score of 3, the score for momentary work engagement was $((4 \times 5) + (3 \times 3)) / 7 = 4.14$ for that particular day. Similar calculations were made to compute daily scores for momentary energy depletion and momentary psychological need satisfaction during work activities.

3. Results

3.1. Descriptive statistics

In a first step, we examined whether daily and momentary measures fluctuated on a within-person level. This indeed turned out to be the case. Results showed clear variations in daily job crafting in terms of crafting social (ICC = 64%) or structural (56%) job resources. In addition, reducing hindrance job demands (47%) fluctuated substantially within persons across days, as did daily work engagement (52%). Likewise, measures for momentary psychological need satisfaction (52%), momentary energy depletion (49%), and momentary work engagement (43%) all fluctuated substantially on a within-person level.

Table 1 presents means, SDs, and correlations of the study variables. Results below the diagonal show correlations at the person level ($N = 66$ persons), whereas within-person (day-to-day) correlations are shown above the diagonal ($N = 261$ days). Results at the person level indicated that demographic variables (age, gender, educational level, and tenure) were not significantly correlated with daily and momentary variables in this study. We therefore excluded demographic variables from further analyses. General levels of work engagement at the person level, however, related positively to daily and momentary levels of work engagement. Also, results show that high general levels of work engagement coincide with higher levels of daily job crafting of structural job resources, and lower levels of daily job crafting in terms of reducing job demands (see Table 1).

3.2. Hypotheses testing

All hypotheses were tested using MLSEM. The three types of daily job crafting were entered as predictor variables, and daily work engagement was entered as the outcome variable at the day level (level 2; in accordance with hypothesis 1). Additionally, in line with hypotheses 2–4, the three types of momentary psychological need satisfaction and momentary energy depletion were entered as mediator variables through which daily job crafting behaviors would affect momentary work engagement at the activity level (level 1). In turn, it was expected that momentary psychological need satisfaction, through momentary work engagement (as a second mediator) would predict daily levels of work engagement (see Fig. 1). As recommended by Preacher et al. (2010), the predictors (the job crafting behaviors) and mediator variables were centered at the grand mean, and multilevel random analyses were performed. Time spent on the different work tasks during the day was entered as control variables for each of the momentary measures (see Additional analyses why this is important). Also, general work engagement was entered as a between-person (level 3) control variable for daily and momentary levels of work engagement. Indirect effects were calculated in the model constraint section for each of the four mediator variables to assess the significance of the proposed mediation effects.

The multilevel SEM model fit well to the data ($\chi^2 = 81.16$, $p < .001$; CFI = 0.99; TLI = 0.93; RMSEA = 0.04; RMR within = 0.02). Fig. 2 shows unstandardized estimates and significance levels of the relationships. Confirming hypothesis 1, daily job crafting of social job resources ($estimate = 0.05$, $se = 0.02$, $t = 2.20$, $p < .05$) and structural job resources ($estimate = 0.37$, $se = 0.02$, $t = 16.07$, $p < .001$) was positively related to daily work engagement, whereas daily job crafting in terms of reducing job demands ($estimate = -0.08$, $se = 0.02$, $t = -3.90$, $p < .001$) was negatively related to daily work engagement. Moreover, consistent with hypothesis 2, momentary engagement experienced during work activities was positively related to daily levels of work engagement ($estimate = 0.10$, $se = 0.02$, $t = 4.06$, $p < .001$).

Hypothesis 3 stated that daily job crafting (increasing social job resources, increasing structural job resources, and reducing hindrance job demands) would be positively related to momentary work engagement via momentary satisfaction of basic psychological needs. Fig. 2 shows that on days employees crafted their social job resources, they experienced higher satisfaction of the need for relatedness during their work activities ($estimate = 0.14$, $se = 0.041$, $t = 3.36$, $p < .001$). In turn, momentary relatedness was positively related to momentary work engagement ($estimate = 0.19$, $se = 0.015$, $t = 12.51$, $p < .001$). Table 2a shows that the

Table 1
Means, standard deviations, and correlations of the study variables.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Gender	0.55	0.50	–													
2 Age	45.64	10.01	–0.15	–												
3 Educational level	5.42	0.96	–0.23	–0.14	–											
4 Tenure (years)	20.55	9.77	–0.11	0.89**	–0.17	–										
5 General work engagement	4.53	1.02	–0.13	0.14	–0.05	0.16	–									
6 Daily job crafting social resources	2.85	0.81	0.01	–0.01	0.07	0.04	–0.07	–								
7 Daily job crafting structural resources	4.67	0.86	0.04	–0.05	0.11	0.06	0.39**	0.27*	–							
8 Daily job crafting reducing demands	2.81	1.06	0.07	0.17	–0.15	0.10	–0.34**	0.28*	–0.28	–						
9 Daily work engagement	4.77	0.92	–0.02	0.13	–0.09	0.16	0.65**	0.04	0.57**	–0.32*	–					
10 Momentary autonomy	5.10	0.94	0.12	0.01	–0.05	0.03	0.31*	0.20	0.39**	0.09	–0.46**	–				
11 Momentary relatedness	4.72	0.96	0.13	0.11	–0.17	0.05	0.26	0.18	0.14	0.04	0.54**	0.63**	–			
12 Momentary competence	4.98	0.79	0.16	0.04	–0.06	0.07	0.40**	0.12	0.47**	–0.13	0.73**	0.70**	0.65**	–		
13 Momentary energy depletion	2.64	1.12	0.04	–0.01	–0.15	–0.08	–0.43**	0.22	–0.35**	0.52**	–0.61**	–0.16	–0.27*	–0.43**	–	
14 Momentary work engagement	5.03	0.85	0.00	0.07	–0.09	0.16	0.64**	0.11	0.46**	–0.29**	0.84**	0.44**	0.56**	0.71**	–0.56**	–

Note. Person-level correlations below the diagonal (N = 66) were centered at the grand mean. Within-person (daily) correlations above the diagonal were centered at the person-mean (N = 261).

* $p < .05$.

** $p < .01$.

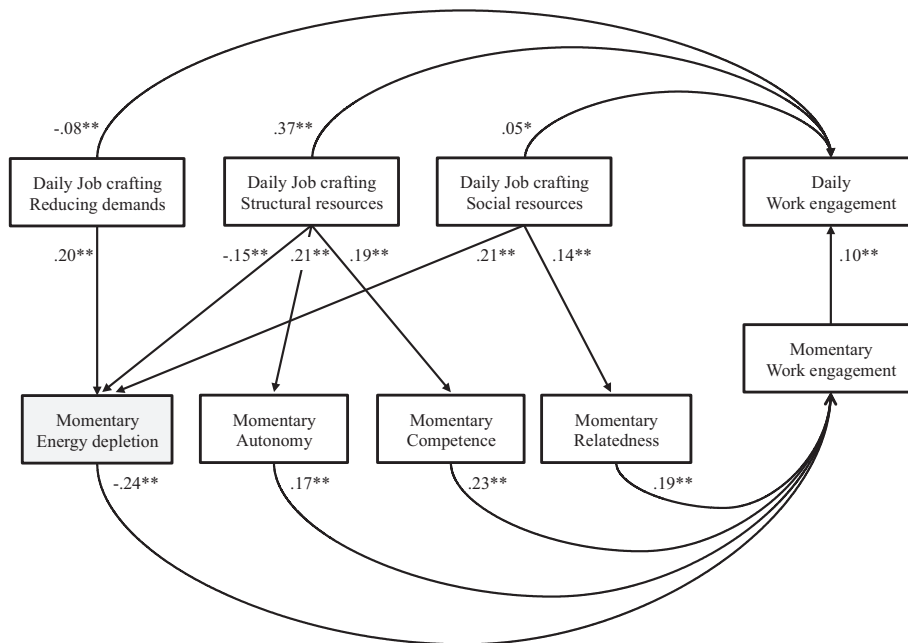


Fig. 2. Results of multilevel structural equation modeling. Estimates are unstandardized coefficients. Momentary measures are corrected for time spent on activities. * $p < .05$; ** $p < .001$.

Table 2a
Indirect effects of daily job crafting on momentary work engagement.

Indirect effect $x \rightarrow m \rightarrow y$	Est.	SE	t	p
Crafting social job resources \rightarrow relatedness \rightarrow MWE	0.025	0.009	2.96	0.01
Crafting social job resources \rightarrow autonomy \rightarrow MWE	-0.007	0.007	-1.01	0.31
Crafting social job resources \rightarrow competence \rightarrow MWE	0.002	0.009	0.20	0.84
Crafting social job resources \rightarrow energy depletion \rightarrow MWE	-0.049	0.010	-4.42	0.001
Crafting structural job resources \rightarrow relatedness \rightarrow MWE	0.016	0.009	1.69	0.09
Crafting structural job resources \rightarrow autonomy \rightarrow MWE	0.029	0.009	3.40	0.001
Crafting structural job resources \rightarrow competence \rightarrow MWE	0.034	0.011	3.27	0.001
Crafting structural job resources \rightarrow energy depletion \rightarrow MWE	0.027	0.011	2.36	0.05
Crafting hindrance job demands \rightarrow relatedness \rightarrow MWE	-0.005	0.008	-0.59	0.55
Crafting hindrance job demands \rightarrow autonomy \rightarrow MWE	0.009	0.007	1.21	0.23
Crafting hindrance job demands \rightarrow competence \rightarrow MWE	-0.008	0.009	-0.89	0.37
Crafting hindrance job demands \rightarrow energy depletion \rightarrow MWE	-0.040	0.010	-3.82	0.001

Note. MWE = Momentary work engagement.

indirect effect of daily crafting social job resources on momentary work engagement via psychological need satisfaction was significant for the need for relatedness, but not for the needs for autonomy and competence.

Next, on the days employees crafted their structural job resources, they experienced higher satisfaction of their needs in terms of momentary autonomy (*estimate* = 0.21, *se* = 0.05, $t = 4.60$, $p < .001$), and momentary competence (*estimate* = 0.19, *se* = 0.04, $t = 4.73$, $p < .001$) during the work activities. In turn, the satisfaction of momentary autonomy (*estimate* = 0.17, *se* = 0.02, $t = 10.47$, $p < .01$) and momentary competence (*estimate* = 0.23, *se* = 0.02, $t = 12.58$, $p < .01$) during work activities was positively related to momentary work engagement (see Fig. 2). Also, the indirect effects of daily crafting one's structural job resources on momentary work engagement via the satisfaction of momentary psychological needs was significant for the needs for autonomy and competence, but not for the need for relatedness (see Table 2a).

Job crafting in the form of daily reducing job demands was not significantly related to momentary needs satisfaction during work activities. Consistent with this finding, the indirect effect of reducing hindrance job demands on momentary work engagement via momentary needs satisfaction was not significant (Table 2a). Taken together, these results indicate that hypothesis 3 is accepted for job crafting in the form of increasing social and structural job resources, and rejected for job crafting in the form of reducing job demands.

Hypothesis 4 stated that daily job crafting would be negatively related to momentary work engagement, through momentary energy depletion during work activities. As can be seen in Fig. 2, results showed that on days employees either increased their social job resources (*estimate* = 0.21, *se* = 0.04, $t = 5.15$, $p < .001$), or reduced their job demands (*estimate* = 0.20, *se* = 0.04, $t = 5.22$,

Table 2b
Indirect effects of daily job crafting on daily work engagement.

Indirect effect $x \rightarrow m1 \rightarrow m2 \rightarrow y$	Est.	SE	t	p
Crafting social job resources \rightarrow relatedness \rightarrow MWE \rightarrow DWE	0.002	0.001	2.40	0.05
Crafting social job resources \rightarrow autonomy \rightarrow MWE \rightarrow DWE	-0.001	0.001	-0.98	0.33
Crafting social job resources \rightarrow competence \rightarrow MWE \rightarrow DWE	0.000	0.001	0.20	0.84
Crafting social job resources \rightarrow energy depletion \rightarrow MWE \rightarrow DWE	-0.004	0.001	-2.99	0.01
Crafting structural job resources \rightarrow relatedness \rightarrow MWE \rightarrow DWE	0.002	0.001	1.56	0.12
Crafting structural job resources \rightarrow autonomy \rightarrow MWE \rightarrow DWE	0.003	0.001	2.61	0.01
Crafting structural job resources \rightarrow competence \rightarrow MWE \rightarrow DWE	0.003	0.001	2.55	0.05
Crafting structural job resources \rightarrow energy depletion \rightarrow MWE \rightarrow DWE	0.003	0.001	2.04	0.05
Crafting hindrance job demands \rightarrow relatedness \rightarrow MWE \rightarrow DWE	0.000	0.001	-0.59	0.56
Crafting hindrance job demands \rightarrow autonomy \rightarrow MWE \rightarrow DWE	0.001	0.001	1.16	0.25
Crafting hindrance job demands \rightarrow competence \rightarrow MWE \rightarrow DWE	-0.001	0.001	-0.87	0.38
Crafting hindrance job demands \rightarrow energy depletion \rightarrow MWE \rightarrow DWE	-0.004	0.001	-2.79	0.01

Note. MWE = momentary work engagement; DWE = daily work engagement.

$p < .001$), they experienced higher momentary energy depletion during their work activities. In turn, momentary energy depletion was negatively related to momentary work engagement during work tasks ($estimate = -0.24$, $se = 0.02$, $t = -15.94$, $p < .001$). However, for increasing daily structural resources we found a relationship in the opposite direction. Specifically, on the days employees increased their structural job resources, they experienced *less* momentary energy depletion ($estimate = -0.15$, $se = 0.04$, $t = -3.37$, $p < .001$). Subsequent tests of indirect effects (see Table 2a) revealed that the indirect paths for all three types of job crafting on momentary work engagement through momentary energy depletion were significant. Altogether, hypothesis 4 was confirmed for reducing daily job demands and increasing daily social job resources, but rejected for increasing daily structural job resources.

Finally, hypothesis 5 stated that daily job crafting would be related to daily work engagement through (i) momentary need satisfaction and momentary energy depletion, and (ii) momentary work engagement (sequential mediation). We tested the indirect effects separately for each of three job crafting behaviors (see Table 2b). In line with hypothesis 5, results showed that daily job crafting in terms of increasing social job resources was positively related to daily work engagement via the satisfaction of the need for relatedness and momentary work engagement. Daily increasing structural job resources was positively related to daily work engagement via the satisfaction of the need for autonomy and momentary work engagement, and via the satisfaction of the need for competence and momentary work engagement. However, for daily reducing hindrance demands, the indirect effect on daily work engagement via momentary needs satisfaction and momentary work engagement was not significant for any of the psychological needs.

As for indirect effects via energy depletion, as predicted, daily job crafting in the form of increasing social resources and reducing hindrance job demands were each negatively related to daily work engagement via (higher) momentary energy depletion and (lower) momentary engagement during work activities (see Table 2b). Contrary to what was hypothesized, however, daily job crafting in the form of increasing structural job resources was *positively* related to daily work engagement, via (lower) energy depletion and (higher) momentary engagement. Altogether, these sequential mediation effects offer partial support for hypothesis 5.

3.3. Additional analyses

We included general work engagement at the between person level (level 3) as a control variable for daily and momentary work engagement. Also, time spent on the various work activities at the activity level (level 1) was entered as control variables for momentary psychological need satisfaction, momentary energy depletion, and momentary work engagement during work activities. Additional analyses revealed that general work engagement was indeed associated with higher levels of daily ($estimate = 0.15$, $se = 0.07$, $t = 2.20$, $p < .05$), and momentary work engagement ($estimate = 0.22$, $se = 0.07$, $t = 3.18$, $p < .001$). Thus, the within (daily and momentary) relationships in Fig. 2 were significant, also when taking into account baseline (between-person) levels of general work engagement on daily an momentary work engagement.

Further, to answer the question whether participants conducted different tasks on the days they crafted their jobs, we performed correlational analyses. The results showed that on the days employees engaged in job crafting in the form of increasing structural resources, they spent more time on specific activities that were not listed by us (defined as “other”; $r = 0.16$, $p < .01$). This may suggest that on days when employees craft structural job resources, they spend more time on relatively unique activities – possibly an indication of increased task variety. Further, on the days employees reduced their demands, they spent less time on meetings with colleagues ($r = -0.17$, $p < .01$) and more time on taking breaks alone, without any social interaction ($r = 0.27$, $p < .01$). For daily job crafting in terms of social resources, we did not find a significant relationship with time spent on activities, although the correlation with “meetings with colleagues” was positive, $r = 0.11$, $p = .08$.

Finally, Table 3 shows the unstandardized estimates of the effects of time spent on work activities on the satisfaction of the momentary needs for autonomy, relatedness, competence, and momentary energy depletion during work activities. These additional analyses showed that time spent on client contact, and time spent on core tasks were both significantly and positively related to momentary levels of autonomy. Moreover, administrative duties, and having a break from work alone were negatively related to

Table 3

Within-person relationships between time spent on work activities and momentary outcomes in MLSEM analyses.

	Momentary autonomy				Momentary relatedness				Momentary competence				Momentary energy depletion			
	Estimate	se	t	p	Estimate	se	t	p	Estimate	se	t	p	Estimate	se	t	p
Core tasks	0.09	0.03	3.19	***	0.01	0.03	0.44		0.16	0.03	5.74	***	0.03	0.03	0.93	
Administrative duties	-0.13	0.10	-1.29		-0.51	0.11	-4.88	***	-0.38	0.10	-3.96	***	0.32	0.10	3.19	***
Answering e-mails	-0.09	0.11	-0.88		-0.61	0.11	-5.57	***	-0.58	0.10	5.72	***	0.16	0.11	1.50	
Client contact	0.13	0.05	2.39	*	0.18	0.05	3.30	***	0.16	0.05	3.24	***	0.02	0.05	0.34	
Meetings	-0.01	0.07	-0.08		0.45	0.07	6.48	***	0.12	0.06	1.91		0.05	0.07	0.72	
Break alone	0.23	0.20	1.13		-1.32	0.21	-6.27	***	-1.51	0.19	-7.80	***	0.06	0.20	0.31	
Break with colleagues	-0.13	0.19	-0.66		1.61	0.20	8.20	***	-0.86	0.18	-4.75	***	-0.33	0.19	-1.74	
Interactions with colleagues	-0.01	0.10	-0.09		0.58	0.10	5.86	***	0.14	0.09	1.50		0.02	0.10	0.23	

Note. *se* = standard deviation; *t* = t-value.

* *p* < .05.

*** *p* < .001.

momentary relatedness, whereas time spent on client contact, meetings, having a break with colleagues, and having other types of interactions with colleagues were all positively related to momentary relatedness. Also, administrative duties, answering e-mails, having a break alone, and having a break with colleagues were found to be negatively related to momentary satisfaction of the need for competence, whereas time spent on core tasks and client contact were positively related to momentary competence. Finally, time spent on administrative duties related significantly to momentary energy depletion. There were significant indirect effects from time spent on work activities to momentary work engagement, via energy depletion and psychological need satisfaction. These additional relationships are available on request.

4. Discussion

Although previous research has shown that job crafting has important implications for employee engagement and job performance, the present diary and day reconstruction study is one of the first to explore the possible underlying mechanisms. We theorized and found that daily job crafting has favorable consequences for work engagement, because job crafting satisfies basic psychological needs. However, we also proposed and found that job crafting requires considerable effort, and thus may have unfavorable effects by draining employees' energy resources. In what follows, we discuss the most important contributions of this study.

4.1. Theoretical contributions

Consistent with Kahn's (1990) theoretical analysis, our study indicated that employees show different levels of work engagement from activity to activity within the workday. Kahn's concern was the moments in which "...people bring themselves into or remove themselves from particular task behaviors." (p. 692). Only when employees invest all their energy and dedication in a task, they will be completely focused on the task; they may forget about the time and become absorbed in the activity. A first important contribution of this study is that it shows how employees may influence their own momentary and daily work engagement by crafting their job content and context on a daily basis. These findings expand previous research showing that employees who craft their jobs are more engaged and show better performance than those who do not craft their jobs (Rudolph et al., 2017; Vogt et al., 2016). Our study indicates that even those who are generally low or high on proactive behavior and work engagement show episodes of relatively high momentary and daily work engagement on the days they proactively seek job resources (e.g., ask for feedback, support, autonomy). Such resources are actively used to deal well with the various tasks employees face throughout the day.

These findings are important input for the design of individual-level interventions, because they suggest that employees can make small changes in their job design on a daily basis, which helps them to be engaged – from task to task. Such momentary engagement is crucial for excellent episodic job performance (Beal, Weiss, Barros, & MacDermid, 2005), because engagement means that employees can invest all available energetic and motivational resources in task performance. Thus, the findings indicate how employees may optimize their work engagement when facing important tasks, for example, when a broker wants to buy new stocks, a surgeon needs to perform surgery on a patient, or when a sales person is asked to deliver a sales pitch to win new clients. These work activities are more likely to be performed in an engaged way on the days individuals craft their structural and social job resources, for example by enacting their autonomy, seeking social support, and proactively asking for feedback.

Second, our findings show how and why daily job crafting behaviors are related to daily work engagement. Consistent with self-determination theory (SDT; Deci & Ryan, 2000), our study showed that momentary engagement is most likely when employees satisfy their basic needs for relatedness, autonomy, and competence. Most previous SDT research has simply assumed that the provision of job resources will satisfy the needs for autonomy, relatedness, and competence (Gagné & Vansteenkiste, 2013; Van den Broeck et al., 2008). We expand SDT by showing that employees can really determine themselves whether their needs will be satisfied. We theorized and showed that employees may proactively influence their own work engagement through job crafting – by mobilizing their social or structural job resources. On the days employees asked for social support and feedback, or sought opportunities for growth,

they optimized their work environment, satisfied their basic psychological needs, and increased their work engagement (cf. Wrzesniewski & Dutton, 2001).

It should be noted that the relationship between daily job crafting and daily work engagement was only partially mediated. The direct relationship between both variables may be explained by the fact that the mere act of proactively changing job characteristics may give employees the feeling that they are in charge, and have a say in how things are done at work. Indeed, in their longitudinal study, Vogt et al. (2016) found that job crafting was positively related to self-efficacy, optimism, and other beliefs about the self. Presumably, job crafting strengthens the sense of control one has over the external work environment, and such “personal resources” are known to predict work engagement next to job resources (Bakker, 2014; Tims et al., 2014).

An important third contribution of the present study is that we showed that, at least in the short run, job crafting is not only positive. Using self-regulation (Bolino et al., 2010) and role theories (Katz & Kahn, 1978), we argued and showed that job crafting requires additional effort, which comes at the cost of energy depletion. Seeking social job resources and reducing hindering job demands requires substantial energy, and this, in turn, may undermine momentary and daily work engagement. These findings may explain some of the unexpected findings reported in the literature. Petrou et al. (2012) found that daily reducing job demands was negatively related to daily work engagement – although it was expected to be positively related (since job crafters optimize their work environment). These authors argued that the negative relationship could be explained by the fact that reducing demands also implicates reducing one's job challenges. Although we cannot rule out that explanation, we add here the explanation that reducing job demands depletes energy, and therefore may undermine engagement. Similarly, Tims et al. (2012) and Tims, Bakker, and Derks (2013) found that reducing hindrance job demands was unrelated to work engagement and outcomes. It is conceivable that reducing job demands has a favorable impact on the work environment, but that this comes at some costs. It may take time in order for job crafting to have a favorable impact on work engagement and performance, because the sheer act of job crafting is effortful and can initially be experienced as an additional job demand. In sum, our findings may explain previous negative and null findings – in these studies the short-term energetic costs of job crafting may have outweighed the benefits of job crafting. Additionally, our findings confirm the general idea put forward by self-regulation theory that various acts of self-regulation can result in a state of fatigue (Moller, Deci, & Ryan, 2006), and may deplete one's energy reservoir.

It should be noted, however, that daily increasing structural job resources was *negatively* related to energy depletion, and this is inconsistent with self-regulation theory. This specific finding suggests that when employees craft their autonomy and learning opportunities, they do not spend energetic resources but instead seem to mobilize energetic resources. A post-hoc explanation for these findings is that autonomy and learning opportunities offer immediate resources that can be used to cope with the daily job demands (see, for example, Petrou et al., 2012), and thus preclude energy depletion. Moller et al. (2006) also found that there are multiple ways of regulating one's self and that these regulatory approaches can have very different relations to psychological energy and vitality. Future research should try to replicate the current findings in order to find out whether this unexpected result regarding daily increasing structural job resources holds across samples and contexts.

It should be noted that we assumed causality, but could not establish the direction of the effects. Job Demands – Resources (JD-R) theory (Bakker & Demerouti, 2017) proposes that job crafting influences work engagement through the optimization of job characteristics, but also proposes reversed causality: work engagement offers the energy and motivation to be proactive and craft the job. Thus, job crafting and work engagement are reciprocal, and form chains in an ongoing cycle of changing job characteristics, emotions, cognitions, and behaviors (Bakker, 2015). It should be noted however, that the available evidence most clearly points at a causal link between job crafting and work engagement (e.g., Gordon et al., 2018; Van Wingerden et al., 2017), and that there is little evidence for reversed causal effects (Vogt et al., 2016).

4.2. Limitations, strengths, and avenues for future research

One limitation of the present study is that we did not collect reliable information about the job crafting dimension “increasing challenge job demands”. Unfortunately, we used only three of the five original items to assess this dimension, and this resulted in an inconsistent response pattern. It therefore remains unknown whether daily increasing job challenges also contributes to the satisfaction of basic needs during work tasks, and whether this strategy depletes energy. Whereas research has consistently shown that job crafting in the form of increasing challenge job demands has favorable consequences (Rudolph et al., 2017), future research should investigate the possible downside of this form of self-determination and self-regulation. For one thing, when people work in interdependent teams, increasing one's job challenges may mean that the workload of others increases as well. Co-workers may set other priorities, and thus increasing challenge job demands may create friction and result in conflict (Dierdorff & Jensen, 2018; Luvison & Cummings, 2017).

Another limitation of this study is that the majority of the sample was highly educated and held a white-collar job. It is therefore unclear whether the results can be generalized to the general working population. It is often assumed that blue-collar workers are less inclined and less able to craft their jobs, because they have lower levels of job autonomy. Although some survey studies suggested that job crafting does occur among workers with relatively low levels of education (e.g., Tims, Bakker, and Derks, 2013; Tims, Bakker, Derks, & Van Rhenen, 2013), it is important to examine unique ways in which job crafting can be fostered among blue-collar workers. Should job crafting interventions aimed at blue collar (vs. white collar) workers focus more on increasing job resources than on increasing job challenges? Which techniques can be used to enable those with low levels of autonomy to determine their own work-related well-being and performance? These are important questions that should be answered in the next generation of job crafting studies.

One particular strength of the present study was that we used a unique combination of diary and day reconstruction methods. By

combining daily job crafting with a reconstruction of time spent on various job tasks from day to day, we created a research lens through which we could examine the association between daily job crafting and momentary satisfaction of basic psychological needs. Our design reduced the risk of common method variance (CMV) – a limitation that often threatens the validity of survey research. Nevertheless, future research should apply triangulation and include data from multiple sources so that the robustness of the findings can be evaluated. This could be done, for example, by investigating workers who have clear daily output, such as journalists, sales persons, and designers. By relating job crafting to objective output, it may also become clear whether there are differences between specific job crafting strategies that may be good for individual employee well-being, and strategies that may be best for daily output.

Since time spent on specific activities is clearly related to the satisfaction of momentary needs, it may be interesting for future research to investigate how the crafting of *specific* tasks and activities may help employees to increase their own work engagement. For example, our additional analyses indicated that time spent on core tasks and client contact was positively related to satisfaction of momentary needs. Thus, employees could try to spend more time on these activities in order to sustain or increase their work engagement. In addition, time spent on administrative tasks and answering e-mails was negatively related to the satisfaction of the needs for relatedness and competence, and positively related to energy depletion. These findings suggest that it may be important for work engagement to spend less time on these activities. Taken together, our approach signals the potential of using time analyses, experience (work engagement) sampling, and day reconstruction methods as possible input for tailored job crafting interventions. Future research should test the effectiveness of such an approach.

4.3. Practical implications and conclusion

The present diary and day reconstruction study confirms that job crafting is positively related to work engagement. Even though job crafting may cost energy in the short run, previous research has shown that job crafting can have a positive impact on work engagement and performance over a longer time period. Our research clearly indicates that particularly the daily crafting of job resources may be important for the satisfaction of basic psychological needs. The practical implication of this finding is that managers should offer their employees sufficient leeway to determine – on a daily basis – which tasks are completed and in what particular way. When employees can use self-determination, they can choose to spend more time on the tasks they truly like, which leads to higher levels of momentary and daily work engagement. The method described in this article could be used to develop a web-based application that employees can use to get insight in their daily work activities and the need to craft their work. Because job crafting as a bottom-up job redesign strategy seems to have meaningful effects on employees, managers could consider adding job crafting to top-down initiatives to improve the work environment.

Moreover, HR departments or consultancy agencies may use the present insights to optimize job crafting training interventions, in which employees learn to proactively optimize their job demands and resources (e.g., Van den Heuvel, Demerouti, & Peeters, 2015; Van Wingerden et al., 2017). In such trainings, employees develop a personalized plan, in which they formulate specific job crafting goals. The current findings indicate that these goals may refer to small steps an employee makes to change elements in the work content and context. The results further suggest that employees do need some support, because job crafting is effortful. A combination of top-down and bottom-up job redesign seems most likely to yield favorable results for employees and organizations at large.

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