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Abstract

Previous research suggests that employee job crafting is positively related to job performance through employee work engagement. The present study expands this individual-level perspective to the team level by hypothesizing that team job crafting relates positively to team performance through team work engagement. In addition, on the basis of social psychological theories about norms, modeling, and emotional contagion in groups, we hypothesize that team job crafting relates to individual performance through (a) individual job crafting and individual work engagement; and (b) team work engagement and individual work engagement. Data was collected among 525 individuals working in 54 teams that provided occupational health services. The results largely supported the hypotheses. Specifically, team job crafting was associated with individual performance via the hypothesized sequential mediation paths. The practical implications of the study are discussed and we conclude that job crafting can be simultaneously used at the team and individual level to improve job performance.

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Keywords

employee engagement, job crafting, job performance, proactivity, team work engagement

There is increasing interest in the way employees customize their own job, since employees working in contemporary organizations likely have at least some latitude to modify and craft their jobs (Oldham & Hackman, 2010). Job crafting may include changing what one does as a part of the job, how one approaches work, or how one interacts with others. According to Wrzesniewski and Dutton (2001), job crafting allows employees to change the meaning of their work or their work identity by modifying characteristics of the job and the social work environment. Job crafting complements the traditional focus on top-down redesign interventions to change job characteristics for employees (Wrzesniewski & Dutton, 2001). For example, traditional job design research, based on the influential job characteristics model (JCM; Hackman & Oldham, 1976), focused on employee attitudes and motivation arising from the job design, whereas job crafting is a bottom-up approach in which employees take the initiative to optimize their own job characteristics to align work with their personal preferences and abilities (Tims & Bakker, 2010; Wrzesniewski & Dutton, 2001). In other words, employees proactively shape their work experiences and do not passively respond to their work environment.

Recent studies have indeed shown that employees take the initiative to craft certain characteristics of their job (Berg, Wrzesniewski, & Dutton, 2010; Lyons, 2008). There is also accumulating evidence that job crafting has a positive impact on individual well-being and job performance (Bakker, Tims, & Derks, 2012; Petrou, Demerouti, Peeters, Schaufeli, & Hetland, 2012). In the present study, we aim to expand this literature by investigating job crafting in teams. Specifically, we examine whether team job crafting is related to individual performance because it sets the stage for individual job crafting and team work engagement. We draw upon theories about norms, modeling, and emotional contagion to explain how working in a team may be related to individual employees' behaviors and work engagement. This study contributes to the job crafting and work engagement literatures by extending job crafting to the team level.

Theoretical Background

Job crafting is seen as a specific type of proactive work behavior that employees engage in to adjust their job to their needs, skills, and preferences. Grant

and Parker (2009) suggest that job crafting can be grouped under the general heading *proactive person-environment fit behaviors*, as job crafting entails proactive behaviors to change the situation or oneself (e.g., through developing more skills) to achieve greater compatibility between one's own attributes and the organizational environment. Focusing on the work environment, individual job crafting is defined as proactively changing (i.e., increasing or decreasing) one's job demands and resources (Tims & Bakker, 2010). Two types of job demands are distinguished based on their relationships with employee well-being: hindering and challenging job demands (LePine, Podsakoff, & LePine, 2005). Hindering job demands are demands placed on the employee that interfere with the attainment of goals and may therefore be associated with lower well-being and performance. Challenging job demands are demands that are experienced as difficult or stressful but they contribute to positive outcomes such as better skills and personal growth (Crawford, LePine, & Rich, 2010). In addition, the work environment may provide job resources that can reduce the impact of job demands, and may stimulate personal growth, learning, and development (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Using this job demands—resources (JD-R) framework, individual job crafting includes *increasing structural job resources* (e.g., requesting more autonomy), *increasing social job resources* (e.g., asking for feedback), *increasing challenging job demands* (i.e., start new projects), and *decreasing hindering job demands* (i.e., cognitive and emotional demands; Tims, Bakker, & Derks, 2012).

In the present study, we adopted the JD-R approach to job crafting because we are interested in how employee-driven changes in job characteristics contribute to work engagement and performance. The JD-R model (Bakker & Demerouti, 2007, 2013) clearly indicates which job characteristics are motivational and which characteristics are health-impairing (job resources along with challenging job demands and hindering job demands, respectively). Within the model, work engagement is defined as a positive, fulfilling, work-related state of mind that is characterized by vigor (e.g., being highly energetic), dedication (e.g., being highly involved in work), and absorption (e.g., being highly concentrated in work; Schaufeli, Salanova, González-Romá, & Bakker, 2002). This work engagement definition corresponds to our interest in employees' experience of work because it focuses on the work *activity* or the work itself (Macey & Schneider, 2008; Schaufeli & Salanova, 2011), whereas other conceptualizations of engagement focus on personal engagement in the work *role* (Kahn, 1990; Rich, LePine, & Crawford, 2010).

Prior studies have shown that job crafting is positively related to work engagement (Bakker et al., 2012; Petrou et al., 2012; Tims et al., 2012). This research builds on the well-established finding that work engagement will

increase when the work environment contains a sufficient amount of job resources and challenging tasks (Bakker, 2011; Halbesleben, 2010). Likewise, it is expected that when employees craft a work environment that contains an adequate amount of job resources and challenging job demands, their levels of energy, dedication, and absorption will increase (Bakker et al., 2012).

With regard to proactively decreasing hindering job demands, recent studies suggest that decreasing hindering job demands is unrelated (Tims et al., 2012; Tims, Bakker, & Derks, 2013) or negatively related to work engagement (Petrou et al., 2012). More specifically, Tims et al. (2012) report a non-significant relationship between decreasing hindering job demands and other ratings of work engagement. Similarly, research by Tims and colleagues (2013) shows that decreasing hindering job demands and work engagement are unrelated. However, Petrou and colleagues observed a weak but significant negative relationship between reducing demands and work engagement in their daily diary study. In line with the JD-R model and empirical evidence showing that job resources instigate a motivational process leading to work engagement (Bakker & Demerouti, 2007), while hindering demands instigate a health impairment process leading to burnout (Hakanen, Schaufeli, & Ahola, 2008), it may be suggested that decreasing hindering demands is more likely to relate to other outcomes than work engagement. For example, decreasing hindering demands may be a strategy to reduce immediate stress or feelings of burnout.

Crafting job resources and challenging job demands is not only positively related to work engagement, it also has the potential to increase performance (Leana, Appelbaum, & Shevchuk, 2009; Lyons, 2008). For example, Lyons found that sales people reported many job crafting episodes that contributed to their performance by making improvements that benefitted the customer or the company and/or increased skills. Job crafting may be directly related to performance because job resources, for example, may be acquired to meet job demands and can be invested in different aspects of performance (cf. Halbesleben, 2011; Hobfoll, 2001). Also, by crafting a more challenging job, employees may be able to perform more tasks or more complex tasks, which may improve their performance.

Job crafting may also indirectly relate to performance via its positive relationship with work engagement. Engaged employees are likely to experience positive emotions, such as happiness and enthusiasm (Demerouti & Cropanzano, 2010). These positive emotions lead to a wider range of thoughts and actions because happy and enthusiastic people tend to integrate diverse ideas better (Fredrickson, 2001), which makes them more likely to perform better. Indeed, previous research suggests that work engagement is positively related to job performance (for a meta-analysis, see Christian, Garza, & Slaughter, 2011). A

recent study by Bakker and colleagues (2012) shows that job crafting (i.e., increasing structural and social job resources as well as increasing challenging job demands) was positively related to colleague-ratings of performance and that work engagement mediated this relationship. In sum, we expect that job crafting may have direct as well as indirect effects on performance through work engagement. In other words, we expect that work engagement partially mediates the relationship between job crafting and job performance.

Hypothesis 1a (H1a): Work engagement partially mediates the relationship between increasing structural job resources and job performance.

Hypothesis 1b (H1b): Work engagement partially mediates the relationship between increasing social job resources and job performance.

Hypothesis 1c (H1c): Work engagement partially mediates the relationship between increasing challenging job demands and job performance.

Although it can be argued that decreasing hindering job demands may improve performance because there are no longer obstacles to one's work-related goals, it may be implied that if crafting of hindering demands reduces work engagement (as found in the study of Petrou et al., 2012), it will also reduce performance. Because the empirical evidence regarding these relationships is ambiguous, we do not formulate a formal hypothesis but, instead, formulate an exploratory research question:

How is decreasing hindering job demands related to work engagement and job performance?

Job Crafting in Teams

The increased use of work teams in organizations makes it more likely that individuals perform many of their tasks in a team setting (Colquitt, Hollenbeck, Ilgen, LePine, & Sheppard, 2002). In such settings, team members must share ideas and knowledge when making decisions regarding the team's tasks (LePine, Hollenbeck, Ilgen, & Hedlund, 1997). This interdependence may have consequences for the individual's actions at work. When individual task performance is dependent on the task performance of team members, proactive crafting behaviors aimed at changing one's own job tasks or social environment may impact other team members (Wrzesniewski & Dutton, 2001). As a consequence of working in a team, individuals may refer to another type of job crafting, one that is directed to and initiated at the team level.

A recent study indeed suggests that employees not only craft their job individually but also engage in job crafting as a team (Leana et al., 2009). In the latter study, collaborative job crafting was defined as the process by which groups of employees determine together how they can alter their work to meet their shared work goals. Leana and colleagues demonstrated that collaborative crafting was more strongly related to classroom quality than individual job crafting. These results may suggest that, particularly in environments in which people need to work together, collaborative job crafting may be beneficial for performance. In the current study, we go one step further by investigating the process through which team job crafting may influence individual performance.

We propose that team job crafting is a team-level construct that has theoretical similarity with individual-level job crafting (i.e., isomorphism; Rousseau, 1985). We thus define team job crafting as the extent to which team members combine efforts to increase structural and social job resources as well as challenging job demands, and to decrease their hindering job demands. Team job crafting implies that team members together decide, for example, which job resources they need to accomplish their tasks and together ensure that they mobilize these resources. In addition, teams may want to challenge themselves by learning new skills that can be applied in their current tasks. Moreover, the existence of hindering demands may be recognized and dealt with as a team. Team crafting does not imply that every team member needs to craft the same job resources and demands, but deciding what and how to craft is a team process. As team job crafting refers to the way the team interacts and behaves as an interdependent and goal-directed combination of individuals (Morgeson & Hofmann, 1999), it is not the same as the sum of individual team member job crafting. Thus, the structure of team job crafting is different from the structure of individual job crafting, but the two concepts are expected to have the same outcomes across levels (i.e., functional equivalence; Morgeson & Hofmann, 1999).

Teams working in an environment that is crafted such that they have sufficient job resources and challenging job demands may be more engaged because they are able to perform their job tasks in an optimally designed environment. Team work engagement is operationalized as a shared, positive, fulfilling, work-related psychological state characterized by team vigor, dedication, and absorption, which emerges from the interaction and shared experiences of the members of a work team (Torrente, Salanova, Llorens & Schaufeli, 2012). Thus, team work engagement is also seen as a collective construct with a different structure than individual engagement but with functional equivalence. Team work engagement has been shown to relate to enhanced team performance (Salanova, Llorens, Cifre, Martinez, & Schaufeli,

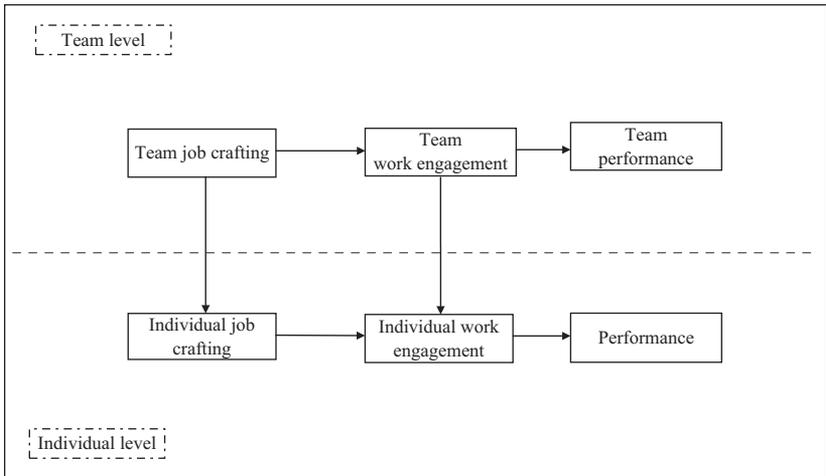


Figure 1. Research model of job crafting at the team and individual level.

2003; Torrente et al., 2012) in the same way as individual work engagement is related to individual job performance. Due to the expected functional equivalence, we expect to find the same relationships between job crafting, work engagement, and job performance at the team level as have been identified at the individual level. Again, the relationship between team crafting hindering job demands, team work engagement, and team performance is examined in an exploratory manner. Thus, we predict (see Figure 1):

Hypothesis 2a (H2a): Team work engagement partially mediates the relationship between team crafting structural job resources and team performance.

Hypothesis 2b (H2b): Team work engagement partially mediates the relationship between team crafting social job resources and team performance.

Hypothesis 2c (H2c): Team work engagement partially mediates the relationship between team crafting challenging job demands and team performance.

From Team to Individual Job Crafting and Work Engagement

Employees working in teams influence each other, which may explain how team members' affective experiences and behaviors are related to individual

affective experiences and behaviors (Torrente et al., 2012). In exploring how team job crafting and team work engagement influence individual job crafting and individual work engagement, respectively, we use three social psychological theories. Namely, theories regarding social norms, modeling, and emotional contagion. These theories capture three types of information individuals can obtain from other team members: Norms capture the teams' unwritten expectations about behaviors; modeling conveys information about actual displayed behaviors; and emotional contagion is a strong mechanism through which affective experiences (e.g., work engagement) in the work environment cross over to individuals.

In reference to the influence of team job crafting on individual job crafting, norms describe the shared beliefs regarding the expected behaviors of team members and are used to guide individual behaviors (Carron & Hausenblas, 1998; Taggar & Ellis, 2007). Russell and Russell (1992) demonstrated that innovation-related norms were most strongly related to successful innovation strategies in terms of the importance and frequency of successful product innovations. Norms within teams can even be so powerful that employees pressure each other to conform to the norms, which is known as concertive control (Barker, 1993). Thus, what happens in teams sets the norm and influences individual employees. When team members address issues in the team and the team responds proactively to solve these issues, this team crafting may signal that proactive behaviors aimed at improving the teams' work characteristics (i.e., team job crafting) are expected of them. In these teams, individuals may be more likely to engage in individual job crafting, too. To illustrate this concept, a team that does not receive performance feedback as often as needed can work together on a plan to receive regular performance feedback from their clients. This proactive response may indicate to the individual team members that feedback is important and that proactively searching for feedback is encouraged, which may make them more likely to ask for personal feedback, too.

Norms can be induced from observing the actions and the responses to these actions of others (Postmes, Spears, & Lea, 2000). Observational learning or modeling (Bandura, 2001) captures this process and involves acquiring (crafting) relevant skills and strategies rather than mimicking exactly what others have done. By observing team members, people can infer which behaviors are appropriate in the workplace. Model characteristics (e.g., similarity, status, success) are taken into account to judge whether the behavior is appropriate to imitate and whether it will lead to valued outcomes. Employees working in the same team may perceive each other to be similar because, for example, people are attracted to, selected by, and remain in organizations or teams that contain similar others (Schneider, 1987). Thus, when team

members together engage in crafting activities, individuals may engage in this behavior while working on their own tasks. The presence of role models (e.g., team members) who craft may have a substantial impact on the crafting of individual team members. Zhou (2003), for example, showed that when employees worked with creative coworkers they were more creative themselves. Therefore, we expect:

Hypothesis 3 (H3): Team job crafting is positively related to individual job crafting.

Crossover may be an important process through which team members impact how individuals feel at work. The work engagement expressed by one's colleagues may influence individual employees' level of work engagement because interacting with employees who speak and behave enthusiastically may elicit the same feelings and behaviors in the interaction partner (Levy, Freitas, & Salovey, 2002). Barsade (2002) and Ilies, Wagner, and Morgeson (2007) demonstrated that emotional contagion occurred in groups and that it affected peoples' affective states, judgments, and behaviors. Bakker, Van Emmerik, and Euwema (2006) studied the crossover of work engagement among more than 2,000 constabulary officers. Their results confirmed that team work engagement was related to individual team members' work engagement after controlling for individual members' job demands and resources. Conceptually similar findings were reported by Bakker and Xanthopoulou (2009) while using a quantitative daily diary study. The latter authors argued that vigor and absorption may cross over via modeling, in which employees imitate each other's expressions, tone of voice, posture, and movements and, therefore, begin to feel the same (Hatfield, Cacioppo, & Rapson, 1994). Crossover of dedication may be the result of more conscious cognitive processes, such that employees pay close attention to the emotions and attitudes of their colleagues. Employees who try to imagine how they would feel when in the other's position may actually start to experience the same feelings (Bakker & Demerouti, 2009). Hence,

Hypothesis 4 (H4): Team work engagement is positively related to individual work engagement.

Team Job Crafting and Individual Performance

Central to the present study is the idea that team job crafting influences individual performance through (a) individual job crafting and individual work engagement, and (b) team work engagement and individual work

engagement. Based on the literature discussed so far, we first propose that when teams craft their work environment this activity may signal to individuals that they may craft their job as well in such a way that their own tasks are in line with their individual needs and abilities (cf. Tims & Bakker, 2010). In turn, this enriched work environment may fuel individual employees' work engagement and improve their performance. Second, we propose that team job crafting leads to team work engagement, which, in turn, enhances team performance, because the team members crafted a work environment in which they are able to feel engaged in their work. Team work engagement is transmitted to the individual team members via modeling and emotional contagion, and from the engagement literature it is known that engaged employees are most likely to perform well. Thus, integrating the previous hypotheses, we propose (see Figure 1 for the overall research model):

Hypothesis 5 (H5): Individual job crafting and work engagement mediate the relationship between team job crafting and individual performance.

Hypothesis 6 (H6): Team work engagement and individual work engagement mediate the relationship between team job crafting and individual performance.

Method

Procedure and Participants

The present study was conducted in a large Occupational Health Services company in the Netherlands. The company advises organizations, for example, suggesting how they can reduce absenteeism among their employees. In addition, the company also examines workers' physical and mental health for their employability. Management agreed to participate in the study because they were interested in the level of job crafting among their employees and how this activity would relate to their work engagement and job performance. We sent the questionnaire to all employees and guaranteed confidentiality of their responses. Approximately 1,400 individuals worked for this organization and 562 of them filled out the online questionnaire (40.1%). Participants who did not report to which team they belonged, who were the only team member that filled out the questionnaire, or who had missing values on all variables were excluded, resulting in a final sample size of 525 individuals working in one of 54 work teams. The number of participants per team ranged from 3 to 25 ($M = 16.12$). Most participants were female (66%), and the average age was 44.49 ($SD = 11.01$). They had on average 20.97 years ($SD = 10.37$)

of working experience and worked for 9.95 years for this organization ($SD = 5.46$). Participants worked as occupational doctors (42.4%), who conduct medical exams; nurses (27.6%), who assist the occupational doctors; consultants (18.4%), who support external organizations in work-related health issues; or support staff (6%), who work at the reception or in secretarial roles.

Measures

We collected data on job crafting, work engagement, and job performance at the individual and team level. To assess these variables at the individual level, we used validated scales. To assess the variables at the team level, we adapted the scales used at the individual level according to the referent-shift composition model (Chan, 1998; Klein, Conn, Smith, & Sorra, 2001). In the referent-shift composition model, the basic content of the original constructs remains unchanged but the referent of the content changes from the individual to the team. In this way, it is possible to assess the agreement of the team members on the team constructs. Not all items could be adapted to the team level (e.g., “When I get up in the morning, I feel like going to work”) and to keep the time to fill in the survey manageable for the participants, we reduced items to assess the team-level constructs. The highest-loading items were selected from the established measures.

Job crafting was assessed with the Dutch job crafting scale developed by Tims and colleagues (2012). The scale consists of 21 items that cover four dimensions. Increasing structural job resources is measured using five items. An example item is: “I make sure that I use my capacities to the fullest.” Increasing social job resources is measured using five items and an example item is: “I ask colleagues for advice.” Increasing challenging job demands also contains five items, such as “When there is not much to do at work, I see it as an opportunity to start new projects.” The last dimension, decreasing hindering job demands, consists of six items. An example is: “I try to ensure that my work is emotionally less intense.” Response categories ranged from 1 (*never*) to 5 (*always*). Cronbach’s α are presented in Table 1. Confirmatory factor analysis (CFA), in which standard errors and chi-square tests of model fit take into account the team clustering, supported the 4-factor structure of job crafting when compared to a one-factor model ($\Delta\chi^2 = 593.69$, $\Delta df = 5$, $p < .01$) and a three-factor model in which increasing structural and social job resources were modeled as one factor ($\Delta\chi^2 = 219.27$, $\Delta df = 3$, $p < .01$). Model fit was assessed with the Chi-square statistic (χ^2), the comparative fit index (CFI), the Tucker-Lewis Index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean squared residual (SRMR; Kline, 2005). The conventional cutoff values of these fit indices were used to

Table 1. Means, Standard Deviations, and Correlations Among Study Variables (N = 525). Cronbach's α on Diagonal.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Team size	16.12	5.51	—														
2. Autonomy	3.30	.87	-.12**	(.80)													
3. Task interdependence	3.24	.64	-.02	.14**	(.79)												
4. Increasing structural JR	3.35	.71	-.07	.34**	.23**	(.80)											
5. Increasing social JR	2.42	.67	-.07	.17**	.30**	.48**	(.83)										
6. Increasing challenging JD	2.63	.74	-.11**	.19**	.23**	.62**	.53**	(.79)									
7. Decreasing hindering JD	1.73	.55	-.03	.01	.02	.14**	.33**	.19**	(.80)								
8. Vigor	4.76	1.18	-.04	.24**	.21**	.40**	.24**	.30**	-.06	(.91)							
9. Dedication	4.86	1.26	-.08*	.27**	.23**	.48**	.32**	.31**	.01	.79**	(.92)						
10. Absorption	4.44	1.25	-.09*	.19**	.22**	.43**	.30**	.36**	.04	.73**	.80**	(.84)					
11. Performance	4.22	.58	-.01	.18**	.23**	.40**	.17**	.28**	.02	.42**	.39**	.37**	(.89)				
12. Team work engagement	4.18	1.17	-.10*	.14**	.36**	.24**	.28**	.14**	.04	.44**	.46**	.44**	.22**	(.92)			
13. Team crafting JR challenging JD	2.77	.74	-.02	.14**	.47**	.27**	.40**	.26**	.17**	.32**	.32**	.28**	.18**	.62**	(.87)		
14. Team crafting hindering JD	2.29	.93	.02	.09*	.33**	.17**	.32**	.19**	.22**	.22**	.24**	.24**	.11**	.43**	.70**	(.80)	
15. Team performance	3.76	.57	.03	.16**	.39**	.12**	.17**	.04	.04	.22**	.21**	.16**	.21**	.54**	.59**	.32**	(.88)

Note. JR = job resources. JD = job demands.

* $p < .05$.** $p < .01$.

judge model fit (i.e., CFI and TLI > .90, and RMSEA and SRMR < .08 to indicate good fit; Marsh, Hau, & Wen, 2004). Model fit of the four-factor model was: CFI = .90, TLI = .88, RMSEA = .05, SRMR = .06. The TLI is below .90 which may indicate a nonoptimal model fit. However, the RMSEA and SRMR are low, indicating that the specified model captures the data and that factor loadings are high (Iacobucci, 2010). Kenny and McCoach (2003) observed similar results when correctly specified models include many variables (as in our case). These authors suggested that when “the TLI and CFI seem slightly lower than hoped, but the RMSEA seems a bit better, then there may be no real cause for concern” (p. 349). Considering both the model fit indices from the alternative models and the theoretical underpinnings of job crafting, we decided to use the four separate factors in our study.

At the team level, we assessed job crafting using eight items of the job crafting scale. That is, we used two items to measure each job crafting dimension. The items were adapted to reflect the team level (e.g., “My team asks others for advice”). CFA’s revealed the best model fit when distinguishing two factors (i.e., one factor that included the items of increasing structural and social job resources along with challenging job demands; and one factor including the items of decreasing hindering job demands) instead of the four job crafting dimensions ($\Delta\chi^2 = 47.98$, $\Delta df = 2$, $p < .01$). The fit of the two-factor model to the data was good: CFI = .95, TLI = .93, RMSEA = .09, SRMR = .04. To examine the distinctiveness of individual and team job crafting measures, another CFA was conducted. The fit of the model with four individual job crafting factors and two team job crafting factors was: $\chi^2 = 909.18$, $df = 358$, $p < .001$, CFI = .87, TLI = .85, RMSEA = .07, SRMR = .06. Modification indices (MI) were inspected but they showed that no substantial improvements could be made to the model. We therefore conducted a series of alternative CFA’s. First, we examined the fit of a 1-factor model, in which all items loaded on the same factor. The fit of this model was clearly worse: $\chi^2 = 3023.87$, $df = 358$, $p < .001$, CFI = .48, TLI = .44, RMSEA = .12, SRMR = .12. Second, we examined a 2-factor CFA, in which team and individual items measuring increasing structural and social job resources as well as challenging job demands were modeled to load on one factor; and items measuring decreasing hindering job demands and team decreasing hindering job demands on a second factor. The fit of this model was also insufficient: $\chi^2 = 2299.51$, $df = 376$, $p < .001$, CFI = .53, TLI = .49, RMSEA = .10, SRMR = .12. Finally, we examined a four-factor model in which individual-level increasing structural job resources loaded on the same factor as the items for team increasing structural job resources; individual-level increasing social job resources loaded on the same factor as the items for team increasing social job resources, and so forth. The fit of this model was also worse than

the proposed model: $\chi^2 = 2052.43$, $df = 371$, $p < .001$, CFI = .59, TLI = .55, RMSEA = .10, SRMR = .12. As we found no evidence for a better fitting model, we concluded that most support was found for the model with four individual job crafting factors and two team job crafting factors and that the relatively low values for CFI and TLI may again be due to the large number of variables in this model (Kenny & McCoach, 2003).

Work engagement was measured with the Utrecht Work Engagement Scale (UWES; Schaufeli, Bakker, & Salanova, 2006). The scale consists of three dimensions: vigor (3 items), dedication (3 items), and absorption (3 items). Example items are "At my work, I feel bursting with energy" (vigor), "I am enthusiastic about my job" (dedication), and "I am immersed in my work" (absorption). Answer categories ranged from 0 (*never*) to 6 (*always*). CFA's demonstrated that the three-factor structure of work engagement showed the best fit to the data when compared with a one-factor model of work engagement: $\Delta\chi^2 = 25.52$, $\Delta df = 3$, $p < .01$, and the model fit of the three-factor model was good: CFI = .96, TLI = .94, RMSEA = .09, SRMR = .03. At the team level, we assessed team work engagement with one item for each dimension: vigor ("My team is bursting with energy at work"), dedication ("My team is enthusiastic about the work"), and absorption ("My team is immersed in its work"). The average score on the three items was used in the analyses. To examine the distinctiveness of individual and team engagement measures, a CFA was conducted. The fit of the model with three individual work engagement factors and one team work engagement factor was good: $\chi^2 = 162.28$, $df = 47$, $p < .01$, CFI = .96, TLI = .95, RMSEA = .07, SRMR = .03 and significantly better than a model in which all items loaded on the same factor: $\Delta\chi^2 = 632.69$, $\Delta df = 7$, $p < .001$.

Performance was measured with five items developed by Williams and Anderson (1991). An example item is "I adequately complete assigned duties." A 5-point scale was used with answers ranging from 1 (*totally disagree*) to 5 (*totally agree*). Team performance was assessed with the same scale but we changed the reference from "I" to "My team." A CFA was conducted to assess whether the participants distinguished between their own performance and team performance. The two-factor CFA showed a good model fit: $\chi^2 = 100.49$, $df = 34$, $p < .01$, CFI = .96, TLI = .94, RMSEA = .06, SRMR = .04. Moreover, the two-factor model fits substantially better than a one-factor model in which all items loaded on the same factor ($\Delta\chi^2 = 661.71$, $\Delta df = 1$, $p < .001$).

Control Variables. Based on the job crafting literature (Leana et al., 2009; Wrzesniewski & Dutton, 2001), we control for the job characteristics of autonomy and task interdependence in our analysis. *Autonomy* was measured with

three items (Bakker, Demerouti, Taris, Schaufeli, & Schreurs, 2003). An example item is "Do you have flexibility in the execution of your job?" Response categories ranged from 1 (*never*) to 5 (*always*). *Task interdependence* was measured with a six-item scale developed by Sprigg, Jackson, and Parker (2000). An example item is "I cannot get my tasks done without information and materials from other members of my team." A 5-point scale was used, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Justification for Aggregation

To examine whether it is justified to aggregate individual responses to team-level constructs, we followed three recommendations of Van Mierlo, Vermunt, and Rutte (2009). To save space, we report the overall findings (specific findings can be requested from the first author). First, we examined the appropriateness of aggregating the individual ratings. To this end, intra-class correlations (ICCs) were calculated (Stewart, Fulmer, & Barrick, 2005). ICC(1) is interpreted as the proportion of variance in a variable that is accounted for by group membership. In the present study, ICC(1) ranged from .05 to .14 (all were significant), indicating that there is variability in responses to the team-level constructs across teams. ICC(1)s associated with individual-level variables were consistently lower than those associated with team-level variables supporting that these were individual-level constructs (cf. Chen & Bliese, 2002). ICC(2) represents the reliability of group mean scores. ICC(2)s ranged from .51 to .64 in the present study. The ICC(2) for team-level constructs were considerably higher than those of the individual-level. Second, as we used referent-shift items (Chan, 1998) to assess the team variables, the agreement within teams on the team constructs was assessed with the r^*wg for multiple items (Lindell, Brandt, & Whitney, 1999). The r^*wg is a revised index of agreement for ratings on a multi-item scale. Dunlap et al. (2003) provide significance levels of r^*wg for various combinations of raters and number of response categories (Van Mierlo et al., 2009). In our case, r^*wg 's ranged between .73 and .89. Thus, they exceeded the generally applied cutoff of .70 (James, Demaree, & Wolf, 1984). Only the interrater agreement for team work engagement was .32. The cutoff score for statistical significance of the r^*wg provided by Dunlap et al. was found to be .39 (based on the mean of 16 team members who completed the survey and that work engagement had seven response categories). In conclusion, individuals in the same teams generally agreed on the team constructs, which supports the construct validity of the measures at the team level (Chan, 1998). However, the results regarding team work engagement should be interpreted with caution.

Finally, the within-group factor structure was assessed. When individuals answer team-level items, it is expected that their responses are similar and, thus, a clear factor structure should emerge. We indeed found that employee responses to team-level variables formed a clear factor. Taken together, aggregation of the individual's perceptions of team constructs to the team level seems justified and it seems that team and individual constructs are different.

Analysis Strategy

The hypotheses were tested using path analysis in Mplus (Muthén & Muthén, 1998). In the analyses, the standard errors and chi-square tests of model fit take into account the team clustering. Taking into account the team structure (54 team clusters) and model complexity, we modeled manifest variables to reduce the number of estimated parameters. Hypothesis 1 to 2, 3 to 4, and 5 to 6 were examined simultaneously.

Results

The descriptive statistics are presented in Table 1.

In Hypotheses 1a to 1c and 2a to 2c, we examined whether job crafting related to performance via work engagement at both the individual (Hypothesis 1) and team level (Hypothesis 2). At the individual level, we found that increasing structural job resources was related to vigor, dedication, and absorption ($\beta = .26$, $\beta = .35$, and $\beta = .26$, all p 's $< .01$, respectively), and to job performance ($\beta = .25$, $p < .01$). Increasing social job resources was not related to vigor, absorption, and job performance ($\beta = .04$, $p = .40$, $\beta = .06$, $p = .25$, and $\beta = -.09$, $p = .08$, respectively), but was significantly related to dedication ($\beta = .11$, $p < .05$). Increasing challenging job demands was associated with vigor and absorption ($\beta = .11$, $p < .05$, $\beta = .16$, $p < .01$, respectively) but was unrelated to dedication and performance ($\beta = .03$, $p = .60$, $\beta = .07$, $p = .23$, respectively). Decreasing hindering job demands was negatively related to vigor ($\beta = -.12$, $p < .01$) but unrelated to dedication, absorption and performance ($\beta = -.07$, $p = .08$, $\beta = -.03$, $p = .46$, $\beta = .01$, $p = .76$, respectively). In turn, vigor related positively to performance ($\beta = .25$, $p < .01$) whereas dedication and absorption were not related to performance ($\beta = .02$, $p = .77$ and $\beta = .05$, $p = .35$).

Based on these results, the indirect effects that could be tested were those from increasing structural job resources, increasing challenging job demands, and decreasing hindering job demands to performance via vigor (see Table 2 for all significant indirect effects). The relationship between increasing

Table 2. Overview of Significant Indirect Effects.

	Estimate	s.e.	Est./s.e.	95% CI	<i>p</i>
Individual level:					
<i>From increasing structural job resources to performance</i>					
Sum of indirect effect	.08	.02	4.15	.044 - .124	< .01
Through vigor	.07	.02	2.98	.022 - .108	< .01
<i>From increasing challenging job demands to performance</i>					
Sum of indirect effect	.04	.02	2.35	.006 - .067	< .05
Through vigor	.03	.01	2.02	.001 - .055	< .05
<i>From decreasing hindering job demands to performance</i>					
Sum of indirect effect	-.03	.01	-2.39	-.059 - -.006	< .05
Through vigor	-.03	.01	-2.38	-.054 - -.005	< .05
Team level:					
<i>From team crafting job resources and challenging demands to team performance</i>					
Sum of indirect effect	.15	.03	5.53	.096 - .201	< .01
Through team work engagement	.15	.03	5.53	.096 - .201	< .01
Team level to the individual level:					
<i>From team crafting job resources and challenging demands to performance</i>					
Sum of indirect effect	.09	.02	4.50	.049 - .125	< .01
Through increasing structural job resources and vigor	.01	.01	2.25	.002 - .024	< .05
Through team work engagement and vigor	.05	.02	3.30	.021 - .082	< .01
<i>From team crafting hindering job demands to performance</i>					
Sum of indirect effect	-.009	.007	-1.33	-.023 - .004	.18
Through decreasing hindering job demands and vigor	-.008	.004	-2.41	-.015 - -.002	< .05

structural job resources and performance was still significant after modeling vigor as a mediator ($\beta = .25, p < .01$) and the indirect effect was also significant ($z = 2.98, p < .01$). Thus, vigor partially mediated the relationship between increasing structural job resources and performance. The direct relationship between increasing challenging job demands and performance was not significant ($\beta = .07, p = .23$) but the indirect effect was ($z = 2.02, p < .05$), indicating full mediation. Hypothesis 1a thus gained full support, and Hypothesis 1b gained partial support. As decreasing hindering job demands was not related to performance but did relate to vigor, we could examine an indirect effect. The indirect effect was significant: $z = -2.38, p < .05$, indicating that vigor fully mediated the relationship between decreasing hindering job demands and performance.

With regard to the team level (Hypotheses 2a-2c), we examined the hypotheses together as the measure for team job crafting could not distinguish the three job crafting dimensions. The results showed that team crafting job resources and challenging job demands was positively associated with team work engagement ($\beta = .54, p < .01$) and with team job performance ($\beta = .48, p < .01$). Team crafting hindering job demands related negatively to team performance ($\beta = -.17, p < .01$) but was unrelated to team work engagement ($\beta = -.03, p = .57$). Team work engagement was positively associated with team performance ($\beta = .28, p < .01$). Team crafting job resources and challenging demands was significantly related to team performance after modeling team work engagement as the mediator ($\beta = .54, p < .01$). The indirect effect from team crafting job resources and challenging demands to team performance via team work engagement was significant ($z = 5.53, p < .01$), supporting partial mediation. Model fit was good: $\chi^2 = 52.14, df = 20, p < .01$, CFI = .99, TLI = .94, RMSEA = .05, SRMR = .04. In sum, the hypothesis that work engagement partially mediates the relationship between increasing structural and social job resources as well as increasing challenging job demands was supported.

To test Hypotheses 3 and 4, the direct relationship of team job crafting and team work engagement with individual job crafting and individual work engagement, respectively, was examined. Team crafting job resources and challenging demands related positively to individual crafting structural job resources ($\beta = .20, p < .01$), social job resources ($\beta = .32, p < .01$), and challenging job demands ($\beta = .20, p < .01$). Team crafting hindering job demands was also positively related to individual crafting hindering demands ($\beta = .23, p < .01$), supporting Hypothesis 3. In addition, team work engagement was significantly related to individual work engagement: it related to vigor ($\beta = .39$), dedication ($\beta = .39$), and absorption ($\beta = .40$, all p 's $< .01$), providing support for Hypothesis 4. Fit of the model was good: $\chi^2 = 19.18, df = 8, p < .05$, CFI = 1.0, TLI = .96, RMSEA = .04, SRMR = .01.

In Hypothesis 5, we predicted that team job crafting related positively to individual performance via individual job crafting and individual work engagement. We found two significant indirect effects (see Table 2): The first ran from team crafting job resources and challenging job demands to individual performance via individual crafting structural job resources and individual vigor ($z = 2.25, p < .05$). The second indirect effect was from team crafting hindering job demands to individual performance via individual crafting hindering job demands and vigor ($z = -2.41, p < .05$). These results indicate that Hypothesis 5 gained substantial support.

In Hypothesis 6, we predicted that team job crafting would be related to individual performance via team work engagement and then individual work

engagement. Incorporating the results of previous hypotheses, we could only examine the indirect effect from team crafting job resources and challenging job demands to individual performance via team work engagement and individual vigor. This indirect effect was significant ($z = 3.30, p < .01$), providing partial support for Hypothesis 6. Model fit was good: $\chi^2 = 19.19, df = 8, p < .05, CFI = 1.0, TLI = .95, RMSEA = .04, SRMR = .01$.

Alternative Models

To lend more credibility to our cross-sectional findings, we fit two alternative models to the data. The first alternative model included reversed direct effects from individual job crafting to team job crafting and from individual work engagement to team work engagement, respectively (reverse of Hypotheses 3 and 4). The fit of this model was clearly worse than the fit of the hypothesized model: $\chi^2 = 42.52, df = 8, p < .01, CFI = .99, TLI = .86, RMSEA = .08, SRMR = .03$. Note that the chi-square difference test could not be used as both models have equal degrees of freedom. The second alternative model is a model in which (team) work engagement precedes (team) job crafting, which, in turn, relates to (team) performance (alternative to Hypotheses 1 and 2; see Bakker et al., 2012). Again, the fit of this alternative model was not as good as the fit of the hypothesized model: $\chi^2 = 73.07, df = 23, p < .01, CFI = .98, TLI = .92, RMSEA = .05, SRMR = .03$ and the difference between the two models was significant: $\Delta\chi^2 = 20.93, \Delta df = 3, p < .01$.

Discussion

The goal of the current study was to examine job crafting at both the individual and team level. The latter has only recently gained attention (Leana et al., 2009), but it is important to take team job crafting into account, as most individuals do not work in isolation. Rather, research has shown that team members influence each other with their behaviors and affective states (Bakker et al., 2006; Ilies et al., 2007). The present study contributes to the knowledge about job crafting in several ways. More specifically, the results showed that job crafting is related to job performance via work engagement at both the individual and team level. In addition, we found support for the hypothesis that the behaviors and feelings of teams are related to how individuals behave and feel at work. Moreover, we provided evidence for the indirect relationship of team job crafting to individual performance. Although the observed relationships may overestimate the actual relationships due to the use of self-reports, same-source bias cannot fully explain these results (Lance, Dawson, Birkelbach, & Hoffman, 2010). Additional findings

regarding the fit of alternative models (in which reversed relationships were modeled), provided further support for the hypothesized relationships. We will discuss the contributions of this study in more detail below.

Job Crafting at the Team and Individual Level

A first contribution of the current study is that we replicated the model of job crafting at the individual level (Bakker et al., 2012; Petrou et al., 2012) and extended it to the team level. Taken as a whole, our findings suggest that actively increasing job resources and challenging job demands may be a valuable strategy to increase work engagement and job performance at both the individual and team level. The exploratory tests with regard to decreasing hindering job demands suggest that this type of job crafting seems to impair work engagement and may indirectly impair individual performance. At the team level, this job crafting strategy was negatively related to team performance and unrelated to team work engagement. As suggested earlier, these results may indicate that this type of job crafting may be used to reduce stress. Hindering job demands frustrate the attainment of (personal) goals and may therefore cause stress. However, decreasing those demands does not necessarily imply that motivation will increase. Thus, consistent with the most recent propositions of JD-R theory (Bakker & Demerouti, 2013), it can be argued that decreasing one's hindering job demands may particularly have consequences for one's level of burnout because job demands instigate a health-impairment process and predict burnout. In contrast, increasing challenging job demands and job resources facilitates work engagement because employees can satisfy their basic needs (Bakker, 2011). Future longitudinal research could examine whether these different processes (i.e., motivational and health-impairment process) lead to different job crafting behaviors and outcomes.

Future research may also examine potential reversed effects, as it may be argued that individuals or teams with poor performance may diminish their hindering demands in order to improve their performance and well-being. Likewise, individuals or teams with excellent performance may be more open to increasing their job resources and job challenges because they may experience more positive emotions and may therefore be more inclined to look for opportunities (Fritz & Sonnentag, 2009).

Interestingly, vigor was the only component of work engagement that related significantly to job performance. Bakker and Xanthopoulou (2009) also found that vigor crossed over from one employee to another, particularly when they interacted often. As vigor is characterized by energetic feelings, motivation to invest effort at work, and resilience, this crossover may enable

employees to cope with their work-related demands in an effective way (Shirom, 2003). Thus, the energetic focus that is part of vigor seems most likely to facilitate goal-directed behavior (Bakker & Xanthopoulou, 2009; Carver & Scheier, 1990). Future studies could focus on these differential relationships.

Team Job Crafting and Individual Performance

We proposed that team norms, social learning (modeling), and emotional contagion could explain the transmission of team behaviors and affect to individual behaviors and affect. The results showed indeed that employees who worked in teams where team members crafted together were more likely to engage in individual job crafting. Also, the work engagement of the team was found to relate to the work engagement of the individual team members. The relationships between the team- and corresponding individual-level variables were moderately strong, which indicates that, even though the constructs are related, individuals did discriminate between their own behaviors and affective experiences and that of the team as a whole (which was also confirmed by tests for justification of aggregation). Additionally, this study demonstrated that the team's behaviors and experiences most likely influence the individual's behaviors and experiences and not the other way around. Further studies should try to unravel the processes that could explain these transmissions within teams and could focus on norms for job crafting, for example. Another route for future research could be to examine how organizational variables such as trust in colleagues may influence the occurrence of team job crafting. For example, Parker, Williams, and Turner (2006) suggested that trust in colleagues may encourage individuals to try things beyond core tasks such as proactive work behaviors (of which job crafting is a specific type). These authors found that trust in colleagues was indeed related to proactive behaviors via felt responsibility for work outcomes.

It was further found that team crafting job resources and challenging job demands not only related to individual job crafting, but also indirectly related to individual performance via work engagement (i.e., vigor). The same was true with regard to team crafting job resources and challenging job demands, which was positively related to team work engagement. Team work engagement was, in turn, related to individual work engagement and performance. These findings seem to indicate that team job crafting may set the stage for individual performance. The teams' behaviors may establish a norm for proactively redesigning the work environment that communicates to individuals to do the same when necessary. This norm may lead individuals to craft their work environment such that it fits with their skills and preferences, which

makes them feel more enthusiastic about their work (Tims & Bakker, 2010). Moreover, the team's crafting behaviors may also provide the team with the resources and challenges they need, thus fuelling team work engagement, which then crosses over to individual employees.

Study Limitations

Limitations of the current study should be noted. We relied on self-reports to assess the study variables, which could have inflated the relationships among measures. To reduce method bias, we applied the following procedural remedies (Podsakoff, MacKenzie, & Podsakoff, 2012). First, the respondents' answers were anonymous. Second, we assured respondents that there were no right or wrong answers and that they should answer questions as honestly as possible. Third, we used different scale anchors when we assessed job crafting, work engagement, and performance. Fourth, we first assessed individual constructs and then team constructs to keep the questionnaire logical, but also to increase time between the assessment of the same individual and team constructs. Additionally, the CFA's and analyses for justification of data aggregation supported the proposed differentiation among constructs at both levels.

Nevertheless, future studies should try to obtain other-ratings or objective (e.g., performance) measures. It has been noted elsewhere that assessing employee job crafting or work engagement with other sources, such as supervisors or colleagues, may have its own disadvantages (e.g., egocentric bias and observational bias; Parker et al., 2006). Thus, self-reports of these variables seem justified. Another limitation of the study is the cross-sectional design used to test the model, precluding causal inferences. Although we grounded our model in existing theory and evidence, and tested alternative models, future studies should test the present model longitudinally, which would allow more definitive causal conclusions or perhaps reveal reciprocal relationships (Bakker, 2011).

A final issue is that the team job crafting items, asking whether the team increased their structural and social job resources, and challenging job demands, could not be discriminated from each other, whereas at the individual level they are related but different dimensions (Tims et al., 2012). This result is probably due to the use of only two items for each dimension at the team level. It is recommended that the full job crafting scale, in which the items are adapted to the team level, should be used in future research. In addition, we also recommended to use the full measure of team work engagement (see Torrente et al., 2012). However, the results of the present study are very encouraging and seem to point in the same direction as the results found at the individual level.

Practical Implications

Applying the study results to the practice of work teams, the first implication is that job crafting should be acknowledged as an existing and powerful behavior of individual employees working in teams. Participants of the current study were neither taking part in an intervention nor were they informed about job crafting. Without prompting it, job crafting appeared to occur regularly within these teams. It is suggested that job crafting can take place in many types of jobs even those with relatively low levels of autonomy (Wrzesniewski & Dutton, 2001). The frequent occurrence of job crafting implies that managers should assist employees with job crafting in such a way that it aligns with the organizational goals, as not every type of job crafting was found to contribute to employee and team performance (e.g., when a receptionist lowers the emotional demands by decreasing the interaction time with a rude patient at the desk).

Managers who communicate and provide goals in a clear manner should be able to guide job crafting toward positive individual and organizational outcomes as it may lead to higher levels of work engagement and ultimately performance (Gruman & Saks, 2011). The participants in our study worked in teams that were structured such that they were self-managing and executed work and managed work processes within the structure and purposes set by management. This interdependency may have allowed team members to decide together how to approach the team's tasks and craft the resources they need to perform them. Furthermore, even though job crafting may result in the increased availability of job resources and challenging demands and a decreased level of hindering job demands, we wish to note here that these resources and demands should be managed properly by management in order to directly increase work engagement and performance of individuals and teams (Halbesleben, 2010).

In conclusion, the present study provides encouraging results indicating that job crafting is as influential at the team level as it has been found to be at the individual level. It relates to both team work engagement and team performance as well as individual job crafting, work engagement, and performance. Due to the importance and alleged impact of job crafting, we hope that this study helps to stimulate and invigorate future research on this topic.

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