




Creativity under task conflict: The role of proactively increasing job resources

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The present daily diary study among employees from various occupational sectors used conflict and creativity theories to hypothesize that task conflict has an inverted U-shaped relationship with employee creativity (i.e., creativity is higher at moderate than low or high levels of conflict). In addition, we argue that this curvilinear effect is likely to occur when employees proactively increase their job resources. A total of 92 employees filled out a diary survey at the end of five consecutive days. Results of multilevel analyses revealed that, as predicted, task conflict had an inverted U-shaped link with creativity when employees increased their structural job resources. However, when employees increased their social job resources, the link was linear and positive. Our findings also showed that increasing job resources related positively to employee creativity – this effect was found for both increasing structural and social job resources. We discuss the theoretical contributions of these findings and conclude that moderate task conflict has the potential to benefit organizations.

Practitioner points

- Task conflict should not be eliminated because when employees deal with it in a constructive way, it can be a creative force of change.
- Allow employees to increase their job resources so as to become more creative.
- Especially encourage increasing job resources when employees encounter task conflict.

Conflict is an integral part of organizational life and can be found in most occupations and jobs. Organizations that want to excel and flourish do not simply seek for ways to eliminate conflict. Instead, they try to make the best of conflict and use its potential for learning and improvement (Luthans, Rubach, & Marsnik, 1995). Both practitioners (Carnevale, 2014) and scholars (Zhang, Gong, & Zhou, 2017) suggest that when conflict is not personal but concerns the job or the task at hand (i.e., task conflict), it can be a creative force for change. Task conflict is defined as disagreements among group members about the content of their job tasks, while relationship conflict concerns interpersonal incompatibilities (e.g., tension or annoyance) among the group members (Jehn, 1995).

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While relationship conflict has no potential to boost creative processes, task conflict has been found to be a situation that enhances creative behaviours of employees (De Dreu, 2006). By illustrating to people that there are different means to the same goal, task conflict emphasizes alternative cognitive perspectives and it enhances divergent thinking and creativity.

However, the literature on task conflict and creativity is characterized by several ambiguities that need to be addressed in order to increase our understanding of the relationship between the two. First, the largest part of existing evidence around the link between conflict and creativity concerns team-level rather than individual-level creativity. This does not increase our understanding of the phenomenon of conflict and creativity in its totality. Although individual creativity is a requirement for team creativity (Taggar, 2002), team members do not necessarily contribute to team performance equally (Mathieu, Tannenbaum, Donsbach, & Alliger, 2014). It is, thus, important for organizations to know how they can boost creativity of specific team members if necessary or to know how to enhance individual creativity (e.g., if organizational outputs are more dependent on individual rather than on team projects). Second, there seems to be a consensus that in order to boost creativity, task conflict should neither be too high nor too low. This implies that the link between task conflict and creativity is best seen as nonlinear (e.g., De Dreu, 2006; Farh, Lee, & Farh, 2010). However, some research suggests that task conflict has a positive linear relationship with creativity (e.g., Yong, Sauer, & Mannix, 2014). Third, the literature has started to acknowledge that several moderating factors may be applicable both to the linear link (Zhang *et al.*, 2017) and to the nonlinear link (Farh *et al.*, 2010; Li, Yang, & Ma, 2018) between task conflict and creativity. However, these moderating factors are not consistent and not fully understood yet, and they rarely tell us what employees exactly do (i.e., specific behaviours) in order to exploit the creative potential of task conflict. Last but not least, although the literature recognizes that translating conflict to creative solutions is a dynamic rather than a static phenomenon (Farh *et al.*, 2010), the majority of studies only addresses the link cross-sectionally (e.g., De Dreu, 2006; Farh *et al.*, 2010; Xie, Wang, & Luan, 2014).

Responding to these open questions in the literature, the present paper aims at making three distinct research contributions. First, we translate the previously found link between moderate task conflict and team creativity to the individual level of analysis, so as to better understand what the implications of conflict are for individual employees rather than for teams. Second, we further address and refine the link between task conflict and creativity by zooming in on the proactive behaviours (i.e., job crafting) employees undertake so as to increase the chances that task conflict is linked to creativity. We draw on job demands-resources theory (Bakker & Demerouti, 2014; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) and the literature on employee job crafting (Petrou, Demerouti, & Schaufeli, 2016) to argue that job resources are valuable tools employees need to seek in the face of conflict. Job resources are those facilitating job aspects that help employees deal with demanding situations at work (Bakker, Demerouti, & Sanz-Vergel, 2014). Therefore, by proactively crafting those resources (e.g., increasing their structural or social job resources; Tims, Bakker, & Derks, 2012), employees should be able to better cope with conflict and see its potential for change and improvement. Resources are essential in fostering creativity (Amabile, Conti, Coon, Lazenby, & Herron, 1996), and they can often be employed to solve or make sense of a conflict (Taggar, 2002). Therefore, we argue that increasing (structural and social) job resources is a meaningful yet neglected moderator of the relationship between task conflict and employee creativity. Last, we follow a diary methodological approach. The diary methodology is a powerful technique

that helps researchers examine how fluctuating employee behaviours and situational characteristics go hand in hand with important employee outcomes (Ohly, Sonnentag, Niessen, & Zapf, 2010). Because it eliminates recall biases and zooms in on the microlevel of organizational life, the quantitative diary method is an ideal tool when we need to know which situations urge employees to take action (Sonnentag, 2003) and become creative (Binnewies & Wörnlein, 2011). To address our aims, we conducted a diary daily survey (see Figure 1 for our hypothesized model).

Task conflict and employee creativity

Do negative experiences always undermine the creative work process? Research has suggested that a ‘healthy dose’ of negativity may actually boost creativity when managed appropriately (Zhou & George, 2003; p. 560). Employee creativity has been defined as the generation of novel and useful ideas by employees (Amabile *et al.*, 1996; Tierney, Farmer, & Graen, 1999), which is also the conceptualization we follow in the present paper. Because creativity involves novel solutions to existing problems (Shalley, 1991), it is legitimate to expect that a ‘moderate’ level of constraints or challenging situations have the potential to boost creative processes (Roskes, 2015, p. 200).

Task conflict, specifically, is considered a challenging factor that arguably has the power to enhance creativity and innovation. It is a legitimate predictor of creativity, perhaps more so than other challenges, because of its obvious cognitive element. By experiencing task conflict, employees discover that different viewpoints exist as to how a job should be performed (Jehn, 1995). Task conflict, thus, makes people more aware of different perspectives and opinions about their job or issues that they face at work, which is what essentially helps them to become creative (Pelled, Eisenhardt, & Xin, 1999). Because creativity is based on new insights and the integration of old and new information (Mumford & Gustafson, 1988), being aware of alternative perspectives naturally increases one’s creative potential. Similarly, task conflict leads employees to scrutinize their tasks, rather than to take them for granted, to re-evaluate the status quo, and eventually to come up with innovative solutions (Hülshager, Anderson, & Salgado, 2009). This is in line with experimental research revealing that paradoxical frames (i.e., contradictory statements) enhance creativity because they help people think in ‘both/and’ rather than ‘either/or’ styles (Miron-Spektor, Gino, & Argote, 2011). Such thinking styles activate several and

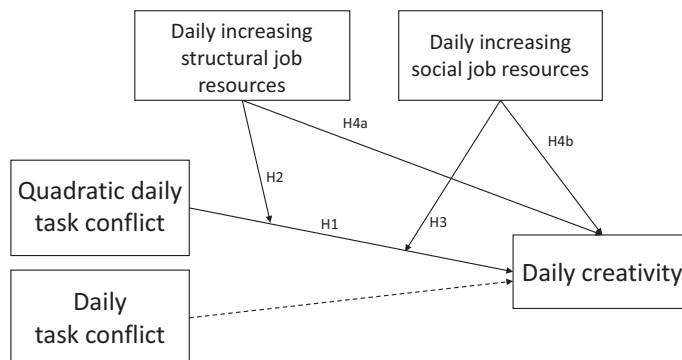


Figure 1. Our hypothesized model.

Note. The dotted line represents a non-hypothesized link.

diverse cognitive elements, which is a crucial requirement for creativity (Amabile, Barsade, Mueller, & Staw, 2005).

Although there is some evidence that task conflict may have a positive and linear link with creativity (Pelled *et al.*, 1999), there is considerable and more consistent evidence (De Dreu, 2006; Farh *et al.*, 2010; Xie *et al.*, 2014) that this link can best be understood nonlinearly. The reason for this is that when task conflict becomes excessive, it may lead to arguments between people (Van Dyne, Jehn, & Cummings, 2002), hinder collaboration and communication processes within teams, and lead to information overload (De Dreu, 2006) and even frustrations (Farh *et al.*, 2010). Therefore, too much conflict should naturally eliminate employees' ability to reach creative solutions. Reversely, task conflict should not be too low either in order to boost creativity. Too many like-minded people may lead to groupthink, an inability to challenge established assumptions. This state can limit creativity (Nijstad & De Dreu, 2002), since challenging established ways of doing things is the landmark of creativity. The same holds for individual creativity. When employees are not exposed to different ways of thinking, they find it hard to attain a divergent way of thinking and, thus, creativity (Perry-Smith, 2006). This line of reasoning has led a considerable number of researchers to test and find a nonlinear (i.e., inverted U-shaped) link between task conflict and creativity, with the highest levels of creativity at average levels of task conflict (De Dreu, 2006; Farh *et al.*, 2010; Xie *et al.*, 2014).

There are two differences between the present study and previous studies that tested this nonlinear link. First, all the previous studies examined team rather than individual creativity. However, as we have argued above, excessive task conflict may demoralize individual employees (Van Dyne *et al.*, 2002), and too low exposure to different views hinders individual divergent thinking (Perry-Smith, 2006). Therefore, we expect the nonlinear link to manifest also at the individual level. A second difference is that while all previous studies used a cross-sectional survey, we use diary survey methodology with repeated measurements. We expect that the nonlinear link between task conflict and employee creativity is equally, if not more, applicable to daily measurements. This is because excessive conflict cannot be addressed immediately (Farh *et al.*, 2010). Therefore, if excessive task conflict that employees generally perceive hinders their creativity generally (De Dreu, 2006), we also expect that too much conflict within one day only will hinder employees on that day. In that sense, we argue that the nonlinear link found between task conflict and team creativity should be validated for day-level employee creativity. Our reasoning is in line with diary research addressing moderate daily job challenge as a trigger of daily employee creativity (Binnewies & Wörnlein, 2011). Therefore, we formulate:

Hypothesis 1: There is an inverted U-shaped relationship between daily task conflict and daily employee creativity (i.e., with the highest levels of creativity at average levels of conflict).

The moderating role of proactively increasing job resources

Another trend in the literature on task conflict and creativity is the view that this link could depend on certain contextual factors. For instance, the link occurs only when a team is willing and capable of dealing with the conflict in a constructive way. Although this assumption has been tested mostly on the basis of linear relationships (Hoever, Van Knippenberg, Van Ginkel, & Barkema, 2012), this idea is hinted upon also by nonlinear literature. For instance, the existing evidence on the nonlinear link between task conflict and creativity is often dependent upon the life cycle of the team (Farh *et al.*, 2010) or it is

explained by the team's ability for collaboration (De Dreu, 2006). Similarly, a moderate amount of task conflict enhances individual creativity when employees have a strong need for growth (Li *et al.*, 2018). Although very insightful, these studies do not reveal the exact behaviours employees undertake in order to exploit the creative potential of task conflict. To fill in this gap, we introduce employee job crafting behaviours.

Job crafting refers to those actions via which employees alter and reshape their job environment in order to improve their job and bring it closer to their ideals and preferences (Wrzesniewski & Dutton, 2001). By doing that, employees experience increased meaning at their work and increased fit with their job (Tims, Derks, & Bakker, 2016; Wrzesniewski, LoBuglio, Dutton, & Berg, 2013). In fact, job crafting is displayed by employees not only when their situation is optimal and motivating but also when they encounter a threat (Petrou *et al.*, 2016). Although job crafting may take many different forms, increasing job resources has been addressed as an important way through which employees shape a more satisfying work environment for themselves. Specifically, to find the tools they need in order to improve their work, employees may either increase their structural job resources (e.g., by seeking opportunities for learning and development) or their social job resources (e.g., by seeking feedback, advice or support from others; Tims *et al.*, 2012).

The distinction between job crafting in the form of increasing structural and social job resources becomes particularly important when we address the tools that are useful in translating task conflict to employee creativity. Specifically, empirical evidence reveals that there are two different routes via which employees utilize conflict so as to reach creativity: either when they are allowed to pursue tasks in an instrumental (i.e., individualistic) manner or in a social manner (James, Chen, & Goldberg, 1992). Extending this reasoning and findings to our job crafting conceptualization, we argue that there are two types of job crafting that strengthen the curvilinear link between task conflict and employee creativity. First, employees who experience moderate task conflict and proactively increase structural job resources (e.g., they develop themselves and learn new things at work) are more likely to see the potential of task conflict. In other words, because they have developed themselves and expanded their mindset (e.g., by learning new things), they are less intimidated by conflict and they are more ready to embrace different perspectives and reach creative solutions. Second, employees who experience moderate task conflict and increase social job resources (e.g., by asking feedback or advice from others) also have more chances to be creative. This is because the contact with others helps analyse, interpret, and integrate disagreements into new and creative insights.

Although research on task conflict and creativity has, to date, never employed job crafting as a moderator of the link, existing argumentations and findings are in line with our expectations. All in all, the literature reveals that conflict leads to creativity either when individuals are relying on their own abilities to solve problems creatively (Shin, Kim, Lee, & Bian, 2012) or when they rely on collaboration with others (Zhang *et al.*, 2017). We remind here that the (moderated) link between task conflict and employees creativity is likely nonlinear rather than linear in nature. Namely, task conflict should be neither too low (i.e., because people do not challenge existing assumptions) nor too high (i.e., because it intimidates people). Therefore, we expect that this inverted U-shaped link between task conflict and creativity will be most prevalent when employees increase their job resources proactively. Our reasoning is in line with research (Baer & Oldham, 2006) showing that moderate time pressure triggers individual employee creativity when employees are open to new experiences (cf. employees who increase their structural resources and, therefore, create jobs with new elements) and when they receive support from others (cf. employees who increase their social resources and, therefore, increase

their support networks). More relevant to our scope, moderate task conflict has been found to increase employee creativity when employees have a need to grow (Li *et al.*, 2018). We extend this line of research by suggesting that moderate task conflict leads to individual creativity not only when employees need to grow but also when they proactively take the necessary steps so as to grow, enrich their jobs, and create a resourceful work environment (i.e., via job crafting). Reversely, we do not expect any significant relationship when employees display low levels of job crafting. When employees do not want to grow and learn at their work, they are unable to use the creative potential of task conflict and the relationship between task conflict and creativity is non-substantial, which has been confirmed by previous empirical research (Li *et al.*, 2018).

Hypothesis 2: There is an inverted U-shaped relationship between daily task conflict and daily employee creativity (i.e., with the highest levels of creativity at average levels of conflict) when daily increasing structural job resources is high (vs. low).

Hypothesis 3: There is an inverted U-shaped relationship between daily task conflict and daily employee creativity (i.e., with the highest levels of creativity at average levels of conflict) when daily increasing social job resources is high (vs. low).

Job crafting and employee creativity

Although it is not the primary aim of this paper, we acknowledge and aim to replicate the link between job crafting (i.e., increasing job resources) and employee creativity. There is considerable empirical work highlighting the importance of job resources for the attainment of employee creativity (Amabile *et al.*, 1996). Such resources provide employees with the structural tools they need in order to solve problems or simply make tasks and projects more meaningful and valuable for employees. As such, job resources play a pivotal role in the attainment of creativity. Most importantly, the resources that need to be present in order for employees to be creative are either structural in nature, such as job autonomy (Joo, Yang, & McLean, 2014) and opportunities for personal development (Shalley, Gilson, & Blum, 2009), or social in nature, such as feedback (Hon, Chan, & Lu, 2013) or social support (Madjar, 2008).

Naturally, since such resources are not always readily available in all workplaces, employees need to proactively search for them in order to attain the desired levels of performance or motivation (Tims *et al.*, 2012). Based on this line of reasoning, previous research has tested the effect of increasing job resources and employees creativity. In one survey study among several occupational groups, supervisor-rated employee creativity was higher when employees reported that they proactively increased their job resources, both social and structural (Demerouti, Bakker, & Gevers, 2015). Thus, our final hypothesis reads:

Hypothesis 4: Daily job crafting, namely, increasing structural (4a) and social (4b) job resources, relates positively to daily employee creativity.

Method

Participants and procedure

Participants were 92 employees (37 men and 55 women) working in various occupational sectors in the Netherlands. Research assistants recruited the participants

through network sampling (Demerouti & Rispens, 2014). This data collection method involves student research assistants who recruit respondents based on their professional network, snowball sampling, and the use of social media. Participants' mean age was 41.9 years ($SD = 12.0$), and their mean organizational tenure was 12.9 years ($SD = 1.8$). Their contract involved on average 34.5 working hours per week ($SD = 7.6$), although they reported that, in practice, they worked on average for 39.2 hrs per week ($SD = 8.8$). The occupational sectors within which they worked included the industry sector (44.6%), business (28.3%), health (8.7%), and education (5.4%), followed by other sectors of lower representation, such as commerce, transportation, finance, government, and entertainment.

Initially, 223 employees were invited to participate in the study via an email invitation explaining that participation was voluntary and confidential and involved filling in five surveys throughout five consecutive working days, at the end of each day. The employees were also informed that if they filled in all five surveys, they would enrol in a drawing for one 50 Euro gift voucher. Participants who agreed to participate received one email daily (at the end of the workday), containing the link to the respective online survey. Eventually, 92 employees participated in the diary survey, resulting in a response rate of 41%. On average, respondents filled in 4.6 ($SD = 0.8$) of the five daily surveys.

Measures

Except demographic variables that were only asked on the first day, all other day-level items were repeated on five consecutive working days. They were based on the original psychometric instruments, reformulated so as to refer to the specific working day of the respondents.

Control variables

To control for the possibility that creativity is dependent on occupational sector, we dummy coded *occupational sector* into two variables comparing the sectors with the highest frequency (i.e., industry and business) with all other sectors and we used them as control variables in all analyses. Additionally, to address our hypothesized effects over and above the effect of other common work stressors, we measured *workload* based on three items by Karasek (1985) and we also used it as a control variable. Items (e.g., 'Today, I had much work to do') were rated using a 1 (= not at all) to 5 (= very much) answering scale and Cronbach's alpha ranged from .88 to .90.

Task conflict was measured with the four-item scale developed by Jehn (1995). Items were rated using a 1 (= not at all) to 5 (= very much) answering scale. Sample items include 'How frequently were there conflicts about ideas in your work unit today?' and 'To what extent were there differences of opinion in your work unit today?' Cronbach's alpha ranged from .88 to .94 over the 5 days.

Increasing structural job resources and *increasing social job resources* were measured with the two five-item subscales from the job crafting scale (Tims *et al.*, 2012). Items were rated using a 1 (= does not apply to me) to 5 (= strongly applies to me) answering scale. Sample items include 'Today, I have used my capacities to the fullest' (increasing structural job resources) and 'Today, I have asked colleagues for advice' (increasing social job resources). Cronbach's alphas ranged from .74 to .83 and from .65 to .84, respectively.

Employee creativity was measured with a shortened six-item version of the original nine-item creativity scale by Tierney *et al.* (1999). This questionnaire refers to creative behaviour that is not tailored to specific occupations and has previously been used within daily diary studies in heterogeneous samples of employees (e.g., Volmer, Richter, & Syrek, 2018). Items were rated using a 1 (= does not apply to me) to 5 (= strongly applies to me) answering scale. An example item is ‘Today, I have shown originality in my work’. Cronbach’s alpha ranged from .88 to .92. Using shortened questionnaires to avoid participant fatigue effects is a common practice in diary research (e.g., Cranford *et al.*, 2006). To make the best selection of items, we focused on items with the least possible overlap. Furthermore, following previous recommendations (Ohly *et al.*, 2010), we used data from an unreported daily survey study and we found that our selected six-item version correlated very strongly and positively with the original nine-item version ($.97 < r < .98$ over five time measurements; $p < .01$), suggesting that our selection adequately taps into the content of the original scale.

Analytic technique

Because the five daily measurements were nested within individuals, our data comprise a multilevel structure. We therefore conducted multilevel analyses using MLwiN (Rasbash, Browne, Healy, Cameron, & Charlton, 2000). A two-level null model (i.e., with daily creativity as dependent variable and no independent variables) fit the data better than a one-level null model, $\Delta\chi^2(1) = 157.67, p < .01$, which justifies our decision to conduct multilevel analyses. We also calculated the intraclass correlation for daily creativity, which was 53%, revealing that there was substantial variation to be explained by within-level fluctuations. Furthermore, the intraclass correlation was 32% for daily conflict, 42% for daily increasing structural job resources, and 50% for daily increasing social job resources, also revealing that the remaining (within-level) variation was substantial in all independent variables.

To test our hypotheses, we built four nested models (see Table 1). We started with a null model for daily creativity as dependent variable and without independent variables. Then, we added daily conflict, increasing structural resources and increasing social resources (Model 1), quadratic task conflict (Model 2), and the two 2-way interactions between conflict and the two increasing resources variables (Model 3), respectively. Finally, we tested the two hypothesized nonlinear interactions via two separate models, one for quadratic conflict by increasing structural resources (Model 4a) and one for quadratic conflict by increasing social resources (Model 4b).

Although not the main purpose of our paper, we have decided to conduct two additional analyses, each of which addresses an alternative way to test our hypotheses: First, we tested all effects on next-day (rather than same-day) creativity. To do this, we created lagged variables for all predictors, which reduced our data points to 327. Second, we aggregated all day-level variables over the 5 days and tested a simple (between-level only) model via a moderated regression analysis in SPSS.¹

Results

Table 2 shows the means and standard deviations for all study variables as well as all intercorrelations for the within-person and the between-person level of analysis. Notably,

¹ We are thankful to the anonymous Reviewer for his/her suggestion to conduct these alternative analyses.

Table 1. Multilevel estimates for nested models with day-level creativity as dependent variable (N = 92 respondents and 425 data points)

Model variables	M0		M1		M2		M3		
	b	SE B	β	b	SE B	β	b	SE B	
Intercept	2.38	.09		2.38	.09	2.38	.09	2.39	.09
Sector (industry vs. rest)			.04	0.09	.21	.04	0.09	.21	.04
Sector (business vs. rest)			.07	0.16	.23	.07	0.16	.23	.07
Workload			.06	0.09	.05	.01	0.01	.05	.01
Task conflict				0.16	.08	.06	0.19	.10	.07
Increasing structural job resources				0.35**	.07	.17**	0.35**	.07	.17**
Increasing social job resources				0.15*	.06	.08*	0.15*	.06	.08*
Task conflict ²							-0.05	.08	-.03
Task conflict × increasing structural job resources									
Task conflict × increasing social job resources									
Task conflict ² × increasing structural job resources									
Task conflict ² × increasing social job resources									
-2 × log	1,071.45			1,067.87			1,025.78		1,025.45
Δ -2 × log				3.58			42.09**		.33
df				3			3		1
Within-person variance	.49 (.04)			.49 (.04)			.42 (.03)		.43 (.03)
Between-person variance	.56 (.10)			.56 (.10)			.57 (.10)		.57 (.10)
Model variables	M4		M5a		M5b				
	b	SE B	β	b	SE B	β			
Intercept	2.39	.09		2.38	.09	2.37	.09		
Sector (industry vs. rest)	0.10	.21	.05	0.11	.21	.05	0.09		
Sector (business vs. rest)	0.17	.23	.08	0.18	.23	.08	0.18		
Workload	0.02	.05	.01	-0.02	.05	-.01	0.01		
							.23		
							.05		
							.08		
							.00		

Continued

Table 1. (Continued)

Model variables	M4			M5a			M5b		
	b	SEB	β	b	SEB	β	b	SEB	β
Task conflict	0.17	.10	.07	0.13	.10	.05	0.16	.10	.06
Increasing structural job resources	0.35**	.06	.18**	0.43**	.07	.22**	0.37**	.06	.18**
Increasing social job resources	0.18**	.06	.09**	0.20**	.06	.10**	0.25**	.07	.13**
Task conflict ²	-0.10	.08	-.06	-0.12	.08	-.07	0.02	.09	.01
Task conflict \times increasing structural job resources	-0.30	.18	-.06	-0.18	.19	-.04	-0.25	.18	-.05
Task conflict \times increasing social job resources	0.39**	.15	.10**	0.40**	.14	.10**	0.44**	.15	.11**
Task conflict ² \times increasing structural job resources				-0.46**	.16	-.11**			
Task conflict ² \times increasing social job resources							-0.32**	.12	-.11**
-2 \times log	1,018.16			1,010.18			1,010.68		
$\Delta -2 \times \log$	7.29*			7.98**			7.48*		
df	2			1			1		
Within-person variance	.42 (.03)			.41 (.03)			.41 (.03)		
Between-person variance	.58 (.10)			.58 (.10)			.57 (.10)		

Notes. All model variables are at the within-level (day-level).

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

Table 2. Means, standard deviations and intercorrelations between study variables (N = 92 respondents and 425 data points)

	M	SD	1	2	3	4	5
1. Day-level workload (1–5)	3.35	1.10	–	.20**	.18**	.10*	.10*
2. Day-level task conflict (1–5)	1.29	.37	.18	–	–.08	.10	.09
3. Day-level increasing structural job resources (1–5)	3.49	.57	.17	.15	–	.21**	.31**
4. Day-level increasing social job resources (1–5)	2.07	.67	.24*	.41**	.39**	–	.20**
5. Day-level creativity (1–5)	2.38	.82	.17	.39**	.55**	.53**	–

Note. Correlations below the diagonal refer to the between-level; correlations above the diagonal refer to the within-level; means and SD's refer to the between-level;

* $p < .05$.

** $p < .01$.

daily task conflict correlated positively with daily creativity at the between-level of analysis, but task conflict was unrelated to daily creativity at the within-level of analysis.

Model 3 reveals that the quadratic term of task conflict was unrelated to employee creativity, failing to support Hypothesis 1. However, the simple (non-quadratic) term of task conflict had a positive relationship with employee creativity (see Model 1), suggesting that the relationship might be linear. We note, however, that although initially task conflict was unrelated to employee creativity ($B = .12$, $SE = .09$, $p = .17$), the link approached significance, $B = .158$, $SE = .084$, $p = .06$ (see Table 1; M2) when the job crafting variables were entered in the regression equation as well. Huber (2017) has suggested that it is not uncommon for a non-significant predictor to become significant after the inclusion of a second significant predictor, even when the two predictors do not correlate highly with each other (as is the case in our study; see Table 2). This means that there is still some masked influence of the first predictor that is only revealed after the influence of the second predictor has been removed. Although this does not help us give a clear answer regarding the main effect of task conflict on creativity, it does suggest that testing the interactions between task conflict and increasing (social and structural) job resources may be helpful.

The results of Model 4 address the hypothesized nonlinear interactions. Both 2-way interactions, namely between quadratic task conflict and increasing structural job resources (Model 4a), and between quadratic task conflict and increasing social job resources (Model 4b) were significant. The two plotted interactions are illustrated in Figures 2 and 3, respectively. As expected, there is an inverted U-shaped link between task conflict and creativity, for high levels of increasing structural job resources, with higher levels of creativity at moderate levels of conflict, compared to low and high levels of conflict (see Figure 2). The plot for the second nonlinear interaction was less clear (see Figure 3). Although the link between conflict and creativity does not seem to be entirely linear, there was no clear curve or U-shaped or inverted U-shaped link at any level of the moderator. In fact, the interaction between task conflict and increasing social resources seems to have a simple linear effect.

In order to interpret our two nonlinear (i.e., quadratic) interactions accurately, we followed recent methodological recommendations (Dawson, 2014), and previous practice in empirical research (Chung & Jackson, 2013) in order to statistically test

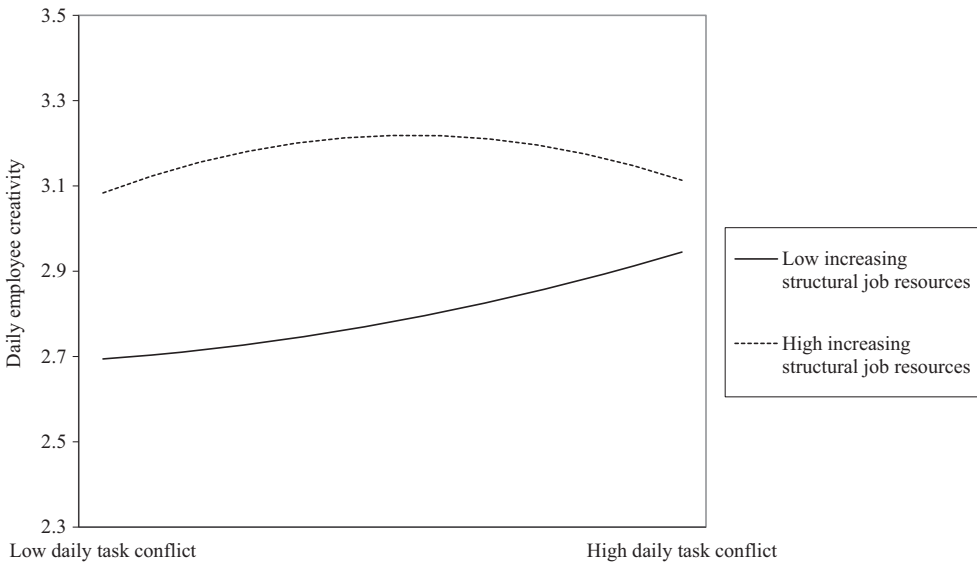


Figure 2. The nonlinear link between task conflict and employee creativity moderated by increasing structural job resources.

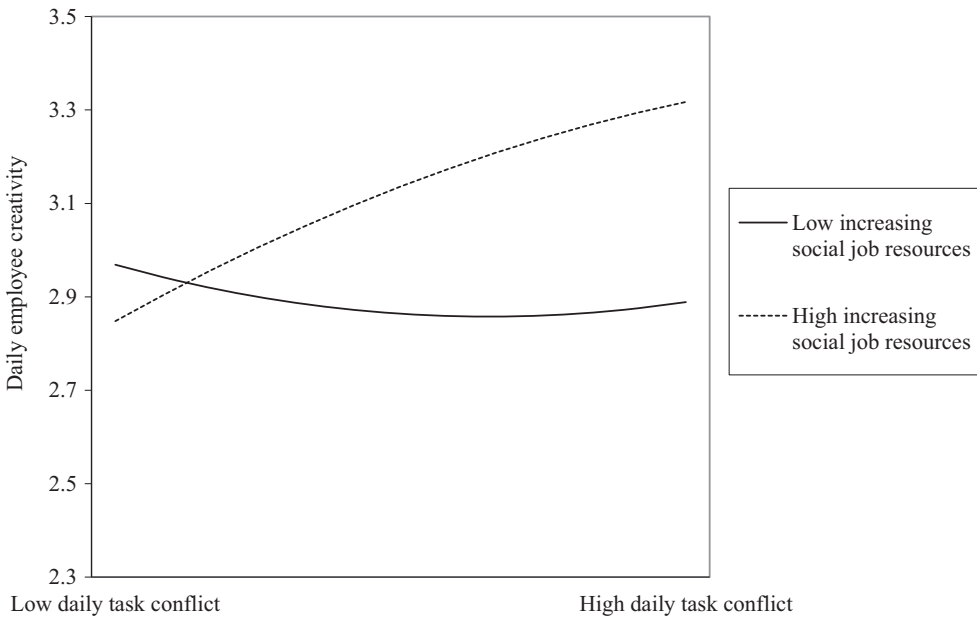


Figure 3. The nonlinear link between task conflict and employee creativity moderated by increasing social job resources.

whether the link between task conflict and creativity was a curve (i.e., nonlinear) at both levels of both moderators. Therefore, we estimated the nonlinear relationship between task conflict and employee creativity at 1 SD above the mean of increasing structural job resources and we found that, as predicted, it was negative and significant (i.e., inverted

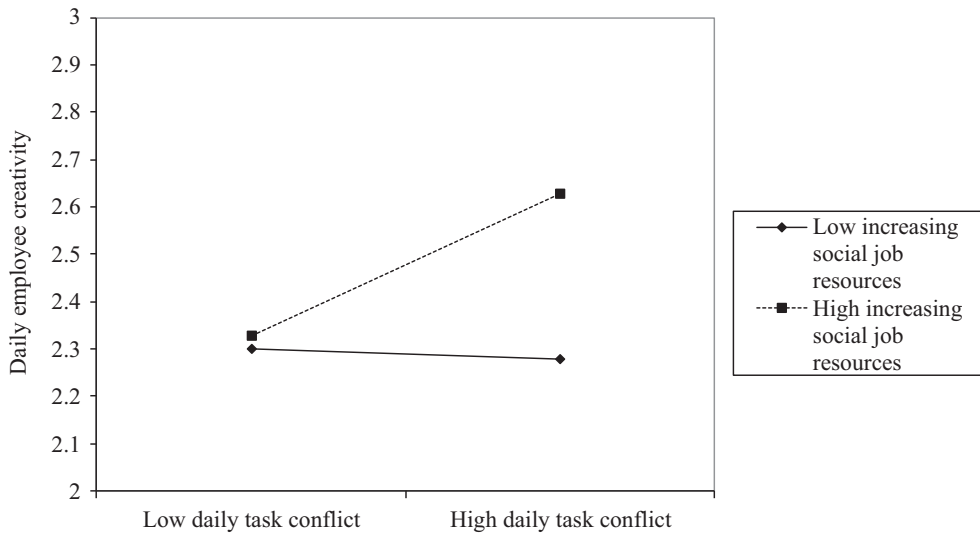


Figure 4. The linear link between task conflict and employee creativity moderated by increasing social job resources.

U-shaped; $B = -.35$, $SE = .12$, $p < .01$; see Figure 2). When increasing structural job resources was 1 *SD* below the mean, the relationship was non-significant ($B = .12$, $SE = .11$, $p = .30$). These findings provide support to Hypothesis 2. Furthermore, we estimated the nonlinear relationship between task conflict and employee creativity at 1 *SD* above the mean of increasing social job resources and we found that it was non-significant ($B = -.16$, $SE = .08$, $p = .07$). The nonlinear relationship was also non-significant when increasing social job resources was 1 *SD* below the mean ($B = .18$, $SE = .13$, $p = .16$). These findings fail to provide support for Hypothesis 3.

Although the nonlinear link between task conflict and employee creativity was found to be non-significant for both high and low levels of increasing social resources, Figure 3 suggests that the moderation may exist but in a linear rather than nonlinear (quadratic) form. To test this hypothesis, we inspected Model 3 of the analyses. Indeed, the simple linear two-way interaction between task conflict and job crafting in the form of increasing social job resources had a significant effect on creativity (see Figure 4 for the plotted interaction). Simple slope tests revealed that the link between task conflict and creativity was positive and significant when increasing social job resources was 1 *SD* above the mean (estimate = $.38$, $SE = .12$, $p < .01$). In contrast, the link was non-significant when increasing social job resources was 1 *SD* below the mean (estimate = $-.04$, $SE = .13$, $p = .83$). Taken together, these findings reveal that while the examined link was nonlinear when increasing structural resources was high (i.e., highest creativity at moderate levels of conflict); the link was linear when increasing social resources was high (i.e., the higher the task conflict, the higher the creativity).

Finally, Model 1 reveals that both job crafting in the form of daily increasing structural resources and job crafting in the form of daily increasing social resources were positively related to daily creativity, providing support to Hypothesis 4a and Hypothesis 4b, respectively.

Regarding our additional analyses, Table 3 reveals that none of the hypothesized effects was significant when the outcome was next-day (rather than same-day) creativity.

Table 3. Multilevel estimates for nested models with next-day creativity as dependent variable (N = 92 respondents and 327 data points)

Model variables	M0		M1		M2		M3		
	b	SE B	β	b	SE B	β	b	SE B	
Intercept	2.38	.09		2.35	.09	2.35	.09	2.34	.09
Sector (industry vs. rest)			.07	0.14	.21	0.14	.21	0.14	.21
Sector (business vs. rest)			.12	0.27	.24	0.26	.24	0.25	.24
Workload			-.03	-0.05	.06	-0.05	.06	-0.04	.06
Task conflict									
Increasing structural job resources									
Increasing social job resources									
Task conflict ²									
Task conflict × increasing structural job resources									
Task conflict × increasing social job resources									
Task conflict ² × increasing structural job resources									
Task conflict ² × increasing social job resources									
-2 × log Δ	1,071.45			827.53		823.66		822.69	
-2 × log Δ				243.92**		3.87		.97	
df				3		3		1	
Within-person variance	.49 (.04)			.46 (.04)		.57 (.10)		.57 (.11)	
Between-person variance	.56 (.10)			.56 (.10)		.46 (.04)		.46 (.04)	
Model variables	M4		M5a		M5b				
	b	SE B	β	b	SE B	β			
Intercept	2.34	.09		2.34	.09	2.35	.09		
Sector (industry vs. rest)	0.14	.21	.07	0.14	.21	0.15	.21		
Sector (business vs. rest)	0.26	.24	.11	0.25	.24	0.25	.24		
Workload	-0.05	.06	-.04	-0.03	.07	-0.03	.06		

Continued

Table 3. (Continued)

Model variables	M4			M5a			M5b		
	b	SE B	β	b	SE B	β	b	SE B	β
Task conflict	-0.07	.11	.00	-0.04	.11	-.02	-0.05	.11	-.02
Increasing structural job resources	-0.01	.08	-.08	-0.04	.09	-.02	-0.02	.08	-.01
Increasing social job resources	-0.16*	.08	.05*	-0.18*	.08	-.09*	-0.21*	.09	-.10*
Task conflict ²	0.10	.10	-.05	0.06	.10	.03	0.02	.11	.01
Task conflict \times increasing structural job resources	-0.08	.26	-.01	-0.06	.26	-.01	-0.03	.26	-.01
Task conflict \times increasing social job resources	-0.05	.19	.00	-0.06	.19	-.02	-0.13	.20	-.03
Task conflict ² \times increasing structural job resources				0.20	.18	.06			
Task conflict ² \times increasing social job resources							0.16	.12	.07
-2 \times log	822.25			821.08			820.43		
$\Delta -2 \times \log$.44			1.17			1.82		
df	2			1			1		
Within-person variance	.46 (.04)			.45 (.04)			.45 (.04)		
Between-person variance	.56 (.10)			.57 (.11)			.57 (.11)		

Notes. All model variables are at the within-level (day-level).

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

Table 4. Regression coefficients for between-level models with creativity as dependent variable (N = 92 respondents)

Model variables	M1			M2			M3		
	b	SE B	β	b	SE B	β	b	SE B	β
Intercept	1.98**	.28		2.32**	.23		2.44**	.24	
Sector (industry vs. rest)	0.08	.21	.05	-0.03	.16	-.02	-0.03	.16	-.02
Sector (business vs. rest)	0.09	.24	.05	0.13	.18	.07	0.15	.18	.09
Workload	0.10	.07	.15	0.01	.06	.02	0.00	.06	.00
Task conflict				0.18*	.07	.22*	0.31**	.12	.38**
Increasing structural resources (ISTR)				0.34**	.07	.41**	0.34**	.07	.42**
Increasing social resources (ISOR)				0.22**	.08	.27**	0.21**	.08	.26**
Task conflict ²							-0.09	.06	-.19
Task conflict × ISTR									
Task conflict × ISOR									
Task conflict ² × ISTR									
Task conflict ² × ISOR									
R ²	.03			.46			.47		
ΔR ²				.43**			.01		
Model variables	M4			M5a			M5b		
	b	SE B	β	b	SE B	β	b	SE B	β
Intercept	2.41**	.24		2.33**	.24		2.39**	.25	
Sector (industry vs. rest)	-0.02	.16	-.02	0.00	.16	.00	-0.02	.16	-.01
Sector (business vs. rest)	0.09	.18	.05	0.15	.18	.08	0.09	.18	.05

Continued

Table 4. (Continued)

Model variables	M4		M5a		M5b	
	b	SE B	β	b	SE B	β
Workload	0.01	.06	.01	0.01	.06	.01
Task conflict	0.27*	.12	.33*	0.24*	.12	.29*
Increasing structural resources (ISTR)	0.35**	.07	.42**	0.52**	.10	.63**
Increasing social resources (ISOR)	0.23**	.08	.28**	0.22**	.08	.26**
Task conflict ²	-0.03	.07	-.06	0.01	.07	.02
Task conflict \times ISTR	0.04	.07	.06	0.27*	.12	.37*
Task conflict \times ISOR	-0.12	.07	-.19	-0.10	.07	-.16
Task conflict ² \times ISTR				-0.13*	.05	-.44*
Task conflict ² \times ISOR						
R ²	.49			.53		.05
ΔR^2	.02			.03*		.00

Note. * $p < .05$; ** $p < .01$.

Finally, Table 4 presents a between-level test of our hypotheses (i.e., based on aggregated scores over the 5 days for all day-level variables). As can be seen in Model 2, both increasing structural resources ($B = .34, SE = .07, p < .01$) and increasing social resources ($B = .22, SE = .08, p < .01$) were positively related to creativity. Task conflict had a positive and significant linear main effect on creativity ($B = .18, SE = .07, p < .05$). The only significant nonlinear moderation effect (see Model 5a) was that between quadratic task conflict and creativity, moderated by increasing structural resources ($B = -.13, SE = .05, p < .05$). However, additional tests revealed that the nonlinear link was non-significant for both high levels ($B = .36, SE = .23, p = .12$) and low levels of the moderator ($B = .49, SE = .33, p = .15$).²

Discussion

Is task conflict always bad for employees and organizations? Our findings suggest that moderate levels of task conflict may boost creative behaviour of employees. Our study was driven by the mixed findings regarding the link between task conflict and creativity at work. We hypothesized that this link is nonlinear (i.e., with highest levels of creativity at moderate levels of conflict) when employees use job crafting and proactively increase their structural or social job resources, because such strategies help them deal constructively with moderate task conflict. Furthermore, we expected that increasing structural or social job resources on their own increase the likelihood of employees to show creativity.

Although our findings do not give a definite answer as to whether task conflict can be directly related to employee creativity, they reveal that such a link is better understood when we look at job crafting as the moderator that makes the link meaningful. Furthermore, a notable pattern arises within the two interaction effects that we found. On the one hand, the link was nonlinear (i.e., creativity was higher at moderate than at low or high levels of conflict), when employees increased their structural job resources. On the other hand, the link was linear (i.e., the higher the task conflict, the higher the creativity) when employees increased their social job resources.

These findings mirror and further refine a diverse set of findings in the literature around task conflict and creativity. For instance, a large part of the literature reveals that this link has an inverted U-shape (De Dreu, 2006; Farh *et al.*, 2010), and there is also evidence that the link is positive and linear (Pelled *et al.*, 1999). What is more, moderators have been found both for the nonlinear link (Farh *et al.*, 2010; Li *et al.*, 2018; Xie *et al.*, 2014) and for the linear link (Hoever *et al.*, 2012; Xie *et al.*, 2014). What our findings contribute to this ongoing discussion is that the type of the moderator may determine whether the link is linear or nonlinear. Specifically, what we have learnt from our study is that the link between task conflict and employee creativity is most likely nonlinear when people deal with the conflict in an autonomous way, relying on themselves (e.g., by seeking structural resources; i.e., quadratic interaction), while the link is most likely linear when people deal with the conflict together with others (e.g., by seeking social resources; i.e., linear interaction). In retrospect, this finding is not surprising if we consider the obvious social element of task conflict, which refers to disagreements between people (Jehn, 1995). Even though the

² We reran analyses replacing daily task conflict with daily workload. The only significant interaction was the one between quadratic workload and increasing social job resources. However, additional tests revealed that the nonlinear link was non-significant both at 1 SD above and at 1 SD below than the mean of the moderator. These findings reveal that our expectation is more clearly supported for task conflict than for other stressors (i.e., workload).

disagreements concern the task rather than each other, they still occur between individuals. When a person tries to solve such conflict on his/her own, it is likely that excessive task conflict will hinder creativity, since a person alone may not manage to reach the source of the problem, which is, in fact, others. When, however, a person tries to deal with the conflict together with others (e.g., by seeking social resources), it is more likely that there will be a linear increase in creativity, even when conflict becomes rather high. Xie *et al.* (2014) hypothesized (but their findings were only marginally significant) that even excessive conflict can boost team creativity when team communication is of good quality. Although originally we expected that excessive task conflict is detrimental for individuals (perhaps more than for teams), our findings suggest otherwise. Specifically, when employees seek positive input and contact with other people, excessive conflict is not detrimental. In other words, addressing the conflict via open communication and effective collaboration (Chen, Chang, & Hung, 2008) is the way in which conflict may turn from a stressor into an opportunity. Conflict is not an attack on each other; if seen constructively and not equated to competition, it may have considerable benefits for organizations (Tjosvold, 2008). In fact, task conflict may represent noble values and reflect individual motivation to do well in one's job. This is more likely to be recognized when one takes the time to really approach and embrace each other's views than when one works alone.

Last but not least, consistent with extensive creativity literature (e.g., Amabile *et al.*, 1996), we found that on days when employees reported that they increased their job resources, they also reported higher creativity, and the effect was found for both structural and social job resources. These results replicate but also further refine previous empirical findings from a survey study among employees, showing that increasing one's job resources relates positively to one's creativity at work. Although this previous finding was based on a measure that integrates structural and social job resources into one factor (Demerouti *et al.*, 2015), we found that the effect holds true for both structural and social job resources separately. These two strategies represent two different routes via which employees may become creative, namely either by relying on their own abilities to come up with solutions (Tierney & Farmer, 2002) or by interacting appropriately with others (Hon *et al.*, 2013).

Obviously, the results from our additional analyses should be interpreted with caution since these analyses have reduced statistical power compared to our focal analyses (i.e., reduced data points for next-day effects; no daily fluctuations for the between-level analyses). Nevertheless, it seems valuable to speculate about possible interpretations of these findings. First, our hypotheses were not confirmed for next-day creativity. This finding may signal that conflict is best addressed and solved 'in the moment'. When conflict is carried over to home and its effects linger after work, the constructive effect of conflict may be less likely. Such lingering effects may actually represent rumination, which is distracting and harmful for people's well-being (Sonnentag, Unger, & Nägel, 2013). Second, our hypotheses were also not confirmed at the between-person level of analysis. In this alternative analysis, in which we compared mean score differences between employees in general, task conflict was a linear predictor of creativity without any moderators in this relationship. This suggests that – irrespective of job crafting – employees who often encounter daily conflicts report higher daily creativity than employees who do not encounter conflicts on a regular basis. In contrast, when the analysis focuses on a comparison between different days of an employee who seeks structural job resources, only a moderate amount of conflict relates to the highest creativity. It could be that a daily design is best able to zoom in on the factors that explain when the link becomes nonlinear. For example, as we argued previously, employees who

try to increase their structural job resources on their own may run into problems on days when task conflict is excessive because it may not be up them to solve the conflict alone. On these days, they are less creative compared to days with less task conflict (perhaps because in the latter case, their creativity is attained in an autonomous manner). However, this 'shock' effect of a specific day with extraordinary conflict is not applicable when we look at the aggregate (overall) daily conflict of different individuals. In that case, an excessive level of task conflict may mean that this employee has been experiencing a week with divergent views on work-related problems and overall high conflict, but has managed to find ways to deal with the conflict compared to people experiencing a week with less conflict. We stress here that the overall levels of task conflict in the between-person level of our analyses refer to one specific working week (and perhaps to specific tasks of this week). When these levels become chronic (e.g., when we refer to excessive levels of conflict throughout months), it seems unlikely that excessive conflict remains constructive (De Dreu, 2006; Farh *et al.*, 2010).

Limitations and implications for future research

Our findings shed light on the ongoing discussion about task conflict and creativity. Although our findings suggest that the link can be seen as both linear and nonlinear, more research is needed to replicate these results, test their robustness, and validate them using alternative analytical methods. Furthermore, future research could deal with limitations that our study may have.

First of all, although our tested link between task conflict and creativity seems to suggest a same-day rather than a next-day phenomenon, the limited data points of our next-day analyses only allow for careful interpretations. Future studies could investigate our proposed phenomenon in various ways. It could, for example, be that while momentary or longitudinal designs are better capable to uncover the nonlinear nature of the link, between-person cross-sectional survey studies converge more with a linear perspective on the phenomenon. Also, longitudinal studies with long time lags are perhaps more suited to incorporate the role of additional moderating factors, such as the phase of the team life cycle (Farh *et al.*, 2010). It could, for example, be that job crafting helps employees deal with task conflict when they know their fellow team members relatively well but not when the team is really new (because team members may still need to figure out the best ways to craft) or when the team has long history (because maybe job crafting possibilities have been exhausted). Additionally, momentary research with multiple measurements within a day could test whether task conflict early (rather than late) on a day relates to creativity at the end of the day. Such alternative research designs could help further uncover the temporal dynamics of the phenomenon that we address (Shipp & Fried, 2014).

Second, our study only employed self-ratings and it, thus, does not address common-method bias. Ng and Feldman (2012), however, argued that, because employees know better than others the fluctuations of their own performance, creativity self-ratings are particularly well suited to studies that measure creative performance over a period of time. Furthermore, research has shown that self-reported creativity correlates with expert ratings (Kaufman, Beghetto, & Watson, 2016) and objective measures of creativity (Batey & Furnham, 2008). Future field-studies or experiments could try to replicate our results using more objective creativity measures (e.g., existing research and development teams trying to creatively solve job-related problems or newly created teams within the experimental laboratory). Similarly, future research could test whether our findings are

equally true for creative fluency (i.e., number of creative ideas) as well as the originality or usefulness of these ideas.

Third, although the average levels of task conflict reported by our participants can be said to be rather low when compared with cross-sectional research on work teams with a common history (e.g., De Dreu, 2006), they are in agreement with research that measures task conflict at the day-level among heterogeneous samples of employees (e.g., Meier, Gross, Spector, & Semmer, 2013). Perhaps in order for nonlinear effects to manifest more consistently, research may focus on samples with higher levels of average task conflict. Therefore, future research could perhaps use more chronic or stable measures of task conflict (e.g., via longer time intervals) or recruit homogeneous samples of employees within organizations or occupations with higher chances to develop conflict.

Fourth, future research should incorporate relationship conflict into models that examine employee job crafting and creativity. Although we do know from previous literature that when differences between team members become personal, conflict has no creative potential (De Dreu, 2006), research could examine whether job crafting can buffer the undesirable impact of relationship conflict in a satisfactory way.

Finally, although we have used a measure of creativity that is applicable to most occupations, it could be that our results exemplify processes whereby creativity represents more a type of extra-role performance rather than an integral part of someone's job. Future research could, thus, examine whether our results are applicable to creative sectors and to professions where creativity demands are an essential part of the job.

Implications for practice

One pattern that seems to prevail in our data is that task conflict (even when being quite high) does not hinder employee creativity. Therefore, as a conclusion, there are two concrete implications for management practice. First, although management can and should not intentionally stimulate conflict, they should embrace and be open to conflict when it regards the task at hand. By adopting a constructive, respectful, and agreeable attitude, organizations should utilize this conflict as a basis to improve the quality of the work of their employees and this is how they should communicate conflict to their workforce. Second, organizations and managers should encourage, empower, and allow their employees to proactively increase their social and structural job resources. This can be done, for example, by offering job crafting interventions to their workforce (e.g., Van Wingerden, Derks, & Bakker, 2017). Additionally, organizations may indirectly increase the chances that employees craft their jobs by increasing opportunities for personal development of employees or by facilitating communication and support provision between employees. This will not only help employees to attain higher levels of creativity, but it will also give them the tools to extract the creative potential out of task conflicts.

Conclusion

All in all, our study reveals that task conflict is not an obstacle to employee creativity; on the contrary, it has the potential to boost the creative performance of employees. This is more likely to happen when employees seek structural help (and in that case they can deal with moderate but not with excessive task conflict) or when they seek social help. When employees ask their colleagues for advice and feedback, they are even able to deal with excessively high levels of task conflict, and be creative.

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