Collaborative Crafting in Call Centre Teams

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Abstract: Job crafting research has typically examined the antecedents and outcomes of individual-level crafting. In this study, we test a model of team-level or collaborative job crafting using data collected from 242 call-center teams and supervisors' ratings of team performance. The focus on teams with narrowly defined tasks and limited decision-making responsibility are unique features of this study. As predicted, collaborative crafting was found to relate positively to team efficacy, team control, and team interdependence, which in turn were found to relate positively to work engagement and team performance. The implications for theory development, future research, and practice are discussed.

Additional Information:

Question | Response
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If you have any potentially competing interests to declare, please enter them in the box below. If you have no interests to declare, please enter 'none'. | none

Does this submission have any links or overlap with any other submitted or published manuscripts, for this or any other publication? (For example; as part of long-term project, using a shared data set, a response to, or extension of, earlier work.) If yes, please give brief details. If no, please enter ‘none’. Any overlap not declared and later discovered will result in the manuscript being withdrawn from consideration. | none

Please specify the word count of your manuscript (excluding the abstract, tables, figures and references). Please note that any papers that are over the 8000 word limit will be returned to the authors unless they have received prior permission from the Editor for the submission of the longer manuscript. | 7071
Dear ***

Thank you for re-submitting your manuscript, "Collaborative Crafting in Call Center Teams", to the Journal of Occupational and Organizational Psychology. I have sent the revised paper back to the initial two reviewers, as well as reading it myself. Both reviewers think that the manuscript is much improved, and I agree with this. However, both have suggested a few areas where it can still be improved. Their comments are appended below.

Accordingly, I will be happy to accept the manuscript for publication in JOOP subject to these amendments being made. Although this means that I think it is likely your manuscript will be accepted, this is conditional on appropriate responses to the remaining reviewer comments. Although there are a few more than I would normally expect for a conditional acceptance, I do not think you will have too much trouble dealing with them; as long as I am satisfied that these have been addressed, I will not send the revised manuscript out for further review.

Some comments of mine on some of the reviewers' points:

1. Please note that with regard to reviewer 1’s first minor comment, my advice would also be to drop the Latin for the sake of clarity.
This has now been removed.

2. With regard to reviewer 2's suggestions about structural changes to the paper (placement of hypotheses 4-7, removal of figure 2, splitting of results section, deletion of some text), I think there is merit to all of these suggestions, but this does not necessarily mean you have to follow them - however, if you do not, I will be looking for a well-argued rationale as to why you feel it is not appropriate.

Thank you for your guidance. Please see the full breakdown.

3. With regard to the formatting issues, I particularly noticed that the reference section style is inconsistent. Please address this in your revised manuscript.

We have now corrected the formatting issues.

I would like to take this opportunity to thank you for considering JOOP as an outlet for your work and I look forward to receiving your revised manuscript in due course.

Yours sincerely

Jeremy F. Dawson

Associate Editor

JOOP
Reviewer #1

Manuscript #: JOOP2340R1

Title: Collaborative Crafting in Call Center Teams

General comment: I deeply appreciate the effort that the authors put into addressing my concerns from the previous version of the manuscript. For the most part, my concerns have been addressed adequately and explained well in manuscript or in the responses. Thank you for the care you have taken in this endeavor.

Major Comment 1: My previous concerns regarding the directionality (or more accurately temporal chain) of the relationships still remains?not to mention the idea of moderation proffered by Reviewer 2, but the authors have provided additional justification for the directions they propose, and they have tested an alternative model with the proposed outcomes of crafting modeled as antecedents (which was what I argued for previously). I still believe there is a good reason to consider the longitudinal nature of these relationships, but that is not possible. However, the revised manuscript is better positioned as test of Wrzesniewski and Dutton (2001), along with supporting thought from the Clegg and Spencer (2007) piece. As such, there is only minimal extension of existing
theory as this model seems to focus on relationships proposed (or supported) by those earlier works. To that end, I think the authors have also accumulated a respectable amount of extant empirical support for their hypothesis. If one accepts the rationales developed in the earlier works and presented as support for hypotheses in this paper, then the paper is suitably structured.

Thus, my overall impression is that the revised manuscript is improved, and while the theoretical contribution may be limited, the study itself is well conducted and provides empirical support for the theories upon which it is based.

Minor Comments:

1. There may be an editorial stance on this that differs from my opinion, but I am not sure that the use of the Latin "inter alia" on page 5 is justified. The simpler "among other things" should suffice.

We have followed your advice and corrected this. 2. P6, 8 lines down, the citation with the two Schaufeli pieces has an unnecessary semi-colon Corrected.

3. I apologize for not noting this before as you could have considered it for inclusion in the current version, but I do have a question regarding the Research setting. I noticed that there was a significant influence of one of the dummy coded company variables on performance, and also that there were notable
differences between the pattern of correlations of the two dummy coded variables with substantive variables. Although organizational differences were not the focus of this paper, is it worth discussing any noticeable differences among the organizations? For instance, were there significant mean differences on the variables of interest for the two retailers versus the insurance firm? If so, perhaps it would be beneficial to test the model separately for the retailers and then again for the insurance company to see if the same pattern of results is generated.

Obviously, there is a loss of power by dividing the sample in order to run the model separately, but if there are stark organizational (industry) differences, it is important for us to identify that so as not to mislead readers. You are in a somewhat unique situation, in that you have a sample capable of providing a certain degree of external validity (generalizability evidence) for your model if you can display a similar pattern of relationships derived from separate organizations in separate industries.

This is a very good point. We have now undertaken this analysis through splitting the file to compare the retailers with the insurance organisation and reported the results in the ‘Further analysis’ section.

4. Page 8 - very minor point, but is there any possibility of obtaining updated labor numbers for number of call centers or number of employees? The data are from 2004 and 2005, however, given changes in the US economy I would be
interested to know current numbers. Although purely anecdotal, I know of several large US companies that have reduced or closed major call centers within the past few years and have cut several thousand jobs. The changes may be non-significant in the total scope of this particular sector, but 10-year old data like these could be misleading.

We tried very hard to obtain more up to date employment figures but we found accurate labor numbers from reputable sources hard to come by. This is largely because, in both the USA and UK, the methods for collecting employment populations are reliant on standardised Industry classifications (SIC) and standardised occupational classifications (SOC).

Call centre activities are undertaken within all Standard Industrial Classification (SIC) codes and also in a number of Standard Occupation Codes (SOC). These codes are not capable of capturing and separating out all call centre activities. We decided to utilise the 2004 data as, to our knowledge, this was the last time that simultaneous studies of call centre employment were commissioned and undertaken in both the UK and USA.

5. P.10: I appreciate the extended discussion of ICC on page 10. I think it may be worth considering adjusting the wording in the sentence 6 lines down in which the two ICC measures are defined. In my opinion, the definition provided for ICCs ("reliability of group means") is perfectly fine; however, the definition for ICC1 may be inadvertently confusing ("reliability associated with . . ."
assessment of the group mean”). I could see how the similarity in wording could be confusing for someone who is not completely familiar with multi-level terminology. A simpler definition of ICC1 that describes it as a the proportion of variance attributable to group membership - thus an effect associated with being in a certain organization. This language is used by both Bliese (2000) and by LeBreton and Senter (2008, pp. 822, 823), and seems to be less confusing than the currently provided definition.

Thank you for drawing our attention to this, we have followed your advice.

6. In the results sections check for consistency in the number of decimal places used for various reporting (specifically, check the fit statistics on pages 12 and 13 and compare them to those on pages 14 and 15). In some cases, two decimal places are reported, while in others, three decimal places are reported. When the p < .001 statistic is reported, I believe the three decimal places are acceptable; however, two will suffice for fit indices and regression coefficients.

Again, we have followed your guidance.

7. P16, unless I am misinterpreting the model you are describing, control, efficacy, and interdependence should not be referred to as "exogenous" - if they are preceded and predicted by crafting, then they are endogenous.

We can see the confusion here. Because of the variables positioning in the model they are endogenous in their relationship with crafting but exogenous in regard to the performance and behavioural outcomes. We have decided therefore simply to omit any description of them being
exogenous or endogenous from this section and just referred to them as variables.

8. If possible, in the interest of length, I would encourage the authors to condense the section describing the tests of mediation.

Corrected, please see our response to reviewer 2’s similar concern.

*******************************************************************************

Reviewer #2

I think the manuscript has improved significantly. Most of my concerns were addressed. The following concerns remain.

I felt it is still not clear in the introduction why the authors looked at collaborative crafting and what their study contributes to the extant literature. Maybe add one paragraph for each.

Thank you. Whilst we acknowledge this feedback we do feel a full paragraph on each of the points may be too much. In our initial paragraph we have added sentences which specifically address how our paper extends current understanding. We feel this directly addresses the specific oversights noted in this comment.

Is there any empirical evidence that would support your first hypothesis? Maybe you could add some evidence from the individual level literature on job crafting
if you cannot find any evidence from group level studies.

Yes, specifically the Berg, Dutton, and Wrzesniewski (2008) study to which we refer in the introduction. We have drawn attention to this study in the section that deals directly with the first hypothesis.

I felt the section leading up to hypothesis 4-7 could be better structured. I would prefer if each hypothesis would follow the arguments that develop it.

Thank you. We have taken this on board and following your suggestions have made the structural changes.

I think there is no need for Figure 2.

This was initially requested by reviewer 1. We feel there is value in including a visual diagram of the second order model with path loadings. Therefore we have left the model in. (We are happy for the figure to be omitted if the Editor feels it is unnecessary).

Maybe consider reporting the R-squares in the results section and not just in your model.

We believe that quoting the R Squares for each linkage would make the results section weighty. Including the R Squares in Figure 3 adds value but duplicating them in the results we feel would offer no additional value. I suggest you split your results section into a section on 'Hypotheses testing' and 'Further analysis'.

Thank you, we recognise the value of this split and have implemented it.

I found the later section a little bit confusing. I would only report the results for
the Hayes method and then be very clear which indirect effect is significant and which one is not. Would it be possible to also report the R-squares for these indirect effects? I think it is an important finding (assuming I understood this section correctly) that only confidence and control mediate the effects of crafting via engagement on performance. Something I would recommend you take up in the discussion and find an explanation for.

I also found the last paragraph in this section distracting. I suggest you remove it.

We now realise that reporting two different methods of testing for mediation is somewhat confusing. Accordingly, we have removed the Baron and Kenny tests for mediation.

I felt the same about the first paragraph in the practical implications section. Maybe consider removing.

We feel this paragraph adds value as it draws the reader’s attention to the research being triggered by a practitioner problem, and thus further contextualises the study. We would prefer it to be left in.

There are still some issues with formatting.

We have been through the paper and noticed errors in referencing style and the reporting of statistical results. We have addressed these fully.
Maybe add a practitioner point on what managers can do to enhance job crafting.

This is a good point. We have included a further practitioner point.

Many thanks for giving me the opportunity to read your revised manuscript. I hope you find my comments helpful.

Thank you. The quality of feedback received from the reviewers has been very helpful.

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Collaborative Crafting in Call Center Teams

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Word count (exc. figures/tables): 7149

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Abstract

Job crafting research has typically examined the antecedents and outcomes of individual-level crafting. In this study, we test a model of team-level or collaborative job crafting using data collected from 242 call-center teams and supervisors’ ratings of team performance. The focus on teams with narrowly defined tasks and limited decision-making responsibility are unique features of this study. As predicted, collaborative crafting was found to relate positively to team efficacy, team control, and team interdependence, which in turn were found to relate positively to work engagement and team performance. The implications for theory development, future research, and practice are discussed.

Key Words: job control, job crafting, work engagement, call centers, teams, teamwork, work design

Practitioner Points

- Even in a work environment characterized by low control, there remain opportunities for collaborative job crafting
- Collaborative crafting is associated with higher employee engagement and team performance
- Call center supervisors and managers need to be aware of the potential benefits of collaborative crafting to ensure it is not inhibited by their behaviors (such as enhanced monitoring)
- As positive consequences are associated with collaborative crafting, organizations should consider team training to enhance the collaborative crafting capability of teams.
Introduction

It has been recognized for some time that individuals who occupy the same job can differ in how they execute their role (e.g., Graen, 1976; Ilgen & Hollenbeck, 1991; Morgeson, Delaney-Klinger, & Hemingway, 2005). The contemporary term ‘job crafting’ embodies the self-initiated changes that individuals can make at work (Wrzesniewski & Dutton, 2001). Whilst scholars typically treat job crafting as an individual-level activity (Berg, Dutton, & Wrzesniewski, 2008; Berg, Grant, & Johnson, 2010; Lyons, 2008), Leana, Appelbaum, and Shevchuk (2009) found that in small teams (2-3 employees per team) crafting can also be coordinated between colleagues. The contribution of the present study is that we test a model of collaborative crafting based on teams (with 5-16 employees per team) that, in contrast to the teams in Leana et al.’s (2009) study, were afforded low levels of work discretion (i.e., low control).

Wrzesniewski and Dutton (2001) define job crafting as ‘‘the physical and cognitive changes individuals make to the task or relational boundaries of their work’’ (p.179) and propose that the motivation to craft is rooted in three intrinsic needs: the desire for control and meaning, a positive self-image, and connection with others. Crafting is undertaken without direct supervisory negotiation (Wrzesniewski & Dutton, 2001) and outcomes include higher levels of work meaningfulness, self-identity, job satisfaction, and work engagement (e.g., Berg et al., 2008; Petrou, Demourouti, Peeters, Schaufeli, & Hertland, 2012). To date, as far as we are aware, only one study has examined collaborative crafting: Leana et al. (2009) compared the antecedents and outcomes of individual and collaborative crafting by small teams of childcare workers. These researchers found that collaborative crafting predicted higher levels of care provision, job satisfaction, and organizational commitment, whereas individual crafting did not predict such outcomes. The antecedents of the two forms of crafting were found to differ, with discretion (control), interdependence, supervisory
support, and interpersonal relations between colleagues positively predicting collaborative crafting, and discretion and status positively predicting individual crafting.

The present study examined collaborative crafting within teams that had low control over their work (see below). Under such conditions, the “basic human drive” (Wrzesniewski & Dutton, 2001, p. 181) for control is unlikely to be met, thereby enhancing the motivation to job craft. As Wrzesniewski and Dutton (2001) comment, the desire or motivation to craft “…most often will result from situations in which employees feel that their needs are not being met in their job as it currently stands” (p. 183). Although the opportunities for crafting might be limited within the parameters of low control jobs, Wrzesniewski and Dutton (2001) reason that “employees can create new domains for mastery and shape facets of their jobs to take control over some aspect of their work” (p. 181), see also Griffin, Neal, and Parker (2007), Morgeson and Campion (2002), and Roy (1960). In addition, Oldham and Hackman (2010) discuss observing job crafting behaviors whilst conducting field research on which their job characteristics model (1976) was based. Their research was conducted in manufacturing environments that were often characterized by narrow job designs and directive supervision. Given such research, we concluded that teams in the present study would be motivated to craft due to their lack of control, and would find opportunities to do so (see below).

Whereas job design typically concerns employee reactions to stable job properties (e.g., Hackman & Oldham, 1980), job crafting takes the perspective that such properties are not fixed but can be changed on an ongoing basis. Wrzesniewski and Dutton (2001) go as far as to argue that the “job is being re-created and crafted all the time” (p. 181). Accordingly, the job holder’s evaluation of job content is based on crafting-related adjustments rather than the original job properties. From this perspective, our model of collaborative crafting draws on Clegg and Spencer’s (2007) proposal that role adjustments (such as job crafting) lead to improved performance through changes in job content (more control), higher self-efficacy,
and higher motivation. Clegg and Spencer also emphasize that such crafting behaviors can be individual or team based. We contend, therefore, that collaborative crafting is an antecedent of team-level work perceptions. In the next section, we discuss the pathway from role adjustment to performance and state our hypotheses.

**Collaborative crafting as a predictor of team control**

As described above, the motivation to job craft is driven by a job holder’s unfulfilled needs. In regard to low control, Wrzesniewski and Dutton (2001) contend that individuals might craft the task boundary of their job to enhance job control, thereby fulfilling the need for control. Consistent with this suggestion, Berg et al. (2008) found that employees with restricted job control were able to engage in crafting by changing the expectations of those who might hinder their opportunity to job craft. Similarly, Clegg and Spencer (2007) propose that role adjustments (including crafting) predict change in job content (e.g., job control), involving role expansion and/or the reconfiguring of task allocations. Accordingly, for the teams in the present study, we propose that taking control over some aspects of their work, albeit in limited ways, will satisfy their need for control (at least to some degree) and have a significant impact on their perceptions of job control.

Hypothesis 1: Collaborative crafting is positively associated with team control.

**Collaborative job crafting as a predictor of team efficacy**

Clegg and Spencer (2007) propose that role adjustments of this kind promote efficacy (confidence). In line with this perspective, we contend that the process of coordinating crafting will foster a shared confidence amongst team members in their combined capabilities. More specifically, we argue that collaborative crafting requires the establishment of a common goal (e.g., to increase control over a specific task) that when achieved produces a collective cognition in respect of the team’s ability. This account relates to Bandura’s (1997) proposition that experiencing accomplishment and mastery is an important pre-
condition for the development of efficacy, and also to Lester, Meglino, and Korsgaard’s (2002) finding that groups that go through a cycle of cooperation report higher levels of group efficacy.

Hypothesis 2: Collaborative crafting is positively associated with team efficacy.

**Collaborative crafting as a predictor of task interdependence**

Further to Clegg and Spencer (2007), we propose that collaborative crafting will influence the degree of perceived task interdependence within the team. Task interdependence concerns the extent to which team members are reliant on each other in order to complete their tasks (Cummings & Blumberg, 1987; Wageman & Baker, 1997). Extant studies typically regard technology and objective properties of the task as determinants of interdependence (e.g., Gibson, 1999). Recent propositions, however, suggest that interdependence is a dynamic construct that is shaped by team members’ choices and actions (Hackman, 2012; Wageman, Gardner, & Mortensen, 2012). Accordingly, we propose that engagement in crafting-related decision making and the resultant (collective) changes to aspects of the team’s work will heighten member perceptions of task interdependence. There is some evidence in support of this perspective: Bertolotti, Macrì, and Tagliaventi (2005) found that the crafting behaviors of pattern makers (in the Italian fashion industry) involved a deliberate adjustment to the structure of tasks to embed greater interdependence amongst team members.

Hypothesis 3: Collaborative job crafting is positively associated with task interdependence.

**The consequences of control, efficacy, and interdependence**

Clegg and Spencer (2007) propose that adjustments to job content and increased efficacy enhance work motivation, which, among other factors, positively influences performance. This is grounded in a substantial body of work that has developed an in-depth understanding of how job content and efficacy affect work outcomes (Fried & Ferris, 1987; Hackman &
Oldham, 1976; 1980; Karasek, 1979; Karasek & Theorell, 1990; Parker & Turner, 2002). In the present study, we examine the motivational construct of work engagement, which is a job holder’s affective psychological connection to his/her work tasks (Schaufeli & Bakker, 2004). Work engagement has been conceptualized as: vigor, the extent to which job holders are energized by their work; dedication, the extent to which job holders are involved in their work; and absorption, the extent to which they are happily engrossed in their work (Schaufeli & Bakker, 2004; Schaufeli, Bakker, & Salanova, 2006). We contend that the outcomes of collaborative crafting (control, efficacy, and interdependence) will positively relate to team-member work engagement, which in turn will positively relate to team performance.

In regard to the control-engagement pathway, Christian, Garza, and Slaughter (2011) found that control was positively associated with work engagement. The authors reasoned that job incumbents with greater control over their work domain are likely to invest higher levels of personal energy in their role because they experience greater responsibility for work outcomes. These results are consistent with studies that have found a positive relationship between job resources (i.e., job control) and work engagement (Petrou et al., 2012; Schaufeli & Bakker, 2004).

Hypothesis 4: Team control is positively associated with team-member work engagement.

In connection with the efficacy-engagement link, Social Cognitive Theory (Bandura, 1997) proposes that higher levels of efficacy are related to higher levels of effort and persistence in pursuing goals (i.e., work engagement) over time. Consistent with this proposal, Llorens, Schaufeli, Bakker, and Salanova (2007) found a positive relationship between efficacy and work engagement in a longitudinal laboratory study of university students. Furthermore, Simbula, Guglielmi, and Schaufeli’s (2011) longitudinal study of school teachers found that those who reported higher levels of self-efficacy at the start of the
academic year were more engaged at the end of the first term and at the end of the school year.

Hypothesis 5: Team efficacy is positively associated with team-member work engagement.

In regard to interdependence, Kahn (1990) proposed that the experience of connectedness (i.e., rewarding interpersonal interactions) from working collectively to complete tasks is an integral component of work engagement. More recently, Soane, Truss, Alfes, Shantz, Rees, and Gatenby (2012) found that social engagement, which they based on Kahn’s proposition, is an important predictor of lower turnover intentions. More broadly, previous studies have also found that task interdependence is positively related to team-member job satisfaction, job commitment, and job involvement (Campion, Papper, & Medskar, 1996; Marks, Mathieu, & Zaccaro, 2001; Shaw, Duffy, & Stark, 2000; Van Der Vegt, Emans, & Van De Vliert, 2001; Wageman, 1995; Wong & Campion, 1991).

Hypothesis 6: Perceived team interdependence is positively associated with team-member work engagement.

Finally, in regard to the engagement–performance pathway, Shuck and Wollard (2010) define employee engagement as “an individual employee’s cognitive, emotional, and behavioural state directed toward desired organisational outcomes” (p.103). Consistent with this definition Christian et al. (2011) found an association between work engagement and role effectiveness. The authors reasoned that performance outcomes are a consequence of employees investing higher levels of energy toward the pursuit of job goals rather than an attitudinal reaction to the organisational context. This account is consistent with studies that have found a positive association between engagement and performance (e.g., Bakker & Xanthopoulou, 2009; Harter, Schmidt, & Hayes, 2002).
Hypothesis 7: Team-member work engagement is positively associated with in-role team performance.

The overall underlying model is summarized is Figure 1 below.

[Figure 1 about here]

Method

Research setting and sample

This study was undertaken in three UK organizations (two retailers and an insurance provider), each operating call centers that provide customer services. In the past two decades call centers have become an ever more prominent operational design of service delivery (Holman, Batt, & Holtgrewe, 2007). In 2004, the UK was host to 5,700 call centers employing 581,800 people (DTI, 2004) and in the USA 3.97 million were employed in this form of work (Batt, Doellgast, & Kwon, 2005). Call centers are often characterized by work designs that disempower the workforce (Parker & Ohly, 2008). Studies have found that lower levels of control are associated with higher levels of work related stress and/or lower job satisfaction and commitment (Deery, Iverson, & Walsh, 2002; Holdsworth & Cartwright, 2003; Holman, Chissick, & Totterdell, 2002; Malhotra & Mukherjee, 2004; Rose & Wright, 2005; Zapf, Isic, Bechtoldt, & Blau, 2003). In the present study, a series of field observations and interviews within the participating call centers were undertaken to develop a greater contextual understanding of work design and to guide both study design and the interpretation of findings (Capelli & Sherer, 1991; Johns, 2006; Morgeson, Dierdoff, & Hmurovic, 2010).

Across the three centers, it was observed that agents worked in teams that ranged in size from 5 to 16 members \( (\bar{X} = 11.10, \ SD = 3.05) \). The teams were responsible for a particular type of query, geographic area, or product or service. Their main responsibilities were answering inbound calls and undertaking tasks resulting from them. All participant
centers adopted a pooled team design (Steiner, 1972): inbound calls flowed directly to individual team agents who typically processed them independently. Team performance was the aggregate of agents’ incremental contributions (Brannick, Salas, & Prince, 2007).

In the three centers, managers commented that teams had little authority over their work, and employees also expressed and demonstrated a lack of control over task execution. The observations highlighted that some aspects of the work, in particular the handling of calls, were characterized by high surveillance, job simplification, repetition, and driven by process efficiency. Whilst handling calls was the main responsibility, it was observed that this was only one component of the job. After each call, agents would undertake non-phone work to resolve the caller’s query. The amount of time that agents spent on non-phone work was monitored by management information systems, but what agents were doing was less under scrutiny. It was evident from the observations that the work itself was influenced by temporal cycles of activity: the volume of calls fluctuated throughout the day resulting in periods of high and low intensity. This observation is consistent with Marks et al. (2001) who proposed that teams do not operate at a consistent pace and level but in episodes that are “temporal cycles of goal directed activity” (p. 359). Periods of low intensity resulted in less surveillance than during periods when incoming calls were continuous. From these observations and discussions we are able to conclude that, for the most part, the call center teams had narrow job designs with low control and interdependence.

We tested the model (Figure 1) using data collected between January 2012 and July 2012 from 242 call center teams across the three call centers. At the individual level, a total of 2825 team members from 255 teams were invited to complete the survey, and were allocated 15 minutes each to do so. We achieved a response rate of 68% (1935 team members) and 95% of team supervisors provided assessments of performance and staff turnover.
Questionnaire measures and initial data analyses

Given the focus on team-level data, theoretical and empirical guidelines were followed (Tesluk, Mathieu, Zaccaro, & Marks, 1997). Specifically, for each measure used in this study, Cronbach’s reliabilities are reported along with the within- and between-group measures of suitability. We assessed the degree of within-group agreement through the $R_{wg(j)}$ index (James, Demaree, & Wolf, 1984), where values of .70 or greater indicate strong inter-rater agreement (LeBreton & Senter, 2008). Intra-class correlation coefficients (ICC1 and ICC2) were used to assess the degree of between-group variance within the data (Bliese, 2000; Klein & Koizlowski, 2000): ICC1 provides an effect size estimate of the extent to which group-member ratings are influenced by their group membership (LeBreton & Senter, 2008) and ICC2 represents the reliability of the average of team members’ responses (James, 1982). Due to unequal group sizes, ICC1 was calculated using Snijder and Bosker’s (1999) adaptation of the Bartko (1976) formula. A criterion value of .12 or above for ICC1 is deemed a reliable assessment of the group mean. For ICC2, values of .70 are widely reported as acceptable (Klein, Conn, Smith, & Sorra, 2001). It is worth stating, however, that the threshold cut-off points for estimates of within- and between-group differences are heuristics rather than definitive rules that justify aggregation (LeBreton & Senter, 2008).

All responses, unless stated otherwise, were recorded on a six-point scale that ranged from strongly disagree (1) to strongly agree (6).

Team control. We assessed control using three items adapted from Spreitzer’s (1995) psychological empowerment scale, for example ‘My work team decides on how to go about doing their work’ and ‘My work team has considerable opportunity for independence and freedom in how they do their work’. Cronbach’s alpha for this scale was .96, $R_{wg(j)} = .82$, ICC1 = .45, ICC2 = .87.
Interdependence. To measure the degree of interdependence we used three items from the Wageman, Hackman, and Lehman Team Diagnostics Survey (2005), for example ‘Generating the outcome of the work requires a great deal of communication and coordination among team members’ and ‘Members of this team have to rely heavily on one another to get the team’s work done.’ Cronbach’s alpha for this measure was .91, $R_{wg(j)} = .86$, ICC1 = .55, ICC2 = .91.

Team Efficacy. We measured team efficacy using a three-item instrument developed by Campion, Medskar, and Higgs (1993), for example ‘Members of my team have great confidence that the team can perform effectively’ and ‘My team can take on nearly any task and complete it’. Cronbach’s alpha for this measure was .93, $R_{wg(j)} = .89$, ICC1 = .52, ICC2 = .91.

Team-Member Work Engagement. To measure work engagement we used the shortened nine-item version of the Utrecht Work Engagement Scale (Schaufeli, Bakker, & Salanova, 2006). The measure comprises three items for each of the three factors of work engagement, for example ‘At my work, I feel bursting with energy’ (vigor), ‘I am enthusiastic about my job’ (dedication), and ‘I am immersed in my work’ (absorption). To examine work engagement at the team level, we used a direct consensus approach (Chan, 1998), which involved averaging team members own work engagement perceptions to form a representative team measure. In Bakker, Van Emmerik, and Euwema’s (2006) study, a similar method was used to determine team-level work engagement. We initially considered a referent-shift approach but, in discussions with four teams about aspects of the survey, it became apparent that it would be difficult for agents to answer such questions at the team level. The three factors yielded acceptable reliability and levels of agreement to justify aggregation: Vigor, Cronbach’s alpha = .75, $R_{wg(j)} = .83$, ICC1 = .38, ICC2 = .83; Dedication, Cronbach’s alpha = .82, $R_{wg(j)} = .83$, ICC1 = .33, ICC2 = .80; and Absorption, Cronbach’s alpha = .75, $R_{wg(j)} = .84$, ICC1 = .
.38, ICC2 = .83. Although these statistics indicate a high degree of direct within-group consensus and between-group difference, caution needs to be applied when adopting aggregate measures of individual constructs as equivalent to referent-shift versions of the same construct (c.f., Arthur, Bell, & Edwards, 2007; Gully, Incalcaterra, Joshi, & Beaubien 2002). We therefore refer to this construct as ‘team-member work engagement’ and not ‘team work engagement’.

A confirmatory factor analysis was conducted on the nine work engagement items because the theoretical measurement scale adopted for this study proposes that engagement is a second-order factor explained by three first-order factors (dedication, absorption, and vigor). The three-factor structure was compared against a one-factor model in which all the observed measures of the three aforementioned constructs loaded on a single factor. Analysis of the single-factor model indicated an acceptable fit to the data ($\chi^2 (27) = 140.68, p < .01$, CFI = .94, IFI = .93, RMSEA = .13, RMR = .02). However, the proposed second order three-factor model demonstrated a superior fit to the data ($\chi^2 (24) = 80, p < .01$, CFI = .97, IFI = .97, RMSEA = .10, RMR = .02, $\Delta\chi^2 (3) = 60.68, p < .01$). All of the standardized factor loadings were strong ranging from .72 to .94. Moreover, each of the three dimensions loaded strongly on the work engagement factor (see Figure 2), which supported the adoption of a second-order construct that comprises the dimensions of dedication, absorption, and vigor.

[Figure 2 about here]

**Collaborative Crafting.** Based on the original proposition of Wrzesniewski and Dutton (2001) and items developed by Leana et al., (2009), we developed three items to capture collaborative crafting: ‘In the past twelve weeks (without supervisory/management input) to what extent has your team (1) changed the skills it uses to make the work more interesting, (2) adjusted the tasks it undertakes to make the job more fulfilling, and (3) changed the variety of work tasks it performs to make the work more meaningful?’ Member responses
were recorded on a five-point scale that ranged from ‘not at all’ (1) to ‘a great deal’ (5). The Cronbach’s reliability for these items was .94, $R_{wgt(j)} = .87$, ICC1 = .48, ICC2 = .88.

*Team performance.* To assess performance, supervisors were instructed to rate their teams on four performance criteria (Ancona & Caldwell, 1992; Van Der Vegt & Bunderson, 2005): team achievements, efficiency, work quality, and mission fulfillment. The response scale for the items ranged from ‘far below average’ (1) to ‘far above average’ (6). To facilitate this process, supervisors were asked to compare their team’s performance against internal work targets. Cronbach’s alpha for this scale was .93.

*Control variables*

Three factors were controlled statistically in the analyses: team size, staff turnover, and employing organization. Data on size and turnover (percentage of team members who had left in the last 12 months) were collected for each team from the supervisors. Theoretical propositions and empirical evidence suggest that as team size increases coordination becomes progressively more difficult (Hackman, 1987, Steiner, 1972). Call centers are typically associated with high turnover (Sprigg & Jackson, 2006). Research has found that member instability can inhibit a team’s ability to coordinate their actions toward task completion (Moreland, 1999; Okhuysen, 2001). Accordingly, we contend that higher levels of call center turnover will hinder team performance. Finally, employing organization was controlled for to take into account any variation in work contexts across the organizations.

*Common method variance*

Gathering perceptual data increases the risk of common method bias. To mitigate the effects of such bias, we followed the steps as recommended by Podsakoff, MacKenzie, Lee, and Podsakoff (2003). First, external ratings were used to measure team performance thus separating the source of the predictor data from the outcome data. Second, we created a psychological separation between the collection of predictor and criterion variables by
adopting a different Likert scale, moving from a six-item (criterion variables) to a five-item approach (collaborative crafting) whilst simultaneously adjusting scale labels. Third, we grouped questions logically into sections (e.g., job characteristics) but within those sections we chose not to group by variable. This ensured that the logical flow of the survey was not lost but we were able to control for the retrieval cues promoted by the question context, hence reducing the risk that respondents were able to match items to specific constructs.

To examine whether the items represented their underlying construct, we examined the fit of our measurement model via a confirmatory factor analysis (Hu & Bentler, 1999) of the variables collected at the team level. First we conducted a single-factor confirmatory factor analysis test by loading all the observed variables onto a single factor (model 1). Model 2 was a three-factor model that loaded collaborative job crafting and work engagement on separate factors, with control, efficacy, and interdependence items onto a single factor. Model 3 was a five-factor model that separated the constructs of control, team efficacy, and interdependence, whilst also keeping collaborative crafting and work engagement separate. This analysis confirmed that the proposed measurement model (model 3) fits the data well ($\chi^2(80) = 123.15, p < .01, \text{CFI} = .99, \text{IFI} = .99, \text{RMSEA} = .05, \text{RMR} = .02$). In comparison, the two alternative models represent a poor fit.

To further test the robustness of the measurement model, we conducted indicator reliability (IR), construct reliability (CR) and average variance extracted (AVE) analyses, following Fornell and Larcker (1981). Applying the Fornell and Larcker rule for discriminant validity, the AVE for each construct was then compared to the squared correlations between construct pairs. Overall, the results (Table 2) indicate sufficient construct reliability and discriminant validity of the five latent constructs.
Results

**Hypotheses Testing**

The means, standard deviations, and bi-variate correlation for all study variables are reported in Table 3. The correlations indicate significant and positive relationships between all variables in the model (Figure 1), as expected. The correlations also justify inclusion of the control variables (e.g., staff turnover is significantly and negatively related to performance).

Structural Equation Modeling (SEM) was used to test the multiple hypothesized relationships in the model (Bollen, 1989). We first conducted path analysis to examine the fit of the model to the data, with turnover, team size and organizational affiliation as controls. The hypothesized structural model provides a good fit to the data ($\chi^2 (223) = 369.27, p < .01$, NFI = .92, IFI = .97, CFI = .97, RMSEA = .05, RMR = .49). Figure 3 shows the path coefficients and the residual variances associated with this analysis.

The findings support Hypotheses 1, 2, and 3 in that collaborative crafting predicts team control, team efficacy, and team interdependence ($\beta = .41, p < .01$, $\beta = .56, p < .01$, $\beta = .48, p < .01$, respectively). The findings also support Hypotheses 4, 5, and 6, with control, efficacy, and interdependence predicting team member work engagement ($\beta = .27, p < .01$, $\beta = .28, p < .01$, $\beta = .30, p < .01$, respectively), and Hypothesis 7, which proposes a positive relationship between work engagement and team performance ($\beta = .30, p < .01$).

**Further analysis**

Previous studies have considered work engagement as a mediator between resources (job and personal) and performance outcomes (Bakker & Demerouti, 2008; Schaufeli & Bakker, 2004). Our model posits a mediating role of work engagement in linking control, efficacy, and interdependence to the outcome variable of team performance. We tested this assertion with a 95% bias corrected bootstrap confidence interval based on 5,000 bootstrap samples of
the indirect and direct effects (Hayes, 2009). The indirect effect of control on performance through team-member work engagement points to a mediating effect as the confidence interval does not include zero (.03, .15), with a point estimate of .08, \( p < .01 \). The indirect effect of efficacy on performance through work engagement supported mediation (.03, .15), with a point estimate of .08, \( p < .01 \). Finally, the indirect effect of interdependence on performance through work engagement does not include zero (.04, .15), with a point estimate of .09, \( p < .01 \), thereby supporting mediation.

An alternative model, which proposes that the relational order between control, efficacy, interdependence, and collaborative crafting could be reversed, was contrasted with the hypothesized model. It is plausible that regardless of the organizational context, team-level perceptions of control, efficacy, and interdependence create the opportunity to engage in collaborative crafting (Leana et al., 2009; Petrou et al., 2012). Results indicate that the fit of the alternative model was good but inferior to the hypothesized model (\( \chi^2 (222) = 390.12, p < .01 \), NFI = .92, IFI = .96, CFI = .96, RMSEA = .06, RMR = .50). Analysis of the model revealed that whilst efficacy and interdependence predict collaborative crafting (\( \beta = .42, p < .01 \), \( \beta = .31, p < .01 \), respectively) the association between control and crafting is non-significant (\( \beta = .05 \), n.s.). This result supports our hypothesis in that teams working in conditions of low control may adopt job crafting as a means of enhancing control (i.e., to satisfy their need for control).

The correlations in Table 3 highlight differences between the organizations in regard to the variables of interest. In order to assess the possibility that the associations in the proposed model were due to organizational differences, we also assessed the hypothesized structural model separately for the insurance firm (n = 75) and the two retailers (n = 167). In both cases, the hypothesized structural model provides an adequate fit to the data (Insurance: \( \chi^2 (183) = 275.91, p < .01 \), NFI = .84, IFI = .94, CFI = .94, RMSEA = .08; Retailers: \( \chi^2 (203) \)
Analysis of the path coefficients across the two samples indicates significant associations that support our initial hypotheses. In addition, the proposed model provided a superior fit to the alternative model for both the insurance organisation and the retailers, with control not predicting crafting. However, because the number of parameters estimated relative to sample size is a key determinant of model fit (Bentler, 1995), these results are constrained by the sample sizes.

Discussion

This study supports the argument that collaborative crafting can occur in narrowly defined jobs (Griffin, Neal, & Parker, 2007; Morgeson & Campion, 2002; Wrzesniewski & Dutton, 2001). As far as we are aware, this is the first empirical study to show that collaborative crafting is positively related to independent ratings of team performance, and that team control, efficacy, interdependence, and team member work engagement are implicated in the process (Berg et al., 2009; Clegg & Spencer, 2007; Leana et al., 2009; Wrzesniewski & Dutton, 2001). A further feature of this study concerns the size of the teams under investigation ($\bar{X} = 11.10, SD = 3.05$). The Leana et al. (2009) study of collaborative crafting focused on substantially smaller teams ($\bar{X} = 2.66, SD = .97$). Our study therefore extends their findings because it suggests that larger teams – with inherent co-ordination issues to overcome – are also able to engage in collaborative crafting and that crafting can occur even under conditions of low discretion.

Wrzesniewski and Dutton’s (2001) model provides a number of individual, task, and organisational features that are likely to influence crafting behaviors. Subsequent studies have explored these features with a particular emphasis on job control (Leana et al., 2009; Petrou et al., 2012). Whilst higher levels of control have been argued to afford a greater opportunity for individuals to identify and integrate crafting behaviors into their work, Wrzesniewski and Dutton (2001) reason that “those who work at levels of the organization in which freedom
and creativity to craft are constrained might find that they are more motivated to work against these constraints by using job crafting as a vehicle for control” (p. 196). Our findings are consistent with the notion that low control motivated individuals within teams to craft collaboratively in order to satisfy their need for control. Accordingly, we contend that job control has two differing roles in the crafting process: an antecedent of the motivation to craft and an opportunity creator. In this way, job control should be considered conceptually not solely as a moderator of the relationship between motivation to craft and crafting behaviors (Wrzesniewski & Dutton, 2001).

Our paper also offers insight into addressing the trade-off issue between mechanistic and motivational approaches to job design (Morgeson & Campion, 2002). The former concerns use of highly standardized and simplified forms of job design to enhance efficiency-related outcomes, whereas the latter promotes a set of core job characteristics that enhance the motivational outcomes of the role (Hackman & Oldham, 1980). The gains associated with the adoption of one approach can have a detrimental effect on the positive outcomes associated with the other (Campion, Mumford, Morgeson, & Nahrgang, 2005). For example, Parker (2003) found that the adoption of a more mechanistic job design (lean production principles) resulted in the reporting of reduced organizational commitment, role breadth self-efficacy, and increased job depression. Mediation analysis revealed the effects were partly attributable to declines in perceived levels of autonomy, skill utilization, and participation in decision making. A possibility to consider is that job crafting represents a means for employees to soften mechanistic structures. More specifically, our findings suggest that despite the widespread use of systems to enforce efficiency, call center teams appear capable of making self-initiated, motivationally oriented adjustments that may overcome or compensate for the shortcomings inherent within the prevailing (mechanistic) work design (c.f., Grant, Campbell, Chen, Cottone, Lapedis & Lee, 2007).
**Practical implications**

This research resulted from a discussion with a call center manager who was concerned about variance in levels of work engagement across her call center teams. It was this practical problem that resulted in the opportunity to examine collaborative crafting behaviors. Based on our findings, we contend that it is important to consider how crafting behaviors can be encouraged, which we discuss next in regard to both supervisors and their teams.

Within call centers, supervisors typically work in close proximity to their teams and aim to control job design through the specification and monitoring of procedures to maintain efficiency (Van de Yen & Morgan, 1980; Clegg, 1984). We therefore contend that without greater understanding of the positive outcomes of job crafting, supervisors who observe teams crafting aspects of their work might instinctively attempt to restrict such behaviors through increased levels of monitoring (c.f., Clegg & Spencer, 2007). Accordingly, there is a need to inform supervisors of the potential positive implications of collaborative crafting. The role of supervisors and managers in the crafting process, though, has received little research attention. This might be due to Wrzesniewski and Dutton’s (2001) proposal that job crafting behaviors are largely hidden from supervisors and managers, and therefore they play an inactive role in the crafting process. However, in the context of heavily controlled work environments like call centers, it is unlikely that crafting behaviors will go unnoticed. Greater supervisory understanding of the potential benefits of crafting might act as a catalyst to enhance team outcomes. Increasing such awareness could be undertaken as part of, for instance, facilitative team-leader training (Burke, Stagl, Klein, Goodwin, Salas, & Halpin, 2006), involving the development of supervisory skills to foster team cohesion (Kozlowski & Ilgen, 2006) and interaction (Marks et al., 2001), as well as development of a psychologically safe environment for the experimentation of new work methods (Kahn, 1990). Through enhanced understanding, we contend that supervisors would be in a better position to develop
a crafting-related ‘zone of acceptance’ (Hornung, Rousseau, Glaser, Angerer, & Weigl, 2010), which is a cognitive array of shared beliefs and expectations job incumbents and supervisors hold regarding acceptable activities on the job. More specifically, such zones can help determine the boundaries in which role incumbents can demonstrate discretion to craft.

In addition to increasing supervisory capabilities and awareness, team training could be used to engender collaborative crafting, in particular perturbation training (Gorman, Cooke, & Amazeen, 2010) and guided team self-correction training (Day, Gronn, & Salas, 2004). Perturbation training is a form of stress exposure training that focuses on disrupting a team’s habitual and procedural rigidities whilst team objectives remain fixed. This forces teams to develop new ways to coordinate tasks in pursuit of their objectives. Through this technique members develop more flexible coordination procedures and proactive capabilities (Gorman et al., 2010). Temporary activities such as removing or reducing reliance on call scripting, altering the positioning of where individual team members sit, or reducing the responsibilities of the supervisor would create a perturbation that could be used to enhance the team’s ability to craft. Guided team self-correction training targets the promotion of open dialogue within teams with regard to the discussion of expectations, responsibilities, behaviors, and responses. It is effective in developing mutual performance monitoring, back-up behaviors, and closed-loop communication within teams (Day et al., 2004). Research findings show that teams that have participated in guided self-correction training developed more accurate mental models of team work, demonstrated greater teamwork processes, and were more effective in achieving goals than teams that had been trained using a less participative approach (Smith-Jentsch, Cannon-Bowers, Tannenbaum, & Salas, 2008). Through the development of shared mental models to promote the implicit coordination of team processes, self-correction training is likely to support the development of effective collaborative crafting behaviors.
Strengths, limitations, and future research

This study has a number of strengths. The first concerns the approach of utilizing information collected from workplace observations and discussions to guide the design of the study (Johns, 2006). Observing teams benefitted understanding of their tasks and the settings in which they worked. The second strength concerns the size of the field study (1935 individuals, 242 teams). When utilizing structural equation modeling techniques the number of parameters estimated relative to sample size is a key determinant of convergence, standard errors, and model fit (Robson, Katsikeas, & Bello, 2008). A ratio of five samples for each estimated parameter is deemed necessary to obtain reliable estimates of model fit (Bentler, 1995; Hu & Bentler, 1995). The size of the field study therefore enabled the reliable testing of the hypothesized model. The final strength to note is that our study contained external evaluations of performance combined with objective (e.g., staff turnover) and perceptual (e.g., team control, team efficacy) measures. This reduces problems associated with a sole reliance on self-report data (Podsakoff et al., 2003).

Notwithstanding these strengths, the current study has several limitations. First, we adopted a cross-sectional design. Although our model fits the data well, other researchers propose that work engagement predicts job crafting (Bakker, Albrecht, & Leiter, 2011). It is likely that both propositions are correct and the relationship between job crafting and work engagement is reciprocal (c.f., Leach, Wall, & Jackson, 2003). In relation to interdependence and efficacy the findings from analysis of the alternative model (see Results) suggest that the relationships between these variables and collaborative crafting are also reciprocal over time (Clegg & Spencer, 2007). To progress understanding of crafting behaviors, we recommend that future studies test more complex models of reciprocal relationships between work characteristics, crafting behaviors, and job/team outcomes. In this regard, diary study designs, which have proved effective in capturing spontaneous human phenomena as they naturally
unfold (Daniels & Harris, 2005), would be worthwhile. Such designs would benefit from a natural ‘zero point’ followed by an intervention or change to existing conditions (Frese, Garst, & Fay, 2007). The recommendations made within this study in regard to supervisory approaches or training would provide the necessary event to enable examination of how the cycle of job crafting and work engagement develops over time. In addition, such designs would help investigate potential non-linear relationships. For example, it is plausible that some of these variables have U-shaped relationships whereby, for example, those with very low or very high work engagement are more likely to undertake job crafting than those with medium levels (Petrou et al., 2012).

In addition to the recommendation above, we would encourage future researchers to examine job crafting at different levels of analysis, including both roles and tasks. This study, following the theoretical propositions of Wrzesniewski and Dutton (2001) and Clegg and Spencer (2007), measured job characteristics at the role level. Our observations indicate that within call handling tasks, there was very little scope to craft; crafting most likely occurred in the follow-up tasks that were initiated by the calls. Future analysis at the task level (Campion et al., 2005; Morgeson & Campion, 2002) would enable a finer-grain analysis of whether crafting behaviors are localized in specific tasks or task clusters or whether job crafting is more systemic throughout the role. This would enable better understanding of the relationship between the extent and type of crafting activity (e.g., quantity, quality, specificity) and work outcomes. This level of analysis would also provide practical value in developing supervisory awareness of those aspects of the role in which crafting might contribute more substantially to motivational and organizational outcomes.

Job crafting typically has been studied as a localized behavior that directly influences the instigator and their immediate work outcomes. However, it is likely that the behaviors of job crafters will directly and indirectly affect others who share interdependency within the
same work system. Wrzesniewski and Dutton (2001) comment that job crafting through altering connections within work systems could be either beneficial or detrimental to organizational effectiveness. Organizations are systems characterized by high levels of interdependency (Katz & Kahn, 1978); teams are nested within interdependent work systems in which their behaviors impact upon the effectiveness of others. Furthermore, the study of work systems has broadened to consider not only the interconnections of work roles but also the interconnections of processes, technologies, physical environments, and organizational goals in determining psychological, motivational, and behavioral outcomes (Davis, Leach, & Clegg, 2011). The interconnections within work systems, therefore, make it important for researchers to broaden the scope of their research when considering the impact of behaviors such as job crafting (Wageman et al., 2012). Doing so, we contend, would provide a more comprehensive understanding of the scope of crafting-related outcomes. We also propose that future research should extend our model to consider how crafting influences a broader set of proximal outcomes such as knowledge acquisition, proactive capabilities, positive affect, and the development of expertise (Clegg & Spencer, 2007; Leach et al., 2003). In addition, there are opportunities to extend the range of antecedents of crafting. For example, Clegg and Spencer (2007) argue for the inclusion of variables such as competence and trust.

A further suggestion concerns the notion of a climate for job crafting. Climate captures the shared perspectives and patterns of behavior evident in organizational contexts (Patterson, West, Shackleton, Dawson, Lawthom, Maitlis, Robinson, & Wallace, 2005). Climates are likely to emerge through a number of mechanisms including attraction, selection, and attrition (Schneider, 1987; Schneider, Goldstein, & Smith, 1995), and behavioral contagion (Barsade, 2002). It would be worthwhile to examine the extent to which employees perceive a climate for crafting and the extent to which it affects their behaviors and resultant outcomes. More specifically, is job and collaborative crafting undertaken on an
idiosyncratic basis or are individuals and teams aware of others’ crafting behaviors and adopt similar behaviors to improve work meaningfulness? We contend that the latter is likely to be evident, which evolves into a climate-level perception (c.f., James & James, 1989; Brown & Leigh, 1996). To undertake such analysis, however, development of a measure of crafting climate would be necessary (c.f., Anderson & West, 1998; Brown & Leigh, 1996; Leach, Hagger-Johnson, Doerner, Wall, Turner, Dawson, & Grote, 2013).

**Conclusion**

The proposed model and findings provide a valuable extension to understanding job crafting behaviors. We have established that teams, even in job designs characterized by low control are capable of engaging in collaborative crafting behaviors. Furthermore, our findings suggest that collaborative crafting can function as an informal job redesign behavior that is associated with positive outcomes of work engagement and performance. We further suggest how interventions can promote and facilitate collaborative crafting.
References


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Table 1. Confirmatory factor analysis of the exogenous factors

<table>
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<tr>
<th>Models</th>
<th>Factors</th>
<th>$\chi^2$</th>
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<th>$\Delta \chi^2$</th>
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<th>CFI</th>
<th>IFI</th>
<th>RMR</th>
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<td>Model 1</td>
<td>All items loading on a single factor</td>
<td>2085.62</td>
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<td>0.44</td>
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<td>Model 2</td>
<td>3 Factor model merged TCon, TEff and TInt, CJC and WE Separate factors</td>
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<td>Model 3</td>
<td>5 Factor model Separate factors for CJC, WE, TCon, TInt, and TEff</td>
<td>123.15</td>
<td>80</td>
<td>912.15*</td>
<td>0.05</td>
<td>0.99</td>
<td>0.99</td>
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Notes. CJC = Collaborative Job Crafting, WE = Work Engagement, TCon = Team control, TInt = Team Interdependence, TEff = Team Efficiency; *$p < .01$
Table 2. Measurement properties for study constructs

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Table 3. Means, standard deviation, and bivariate correlations among variables

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<td>.02</td>
<td>-.06</td>
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Notes. N = 242. * p < .05 level (2-tailed). ** p < .01 level (2-tailed).
Figure 1. Hypothesized model

COLLABORATIVE CRAFTING IN CALL CENTER TEAMS

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Figure 2. Second-order model of work engagement with path values as standardized estimates
Figure 3. Standardized parameter estimates and residual variances for the hypothesized model; *$p < .05$, **$p < .01$