



Can job crafting reduce job boredom and increase work engagement? A three-year cross-lagged panel study[☆]

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ABSTRACT

Building upon the Conservation of Resources (COR) theory, this longitudinal study examined whether job crafting behaviors (i.e. increasing structural and social job resources and increasing challenges) predict less job boredom and more work engagement. We also tested the reverse causation effects of job boredom and work engagement on job crafting and the dynamics between the three job crafting behaviors over time. We employed a two-wave, three-year panel design and included 1630 highly educated Finnish employees from a broad spectrum of occupations in various organizations. Our results indicated that seeking challenges in particular negatively predicted job boredom and positively predicted work engagement. Seeking challenges fueled other job crafting behaviors, which, in their turn, predicted seeking more challenges over time, thus supporting the accumulation of resources. Job boredom negatively predicted increasing structural resources, whereas work engagement positively predicted increasing both structural and social resources. These findings suggest that seeking challenges at work enhances employee work engagement, prevents job boredom, and generates other job crafting behaviors. Conversely, job boredom seems to impede job crafting.

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A high level of employee well-being in the workplace is in the best interest of both workers and organizations (Danna & Griffin, 1999). Work engagement and job boredom capture aspects of both employee well-being and motivation. The purpose of this study is to examine how employees can prevent job boredom, increase work engagement, and thus sustain well-being.

Work engagement is defined as an active state of well-being that is characterized by vigor, dedication and absorption at work (Schaufeli, Bakker, & Salanova, 2006). Engaged employees are described as immersing themselves in their work roles, and thereby as delivering high quality work performances (Kahn, 1992, 1990). Engaged employees tend to be proactive and open to new information, and motivated to perform well in their work (Bakker, 2011).

Whereas work engagement refers to a positive and fulfilling psychological state, job boredom is regarded as the opposite (Salanova, Del Líbano, Llorens, & Schaufeli, 2014). More specifically, job boredom refers to an unpleasant state of passiveness that is characterized by attentional difficulties and a distorted sense of time (Reijseger et al., 2013; Fisher, 1993).

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Bored employees may disengage from a work role that lacks satisfying activities (Eastwood, Frischen, Fenske, & Smilek, 2012), or does not enable full use of individual capabilities (Harju & Hakanen, 2016). Previous studies have associated boredom at work with harmful outcomes for individuals and organizations, such as substance abuse, low job satisfaction and deteriorated work performance (see Loukidou, Loan-Clarke, and Daniels, 2009 for a review) as well as stress symptoms, turnover intentions, poor self-perceived health and reduced workability (Harju, Hakanen, & Schaufeli, 2014). In sum, organizations and employees alike may benefit from fostering work engagement and preventing job boredom.

Employees may also promote their own well-being at work by pro-actively shaping their jobs to better fit their individual needs, skills and motivations. This type of proactive behavior has been dubbed job crafting, which refers to activities that employees initiate to shape their tasks, their work environment or their mindset to create jobs that are more meaningful for themselves (Wrzesniewski & Dutton, 2001).

According to Tims, Bakker, and Derks (2012), job crafting is essentially about employees increasing resources and seeking challenges in their jobs in order to motivate themselves at work. As such, job crafting builds on the fundamental proposition of the Conservation of Resources (COR) theory, which posits that individuals strive to retain, protect and accumulate resources to cope with threats to their well-being (Hobfoll, 1989). As stated by COR theory, resources are those objects, personal characteristics, conditions or energies that are valuable either in their own right or because they may help in achieving or protecting other valued resources (see also Hobfoll, 2001). Individuals may invest their current resources (e.g. time and/or energy) into building new resources (e.g. skills, relationships or better work environment) and consequently into sustaining and protecting their well-being. Lack of resource gain, or resource loss, may in turn cause stress and threaten individual well-being.

Furthermore, COR theory suggests that “resources aggregate in resource caravans in both an immediate and a life-span sense” (Hobfoll, 2001, p. 349). These positive *gain cycles* are mirrored by negative loss cycles, in which initial resource loss predicts future loss. When individuals' resources are depleted, they are more likely to withdraw their efforts than to invest in acquiring more resources (Hobfoll, 1989). It thus follows that, in addition to short-term impact, both gain and loss cycles may yield long-term effects on individual well-being.

In the present study, we focus on job crafting as a way for employees to gain resources that protect them from job boredom, increase their work engagement, and help them to accumulate further job resources to maintain their well-being over time. Moreover, we seek to explore the reversed relations between well-being (work engagement and job boredom) and job crafting to examine whether engaged employees craft their jobs in the future, and whether bored employees withdraw themselves from such behaviors, or indeed craft their jobs and become more engaged.

Some qualitative and cross-sectional studies have suggested that employees may seek challenges and increase resources in their work to constructively prevent and cope with job boredom (van Hooff & van Hooff, 2014; Carroll, Parker, & Inkson, 2010; Game, 2007). However, to date, no longitudinal studies on the relations between job boredom and job crafting have, to our knowledge, been carried out. Thus, we lack knowledge on whether job crafting can effectively reduce future job boredom and how, in turn, job boredom may affect job crafting.

The present study had two aims: (1) to increase our knowledge regarding the long-term effects of job crafting on preventing job boredom and increasing work engagement and vice versa; and (2) to examine the dynamics (i.e. temporal order) between different types of job crafting behaviors. In so doing, our study sheds light on the mechanisms of job crafting as an ongoing process.

1. Theoretical background

1.1. Job crafting and employee well-being

Employee well-being can be perceived as a function of various job resources and job demands, in which job resources spark a positive, motivational process while buffering the negative effects of job demands (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Work engagement involves high levels of job resources that are balanced with reasonably high job demands (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007). Hence, the more demanding a job, the more resources are needed to sustain work engagement. In contrast, job boredom has been associated with a lack of both job resources and job demands (Reijseger et al., 2013).

Two types of job demands have been distinguished: Whereas hindrance demands (e.g. role conflict, role ambiguity, red tape and hassles) may hamper well-being, challenge demands (e.g. high workload, time pressure, job responsibility) may foster work engagement (Crawford, LePine, & Rich, 2010) and protect employees from job boredom (van Tilburg & Igou, 2012). According to COR theory, employees may proactively cope with potential threats to their well-being, before problems actually arise (Hobfoll, 2001). We argue that job crafting can thus be considered proactive coping behavior, as employees anticipate potential threats to their well-being and actively prevent future experiences of job boredom from emerging.

So far, research has associated job crafting with, for example, higher work engagement (Vogt, Hakanen, Brauchli, Jenny, & Bauer, 2016; Tims et al., 2012; Petrou, Demerouti, Peeters, Schaufeli, & Hetland, 2012; Bakker, Albrecht, & Leiter, 2011), as well as colleague-rated in-role performance (Bakker, Tims, & Derks, 2012). In addition to increasing employees' own work engagement, a recent study showed that job crafting may also increase colleagues' job crafting and consequently, colleagues' work engagement (Bakker, Rodríguez-Muñoz, & Vergel, 2016). However, research on the well-being effects of job crafting other than work engagement has been scarce. In addition, studies have typically examined the effects of job crafting as a unitary concept,

although there are many ways to make tasks, job context or social encounters at work more meaningful (Wrzesniewski & Dutton, 2001). Tims et al. (2012) distinguish between three types of job crafting behaviors; (1) increasing structural resources (e.g. task variety, opportunities to develop new skills or work processes, autonomy); (2) increasing social resources (e.g. social support, supervisory coaching, feedback); and (3) seeking challenges (e.g. getting involved in new projects, performing additional tasks, volunteering to test new tools or applications). Moreover, longitudinal studies on job crafting using full panel design are still rare (Vogt et al., 2016).

In this study, we examine the effects of increasing structural and social job resources and seeking challenges on future job boredom and its opposite, work engagement. We argue that these job crafting strategies may stimulate and energize employees on the brink of boredom and drive them towards engagement in their work.

1.2. Job crafting behaviors as a self-sustaining process

In support of the aforementioned assumptions of COR theory, empirical studies have found that job resources initiate positive gain cycles by fostering work engagement, which further increases the resources related to conditions such as work-family enrichment (Hakanen, Peeters, & Perhoniemi, 2011), and personal initiative, which is a more general indicator of proactive behaviors (Hakanen, Perhoniemi, & Toppinen-Tanner, 2008).

Studies have suggested that certain job characteristics enable and trigger job crafting (Bakker et al., 2012; Berg, Wrzesniewski, & Dutton, 2010). For example, on days when employees perceive more autonomy to make changes to their work (a job resource) and work pressure (a challenging demand), they strive to increase resources in their jobs (Petrou et al., 2012). Hence, increased job resources and challenges may further fuel job crafting activities.

However, it may be that different job crafting behaviors do not take place simultaneously, and the unfolding crafting process may have specific dynamics. For example, after taking on new challenges in their jobs, employees might need to increase their job resources to deal with the increased (challenging) job demands (Bakker et al., 2007). Conversely, when employees actively increase their resources, this may further generate behavior towards new undertakings (Spreitzer, Sutcliffe, Dutton, Sonenshein, & Grant, 2005). For example, by increasing the quality of work relationships, employees can enhance their future proactive behaviors (Carmeli, Brueller, & Dutton, 2009). Following this rationale, we argue that increasing job resources and seeking challenges may spark positive gain cycles that lead to other *future* job crafting behaviors. Thus, job crafting may involve a balancing mechanism that enables employees to continue to accumulate resources and challenges to promote and protect their well-being (Hobfoll, 1989, 2001).

1.3. The present study

The present study employed a full panel design to investigate the effects of increasing structural and social job resources and of seeking challenges on job boredom and work engagement over a three-year time period. Building upon COR theory, we argue that employees may increase job resources and seek more challenges to proactively cope with job boredom and thus enhance their work engagement (Hobfoll, 2001).

Moreover, we examined the relations between different job crafting behaviors from the viewpoint of gain cycles. When employees perceive high levels of job resources and challenges, they might engage in more crafting behaviors (Petrou et al., 2012; Berg et al., 2010). Increasing (social and structural) job resources and seeking challenges would thereby predict future crafting behaviors. However, we do not yet know the temporal order of different crafting activities, and are therefore unable to formulate hypotheses regarding the direction of the relations.

Although often associated with low-skilled work, job boredom may also afflict educated employees, who can become trapped in dull and routine jobs for which they are over-qualified (Rothlin & Werder, 2008; see also Loukidou et al., 2009). As such, educated employees might be at a higher risk of becoming bored in their jobs, if they lack challenging, adequately stimulating tasks (Reijseger et al., 2013; van Tilburg & Igou, 2012; Csikszentmihalyi, 1975). Although, some research exists on workplace boredom among white-collar workers (van der Heijden, Schepers, & Nijssen, 2012), studies on job boredom among employees with higher education are lacking. Thus, we also lack knowledge on which crafting behaviors sustain well-being and prevent job boredom among the more highly educated workforce.

The present study focused on educated employees, who are at a greater risk of being overqualified, and who at the same time may have the opportunities (e.g. skills and autonomy) needed to craft their own jobs (Petrou et al., 2012; Berg et al., 2010). We argue that educated employees in particular may actively prevent themselves from becoming bored by crafting their jobs more resourceful, challenging and meaningful (Demerouti, 2014; Tims et al., 2012).

More specifically, we hypothesized that increasing job resources and seeking challenges reduces future job boredom (*Hypothesis 1*) and enhances future work engagement (*Hypothesis 2*). We also utilized a fully cross-lagged study design to examine the possible reversed effects of job boredom and work engagement on job crafting behaviors. Congruent to the theoretical assumption of gain cycles, we hypothesized that as an active state of well-being, work engagement positively predicts all three types of job crafting (*Hypothesis 3*). In addition, we explored the causal relations between three types of job crafting, i.e., increasing social and structural job resources and seeking challenges.

2. Method

2.1. Sample and Procedure

This study employed longitudinal data collected on two occasions (2011 and 2014). The three-year time interval was based on practical arrangements and thus could not be influenced by the researchers. In 2011 a survey questionnaire was mailed to 20,471 employees in 87 Finnish organizations of different industries that had volunteered to participate in the study. Of these 87 organizations, 28 ($N = 6989$) volunteered to take part again in 2014. The large drop-out rate of organizations was largely due to organizational changes that they had undergone, or practical reasons, such as other surveys that were simultaneously taking place. The employees who responded to the questionnaire in 2011, and were still employed by the respective organization, were invited to participate again in 2014. The response rates were 56% in 2011 ($N = 11,471$), and 55% in 2014 ($N = 3831$).

Participation in the survey was voluntary, and respondents were not given any incentives to participate. The anonymity of the data was assured and emphasized. No information that could be used to identify the respondent (e.g. name, profession, organizational position) was included in the questionnaire. Responses from two time points were paired using individually assigned codes. Each organization had assigned a contact person, who was instructed to distribute information on the study, and to remind and encourage the personnel to fill out the questionnaire. They did not interfere with the process in any way. Respondents mailed the questionnaires directly to the researchers to ensure confidentiality.

This study focused on the respondents who participated in the survey at both times ($N = 2334$) and were employed by the same organization throughout the three-year follow-up period. We used a sample of highly educated (i.e. college and university educated) employees ($N = 1635$) in various occupations from all 28 public and private sector organizations. The mean age of the sample was 46 ($SD = 9.11$ years), 85% were female, and 91% were employed on a permanent job contract. Over half of the respondents (58%) worked as professionals (e.g. nurses, and pharmacists) or specialized professionals (e.g. doctors, teachers, and researchers), 22% worked as clerks and officials, 11% worked in sales and services, and 9% occupied a managerial position. The respondents worked 37 h a week ($SD = 6.47$ h) on average, and mean tenure was 11 years ($SD = 9.66$ years). Female employees were overrepresented (85% vs. 58%) in our sample compared to the highly educated employees in the total Finnish working population (Official Statistics of Finland, 2015). This may be partially explained by the large number of participant organizations that provided health and social services ($N = 18$), in which 88% of employees are female in Finland. In addition, employees aged 45 years or over were overrepresented compared to the total working population (59% vs. 46%; Official Statistics of Finland, 2015). Thus, our sample was not representative of the highly educated working population in Finland, as it included relatively more women and older workers.

A comparison between the highly educated employees who participated at both times and those who participated at only T1 ($N = 5773$) revealed only minor differences between the two groups concerning the study variables, job contracts, and demographics (i.e. gender, age). Respondents who participated at both times experienced job boredom slightly less often than those who participated at only T1 (job boredom: 1.0 vs. 1.1, $p < 0.001$). In addition, there were more male respondents among those who participated at T1 than among those who participated at both times (22% vs. 15%), and those who participated at T1 were more likely to have fixed-term contracts (15% vs. 9%). As the participants did not differ on the basis of any other study variables, it seems unlikely that these differences significantly biased our results.

2.2. Measures

Job boredom was measured using the Dutch Boredom Scale (DUBS; Reijseger et al., 2013), which contains six items capturing the affective, cognitive, and behavioral manifestations of job boredom (e.g. "I feel bored in my work"). Participants responded on a seven-point Likert scale ranging from 0 (never) to 6 (very often). The instrument development study found the scale's internal consistency reliability (Cronbach's α) to be 0.87 (Reijseger et al., 2013). In a Finnish study of 11,468 employees, the internal consistency reliability of DUBS was 0.85. In the current study the internal consistency reliability of the scale was 0.85 at T1, and 0.88 at T2.

Work engagement was assessed using the nine-item version of the Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2006) that measures the three dimensions of work engagement: Vigor (e.g. "At work, I feel like I am bursting with energy"), dedication (e.g., "I am enthusiastic about my job"), and absorption (e.g. "I am immersed in my work"). The items were scored on a seven-point Likert scale from 0 (never) to 6 (every day). Upon development of the instrument, Schaufeli et al. (2006) found that the scale's internal consistency reliabilities (Cronbach's α) exceeded 0.85 in samples from ten different countries. The scale has also been previously validated in Finland in a sample representing various industries ($N = 16,335$), and its internal consistency reliability was 0.91 (Hakanen, 2009). In this study, UWES-9 had an internal consistency reliability of 0.95.

Job crafting was examined using a 15-item measure (Tims et al., 2012) that captures three dimensions of job crafting: increasing structural job resources (e.g. "I try to learn new things at work"), increasing social job resources (e.g. "I ask others for feedback on my work performance"), and seeking challenging job demands (e.g. "If there are new developments, I am one of the first to learn about them and try them out"). The items were scored on a five-point scale (1 = never to 5 = very often). In the scale development study, internal consistency reliabilities (Cronbach's α) ranged from 0.76 to 0.82 for increasing structural job resources, from 0.73 to 0.82 for increasing social job resources, and from 0.75 to 0.77 for seeking challenging job demands. In the current study, internal consistencies were 0.74 (T1) and 0.78 (T2) for increasing structural

job resources, 0.78 (both T1 and T2) for increasing social resources, and 0.79 (T1) and 0.80 (T2) for seeking challenging job demands.

We included age and gender (0 = female and 1 = male) as covariates, on the basis of relations found in previous studies on job boredom (i.e. age has been negatively and male gender positively related to job boredom; Harju et al., 2014). Previous studies have also associated these covariates with work engagement in previous studies (Hakanen & Peeters, 2015).

3. Results

3.1. Descriptive statistics

Table 1 shows the means, standard deviations and correlations of all study variables. All the stability coefficients of the variables were between 0.60 and 0.70, and are thus of comparable magnitude to those found in previous studies on work engagement (Seppälä et al., 2015; Schaufeli et al., 2006) and job crafting (e.g. Vogt et al., 2016).

3.2. Statistical analyses

The overall measurement model consisted of ten latent factors that represented five factors measured at two time points: job boredom (represented by its six items), work engagement (represented by its sub-dimensions: vigor, dedication and absorption), and three dimensions of job crafting, namely: increasing structural resources, increasing social resources, and seeking challenges (each represented by their five respective items). We used MPlus software (Muthén & Muthén, 2012) and the robust maximum likelihood (MLR) estimator for all analyses.

The initial measurement model ($\chi^2 = 7092.111$, $df = 1630$, $p < 0.001$; RMSEA = 0.05; SRMR = 0.06; CFI = 0.90; TLI = 0.90) showed an acceptable fit, but the modification indices suggested that the fit could be improved by allowing the error terms for the items “During work time I daydream” and “I tend to do other things during my work” to correlate because of their overlapping item content. The resulting measurement model fit the data slightly better ($\chi^2 = 6771.064$, $df = 1628$, $p < 0.001$; RMSEA = 0.05; SRMR = 0.06; CFI = 0.91; TLI = 0.90).

We further assessed the invariance of factor loadings over time by comparing a model in which the factor loadings of each latent variable were constrained as equal over measurements with a model, in which factor loadings were unconstrained over time. The model comparison ($\Delta \chi^2 = 44.4539155$, $\Delta df = 25$, $p = 0.13$) suggested that the metric invariance test of the data was passed and that the factor loadings remained constant across measurement points. This was further supported by the fit indices, which were practically identical across models. Apart from one item (“I decide on my own how I do things”) loading on increasing structural resources factors (T1: 0.25 and T2: 0.36), and one item (“I ask colleagues for advice”) loading on increasing social resources factors (T1 and T2: 0.29), all other item loadings ranged from 0.46 to 0.95.

As the study variables were practically one dimensional (i.e. the correlations between the sub-dimensions of work engagement ranged from 0.83 to 0.89, and can thus be considered one single dimension; Schaufeli et al., 2006), we proceeded to test our hypotheses by specifying a model with observed variables, to allow for a more parsimonious model to be fitted to the data.

3.3. Hypothesis testing

We used full panel analyses to test all our hypotheses simultaneously. The model ($\chi^2 = 70.866$, $df = 8$, $p < 0.001$; RMSEA = 0.07; SRMR = 0.03; CFI = 0.99; TLI = 0.93) included all lagged effects between the three job crafting behaviors, job boredom

Table 1

Means, standard deviations and correlations of study variables.

| | Mean | S.D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---------------------------------------|------|------|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1. Job boredom T1 | 0.99 | 0.78 | – | –0.53*** | –0.42*** | –0.17*** | –0.31*** | 0.65*** | –0.37*** | –0.34*** | –0.12*** | –0.24*** |
| 2. Work engagement T1 | 4.84 | 1.07 | – | – | 0.51*** | 0.36*** | 0.42*** | –0.41*** | 0.67*** | 0.43*** | 0.29*** | 0.34*** |
| 3. Increasing structural resources T1 | 3.95 | 0.51 | – | – | – | 0.41*** | 0.63*** | –0.30*** | 0.37*** | 0.61*** | 0.30*** | 0.49*** |
| 4. Increasing social resources T1 | 2.65 | 0.63 | – | – | – | – | 0.45*** | –0.15*** | 0.29*** | 0.32*** | 0.62*** | 0.37*** |
| 5. Increasing challenges T1 | 3.37 | 0.67 | – | – | – | – | – | –0.27*** | 0.34*** | 0.51*** | 0.36*** | 0.68*** |
| 6. Job boredom T2 | 1.05 | 0.83 | – | – | – | – | – | – | –0.50*** | –0.41*** | –0.19*** | –0.29*** |
| 7. Work engagement T2 | 4.75 | 1.14 | – | – | – | – | – | – | – | 0.56*** | 0.35*** | 0.44*** |
| 8. Increasing structural resources T2 | 3.91 | 0.52 | – | – | – | – | – | – | – | – | 0.40*** | 0.66*** |
| 9. Increasing social resources T2 | 2.62 | 0.62 | – | – | – | – | – | – | – | – | – | 0.46*** |
| 10. Increasing challenges T2 | 3.30 | 0.67 | – | – | – | – | – | – | – | – | – | – |

$N = 1630$.

*** $p < 0.001$.

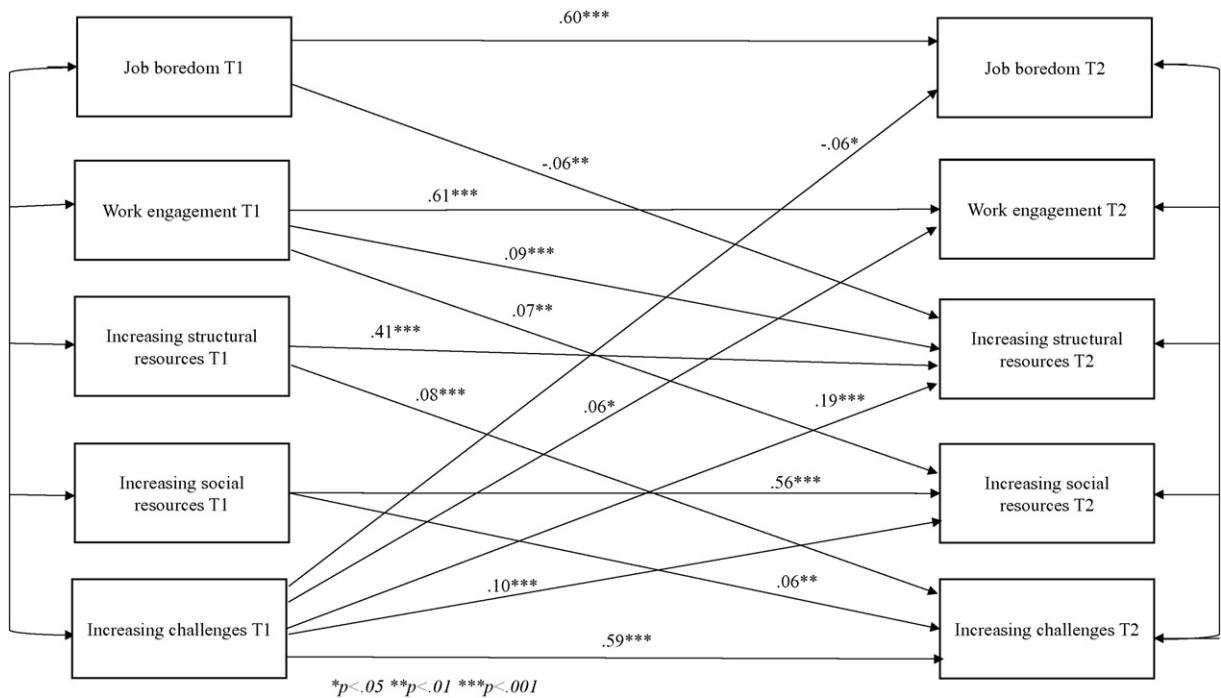


Fig. 1. Cross-lagged effects of job crafting and employee well-being.

and work engagement. In addition, we added lagged effects between the three job crafting behaviors. The standardized regression coefficients from the effects are shown in Fig. 1.

3.3.1. Job boredom and work engagement

Seeking challenges negatively predicted job boredom at T2 ($\beta = -0.06, p < 0.05$) and positively predicted work engagement at T2 ($\beta = 0.06, p < 0.05$). Hence Hypotheses 1 and 2 were confirmed. Increasing structural or social job resources *did not* predict job boredom at T2 or work engagement at T2.

Of the covariates, age negatively predicted job boredom at T2 ($\beta = -0.09, p < 0.001$). In addition, male gender positively predicted job boredom at T2 ($\beta = 0.10, p < 0.001$) and negatively predicted work engagement T2 ($\beta = -0.05, p < 0.01$).

3.3.2. Job crafting

Work engagement positively predicted increasing structural job resources at T2 ($\beta = 0.09, p < 0.001$) and increasing social job resources at T2 ($\beta = 0.07, p < 0.01$). Hypothesis 3 was thus confirmed. Conversely, job boredom negatively predicted increasing structural job resources at T2 ($\beta = -0.06, p < 0.01$), but *did not* predict increasing social job resources. Finally, *neither* work engagement *nor* job boredom predicted seeking challenges at T2. Of the covariates, age negatively predicted seeking challenges at T2 ($\beta = -0.07, p < 0.001$).

3.3.3. Long-term relations between job crafting activities

Seeking challenges positively predicted increasing structural job resources at T2 ($\beta = 0.19, p < 0.001$), and increasing social job resources at T2 ($\beta = 0.10, p < 0.001$). Increasing structural job resources positively predicted seeking challenges at T2 ($\beta = 0.08, p < 0.001$), but *did not* predict increasing social job resources. In addition, increasing social job resources positively predicted seeking challenges at T2 ($\beta = 0.06, p < 0.01$), but *did not* predict increasing structural job resources.

4. Discussion

The current study was the first to longitudinally examine the relations between job crafting behaviors, job boredom, and work engagement. All in all, the results indicate that seeking more challenges in particular may increase work engagement, decrease job boredom and boost other types of crafting behaviors accordingly. As regards reversed effects, work engagement increased the likelihood of future job crafting, whereas job boredom reduced such behaviors. Thus, voluntarily seeking more challenges may be an effective way for highly educated employees to sustain their well-being and proactivity.

4.1. Seeking challenges predicts employee well-being.

Supporting the proposition of COR theory (Hobfoll, 2001, 1989), our results suggest that highly educated employees may voluntarily seek challenges in their work to *proactively cope* with the threat of job boredom. In contrast, increasing structural job resources (e.g. trying to learn new things at work) or social job resources (e.g. asking for help) did *not* predict future work engagement or job boredom, after controlling for their baseline levels. Our findings indicate that although increasing job resources have synchronous relations with work engagement and job boredom, these effects may fade away over time.

It may be that increasing job resources involves a short-term need, such as improving a specific work process, or getting help for a task-related problem (Tims et al., 2012; Petrou et al., 2012), and that as such, the benefits of these resources are likely to be short-lived. Previous research suggests that increases in positive affect and moods, such as work engagement, tend to be temporary, and that employees eventually return to their set-point levels (Seppälä et al., 2015; Brauchli, Schaufeli, Jenny, Füllemann, & Bauer, 2013; Lyubomirsky, Sheldon, & Schkade, 2005). Highly educated employees may have the capabilities and motivation to increase their job resources, but without long-term opportunities (e.g. challenges) to employ these resources, the potential benefits for individual well-being may remain un-harvested.

It is suggested that the perception of challenges may drive high-arousal mood states such as interest, engagement and enthusiasm (Løvoll & Vittersø, 2014), which are incompatible with negative, passive mood states, such as job boredom. Challenging tasks foster experiences of competence and mastery, which sustain psychological well-being (Sulea, Van Beek, Sarbescu, Virgae, & Schaufeli, 2015; Pekrun, Elliot, & Maier, 2009). Thus, of the different types of job crafting behaviors, seeking challenges may be the one to yield sustainable benefits for highly educated employees' future motivation and well-being.

4.2. Job boredom hampers job crafting

We found that work engagement predicted increasing job resources, whereas bored employees were more likely to refrain from such crafting activities. Paradoxically, bored employees can become trapped, as they may lack the resources needed (i.e. energy) to initiate job crafting activities, despite the fact that this could potentially improve their situation. In such unpleasant situations, employees may protect their well-being by even further disengaging from their work activities (Kahn, 1990; Hobfoll, 1989). However, disengagement is a dysfunctional strategy, as it does not address the cause of boredom, and thus the unpleasant situation remains (Farmer & Sundberg, 1986). Thereby, job boredom may lead to further depletion of job resources and as such, foster negative loss spirals (Hobfoll, 2001).

Although dissatisfied employees have been found to craft their jobs in ways that can benefit both individuals and organizations (Mattarelli & Tagliaventi, 2012), recent research emphasizes that positive activities are unlikely to emerge from passive, low-arousal states (To, Fisher, & Ashkanasy, 2015). Thus, although engaged employees are willing and able to craft more meaningful jobs, bored employees may need additional encouragement to initiate such behaviors.

4.3. Balancing mechanism of job crafting

According to COR theory, positive gain cycles are set in motion by obtaining resources that help secure the things that are perceived as important, such as well-being (Hobfoll, 2001, 1989). Using this framework, challenges can also be perceived as resources that provide employees with the stimulation they need for work. Congruently, our results imply that seeking more challenges can create an incentive to acquire more job resources in the future and thus function as a catalyst for gain cycles. The dynamics of crafting behaviors imply that employees may strive to optimize their well-being by balancing the challenges in their work and the resources needed to tackle them (Bakker et al., 2007).

It is argued that job crafting is available to any employee (Wrzesniewski & Dutton, 2001), although opportunities for different proactive behaviors may vary across individual dispositions and resources (Berg et al., 2010; Bakker et al., 2012). Our findings also suggest that younger employees may be more eager to seek more challenges in their jobs than older employees. Previous research indicates that older employees might perceive new challenges as stressful rather than energizing, or they may have reached a point in their careers at which they focus more on other goals, such as work-related relationships (Fried, Grant, Levi, Hadani, & Slowik, 2007; Baltes, 1977).

4.4. Limitations and suggestions for further research

This study has its limitations and these should be acknowledged. First, we only used self-report measures, which means that common method bias is possible (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), although the longitudinal study design helped counteract this (Doty & Glick, 1998). We feel that using self-report questionnaires to observe phenomena such as job boredom and job crafting is justified, as such psychological states are subjective in nature and may thus not be accessible for other raters. Another possible bias concerns the responses in general. As participation in the study was voluntary for organizations and their personnel, the sample may be biased towards organizations that are more inclined to develop employee well-being, as well as employees who are more engaged in their work.

Second, a more theoretical issue in reporting job crafting is whether employees actually behave as they perceive themselves as behaving. Job crafting assumes that work performance is a product of volitional behaviors, but the literature on unconscious

behavior suggests that many work behaviors are automated and occur without conscious processing (George, 2009). It follows that employees may consciously *construct* the different behavioral patterns that they display. An interesting avenue of research would be to explore ways of measuring job crafting that would enable employees to reflect upon and report their actual, concrete behaviors.

Third, the effects of job crafting activities on work engagement and job boredom were quite small. This finding echoes a study by Løvoll and Vittersø (2014), who found that challenges and skills, or their interaction rather poorly explain positive and negative feeling states, such as engagement and boredom. It may be that because crafting behaviors involve specific aspects of the job within the boundaries of the current task (Wrzesniewski & Dutton, 2001), the activities undertaken tackle specific task-related needs that most often yield short-term results. In addition, constructs such as job boredom and work engagement seem to be highly stable over time (Seppälä et al., 2015; Schaufeli et al., 2006), which may in part explain the weak effects of job crafting as well as the covariates of the study.

Fourth, although very little research exists on appropriate time lags for assessing the effects of job crafting and employee well-being (Mitchell & James, 2001; Zaheer, Albert, & Zaheer, 1999), a three-year time lag as in the current study might perhaps be rather long to detect any associations between behavior and well-being. For example, in the present study we did not control for factors, such as changes in the organization or in job characteristics that might have taken place during the study period and influenced the outcomes. In future studies it would be valuable to use “shortitudinal designs” to find the optimal time lag for detecting causal effects (Dormann & Griffin, 2015). However, from a theoretical and practical point of view, it was interesting to study whether job crafting would have an impact on employee motivation and well-being beyond daily or weekly effects. The fact that our study found significant effects even after controlling for the baseline, and a three-year time lag, indicates the potential relevance of these relations.

Finally, it should be noted that the results were derived from a sample of highly educated Finnish employees, and should thereby not be generalized across countries and occupational groups. Previous studies have found that low-skilled workers may implement job crafting in different ways to highly-skilled experts (Nielsen & Abildgaard, 2012).

In addition, as female and older employees were over-represented in our sample our results may not be representative of the highly educated Finnish working population, and should be interpreted with caution. Overall, however, our sample represented a wide spectrum of occupations and thereby provided a comprehensive overview of the potential effects of job crafting on the well-being of highly educated employees.

4.5. Practical implications

Organizations benefit from engaged employees who fully employ themselves in their work (Kahn, 1990), whereas bored employees are more likely to disengage from investing their resources into their work. Therefore, employees should be granted the opportunity to increase their challenges at work to sustain their well-being and to avoid becoming bored in their jobs. For example, enabling employees to volunteer for projects that interest and challenge them could actually give their well-being and work performance a new boost. Whether it is adding a challenging aspect to one's job (e.g. new tasks or approach), or adopting a novel work role (e.g. from a cashier to a service provider), the action should emerge from individual motivation to better employ one's capabilities.

Although job crafting is initiated by employees themselves, the role of leadership is incremental in determining the possibilities and resources for such behaviors (Wrzesniewski & Dutton, 2001). Recently, Schaufeli (2015) showed that engaging leaders, who connect, strengthen and inspire their followers, indirectly enhance levels of engagement by increasing followers' job resources. Our results suggest that preventing job boredom might be the best strategy for sustaining job crafting, as bored employees may lack the energy needed to undertake proactive behaviors. In such situations, employees might benefit from supervisor coaching, support, encouragement to craft their jobs, or some other activating intervention to break the vicious cycle of passiveness, and to turn negative loss cycles into positive ones.

Crafting activities can spur further efforts to learn and employ individual capabilities, but unless they are actively sustained, the positive effects of specific behaviors may not last over time. Drawing from the work of Lally and Gardner (2013), we suggest that to yield more lasting effects, job crafting should be cultivated into a workplace habit. If organizational culture enables employees to constructively reflect upon and respond to their affective cues, such as early signals of boredom, they may automatically adapt their work behavior to improve their well-being (George, 2009; Game, 2007; Barbalet, 1999). Thus, fostering a climate that encourages employees to address the causes of boredom instead of suppressing the emotion, can improve their personal growth, professional development and work performance.

5. Conclusion

Job crafting has often been associated with work engagement, but little is known of its long-term effects on employee well-being. Our findings suggest that seeking challenges in particular may be a viable strategy to prevent employees becoming bored at work and to enhance their work engagement. Seeking challenges can also act as a catalyst for other crafting activities, through which employees obtain more resources for their jobs. As a whole, our study supports the idea of job crafting as behavior that can improve and sustain employee well-being.

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