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RESEARCH ARTICLE

Job Crafting: Autonomy and workload as antecedents and the willingness to continue working until retirement age as a positive outcome

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Abstract

This study focuses on job crafting and explores autonomy and workload as antecedents and the willingness to continue working until retirement age as a positive outcome of job crafting in a population of employees aged between 45 and 65 years. We define job crafting as making changes in one's job in order to optimize one's functioning in terms of well-being, work-related attitudes or behaviour. Building on the selective optimization compensation theory, we expect job crafting to be a successful aging strategy which enhances the willingness to continue working. Furthermore, starting from the activation hypothesis of Karasek, we expect that employees in active jobs (i.e., a combination of high autonomy and workload) will craft their jobs to a higher extent. Results among 1168 governmental employees generally confirmed our hypotheses. An active work environment, in terms of high autonomy and high workload associated indirectly with an enhanced willingness to continue working via job crafting. Results and steps forward are discussed.

Keywords

job crafting; active jobs; willingness to continue working until retirement age

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Introduction

In this study, we investigate job crafting among older employees in relation to both a positive motivational outcome, i.e. willingness to continue working until retirement age, and the context in which job crafting might take place, i.e. active jobs as

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antecedents. Instead of passively undergoing changes at work, employees are increasingly expected to also be active agents who craft their job (Wrzesniewski & Dutton, 2001; Tims, Bakker, & Derks, 2012). They then make changes in their job in order to optimize their functioning in terms of well-being, work-related attitudes or behaviour (Vanbelle, Van den Broeck, & De Witte, 2013; 2016). First, starting from the selective optimization and compensation theory (SOC-theory) which assumes that employees do use adaptive strategies to help them balancing their work environment with age-related changes in personal needs and goals (Baltes & Dickson, 2001), we expect job crafting to positively associate with the employees' willingness to continue working until retirement age. Second, using the activation hypothesis of Karasek's job demands control model (JDC-model; 1979), we analyse whether an active work environment, characterized by autonomy and workload, will stimulate job crafting as well as the willingness to continue working.

Taken together, we investigate whether older employees in active jobs are likely to craft their job and - as a result - are more willing to continue working until retirement age (i.e., a motivational outcome), which we also refer to as the willingness to continue working or to work longer (i.e. until retirement age instead of taking early retirement options). In the following paragraphs, we first introduce the topic of job crafting and then link it to the outcome variable, namely the willingness to continue working. Next, we examine the role of active jobs in stimulating job crafting and therefore also the willingness to continue working.

Job crafting

Whereas job design theory traditionally focuses on the top down (re)design of jobs, research increasingly adopts the complementary bottom up view in which employees are considered to be proactive agents changing their jobs themselves. By means of job crafting, employees take an active role in customizing their job in order to do good for themselves (Tims et al., 2012; Vanbelle et al., 2013; 2016).

Currently, the literature on job crafting mainly draws on two views, which differ in their definition and methodological approach but overlap concerning the purpose and assumed consequences of job crafting. First, Wrzesniewski and Dutton (2001) introduced the term "job crafting" as 'the physical and cognitive changes individuals make in the task or relational boundaries of their job' (p.179). Employees craft their job in order to achieve meaning and identity at work. More specifically, Wrzesniewski and Dutton (2001) advance that employees make changes in the task (e.g. introducing new approaches to improve work), relational (e.g. making efforts to know people well at work) or cognitive boundaries (e.g. thinking about the job's purpose and meaningfulness) of their job. Second, starting from the job demands - resources model (JD-R model; Bakker & Demerouti, 2007), Tims et al. (2012) define job crafting as employees making actual changes in the levels of job demands and job resources in order to fit the job with one's personal abilities and preferences. In line with recent developments of the JD-R model (Crawford, Lepine & Rich, 2010; Van den Broeck, De Cuyper, De Witte, & Vansteenkiste, 2010), they specifically argue that employees can increase their level of structural and social job resources (e.g. trying to develop one's capabilities, asking for coaching or advise), increase job challenges (e.g. proactively participate in new projects) and decrease job hindrances (e.g. making the job mentally less intense, avoid emotionally demanding aspects of the job).

Building on these two perspectives, we distinguish two crucial elements of job crafting: Job crafting is about (1) employees making self-initiated changes to their job with (2) a pro-self-focussed purpose. More specifically, we define job crafting as the changes employees make in their job in order to optimize their functioning in terms of well-being, work-related attitudes or behaviour (Vanbelle et al., 2013; 2016). Hence, building on the work of Wrzesniewski and Dutton (2001) and Tims et al. (2012), we present an overarching definition of job crafting. As a result, we approach job crafting more broadly than Wrzesniewski and Dutton (2001) - who

only account for task, relational and cognitive crafting -, and less specific than Tims and colleagues (2012) - who investigate changes in specific job demands and resources. Taking an overarching approach of job crafting adds to the literature in at least three ways. First, it gives employees the freedom to give personal meaning and content to which changes they make to thrive for optimal functioning. This is relevant given that people know their needs, values and goals best and may act upon these themselves by means of job crafting. Second, the overarching approach accounts for the multiple pro-self-focussed reasons to craft assumed previously (e.g. meaning, work identity, person-job fit, etc.) by referring to the overarching concept of functioning in terms of well-being, attitudes or behaviour. Taking this pro-self-focussed purpose into account is an added value because it is one of the crucial elements to define job crafting and to distinguish it from other proactive behaviours such as personal initiative and i-deals (for a more thorough elaboration on the differences with other proactive behaviours, see Tims & Bakker, 2010). Third, by means of an overarching approach we are able to study the general concept of job crafting and its mechanisms. Moreover, Vanbelle, et al. (2016) demonstrated that the overarching approach of job crafting significantly relates to all specific job crafting types described in the literature and explains incremental variance in motivational outcomes. In this study, we expand the growing research on job crafting by investigating whether job crafting contributes to older workers' willingness to continue working in the context of an active work environment, characterized by high workload and high autonomy.

Job crafting and the willingness to continue working

Changing demographics imply that the workforce will increasingly consist of more elderly and less younger workers. Furthermore, in the Belgian context, many older employees choose early retirement options. Given these current changes on the labour market, it becomes increasingly relevant to keep older employees motivated or willing to work longer (Truxillo, Cadiz, Rineer, Zaniboni, & Fraccaroli, 2012). In response, research is expanding on aging at work in general (Bal, Kooij, & Rousseau, 2015; Iweins, Desmette, & Yzerbyt, 2012; Schalk et al., 2010) and on age-related differences in work motivation more specifically (Gaillard & Desmette, 2010; Inceoglu, Segers, & Bartram, 2012; Stamov-Roβnagel & Hertel, 2010). Scholars have for example studied early retirement intentions (Schreurs, Van Emmerik, De Cuyper, Notelaers, & De Witte, 2011), employees' focus on work opportunities (Zacher & Frese, 2011), the ability and willingness to continue working (Oude Hengel, Blatter, Geuskens, Koppes, & Bongers, 2012; Schalk & Desmette, 2015). In this study, we include the willingness to continue working until retirement age as a positive outcome of job crafting and draw on the selective optimization and compensation theory to build hypotheses (SOC-theory; Baltes & Dickson, 2001).

The SOC-theory is a lifespan development theory which builds upon two assumptions that enlighten the relevance of job crafting among older employees. The first assumption is that people in different life stages experience different expectations, needs and personal goal orientations which determine their motivation and behaviour (Truxillo et al., 2012). With age, the reference point of older employees changes: they increasingly prefer to perform in domains that demonstrate their mastery and expertise (Stamov-Roβnagel & Hertel, 2010). It thus seems that "older employees are not less motivated but – on average – motivated by different job features" (Inceoglu et al., 2012, p. 324). Moulding the job environment by means of job crafting can therefore be beneficial to restore the balance between the employees' needs and their job supplies.

The second assumption more explicitly concerns the active role of employees in dealing with these age-related changes. More specifically, the SOC-theory advances that people may use several adaptive strategies

(Baltes & Dickson, 2001): People *select* which goals and outcomes they want to pursue and then, by allocating their resources and efforts towards these selected domains, they *optimize* their performance and goal achievement. When faced with losses, they furthermore adopt *compensation* strategies to maintain a certain level of functioning in specific domains (Baltes & Dickson, 2001; Truxillo et al., 2012). Employees thus engage in successful aging strategies which involve "self-regulatory actions that help individuals to achieve a positive balance between age-related personal changes and their (work) environment" (Robson & Hansson, 2007, in Zacher & Frese, 2011, p. 292).

These successful aging strategies furthermore align with the idea of job crafting as by making changes to one's job, employees try to balance the work environment with their personal needs and abilities to optimize their functioning (Tims et al., 2012; Vanbelle et al., 2013). Robson, Hansson, Abalos, and Booth (2006) also implicitly hint at job crafting as they operationalize successful aging strategies at work as the adjustments people make to their job in function of what they want to do and what they still can do. Their results indicate that successful aging strategies are positively related to self-perception of successful aging. Employees who engaged in successful aging strategies indicated for example that they adjusted to age-related changes on the job and that they retained control over their work-life.

In this study, we therefore expect a positive relationship between job crafting and the willingness to work longer. By means of job crafting, employees are able to perform tasks that add to their reference point and values and in turn, they will become more motivated (Stamov-Roβnagel & Hertel, 2010). Tasks which allow older employees to demonstrate mastery and experience for example, will add to their motivation. People who craft their job, in order to improve or restore their person- job fit, will thus not only increase their ability but also their willingness to continue working (Kooij, Tims & Kanfer, 2015). To date, however, this relationship remains to be empirically tested. Therefore, in this study, we expect that employees who craft their job will experience high levels of work motivation, reflected in a strong willingness to continue working. In short, we hypothesize:

Hypothesis 1. Job crafting is positively associated with the willingness to continue working.

Active jobs and job crafting

Several work stress models describe the impact of the work environment on employees' well-being. Especially relevant in this study is the JDC-model (Karasek, 1979) and more specifically, its activation hypothesis which states that active jobs yield positive consequences for employees' learning, motivation and engagement in new growth related behaviours. Active jobs are characterized by both high job control (i.e. autonomy) and high job demands (i.e. workload). De Lange, Taris, Kompier, Houtman and Bongers (2003) note that these joint effects can be interpreted in two ways, namely as an additive effect (e.g. combination of the main effects) or as a multiplicative effect (e.g. interaction). In what follows, we elaborate on autonomy and workload as characteristics of active jobs and tap into their hypothesized relationship with proactive behaviour and hence, job crafting.

Previous research on the activation hypothesis mainly focused on outcomes such as job satisfaction, job commitment, self-efficacy, mastery and job challenge (Taris, Kompier, De Lange, Schaufeli & Schreurs, 2003). Recently, the activation hypothesis has been examined with respect to behavioural outcomes such as proactivity (Ohly & Fritz, 2010; Fritz & Sonnentag, 2009), and personal initiative and i-deals (Hornung, Rousseau, Glaser, Angerer & Weigl, 2010). Especially relevant for this study are the results of Petrou, Demerouti, Peeters, Schaufeli and Hetland (2012) who show that active jobs also positively associate with job crafting on a daily level: on days on which employees experience high levels of autonomy and workload, they seek more resources and reduce demands.

The link between autonomy and job crafting is theoretically supported. More

specifically, autonomy is advocated as one of the main antecedents of job crafting (Wrzesniewski & Dutton, 2001; Ghitulescu, 2006; Tims & Bakker, 2010). Autonomy involves a sense of freedom, control and responsibility in the job which enhances the perceived opportunity to craft the job. Perceived job control stimulates employees to proactively thrive for more control and to innovate their roles according to their personal preferences (Ashforth, & Saks, 2000). Ghitulescu (2006) comment that 'discretion over work enables an individual to adapt work elements to his or her skills and preferences' (p. 67). Therefore, we expect the following:

Hypothesis 2a. Autonomy is positively related to job crafting.

A positive relationship between workload and proactive behaviour may also be expected. Workload can trigger employees to proactively deal with their environment and to ensure goal achievement (Fritz & Sonnentag, 2009; Van den Broeck et al., 2010). Job demands might lead to activation, which in turn leads to favourable outcomes such as proactive behaviour (Ohly & Fritz, 2010). Hence, we hypothesize that employees will initiate changes in their job to optimize their functioning when they experience a high amount of workload.

Hypothesis 2b. Workload is positively related to job crafting.

Besides accounting for the main effects of autonomy and workload (i.e. additive effect), we also expect them to interact (i.e. multiplicative effect) in the prediction of job crafting (De Lange et al., 2003). More specifically, we hypothesize that the presence of a high amount of autonomy will boost the positive relationship between workload and job crafting. Specifically, starting from the activation hypothesis (Karasek, 1979), we argue that particularly in active jobs, i.e. contexts in which employees face many demands but also have high levels of autonomy, they both have a reason and the possibility to actively deal with the environment and thrive. Moreover, autonomy might be necessary to translate feelings of activation, elicited by job demands, into behaviour (Ohly & Fritz, 2010). In sum, analogous to De Lange et al. (2003), we thus consider both additive and multiplicative effects of autonomy and workload to support the activation hypothesis. We formulate the following hypothesis:

Hypothesis 2c. Autonomy and workload interact in the prediction of job crafting such that autonomy boosts the positive relationship between workload and job crafting.

Indirect process to the willingness to continue working via job crafting

Previous studies support the importance of the work environment in enhancing older employees' motivation to work longer (e.g., Desmette & Gaillard, 2008; Schreurs et al., 2011; Oude Hengel et al., 2012; van Dam, van der Vorst, & van der Heijden, 2009). We add to this line of work as we suggest that not only the environment, but also the active role of the employees themselves through job crafting has an impact. Specifically, we argue that autonomy and workload will jointly activate employees to craft their job towards a stronger willingness to work longer.

First, we expect that autonomy will add to employees' willingness to continue working as it enables them to craft their job according to their needs and expectations. Building on the SOC-theory, we expect employees to optimally use the resources available to them. Moreover, we advance that employees will allocate their resources, such as autonomy, to those aspects of work that give energy, and craft their job to function optimally and hence, experience an increased willingness to continue working. Given that autonomy, and thus job control, becomes even more important with age (Inceoglu et al., 2012), the availability of autonomy and hence, the opportunity to craft the job, adds to the expectation of an increased willingness to continue working (Desmette & Gaillard, 2008). Furthermore, Schreurs, van den Broeck, Notelaers, van der Heijden and De Witte (2012, p.20) argue that with age, employees themselves not only increasingly

seek and enhance their motivation to work but that available resources can feed this process. Autonomy thus enables employees to craft their job to better fit their changing needs (Truxillo & colleagues, 2012). Making changes to their job will in turn optimize their functioning and motivation to work longer. In sum, we expect that autonomy will create the opportunity to make changes in one's job according to personal needs and abilities, which will contribute to employees' willingness to continue working.

Hypothesis 3a. Autonomy will indirectly associate with the willingness to continue working through job crafting: autonomy will positively associate with job crafting which will in turn positively associate with the willingness to continue working.

Second, employees' job crafting might be a means to adapt or manage the amount of job demands (i.e. workload) to restore the balance with personal needs and capacities, which will enhance employees' optimal functioning. Given that a mismatch between work conditions and individual needs and capacities might enhance employees' intentions to retire early (van Dam et al., 2009), job crafting might then function as an individual adaptive strategy to resist or counter early retirement intentions and to positively impact their willingness to continue working. By means of job crafting, employees can thus adapt the amount of workload to a manageable and challenging level, which fits their personal needs, and hence contribute to their willingness to work longer.

Hypothesis 3b. Workload will indirectly associate with the willingness to continue working through job crafting: workload will positively associate with job crafting, which in turn will positively associate with the willingness to continue working.

Taken together, we expect that employees working in active jobs will be more willing to continue working because they take the opportunity to craft their job. Investigating both the additive and multiplicative effect of autonomy and workload (De Lange et al., 2003), we also examine the following hypothesis:

Hypothesis 3c. Autonomy and workload will interactively associate with the willingness to continue working through job crafting; workload will stimulate employees to craft their job, especially when autonomy is high, which will in turn positively associate with the willingness to continue working.

Method

Sample and Procedure

This study was part of a larger study on attracting and retaining older employees in the Flemish government in Spring 2013. Since January 2013, the Belgian legislation obliges organizations to develop an employment policy to retain and create jobs for older employees, i.e. employees aging between 45 and 65. In line with the demographical trends in Europe (Ybema & Giesen, March 2016), the Flemish government also has to deal with both an aging workforce and a declining proportion of younger workers entering their workforce (Vanmullem & Hondeghem, 2005). In 2014, 48% of the workforce belonged to the 45-plus group (Cijfers demografische gegevens, n.d.). In implementing their age-related personnel policy, the Flemish government wanted to examine the acquaintance and use of several initiatives they launched to increase the motivation and willingness to work longer among employees aging between 45 to 65 years. For the current study, we focused on the role of autonomy, workload and job crafting in this realm.

We invited 6177 governmental employees by internal mailing to participate in an electronic questionnaire. The organization sent the invitation to fill out the survey to 6177 older employees, stressing that participation was voluntary and the answers would be kept confidential. Of the 1884 employees starting our questionnaire, 1168 provided complete responses and were retained for the study (response rate of 19%). This response rate remains within the expected range for the internal mailing distribution method described by Baruch and Holtom (2008).

The mean age in the sample was 53 years (SD=4.9): 56% of the participants aged between 45 and 54 years, 32% ranged between

55 and 59 years and 11% were 60 years or older. Fifty seven per cent of the respondents were men. In terms of job position, 34% of the respondents worked in a job for which a master degree is required (job position A), 18% in a job that requires a bachelor degree (job position B), 35% in a job that demands a high school degree (job position C) and 13% in a job for which no degree is needed (job position D). Finally, 80% worked on a full-time basis and the sample included 25% supervisors.

Measures

See Appendix 1 for an overview of the measures used.

Job crafting. Job crafting was measured with the overarching job crafting scale (OJCS) of Vanbelle et al. (2013; Vanbelle et al., 2016), consisting of four items. More specifically we asked the participants the following: *Some people make changes in their job, others do not. To what extent do you shape your job? Please register to what extent you agree with the following statements.* Example items are: *'I make changes in my job to feel better', 'I change my job so it would better fit with who I am'*. The items were rated on a five-point Likert scale ranging from 1 (*totally disagree*) to 5 (*totally agree*). Vanbelle et al. (2016) demonstrated construct validity, convergent and discriminant validity in relation to specific job crafting scales, and predictive validity of the OJCS.

Autonomy. We used the subscale "autonomy" of the Short Inventory to Monitor Psychosocial Hazards (SIMPH; Notelaers, De Witte, Van Veldhoven et al., 2007). The scale consisted of three items that were rated on a five-point Likert scale ranging from 1 (*totally disagree*) to 5 (*totally agree*). A sample item is '*I can interrupt my work when necessary*'.

Workload. Three items to measure workload were taken from the SIMPH (Notelaers et al., 2007). An example is '*I have to work fast in my job*'. The items were rated on a five-point Likert scale ranging from 1 (*totally disagree*) to 5 (*totally agree*).

Willingness to continue working. Based on Oude Hengel and colleagues (2012), this outcome variable was measured using a single item: '*I am willing to work until the maximum retirement age*'. It was rated on a five-point Likert scale ranging from 1 (*totally disagree*) to 5 (*totally agree*). Despite some drawbacks, the use of one-scale can be equally good as the use of multiple items (Gardner, Cummings, Dunham, & Pierce, 1998; Loo, 2001).

Control variables. We controlled for age, and job position (job position A = reference group) in testing the hypotheses. Previous research showed that both age and job position might have an impact on the willingness to continue working (Schalk & Desmette, 2015; Schreurs et al., 2011; Schreurs et al., 2012). Employees working in different job positions may experience different types of demands (e.g. mentally versus physically demanding jobs) which may influence the intention to retire early and the willingness to continue working (Schalk & Desmette, 2015). Furthermore, both job position and age might relate to the amount of autonomy one has in the job which in turn may impact both the ability to engage in job crafting (Wrzesniewski & Dutton, 2001) and the willingness to continue working (Schreurs et al., 2012).

Results

Preliminary results

Table 1 represents the means, standard deviations, intercorrelations and Cronbach alphas of all variables. Autonomy correlated positively with both job crafting and the willingness to continue working. Workload was unrelated to job crafting and correlated negatively with the willingness to continue working. As expected, job crafting correlated positively with the willingness to continue working.

Test of the hypotheses

To test Hypothesis 1, in which we expected a positive relationship between job crafting and the willingness to continue working, we first conducted linear regression analyses (SPSS 23). As expected, the results revealed a positive relationship between job crafting and

the willingness to continue working (*B*=.29, *p*<.001, 95%CI[.17;.41]). Hypothesis 1 was supported. Following the recommendations of Becker (2005), we only reported the results without control variables given that hierarchical regression analysis in which we entered age and job position as control variables in the first step, led to the same conclusion concerning Hypothesis 1.

Furthermore, we employed the PROCESS macro of Hayes (2012, 2013) to test our hypothesized model (Figure 1) using bootstrapping (5000) (model 7; Hayes, 2012). Given that our full hypothesized model concerns a moderated mediation model or conditional indirect effect model, we specified 'model 7' to conduct the analysis. The interaction term was the product of the centered scores of autonomy and workload. The first part of the model 7 output allows us to test Hypotheses 2a, 2b and 2c[1]. To investigate whether active jobs, characterized by autonomy and workload, stimulate job crafting (Hypothesis 2a, b & c), we looked at the results of the *a-paths.* These paths represent the direct effects of the independent variables and the interaction term on job crafting, after controlling for age, job position and for each other. We found significant results for the main effects of autonomy (*b*=.47, SE= .02, 95%CI[.42;.52]) and workload (*b*=.07, *SE*=.02, 95%CI[.03;.12]) on job crafting. As expected, high levels of autonomy and workload contributed to job crafting. The interaction term did not relate to job crafting over and above the main effects of workload and autonomy and the demographics (*b*=-.03, *SE*=.02, 95%CI[-.07;.02]). Hypothesis 2 was therefore only partially confirmed.

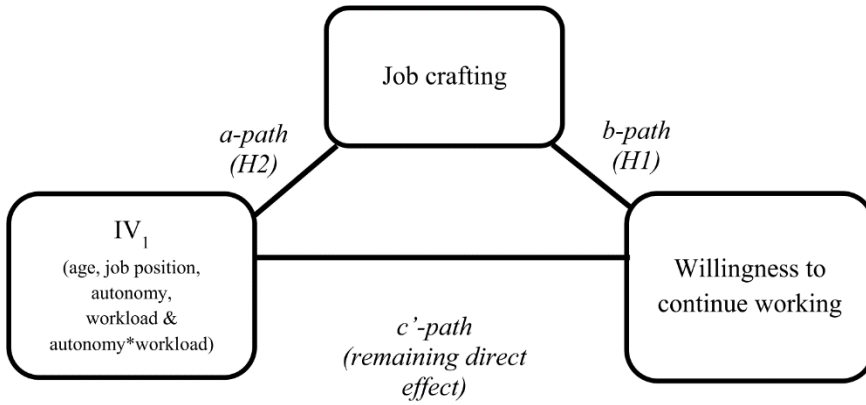

Figure 1. Hypothesized research model, based on the PROCESS model explained by Preacher & Hayes (2008) and further suggestions by Hayes (2012).

[1] Note that the first part of the model 7 output reveals the same results as whether you would specify a model 4 in which you enter the product of the centered scores of autonomy and workload. However, we opted to start with specifying a model 7 to test our moderated mediation model in more straightforward way.

Table 1. Means, standard deviations, intercorrelations and reliabilities (Cronbach's alphas in parentheses) (N=1168).

		M	*SD*	1	2	3	4	5	6	7	8
1.	Age	53.43	4.86	-							
2.	Job position B[a]	.18	-	-.06*	-						
3.	Job position C[a]	.35	-	.04	-.35**	-					
4.	Job position D[a]	.13	-	.03	-.18**	-.28**	-				
5.	Autonomy	3.57	.72	.07*	-.06*	.05	-.07*	(.68)			
6.	Workload	3.07	.83	-.11**	.01	-.04	-.19**	-.20**	(.76)		
7.	Job Crafting	3.27	.68	.01	.04	-.09**	-.05	.48**	.001	(.81)	
8.	Willingness to continue working	2.92	1.42	.10**	-.01	-.02	-.08**	.16**	-.06*	.15**	-

*p<.05; **p<.01; [a]Reference group = Job position A (employees who worked in a job for which a master degree is required).

Hypothesis 3 stated that an active work environment indirectly associated with the willingness to continue working via job crafting. Given that the interaction of autonomy and workload in relation to job crafting was not significant, we turned to model 4 analyses to test for the indirect effects (*ab paths*; Hypothesis 3). We used a bootstrapping sampling method (5000) and calculated bias-corrected confidence intervals (Hayes, 2012, 2013). We included autonomy and workload as the independent variable in two separate analyses (i.e. autonomy/ workload), while controlling for the other independent variable (i.e. workload/ autonomy) and the demographics age and job position.

The results confirmed an indirect effect of autonomy on the willingness to continue working through job crafting (*b*=.09, *bootSE*=.03, 95%CI[.04;.17]), thereby supporting Hypothesis 3a. After controlling for this indirect effect, autonomy still related directly and positively to the willingness to work longer (*c' path; b*=.16, *SE*=.07; 95%CI[.03;.29]). Furthermore, results show a significant indirect effect of workload on the willingness to continue working through job crafting (*b*=.02, *bootSE*=.007, 95% CI[.005;.03]), providing evidence for Hypothesis 3b. After controlling for this indirect effect, a negative direct effect remained (*c' path; b*=-.10, *SE*=.05; 95%CI[-.21;-.001]). However, although this remaining direct path is significant, the upper limit of the 95% confidence interval is very close to zero[2]. Given that the interaction of autonomy and workload in relation to job crafting was not significant, there was no moderated mediation and we could not confirm Hypothesis 3c. Therefore, Hypothesis 3 was only partially supported. The final model is displayed in Figure 2.

[2] We conducted the analyses both with and without control variables. Given that the analyses yielded similar results, we opted to display only the results of the analyses with control variables. Note that the remaining direct effect of workload on the willingness to continue working was not significant in the model without controlling for age and job position.

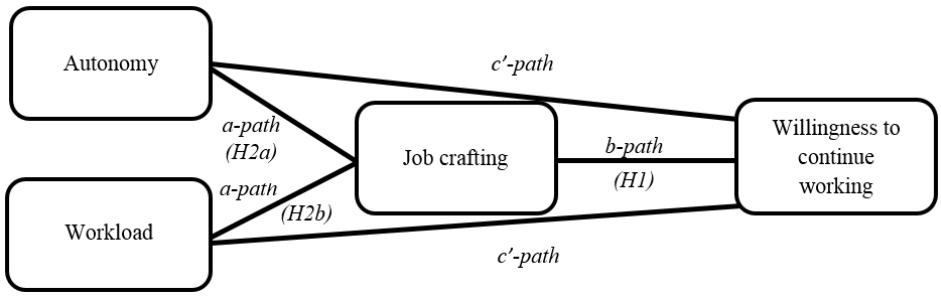

Figure 2. Final model

Table 2. Results of the analyses for indirect effects1 using the SPSS PROCESS macro of Hayes (2013).

Results of the indirect effects with control variables ($N_{with\ controls}$ = 1168)			
	Coefficient	*SE*	95%CI
Direct effect[2] of job crafting (M) on the DV (b-path)			
Job crafting	.21	.07	[.07;.34]
Effect of independent variables (IV's) to M (a-paths)			
Autonomy	.47	.02	[.42;.52]
Workload	.08	.02	[.03;.12]
Partial effects of age and gender on DV			
Age	.03	.01	[.01; .04]
Job position B[3]	-.17	.12	[-.40; .06]
Job position C[3]	-.22	.10	[-.41; -.02]
Job position D[3]	-.48	.14	[-.75; -.21]
	Effect	Boot SE	Bootstrap 95% CI
Indirect effects of IV_1 of DV through M^1 (ab-path) (Hypothesis 3a)			
Autonomy	.09	.03	[.04;.17]
Remaining direct effect (c'-path)	.16	.07	[.03; .29]
Indirect effects of IV_2 of DV through M^1 (ab-path) (Hypothesis 3b)			
Workload	.02	.007	[.005; .03]
Remaining direct effect (c'-path)	-.10	.05	[-.21; -.001]
Model R^2	.05*		

Note. IV=Independent Variable; DV=Dependent Variable=willingness to continue working; M=Mediator. [1]We ran two times this PROCESS macro (model 4) as we included two independent variables in our model, the interaction term of autonomy and workload was not significant in previous analyses and therefore excluded from this model. Each time we included one IV as IV and the other IV as covariate (as suggested by Hayes, 2012). [2]Although we used the term 'effect', no inferences about causal relationships are intended. [3]Reference group = Job position A (employees who worked in a job for which a master degree is required). *p<.001.

In the previous analyses to test our hypotheses, we included age as a control variable. However, given that the willingness to continue working might be different at different ages (Schalk & Desmette, 2015), we ran an additional PROCESS analysis to exclude that age acted as a moderator of the relationship between job crafting and the willingness to continue working (model 1; Hayes, 2012; 2013). The interaction term was the product of the centered scores of job crafting and age. Results indicated that age did not moderate this relationship (*b*=-.004, *SE*=.01, 95%CI [-.03; .02]), which suggests that job crafting had the same positive influence on the willingness to continue working until retirement age for employees between 45 and 65 years. Age did however have a positive main effect on the willingness to continue working after controlling for job crafting (*b*=.03, *SE*=.01, 95%CI[.01; .04]).

Discussion

In this study, we investigated job crafting in relation to both a positive outcome (i.e. willingness to continue working) and antecedents (i.e. active jobs). Building on the dominant approaches on job crafting, we define this phenomenon as making changes to one's job in order to optimize one's functioning. We more specifically displayed job crafting as a valuable individual strategy to optimize one's functioning in terms of the willingness to continue working in the context of active jobs, characterized by a high amount of autonomy and workload.

Enhancing older employees' motivation or willingness to continue working becomes increasingly relevant given the expected demographical changes and the current tendency to take early retirement (OECD, 2011). Recent Belgian legislation moreover obliges employers to plan actions to motivate older employees (i.e. from 45 years on) to continue working instead of retiring early. As expected, our results show that employees who craft their job, display a higher willingness to continue working. By means of job crafting employees adapt their job to meet their expectations and preferences which might in turn enhance positive outcomes, such as an increased willingness to continue working. Drawing on a SOC-theory perspective, job crafting seems to be a successful aging strategy as by means of job crafting, employees balance their work environment with their age-related personal capabilities, needs and goals which positively relates to their motivation to continue working (Zacher & Frese, 2011; Kooij et al., 2015). Although longitudinal research is necessary to further explore the causality of these relations, our study provides a first empirical contribution on the relationship between job crafting and the willingness of older employees to continue working.

Next, we investigated autonomy and workload as antecedents of job crafting starting from an activation hypothesis perspective (Karasek, 1979). The activation hypothesis was highly relevant in this view as it assumes a positive relationship from active jobs to learning, motivation and new growth related behaviour (De Lange et al., 2003; Petrou et al., 2012). Given that previous studies of the activation hypothesis mainly focused on learning and attitudinal outcomes (Taris et al., 2003), we added to the JDC-literature by showing that employees in active jobs are more likely to craft their job, which is a behavioural outcome.

Furthermore, the more employees perceived autonomy and workload, the more they reported to make changes in their jobs and the more they were willing to continue working. Results confirmed that employees who perceived high levels of autonomy in their job, engaged more in job crafting and were indirectly more willing to continue working. Interestingly, autonomy also directly enhanced the willingness to continue working after taking job crafting into account. On the one hand, this points at the direct importance of job design, i.e. autonomy, in relation to older employees' work motivation (Desmette & Gaillard, 2008). On the other hand, this remaining direct effect of autonomy suggests that also other indirect or mediating processes come into play. Autonomy might, for example, enable older employees to

demonstrate their mastery and expertise which might in turn add to their work motivation (Scheurs et al., 2012; Stamov-Roβnagel & Hertel, 2010; Taris & Kompier, 2005) and more specifically, to their willingness to continue working. Besides autonomy, also workload indirectly added to the willingness to continue working, through job crafting. It thus seems that workload activates employees to be proactive and to look for ways to deal with the work environment, which in turn leads to positive outcomes such as an increased willingness to continue working (Fritz & Sonnentag, 2009). After controlling for age, job position, autonomy, and job crafting, workload showed a remaining negatively direct effect on the willingness to continue working.

Notably, our results point at differential mechanisms from job resources and job demands to motivational outcomes, via job crafting. Whereas autonomy installs a positive direct and indirect process, workload negatively relates to the willingness to continue working in a direct way and positively in an indirect way through job crafting. Although job demands such as workload might thus trigger employees to craft their job to deal with the potential costs or challenges associated with the demands to some extent, our results seem to suggest that there might remain a negative relationship between job demands and motivational outcomes (Bakker & Demerouti, 2007). Employees might perceive job demands rather as 'givens', and therefore as job characteristics that are harder to change and that have a negative impact on one's functioning (Tims, Bakker & Derks, 2013). Our results further support the beneficial and strong effects of autonomy in stimulating job crafting and positive outcomes (i.e. willingness to continue working), and support a weak but significant relation from job demands. These findings align with previous findings of Gordon, Demerouti, Le Blanc, and Bipp (2015) who found that job demands positively related to seeking resources, whereas autonomy related to all types of job crafting. Job crafting thus especially seems to be an enhancement strategy stimulated through job resources such as autonomy, but might also function as a proactive coping strategy triggered by job demands (Ouwehand, De Ridder, & Bensing, 2007; Petrou, Demerouti, & Schaufeli, 2015). Extant literature on these differential mechanisms from job demands and job resources to job crafting is scarce and might be a valuable direction for future research.

Our results supported the main effects of autonomy and workload in the prediction of job crafting, but not their interaction effect. Although some studies showed a significant interaction in investigating the activation hypothesis in relation to job crafting (Petrou et al., 2012), our findings are in line with the majority of studies in the realm of the JDC-model providing evidence for the main and additive effects of autonomy and workload only (de Lange, et al., 2003). In this study, the combination of autonomy and workload – but not their interaction – thus positively related to older employees' willingness to continue working indirectly through job crafting.

Strengths, limitations and directions for future research

A first remark concerns the scales used in the study, and more specifically the scales of autonomy and job crafting. The reliability of the autonomy measure was just below the threshold of .70 in the current study. Future research might include a more reliable measurement of autonomy or strive to increase the reliability of this scale. In addition, we want to comment on both the strength and possible limitation of the scale used to measure job crafting (Vanbelle et al., 2016). Given that people know their needs, values and goals best and may act upon these themselves by means of job crafting, we opted for an overarching operationalization of job crafting: the OJCS. This scale investigates whether employees make changes in their job in order to feel better, to perform better or to enhance their person-job fit –whatever the specific changes may be. The strength of this operationalization is that it gives employees the freedom to give personal meaning and content to the items, and more specifically to which changes they make to thrive for optimal functioning. A possible limitation, however,

might be that the OJCS is a general job crafting scale that does not specify concrete changes. Although the OJCS thus might be a good alternative when one is interested in the general construct of job crafting, future research might use more specific operationalisations of job crafting (e.g. Nielsen & Abildgaard, 2012; Tims et al., 2012; Slemp & Vella-Brodrick, 2013) to investigate whether the relationships hold for different job crafting types. Recent developments in the job crafting literature for instance suggest that whereas crafting job resources yield positive outcomes, crafting job hindrances might be rather detrimental for employees' functioning instead of beneficial (Demerouti, 2014).

Second, although longitudinal research designs are necessary to make inferences about causal relationships between the study variables, we contribute to the job crafting literature as we investigated job crafting in relation to both an active work environment and a specific positive outcome, namely the willingness to continue working. In this study, we started from traditional job design and the activation hypothesis of Karasek (1979) to hypothesize that autonomy and workload are associated with older employees' job crafting, which in turn is related to a higher willingness to continue working. Alternatively however, one could also hypothesize reversed causation in which employees who are willing to continue working may engage more in job crafting and as a result, experience more autonomy and workload.

Third, given our interest in the employees' perception of their amount of autonomy and workload in their job, of their job crafting behaviour and their willingness to continue working, all measurements were based on self-reports. Although common method bias might still artificially have inflated or deflated the strength of the observed relationships, we applied some remedies to counter this bias (Podsakoff, MacKenzie & Podsakoff, 2012). We did distant the variables of interest in our questionnaire. The participants were first asked to indicate their degree of willingness to continue working. Then, they had to evaluate some organization specific initiatives for older employees that were not included in this study, after which all other items were presented. Furthermore, the items of work characteristics and job crafting were mixed.

A fourth remark concerns the generalizability of our findings. Future research might aim to replicate this study with a more heterogeneous sample such as non-public sector employees and employees of a wider age span. Future research might tap into the role of differences in work experience between public and private sector employees, as suggested in the extant literature. In the Netherlands, private sector employees are found to face more physical demands, longer work hours and a higher job insecurity (Smulders & Houtman, 2012). Similarly, in Belgium, public sector employees seem to experience slightly more autonomy in their work, less job demands and higher job security in comparison with non-public sector employees. They also showed higher levels of work enjoyment and organizational commitment, and they showed less intention to quit their job (De Witte, Vets & Notelaers, 2010). Furthermore, Buelens and Van den Broeck (2007) demonstrated different motivational patterns between public and private sector employees. It is plausible that differences in job characteristics and work motivation did influence our study results. To exclude the confounding role of third variables, future research might examine whether and to what extent differences between public and non-public employees influence our findings.

Future studies might also include younger employees. At first sight, working until retirement age may seem especially relevant for older employees as they are the ones who need to be motivated to work longer than initially expected. However, the willingness to continue working, as an indicator of work motivation, might also prove relevant for younger employees. An age-related HRM policy should target younger employees (i.e. proactive dimension), employees between 40 and 55 years old (i.e. protective dimension) as well as employees of 55 years and older (i.e. corrective dimension; Vanmullem & Hondeghem, 2006). Our extra analyses,

showing that age did not moderate the relationship between job crafting and the willingness to continue working until retirement age, support the idea that stimulating job crafting might be beneficial for all employees between 45 and 65 years (Schreurs et al., 2012). Nevertheless, investigating the current research model more thoroughly at different ages would be an added value.

Fifth, in the current study, we used the core dimensions of the job demands control model of Karasek (1979), i.e., autonomy and workload as a starting point to investigate the role of work characteristics as antecedents of job crafting. In future research, however, it seems valuable to integrate other work characteristics of this model such as social support and skill variety (Zaniboni, Truxillo, & Fraccaroli, 2013; Kooij, Jansen, Dikkers, & De Lange, 2010), or draw on other – also broader – work stress models such as the JD-R model of Bakker and Demerouti (2007; Bakker, Demerouti & Sanz-Vergel, 2014).

Conclusion

To conclude, this study contributed to the literature in at least three ways. First, we add to the job crafting literature by investigating autonomy and workload as antecedents of job crafting and the willingness to continue working as a positive outcome in the context of older employees. Second, this study adds to the age-related literature by stating that both an active work environment and an active role of employees by means of job crafting influence the willingness to continue working. More specifically, job crafting can be seen as a successful aging strategy that helps employees to adapt their work environment according to their personal preferences, needs and goals. Furthermore, in addition to the indirect effect of autonomy and workload via job crafting, autonomy also has a remaining direct positive effect on the willingness to continue working. Third, our findings are valuable for practice, e.g. personnel management. Creating an active work environment, with especially a sufficient amount of autonomy, seems to be a valuable way to stimulate older employees to customize their job according to their own needs as well as to increase their willingness to continue working until retirement age.

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Appendix 1

In what follows we present an overview of the items of the measures used for the substantial variables included in the current study. We want to note, however, that all scales were presented in Dutch to the participants given that we collected data among Flemish speaking employees. Participants were asked to rate the items on a 5-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree).

1	2	3	4	5
Totally disagree	Disagree	Neither disagree, nor agree	Agree	Totally Agree

Job Crafting (OJCS; Vanbelle, et al., 2013; 2016)
Some people make changes in their job, others do not. To what extent do you shape your job? Please register to what extent you agree with the following statements.

1.	I make changes in my job to feel better	1	2	3	4	5
2.	I change my job so it would better fit with who I am	1	2	3	4	5
3.	I make changes in my job to perform better	1	2	3	4	5
4.	I change my job so it would better fit with what I think is important	1	2	3	4	5

Autonomy (SIMPH; Notelaers, et al., 2007)

1.	I can interrupt my work when necessary	1	2	3	4	5
2.	I can decide myself how I perform my work	1	2	3	4	5
3.	I can influence my own work pace	1	2	3	4	5

Workload (SIMPH; Notelaers, et al., 2007)

1.	I have to work fast in my job	1	2	3	4	5
2.	I work under time pressure	1	2	3	4	5
3.	I have to hurry to finish my work on time	1	2	3	4	5

The willingness to continue working (Oude Hengel et al., 2012)

1.	I am willing to work until the maximum retirement age	1	2	3	4	5