



Development and validation of the job crafting scale

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ARTICLE INFO

Article history:

Received 3 March 2011

Available online 27 May 2011

Keywords:

Job crafting

Job demands resources model

Proactivity

Scale development

Validation

ABSTRACT

We developed and validated a scale to measure job crafting behavior in three separate studies conducted in The Netherlands (total $N = 1181$). Job crafting is defined as the self-initiated changes that employees make in their own job demands and job resources to attain and/or optimize their personal (work) goals. In Study 1 and 2 the Dutch job crafting scale (JCS) was developed and tested for its factor structure, reliability, and convergent validity. The criterion validity of the JCS was examined in Study 3. The results indicated that there are four independent job crafting dimensions, namely increasing social job resources, increasing structural job resources, increasing challenging job demands, and decreasing hindering job demands. These dimensions could be reliably measured with 21 items. The JCS shows convergent validity when correlated with the active constructs proactive personality (+), personal initiative (+), and the inactive construct cynicism (−). In addition, results indicated that self-reports of job crafting correlated positively with colleague-ratings of work engagement, employability, and performance – thus supporting the criterion validity of the JCS. Finally, self-rated job crafting behaviors correlated positively with peer-rated job crafting behaviors.

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Job crafting has been defined as self-initiated change behaviors that employees engage in with the aim to align their jobs with their own preferences, motives, and passions (Wrzesniewski & Dutton, 2001; see also Berg & Dutton, 2008). With a few exceptions (Ghitulescu, 2006; Leana, Appelbaum, & Shevchuk, 2009), all studies on job crafting that have been published to date are either theoretical (e.g., Fried, Grant, Levi, Hadani, & Slowik, 2007; Wrzesniewski & Dutton, 2001) or qualitative in nature (e.g., Berg, Wrzesniewski, & Dutton, 2010; Lyons, 2008). These studies are important for theory development and they inform us about the possible forms of job crafting. However, to further our understanding of job crafting the field seems in need of a generic job crafting scale (Tims & Bakker, 2010). With respect to the quantitative studies by Ghitulescu (2006) and Leana et al. (2009) mentioned above, they focused on specific professions (manufacturing and teaching) and therefore constructed specific scales that are not applicable to larger work populations.

The central aim of the present series of studies is to develop and validate a generic scale to measure job crafting. In the following sections, we provide the theoretical background of the job crafting concept. Subsequently, we present three studies: In Study 1, we developed the job crafting scale and examined its psychometric properties (reliability and factorial validity). In Study 2, we cross-validated the factor structure of the job crafting scale and additionally examined its convergent validity. Finally, in Study 3, we examined the criterion validity of the scale.

Theoretical background

Although the term ‘job crafting’ was coined by Wrzesniewski and Dutton in 2001, the idea of job crafting was already mentioned over 20 years ago by Kulik, Oldham, and Hackman (1987). The latter authors suggested that employees may redesign their jobs on

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their own initiative with or without the involvement of the management, which is in line with the definition that Wrzesniewski and Dutton proposed (see also Oldham & Hackman, 2010). Accordingly, job crafting may take several forms. First, employees may alter aspects of their jobs that are task-related, such as the amount of tasks they have or the content of these tasks. Second, employees may change aspects of their jobs that involve the relationships they have at work, for example the amount and intensity of contact they have with colleagues or customers. These self-initiated changes may lead to a work environment that is more in line with the specific characteristics of the employee. The third form of job crafting is that employees may change the cognitions they have about aspects of their jobs with the aim to enhance the meaning of their work (Wrzesniewski & Dutton, 2001).

It is important to note here that job crafting is not about redesigning the job as a whole but about changing certain aspects of the job within the boundaries of the specific job tasks (Berg & Dutton, 2008). For example, job crafting may include crafting more autonomy that may lead the employee to feel more responsible for his/her performance and as a consequence he/she may be motivated to invest more effort in the work task (Parker & Ohly, 2008). The changes may also involve smaller alterations that impact the achievement of (short-term) work goals. An example is asking for help when needed or delegating tasks that interfere with the attainment of a deadline.

The central characteristic of job crafting is that employees alter their tasks or other job characteristics on their own initiative. This distinguishes job crafting from other bottom-up redesign approaches such as idiosyncratic deals (i-deals) in which employees negotiate with their employer about their work conditions (Hornung, Rousseau, Glaser, Angerer, & Weigl, 2010) or employee participation in job redesign (Nadin, Waterson, & Parker, 2001). However, job crafting is related to proactive work behaviors. Proactive work behaviors have in common that they are initiated by the person either by acting in advance of a future situation and/or by taking control and causing change (Parker & Collins, 2010). For example, personal initiative, which is a proactive behavior construct, refers to an individual "taking an active and self-starting approach to work that goes beyond what is formally required in a job" (Frese, Kring, Soose, & Zempel, 1996, p. 38). An important benefit of proactive behavior constructs is that they can be linked to performance indicators: employees who take the initiative to change certain things in their work environment are likely to contribute to organizational effectiveness. Job crafting is different from previously studied proactive constructs because the changes that job crafters make are primarily aimed at improving their person–job fit and work motivation.

Proactive behaviors at work are most likely executed by employees who have a disposition towards proactive behavior. For example, employees with a proactive personality are more prone to show initiative, take action, and persist until they bring about meaningful change (Crant, 1995) than employees without this personality characteristic. Job crafting can be seen as a specific form of proactive behavior: it is self-starting and focuses on how employees perceive their work environment and act in accordance with their own preferences, values, and skills.

Wrzesniewski and Dutton's (2001) definition of job crafting is limited to those changes that employees may make in their work tasks, relationships at work, and cognitions about work. Some recent studies have suggested that job crafting may take other forms as well. For example, Lyons (2008) found that the salespersons in his study engaged in self-initiated skill development. In addition, research by Grant and colleagues (2010) (as cited in Berg, Dutton, & Wrzesniewski, 2008) showed that employees working in a service job reprimanded or avoided to serve unpleasant clients. The latter acts of job crafting received less attention in the job crafting literature. Although Wrzesniewski and Dutton (2001) do write about the possibility that employees cut tasks, interactions, or relationships as part of job crafting, it is probably less valued by organizations and therefore hard for employees to report in interviews for example. However, avoiding unpleasant clients may be a good way for employees to reduce job stress and as a consequence to stay healthy and engaged.

In order to capture these and other job characteristics that employees may alter, we theoretically frame our definition of job crafting in the job demands–resources (JD–R) model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). As a result, we define job crafting as the changes that employees may make to balance their *job demands* and *job resources* with their personal abilities and needs (cf. Tims & Bakker, 2010).

According to the JD–R model, all job characteristics can be categorized into two broad classes: job demands or job resources. Job demands refer to all aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills. Therefore, job demands are associated with certain physiological or psychological costs. Examples include a heavy workload and emotionally demanding interactions with others. Job resources refer to those aspects of the job that are either/or functional in achieving work goals, reduce job demands and the associated physiological and psychological costs, and stimulate personal growth, learning, and development (Bakker & Demerouti, 2007). Examples include autonomy and performance feedback. By framing job crafting in terms of job demands and job resources, it is possible to capture many aspects (i.e., job characteristics) that employees may alter in their jobs. For example, emotionally demanding interactions with clients are seen as an important job demand, whereas skill development is seen as an important job resource in the JD–R model.

In our conceptualization of job crafting based on the JD–R model and the fact that job crafting is about shaping a job according to the individual's preferences, skills, and abilities (Berg & Dutton, 2008), we focus solely on the self-initiated behaviors of employees to make *actual* changes in their level of job demands or job resources.

Dimensions of job crafting

Based on the JD–R model, we propose that job crafting consists of three conceptually different dimensions, namely: (1) increasing job resources; (2) increasing challenging job demands; and (3) decreasing hindering job demands. Research on the JD–R model has shown that job resources foster work engagement (for a meta-analysis see Crawford, LePine, & Rich, 2010 and Halbesleben, 2010) and in turn lead to positive organizational outcomes (Salanova, Agut & Peiró, 2005; Xanthopoulou, Bakker,

Demerouti, & Schaufeli, 2009). Furthermore, job resources are able to buffer the negative effects of job demands and may particularly lead to high levels of work engagement when job demands are high as well (Bakker & Demerouti, 2007; Hakanen & Roodt, 2010). Work engagement may therefore be an important outcome of job crafting. In short, we expect that *increasing the level of job resources* will lead to valued individual outcomes (e.g., work engagement, job satisfaction). Based on the above reasoning about the motivational effect of job resources, we argue that it is not plausible that employees will try to lower their level of job resources.

The second dimension of job crafting concerns *increasing the level of challenging job demands*. A job that is under stimulating may cause boredom that in turn may lead to absenteeism and job dissatisfaction (Kass, Vodanovich, & Callender, 2001). It is therefore important for work motivation that employees experience an adequate level of challenging job demands. Challenging job demands stimulate employees to develop their knowledge and skills or to attain more difficult goals (LePine, Podsakoff, & LePine, 2005). Challenge demands offer mastery experiences that in turn may lead to satisfaction and high levels of self-efficacy (cf. Gorgievski & Hobfoll, 2008). A recent meta-analysis by Crawford et al. (2010) found that challenging job demands were positively related to work engagement even though they can also be appraised as stressful. Crafting more challenges at work may be an important way to increase personal growth and satisfaction with the job (Berg et al., 2008).

The third dimension of job crafting refers to *decreasing the level of hindering job demands*. Employees may proactively lower their job demands when they perceive that their demands have become overwhelming. Prolonged exposure to high demands in combination with low levels of job resources may lead to negative health consequences such as burnout (Bakker, Demerouti & Euwema, 2005; Schaufeli, Bakker, & Van Rhenen, 2009) and negative organizational consequences such as personnel turnover (Kulik et al., 1987). Moreover, the meta-analysis by Crawford et al. (2010) indicated that there was a negative relationship between hindrance demands and work engagement. The costs experienced by employees to address hindering demands may be a motive for proactively reducing them.

To conclude, when employees experience that their levels of job demands and job resources are not balanced they may be triggered to reduce this misfit by using three complementary strategies of job crafting. Put differently, when the job does not meet employees' skills or needs they will be motivated to change elements of the job (Wrzesniewski & Dutton, 2001). We hypothesize that job crafting consists of three dimensions, namely increasing job resources, increasing challenging job demands, and decreasing hindering job demands (*Hypothesis 1*).

Boundary conditions

An intriguing question is whether every employee is able to craft his/her job characteristics. Although employees who are naturally more proactive may engage more comfortably in job crafting, we argue that everyone is capable of job crafting. That is, every job consists of specific job demands and job resources that could be increased and/or decreased. However, in practice many people believe that job crafting is more applicable to employees who hold positions with high levels of autonomy, which makes it easier to make changes. Wrzesniewski and Dutton (2001) describe several examples of employees who crafted their jobs even though these jobs are seen as less autonomous. For example, nurses changed both task (e.g., not only delivering high-quality care but also paying attention to the patient) and relational boundaries of their job (e.g., including family members of the patient for information and input). In addition, hairdressers changed the relational boundaries of their work by opening up to clients and asking clients personal questions. Lyons (2008) found that more than half of his sample of salespersons engaged in some form of job crafting, including personal skill development and adapting tasks. These examples are encouraging to conclude that every employee may be able to craft the job.

In their interview study with employees who held different ranks in the organization, Berg et al. (2010) found indeed that employees both in low and in high ranks engaged in job crafting. However, they faced different challenges before they could actually craft their jobs. Employees in lower ranks had to change others' expectations and behaviors to create opportunities to craft their jobs whereas employees in higher ranks had to change their own expectations about how they should spend their time at work. Thus, job crafting may be supported by specific work characteristics but may also be a means to gain these characteristics. Therefore, job crafting may occur at all organizational levels, which makes it even more interesting to study.

Study 1: scale development and explorative test

The goal of the first study is to develop and test a generic scale that can be used to quantitatively measure employee job crafting. Although job crafting is conceptually appealing, there has been little systematic effort to empirically examine job crafting behaviors. In developing a scale that is applicable to different occupations, we aim to encourage more empirical research on job crafting. We first describe the process of constructing the scale and then present the exploratory results of the scale's factorial structure and reliability.

Method

Procedure and participants

Data on the Dutch job crafting scale (JCS) were collected using an online questionnaire on a Dutch website. The study was announced on the homepage of the website that is well-known in The Netherlands for its online self-tests and coaching to people

who are employed or searching for a job. Via a link provided on the homepage, participants were directed to the introduction of the study and invited to participate in the survey. The questionnaire was in Dutch and online available for one month. Participation was voluntary. Before analyzing the data, we selected those participants who indicated to work on average at least 20 h a week. This minimum was chosen because we did not want to exclude part-time workers since they encompass a large group in The Netherlands. This inclusion criterion was used in all studies reported in this article.

In total, 375 employees participated in Study 1. More than half of the sample was female (66.9%). Participants worked on average 33.73 h a week ($SD = 6.57$), 55% of them worked full-time (>36 h a week). On average, they worked 8.65 ($SD = 8.17$) years for their current organizations. The average age of the participants was 44.5 ($SD = 9.58$) years. The educational level of the participants was relatively high, almost 70% of the participants reported to possess at least a bachelor's degree. Most employees worked in the healthcare sector (19.6%), services sector (18.2%), education (10.2%), information technology (7.6%), and wholesale and retail sector (7.3%).

Scale construction

Initially, the authors constructed a pool of 42 items to capture all three job crafting dimensions. We started with 19 items to capture the dimension 'increasing job resources'. To construct the items for this dimension, we adapted Dutch validated scales that are used to measure the occurrence of specific job resources (Bakker, Demerouti, Taris, Schaufeli, & Schreurs, 2003; Bakker, Demerouti, & Verbeke, 2004) such that they measured whether the participant took the initiative to increase these job resources.

The inclusion of particular job resources was based on Kompier's (2007) analysis that examined several influential work design models, including the job characteristics model (Hackman & Oldham, 1976), the demand–control model (Karasek & Theorell, 1990), and the effort–reward imbalance model (Siegrist, 1996). The job resources most often applied in these models are task variety, autonomy, social support, and performance feedback (Kompier, 2007). These job resources were also identified as key work characteristics in Morgeson and Humphrey's (2006) review of the work design literature. We added the job resources 'coaching' and 'opportunity for development' because research has shown that they are strongly related to work engagement (see Bakker & Bal, 2010; Bakker & Leiter, 2010; Xanthopoulou et al., 2009) and therefore important to include in the job crafting scale.

For the dimension 'increasing challenging job demands' we aimed to address those behaviors of employees that would result in additional, challenging demands. Although employees may still experience the pressure of the demand they may also experience personal growth and achievement as a result of challenge demands, resulting in feelings of accomplishment (Podsakoff, LePine, & LePine, 2007). Examples of challenge demands are high responsibility and high workload (McCauley, Ruderman, Ohlott & Morrow, 1994). We formulated 14 new items for this scale that fit this conceptualization.

Finally, based on the great increase in knowledge jobs and the shift from a manufacturing to a service-oriented economy (cf. Grant, Fried, Parker, & Frese, 2010; Grant & Parker, 2009; Parker, Wall, & Cordery, 2001), we identified emotional (i.e., working with people) and mental (i.e., working with knowledge) job demands to be important to include in the dimension 'decreasing hindering job demands'. Again, existing items from Bakker et al. (2004) were rewritten in such a way that they refer to initiatives of employees to decrease their level of job demands. Nine items were constructed.

Before we collected data on the JCS, we first had two discussions with three Work and Organizational psychologists working on their PhD (2 females, 1 male) about the proposed definition of job crafting and the constructed items. They worked on average 2.5 years on their PhD. The 42 items were reviewed by them on clarity and fit with the respective dimension. All items were answered using a 5-point frequency scale (1 = *never*, 5 = *often*). To examine whether the newly constructed scale indeed followed the three dimensions of job crafting, we exploratively examined the factor structure and reliability of the scale.

Results and discussion

Exploratory factor analysis

We used principal factor analysis (maximum likelihood) with oblique rotation in SPSS to examine whether the three factors could be meaningfully distinguished from each other. As a criterion to retain factors, those factors that had an Eigenvalue $>$ 1 were retained. In addition, within factors we retained items that loaded .35 or higher on the expected factor (Costello & Osborne, 2005; Floyd & Widaman, 1995). Factors that consisted of only one or two items were deleted and also items that loaded .35 or higher on other factors than the intended factor. On the basis of these criteria, 15 of the initial 42 items were deleted. Most of these items were intended to belong to the dimension 'increasing job resources' (the dimension for which most items had been constructed). A second and third factor analysis on the remaining items was performed (resulting in the deletion of six more items; the final questionnaire thus includes 21 items) before the final factor solution satisfied all criteria specified above.

The results showed that we should distinguish four dimensions of job crafting instead of the proposed three dimensions (see Table 1). Two of these factors were identical to the hypothesized dimensions (i.e., increasing challenging demands and decreasing hindering demands). The two other factors both represented the hypothesized factor increasing job resources. Content analysis of these two remaining factors revealed the conceptual difference between them. We labeled the two factors *increasing structural job resources* and *increasing social job resources*. The factor increasing structural job resources referred to the resources variety, opportunity for development, and autonomy whereas the factor increasing social job resources referred to the resources social support, supervisory coaching, and feedback. The difference between these two factors apparently lies in the type of job resource. Increasing structural job resources will likely have more impact on the job design because it is about gaining more responsibility

Table 1Study 1: items, means, standard deviations, Cronbach's alphas, and factor loadings of the job crafting scale ($N = 375$).

Item wording	M	SD	α	Factor			
				1	2	3	4
<i>Increasing structural job resources</i>				.82			
1 I try to develop my capabilities	4.30	0.75		.84			
2 I try to develop myself professionally	3.99	0.90		.73			
3 I try to learn new things at work	4.21	0.73		.64			
4 I make sure that I use my capacities to the fullest	3.93	0.86		.51			
5 I decide on my own how I do things	4.09	0.76		.41			
<i>Decreasing hindering job demands</i>				.79			
6 I make sure that my work is mentally less intense	2.06	0.89			.75		
7 I try to ensure that my work is emotionally less intense	2.38	0.92			.63		
8 I manage my work so that I try to minimize contact with people whose problems affect me emotionally	2.26	1.00			.60		
9 I organize my work so as to minimize contact with people whose expectations are unrealistic	2.60	1.03			.56		
10 I try to ensure that I do not have to make many difficult decisions at work	2.39	0.87			.50		
11 I organize my work in such a way to make sure that I do not have to concentrate for too long a period at once	2.26	0.73			.50		
<i>Increasing social job resources</i>				.77			
12 I ask my supervisor to coach me	2.79	1.05				.80	
13 I ask whether my supervisor is satisfied with my work	2.96	0.89				.70	
14 I look to my supervisor for inspiration	3.21	1.03				.68	
15 I ask others for feedback on my job performance	3.46	0.88				.41	
16 I ask colleagues for advice	3.54	0.75				.39	
<i>Increasing challenging job demands</i>				.75			
17 When an interesting project comes along, I offer myself proactively as project co-worker	3.56	0.98					.65
18 If there are new developments, I am one of the first to learn about them and try them out	3.62	0.93					.63
19 When there is not much to do at work, I see it as a chance to start new projects	3.58	0.95					.58
20 I regularly take on extra tasks even though I do not receive extra salary for them	3.53	0.96					.55
21 I try to make my work more challenging by examining the underlying relationships between aspects of my job	2.85	1.08					.42

Note. Factor loadings > .35 are shown. Items were translated in English.

(i.e., autonomy and variety) and/or knowledge about the job (i.e., opportunity to develop oneself) whereas increasing social job resources may have more impact on the social aspects of the job (i.e., asking for feedback and coaching) and attaining satisfactory levels of interaction (i.e., social support). Previous research also found that job resources may form two separate factors. For example, Bakker, Van Emmerik, and Van Riet (2008) found that their job resources clustered at the team level (i.e., harmony, social support, and team cohesion) and at the supervisory level (i.e., supervisor support, supervisory coaching, autonomy).

In conclusion, although we conceptually found the three dimensions as predicted, we had to reject Hypothesis 1 because the results indicated that the factor 'increasing job resources' should be included as two separate factors, resulting in four job crafting dimensions. The items, item means, standard deviations, Cronbach's alphas, and factor loadings are presented in Table 1.

Together, the four factors explained 54.24% of the variance. The first factor (Eigenvalue = 5.39), which explained 25.67% of the variance, is formed by the items for increasing structural job resources (5 items). The second factor (Eigenvalue = 2.99), explaining 14.26% of the variance, is formed by the items measuring decreasing hindering job demands (6 items). The third factor (Eigenvalue = 1.68) explained another 8.01% of the variance and is the dimension increasing social job resources (5 items). The fourth factor (Eigenvalue = 1.32) explained an additional 6.30% of the variance and is the dimension increasing challenging job demands (5 items). Finally, the four dimensions each had a good reliability. Cronbach's alphas were all above .70 and ranged from .75 to .82 (Nunnally & Bernstein, 1994).

The results of Study 1 provide conceptual support for the hypothesized job crafting dimensions but simultaneously indicate that it would be better to use four dimensions. It is important to replicate this factor structure in other, independent samples in order to rule out that the four-factor structure is due to specific characteristics of the current sample. Therefore, the aim of Study 2 was to cross-validate the factor structure of the JCS and subsequently to examine its convergent validity.

Study 2: confirmatory factor analysis and convergent validity of the JCS

In this study, we first examine whether the four-factor structure (i.e., increasing social job resources, increasing structural job resources, increasing challenging job demands, and decreasing hindering job demands) can be reliably replicated in two new samples using confirmatory factor analysis. We hypothesize that the four-factor model will fit the data best as compared to two alternative models: a one-factor model and the originally hypothesized three-factor model (*Hypothesis 1*). We additionally test the robustness of the scale in these samples with an invariance test.

Second, we examine the convergent validity of the JCS. To our knowledge, there is no general job crafting measure yet, we therefore relate the JCS to theoretically related constructs. It is expected that job crafting is conceptually related to the proactive behavior constructs personal initiative (Frese, Kring, Soose, & Zempel, 1996) and proactive personality (Crant, 1995) because each of these constructs refers to self-initiated changes directed at the (work) environment or oneself. However, because job crafting is about the changes that employees make in order to improve their person–job fit and work motivation (i.e., their work outcomes),

we expect that the four job crafting dimensions are moderately positively related to both personal initiative and proactive personality (*Hypothesis 2*).

We also aim to examine how job crafting is related to unfavorable work attitudes. In this light, we measured cynicism, which is a sub dimension of burnout. In contrast with the abovementioned proactive constructs that may be positively associated with job crafting, cynicism may be negatively associated with job crafting because of the inactive attitude towards work. Cynicism is defined as a distant or indifferent attitude towards work (Schaufeli & Bakker, 2004). Cynical employees may withdraw themselves from work because they are less involved in the organization (Richardson, Burke, & Martinussen, 2006) and are consequently less likely to take on extra job demands (i.e., challenging demands). Furthermore, because of the loss of interest in one's work the employee may be less likely to mobilize job resources and to lower hindering demands. We therefore hypothesize a negative relationship of cynicism with the four job crafting dimensions (*Hypothesis 3*).

Method

Procedure and participants

We collected data in two new Dutch samples. For Sample 1, data were collected through a link on the homepage of a Dutch website that offers a wide variety of psychological tests. The website is daily visited by people interested in personality tests, intelligence tests, and/or career interest tests. The questionnaire was announced in the newsletter from the website. Participants could start the questionnaire by clicking on the respective link in the newsletter. Participants in this sample filled out the JCS and the scales for personal initiative and cynicism. Four-hundred fifteen employees filled out this questionnaire. The sample consisted of more female (67.0%) than male participants. The average age of the participants was 45.35 years ($SD = 9.77$). They worked on average 33.65 h a week ($SD = 5.69$), 55.2% of them worked full-time. On average, they worked 9.47 ($SD = 8.20$) years for their current organizations. Most of the participants had at least a bachelor's degree (70%). Employees worked in the health sector (22.2%), services sector (15.8%), education (13.5%), public administration (8.6%), and wholesale and retail sector (6.7%).

The second sample is a convenience sample of 201 Dutch employees who were invited by the authors by email to participate in this study. The authors sent emails to their professional contacts using their social network. The link to the questionnaire was provided in the email as well as the purpose of the study and the assurance of anonymity. These employees filled out the JCS and the scales for personal initiative and cynicism. In addition, they also filled out the proactive personality scale. In this sample, gender was almost equally distributed (51.7% female). The average age of the participants was 36.95 years ($SD = 13.09$). They worked on average 33.47 h a week ($SD = 7.72$), and 58.7% worked full-time. On average, they worked for about 8.13 years in their current organizations ($SD = 9.49$). Most participants had at least a bachelor's degree (74.9%). Employees worked in healthcare organizations (21.2%), service organizations (16.1%), education (14.5%), financial organizations (8.8%), and administrative organizations (7.3%). In sum, the two independent samples resemble each other regarding working hours, tenure, and educational level. However, the mean age of the participants in Sample 1 was higher than that of Sample 2 (45.35 versus 36.95 years).

Measures

Job crafting was measured with the 21 items as reported in Study 1 (see Table 1). Cronbach's alphas were all above the recommended .70 by Nunnally and Bernstein (1994). The reliabilities and correlations of the measures in the two samples are presented in Table 3.

Proactive personality was measured with the 6-item version of the Proactive Personality Scale (PPS; Bateman & Crant, 1993) that was translated into Dutch and validated by Claes, Beheydt, and Lemmens' (2005) across independent samples in different countries. The 6-item version correlated .92 with the original 17-item scale. An example item is "If I see something I don't like, I fix it". Responses were given on a 5-point scale with 1 (*totally disagree*)–5 (*totally agree*).

Personal initiative was measured with the 7-item self-report scale of Frese, Fay, Hilburger, Leng, and Tag (1997). This scale was translated by the authors from English into Dutch and back-translated to check the accuracy of the translation. An example item is "I actively attack problems". Participants were asked to answer the items using a 5-point scale with answers ranging from 1 (*totally disagree*) to 5 (*totally agree*).

Cynicism was measured with the subscale of the Dutch version (Schaufeli & Van Dierendonck, 2000) of the Maslach Burnout Inventory-General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996). Responses were given on a 7-point scale with 0 (*never*)–6 (*always*). An example item is "I doubt the significance of my work".

Results

Confirmatory factor analysis

In order to test Hypothesis 1, whether the four-factor solution also fits best in these two new samples, we used multigroup confirmatory factor analysis within the AMOS software package (Arbuckle, 2005). With multigroup analysis it is possible to test the same model in two separate samples simultaneously. The results of this analysis yields one set of fit statistics for overall model fit (Byrne, 2004).

To assess model fit, five indices were used: chi-square/*df* ratio (χ^2/df), as well as the Tucker–Lewis Index (TLI), the Comparative Fit Index (CFI; Bentler, 1990), the Incremental Fit Index (IFI) and the Root Mean Square Error of Approximation (RMSEA; Browne & Cudek, 1993). The chi-square/*df* ratio provides information about how closely the model fit compared with a perfect fit. Generally, values that are less than 3 indicate good model fit (Kline, 1998). Values of .90 and over (for TLI, CFI, and IFI) or .08 and under (for RMSEA) signify acceptable fit (Byrne, 2001). Finally, we compared the four-factor model fit with the fit of the alternative models by testing the change in χ^2 across models. The results of the multigroup analysis regarding the goodness-of-fit indices of the models are presented in the upper part of Table 2.

The fit of the four-factor model was significantly and substantially better in comparison to the initially proposed three-factor model in which increasing job resources was included as one factor ($\Delta\chi^2 = 478.87$, $\Delta df = 6$, $p < .001$) and that of a one-factor model in which all items were supposed to load on one general factor ($\Delta\chi^2 = 1400.62$, $\Delta df = 6$, $p < .001$). Hence, Hypothesis 1 was supported. It is concluded that the four-factor model adequately represented the observed data. The goodness-of-fit indices of the model were (approximately) .90 and RMSEA was small (.04) which supports the acceptability of the fit (Bollen, 1989). The chi-square/*df* ratio was also smaller than 3 for the four-factor model, indicating a good fit. Moreover, all items loaded significantly on the latent variables, with coefficients ranging from .41 to .83 (all p 's $< .001$).

Invariance test

The invariance of the JCS in the two samples was tested as follows (also using multigroup analysis; Byrne, 2004): we first ran a default model (Model 1 in Table 2) in which all parameters were estimated at the same time without cross-groups constraints. This analysis yielded a χ^2 of 792.62 with 366 degrees of freedom and served as the baseline value against which all subsequently specified models were compared. Then we tested whether a fully constrained model (Model 2) was invariant across both groups. Thus, all factor loadings, all factor variances, and all factor covariances were constrained to be equal in both samples. The fully constrained model showed a significant difference with the default model ($\Delta\chi^2 = 49.89$, $df = 27$, $p < .01$), which indicates that some equality constraints did not hold across both samples (Byrne, 2004). We therefore proceeded to test in smaller steps for invariance.

First, we only constrained the factor loadings (Model 3). The fit of Model 3 to the data was as good as the fit of the unconstrained model, indicating that the factor loadings were invariant across samples ($\Delta\chi^2 = 26.07$, $df = 17$, *ns*). Then, we also constrained the factor variances (Model 4). Again the fit of Model 4 was as good as the unconstrained model, implying that both the factor loadings and factor covariances were invariant across samples ($\Delta\chi^2 = 32.51$, $df = 21$, *ns*). Because the fully constrained model showed a significant difference with the default model and taking into account that the factor loadings and factor variances were invariant it can be inferred that the factor covariances were not invariant. After constraining the covariances one by one and only adding constraints after they showed to be invariant we concluded that only two out of the six covariances were not invariant (chi-square difference without these two covariances: $\Delta\chi^2 = 35.12$, $df = 25$, *ns*). The results of this final model are presented as Model 5 in Table 2. The covariances between increasing structural job resources and increasing challenging job demands and between increasing challenging job demands and decreasing hindering job demands were not invariant across samples (see Conclusion and discussion section below for a discussion).

Altogether, these results are promising because we performed a very stringent test for invariance (Byrne, 2004). The fact that the factor loadings, factor variances, and four of the six factor covariances were invariant across both samples provides support for the invariance of the JCS.

Convergent validity

Results regarding the convergent validity are based on partial correlations in which we controlled for supervisory position and educational level. These variables may be positively related to opportunities for job crafting. We calculated the partial correlations for each sample separately. The results are displayed in Table 3. In Hypothesis 2, we predicted that the four job crafting dimensions would be positively related to proactive personality and personal initiative. We found significant positive correlations between the

Table 2

Study 2: multigroup confirmatory factor analysis and invariance test of the job crafting scale ($N = 415$ and $N = 201$).

Model	χ^2	<i>df</i>	χ^2/df	CFI	TLI	IFI	RMSEA
Four-factor model	792.62	366	2.17	.90	.88	.90	.04
Three-factor model	1271.49	372	3.42	.78	.75	.78	.06
One-factor model	2193.24	378	5.80	.56	.51	.56	.09
Invariance test							
Model 1 (default model)	792.62	366	2.17	.90	.88	.90	.04
Model 2 (fully constrained)	842.51	393	2.14	.89	.88	.90	.04
Model 3 (factor loadings constrained)	818.69	383	2.14	.89	.88	.90	.04
Model 4 (factor loadings and factor variances constrained)	825.13	387	2.13	.89	.89	.90	.04
Model 5 (final model)	827.74	391	2.12	.89	.89	.90	.04

Note. Absolute indexes: χ^2/df = normed chi-square. Relative indexes: CFI = comparative fit index; TLI = Tucker–Lewis Index. Fit indexes for comparing non-nested models: RMSEA = root-mean-square error of approximation.

Table 3

Study 2: correlations and Cronbach's alphas (between brackets on the diagonal) among the job crafting dimensions and personal initiative, proactive personality, and cynicism (controlled for supervisory position and educational level).

	1	2	3	4	5	6	7
1 Increasing structural job resources	(.81) (.79)						
2 Increasing social job resources	.39** .47**	(.78) (.82)					
3 Increasing challenging job demands	.51** .61**	.40** .42**	(.76) (.75)				
4 Decreasing hindering job demands	-.09 -.02	.04 .04	-.09 .10	(.78) (.72)			
5 Personal initiative	.51** .57**	.29** .37**	.60** .61**	-.17* .09	(.86) (.86)		
6 Proactive personality	-	-	-	-	-	-	-
7 Cynicism	.46** -.24** -.19**	.23** -.17** -.24**	.55** -.16** -.04	.17* .35** .30**	.67** -.19** -.10	(.88) .02 -	(.87) (.85)

Note. The first row in each cell refers to Sample 1: $N = 415$; the second row refers to Sample 2: $N = 201$. Proactive personality was only measured in Sample 2.

* $p < .05$.

** $p < .01$.

four job crafting dimensions and proactive personality and for three out of four job crafting dimensions for personal initiative (but not for decreasing hindering job demands; see Table 3). The dimension decreasing hindering job demands showed a significant negative relationship with personal initiative in Sample 1 ($r = -.17, p < .01$) and a nonsignificant positive correlation in Sample 2 ($r = .09, ns$). Therefore, Hypothesis 2 is partially supported.

In Hypothesis 3, we predicted negative correlations between cynicism and the four job crafting dimensions. We found significant negative correlations for three of the four job crafting dimensions and cynicism in Sample 1 (see Table 3). The dimension decreasing hindering job demands correlated positively with cynicism ($r = .35, p < .01$). In Sample 2, we found two dimensions that were negatively correlated with cynicism (i.e., increasing structural and social job resources). The correlation between increasing challenging job demands and cynicism was not significant ($r = -.04, ns$) whereas the dimension decreasing hindering job demands correlated positively with cynicism ($r = .30, p < .01$). Thus, Hypothesis 3 is partially supported.

We additionally examined whether the job crafting dimensions were different from personal initiative and proactive personality. We performed two CFA's in which we compared a model with five factors (four job crafting dimensions and one personal initiative dimension) with a model in which personal initiative loaded on the dimension increasing challenging demands. This was considered rational because this dimension showed the highest correlation with personal initiative ($r = .60$ and $.61$ in Samples 1 and 2 respectively). The multigroup analysis showed a χ^2 -difference of 197.1 with 8 degrees of freedom ($p < .01$) between the model in which the four job crafting dimensions and personal initiative were distinguished ($\chi^2 = 1616.1, df = 680$) and the model in which personal initiative items loaded on the dimension increasing challenging job demands ($\chi^2 = 1813.2, df = 688$), providing additional support for the conceptual difference between job crafting and personal initiative. For proactive personality, which was only measured in Sample 2, we followed the same procedure: we compared a model with five factors with a model in which proactive personality loaded on the dimension increasing challenging demands ($r = .55, p < .01$). The χ^2 -difference between the model in which proactive personality items loaded on the job crafting dimension ($\chi^2 = 709.5, df = 318$) and a model in which job crafting and proactive personality each had their own factors ($\chi^2 = 584.9, df = 314$) was 124.6, with 4 degrees of freedom ($p < .01$) also supporting the convergent validity of the JCS with proactive personality.

Conclusion and discussion

The first goal of Study 2 was to examine whether we could replicate the four-factor structure of the JCS found in Study 1 in two new samples. Using confirmatory factor analysis we indeed found that this four-factor model is the best fit to the data compared with the initial three-factor model and a one-factor model. Furthermore, the JCS showed to be highly invariant, indicating robustness of the scale. Only two covariances were not invariant in the samples meaning that they showed a different pattern in each sample. The covariance between increasing structural job resources and increasing challenging job demands was high and in the same direction in both Samples ($r = .51$ and $.61$, both p 's $< .01$) and therefore not problematic. The second covariance that could not be constrained was the one between increasing challenging job demands and decreasing hindering job demands. In Sample 1, the correlation between these dimensions was $-.09$ whereas the correlation in Sample 2 was $+.10$ (both ns). It was expected that employees who craft their jobs would use all possibilities to change their job characteristics but in Sample 1 the results showed that employees who increased their challenging job demands were less likely to also decrease their hindrance job demands. This finding needs further research attention because both outcomes seem plausible. For example, it is possible that increasing challenging demands and job resources associate negatively with decreasing hindering demands because it could characterize a work environment that provides ample opportunities to deal with hindering demands. In addition, maybe there were no hindering demands to reduce which may have left more time and energy available to create more interesting jobs. On the other hand, theoretically we expected a positive correlation among the four dimensions because all four dimensions refer to proactively

changing the work environment. In addition, each job crafting behavior may aid in creating a pleasant work environment, which at some points may imply lowering the hindering demands. The present findings need to be examined in future studies in order to find out how these dimensions relate to each other.

With the measurement properties of the scale established, the second goal of Study 2 was to examine the convergent validity of the JCS. All job crafting dimensions correlated positively with proactive personality and three out of four job crafting dimensions correlated positively with personal initiative (i.e., decreasing hindering demands correlated significantly negatively with personal initiative in Sample 1 and positively but not significantly with personal initiative in Sample 2). People with a proactive personality may be more inclined to respond with proactive changes in their jobs, which may sometimes require dropping hindrance demands. To elaborate some more on these different findings, we inspected the scale items. The items measuring personal initiative focused highly on active, self-starting behavior of the employee whereas the items for proactive personality were about finding better ways to perform and to be persistent in case of setbacks. The focus on immediately taking the initiative may lead to more job demands (either challenging or hindering) thereby making it less likely that employees decreased their demands.

For cynicism, we found significantly negative correlations with three job crafting dimensions (i.e., decreasing job demands correlated significantly positive with cynicism). Employees who felt cynical towards their jobs were less likely to increase their job resources and challenging demands and more likely to decrease their hindering demands. Thus, with some exceptions, it may be concluded that proactive employees were more likely to increase their job resources and challenging job demands than less proactive and cynical employees. Certainly, future research should find out whether these results can be replicated in other, larger samples and if so, what underlying mechanisms may cause these relationships.

Study 3: criterion validity of the JCS

The aim of the final study was to examine the criterion validity of the JCS. Criterion validity will be achieved when the scale relates to an external criterion that seems to be a result of job crafting (cf. Cronbach & Meehl, 1955). We focused on work engagement, employability, and in-role performance, all rated by colleagues. Work engagement is expected to be an outcome of job crafting. This hypothesis is based on the findings that job resources and challenging job demands predict high levels of work engagement (Halbesleben, 2010; Mauno, Kinnunen, & Ruokolainen, 2007). Individuals who mobilize more job resources (e.g., social support, variety) and challenging job demands will be more likely to feel engaged because their jobs allow them to use their skills and abilities and to develop themselves. Furthermore, employees who decrease their level of job demands because they are feeling overstretched by these demands will also benefit from these crafting actions. They may be more likely to enjoy their work again and to perform their job tasks well. Therefore, we expect positive correlations between the four job crafting dimensions and work engagement (*Hypothesis 1*).

The second outcome that we focus on is employability. Fried et al. (2007) proposed that employees may be more likely to craft stimulating jobs (i.e., craft more challenging job demands) when they feel that it will advance them in their careers. In other words, by crafting more difficult tasks for example, employees show that they are ready for promotion. Employability is defined as continuously fulfilling, acquiring or creating work by optimally using one's competencies (Van der Heijde & Van der Heijden, 2006). Sustaining high employability thus requires efforts from the employee to learn new skills or to stay up to date about developments in the profession. This view partly overlaps with job crafting in which employees shape their jobs in order to attain personally valued outcomes (i.e., work). As a result of crafting more job resources and/or challenging job demands, employees may thus become more employable. In contrast, when employees lower their hindering job demands they may be seen as less employable because they implicitly show that their competencies might not be sufficient for dealing with the demand. We focus on a proactive employability dimension, namely 'anticipation and optimization' (Van der Heijde & Van der Heijden, 2006). It refers to the way an employee prepares for future work changes in order to strive for the best possible job and career outcomes (Van der Heijde & Van der Heijden, 2006). We expect that employees who increase their job resources and/or job demands will be rated by their colleagues as more employable (*Hypothesis 2a*) whereas employees who decrease their hindering job demands will be rated as less employable (*Hypothesis 2b*).

Finally, we examine how job crafting relates to job performance. We predict that employees who increase their levels of social and structural job resources, and their challenging job demands are seen as better performers than employees who do not increase their challenging job demands and job resources (*Hypothesis 3a*). The job crafting literature is careful in its statements about the effect of job crafting on performance. Lyons (2008) noticed that all examples used to illustrate job crafting behaviors had beneficial effects on the organization as well. This finding may be the result of the use of self-reports. Employees may be reluctant to report instances in which they modified aspects that led to a decrease in their performance level. The present study provides an excellent way to examine this hypothesis because we used peer-rated outcome measures, including job performance. When employees lower their job demands they may be rated as low performers because they are not able to deal with all their job demands (*Hypothesis 3b*). Colleagues may experience the pay-offs from this crafting behavior for example when they have to take over tasks of these employees.

Method

Participants and procedure

Several organizations in The Netherlands were contacted to participate in Study 3. A contact person within each organization formed dyads of two colleagues who regularly worked together. The contact persons were instructed to form dyads of employees

who would be able to rate each other on work behaviors and performance. The participants knew that they would fill out a questionnaire about the colleague but did not know the content of the questionnaire. Both employees first filled out the questionnaire for themselves (i.e., self-rating) and later for their colleague (peer-rating). We only distributed the peer-rated surveys when both employees completed their self-ratings.

We collected data of 95 dyads ($N = 190$). In this study, 65% of the participants were female. The average age of the participants was 38.02 years ($SD = 11.32$). Participants worked on average 36.08 ($SD = 9.96$) h a week (66.8% worked full-time, >36 h a week) and 6.46 ($SD = 6.89$) years for their current organizations. Some participants had a supervisory position (17.1%). About half of the participants had at least a bachelor's degree (57.7%). Two healthcare organizations provided 58 dyads (61.1%), 14 dyads worked for the government (14.7%), 10 dyads worked in the retail sector (10.5%); the other 13 dyads were from various organizations (13.7%).

Measures

In this study, each participant filled out two questionnaires. Participants first filled out a self-report questionnaire and after a week they filled out a questionnaire about their peer.

Job crafting was measured with the newly developed job crafting scale (see Table 1). The reliabilities of the dimensions were good: increasing structural job resources: $\alpha = .76$; increasing social job resources: $\alpha = .73$; increasing challenging job demands: $\alpha = .77$; decreasing hindering job demands: $\alpha = .75$.

Work engagement was measured with the short 9-item version of the Dutch Utrecht Work Engagement Scale (UWES; [Schaufeli, Bakker & Salanova, 2006](#)). An example item is: "At work, my colleague feels bursting with energy". A 7-point scale was used with answers ranging from 0 (*never*) to 6 (*always*). Cronbach's α was .95.

Employability was measured with the Dutch subscale 'anticipation and optimization' of the employability measure of [Van der Heijde and Van der Heijden \(2006\)](#). Anticipation and optimization is measured with 8 items ($\alpha = .88$). An example item is "My colleague approaches the development of correcting his/her weaknesses in a systematic matter". A 5-point scale was used with answers ranging from 1 (*totally disagree*) to 5 (*totally agree*).

Job performance was measured with seven items developed by [Williams and Anderson \(1991\)](#). We translated the scale in Dutch and back-translated it to English to check our Dutch translation. An example item is "My colleague adequately completes assigned duties". A 5-point scale was used with answers ranging from 1 (*totally disagree*) to 5 (*totally agree*). Cronbach's α was .88.

Results

To test the hypotheses, we calculated partial correlations to control for supervisory position and educational level. We found partial support for Hypothesis 1, in which we predicted significant positive correlations between the job crafting dimensions and work engagement. The results showed that the dimensions increasing social and structural job resources and increasing challenging job demands correlated significantly with work engagement (see Table 4). Overall, the correlations varied between .31 and .46 (all p 's < .01). The dimension decreasing hindering demands correlated negatively with work engagement ($r = -.19$, *ns*).

Regarding Hypothesis 2a, the results showed that increasing social and structural job resources and increasing challenging job demands correlated significantly positive with the employability dimension anticipation and optimization (r 's varied between .35 and .42, all p 's < .01) indicating support for this Hypothesis (see Table 4). According to Hypothesis 2b, the dimension decreasing job demands was expected to relate negatively with employability. The results showed no significant correlation ($r = -.19$, *ns*), thereby rejecting Hypothesis 2b.

Finally, Hypothesis 3a stated that the three increasing dimensions would correlate positively with job performance. The correlational results showed that all three dimensions correlated significantly with performance (r 's varied between .23 and .40, p 's < .05 and .01 respectively). Hypothesis 3a is supported. The dimension decreasing hindering job demands was expected to correlate negatively with performance (Hypothesis 3b). This dimension had no significant relationship with performance ($r = -.10$, *ns*), rejecting Hypothesis 3b.

Additionally, we examined the correlations between the self- and peer-ratings on the four job crafting dimensions. There was a high agreement between the self- and peer-ratings on the dimensions increasing structural job resources and increasing

Table 4

Study 3: correlations between self-rated job crafting dimensions and peer-rated outcome measures ($N = 95$ dyads; Controlled for supervisory position and educational level).

Self-rated	Peer-rated		
	Work engagement	Employability	Performance
Increasing structural job resources	.46**	.42**	.40**
Increasing social job resources	.31**	.35**	.23*
Increasing challenging job demands	.41**	.40**	.37**
Decreasing hindering job demands	-.19	-.19	-.10

* $p < .05$.

** $p < .01$.

challenging job demands (respectively $r = .52$ and $r = .45$, both p 's < .01). The two dimensions increasing social job resources and decreasing hindering demands also showed significant correlations (respectively $r = .22$ and $r = .21$, both p 's < .05). Taken together, these findings indicate that job crafting behaviors are visible for colleagues. Moreover, the correlations between the self- and other-ratings on the outcome variables were $.23$, $p < .05$ for job performance, $.57$, $p < .001$ for work engagement, and $.50$, $p < .001$ for employability.

Conclusion and discussion

In Study 3, we examined the correlations of self-ratings of job crafting behavior with peer-ratings of the outcome variables work engagement, employability, and job performance. In general, we can conclude that the dimensions increasing social and structural job resources and increasing challenging job demands correlated significantly positively with work engagement, employability, and performance. The fourth dimension, decreasing hindering job demands, showed a different pattern of correlations with these outcome variables: the correlations with the latter dimension were all in the expected negative direction (i.e., except for the correlation with work engagement, which was expected to be positive) but none of them was significant. This finding may imply that initiatives to decrease demands that hinder performance are invisible to others. For example, taking a short break (i.e., getting coffee) to recover from a mentally demanding task may not be noticed by colleagues who are absorbed in their tasks whereas arranging more responsibilities may result in more visible changes for the employee and in some instances for the colleagues as well (e.g., reporting to this person). Overall, the validity of the JCS is further supported by the results that peers were to a great extent able to rate each other's job crafting behaviors.

General discussion

A literature review by Tims and Bakker (2010) revealed that there is no valid measure of job crafting yet whereas more and more researchers report about the necessity of proactive employee behaviors for employee well-being (Berg et al., 2008; Wrzesniewski & Dutton, 2001) and organizational performance (Crant, 2000; Parker, 2000). The newly developed and validated generic job crafting scale (JCS) may help researchers to empirically examine this phenomenon more often and to gain more knowledge about its antecedents and consequences.

The job crafting scale

The present series of studies showed that the JCS is a reliable instrument that consists of four different dimensions: 1) increasing structural job resources; 2) increasing social job resources; 3) increasing challenging job demands; and 4) decreasing hindering job demands. The first three job crafting dimensions showed substantially positive relationships with personal initiative and proactive personality, and negative relationships with cynicism, which is indicative of convergent validity. In addition, correlations with peer-rated outcome variables were encouraging and showed that employees who took the initiative to mobilize more job resources and challenging demands were also more likely to be engaged, employable, and to perform well as rated by their colleague.

The fourth dimension, decreasing hindering job demands, showed different relationships. Namely, we found non significant correlations with the other three dimensions indicating that this dimension was independent from the other dimensions. In addition, we found that employees who scored high on cynicism were *more* likely to decrease their level of job demands and *less* likely to increase their job resources and challenging job demands in comparison with employees who scored low on cynicism. Finally, 'decreasing hindering job demands' showed no significant correlations with the outcome measures work engagement, employability, and job performance.

Together, these findings may inform us that the underlying processes that motivate employees to increase their job resources and challenging demands may be different from the processes that motivate employees to decrease their hindering job demands. The first three dimensions were based on previous studies that convincingly revealed that higher levels of job resources in combination with high levels of (challenging) job demands lead to more work engagement (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007; Halbesleben, 2010). We therefore expected that employees who craft their job characteristics will in turn experience more work engagement and other positive outcomes. Our study results are largely in line with these previous findings.

However, other underlying processes may explain why employees decrease their job demands. Particularly the inclusion of cynicism turned out to be informative. Cynicism is a core dimension of burnout that is generally caused by high job demands and a lack of job resources (Schaufeli & Bakker, 2004). Employees may respond to these work situations by withdrawing and disengaging from work. As a consequence, employees may be unable to take initiatives to change their work situation (cf. Ten Brummelhuis, Ter Hoeven, Bakker, & Peper, 2011). The pattern we found in our studies indeed suggests that employees who score high on cynicism were also less likely to increase their job resources and challenging job demands and more likely to decrease their job demands.

Clearly, more research is needed to examine the processes that predict the occurrence and type of job crafting behaviors and the possible consequences of job crafting for individual employees and the organization at large.

Limitations of the current research

Several limitations of the present studies need to be addressed. First, the use of cross-sectional data does not allow us to make cause-and-effect inferences. Reversed causality is possible for the relationships between for example job crafting and work engagement. It is conceivable that job crafting is a consequence of being engaged with the job. A study by [Sonnetag \(2003\)](#) indeed found support for this reversed relationship: on days that an employee felt recovered (s)he showed more engagement and in turn displayed more proactive work behaviors. Moreover, reciprocal relationships may exist (cf. [Hakanen, Perhoniemi, & Toppinen-Tanner, 2008](#)). However, the goal of our research was not to establish the causal relationships of job crafting with other constructs but to develop a psychometrically sound scale to measure it, and to relate the construct to other constructs in the nomological network.

A second limitation of the studies is that the different samples showed very similar characteristics. For example, the majority of the participants were higher educated and female across all samples. This may limit the generalizability of our findings to specific groups of workers. Future research should therefore examine whether the JCS is equally applicable to other samples of employees (e.g., manufacturing, entrepreneurs). A strength of the present studies is that they included employees from different sectors. The majority of people worked in three different sectors, namely the health sector, service sector, or educational sector, indicating that the scale may be applicable to different types of occupations. A final note regarding the gender of the participants is that a significant amount of males also participated in the studies (Overall $N = 429$).

We also need to address the fact that all participants were Dutch. We can therefore not generalize our findings regarding the JCS to other nationalities. Future research that uses the English version that is provided in this paper (see [Table 1](#)) will be fruitful in order to examine whether the scale works the same when used in other countries. However, the JD–R model that is used as the starting point for the development of the JCS is often applied in other Western countries, suggesting that the application of the JCS to other Western countries should not cause problems.

A final limitation may be the selection of the specific job demands and job resources for inclusion in the JCS. We based this decision on reviews of the most common job demands and job resources in the most influential theories in order to develop a generic measure of job crafting. Because of this selection, it is possible that our measure does not cover every job resource or demand an employee may craft at work. However, this is typically a disadvantage of every generic scale. We based our measure on the JD–R framework and by building upon the notion of challenge and hindrance demands we think that this scale may serve as a good first step in stimulating job crafting research.

Implications for organizational research

By providing a generic, reliable and valid scale to measure job crafting we hope to stimulate and encourage other researchers in the field to engage in job crafting research. Job designs may be crafted to fulfill employees' unique skills, motives, and preferences. Many researchers already showed that high levels of job demands and job resources lead to challenging jobs that employees enjoy. However, few studies examined how employees themselves influence these job characteristics. By focusing more on the active role of the employee in shaping their jobs we gain more insight in the interplay between the work situation and the employee in determining the content of a job.

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