

Job crafting: A meta-analysis of relationships with individual differences, job characteristics, and work outcomes[☆]

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ABSTRACT

Job crafting is a form of proactive work behavior that involves employees actively changing the (perceived) characteristics of their jobs, including behaviors aimed at increasing challenging and decreasing hindering job demands, as well as those directed at increasing structural and social job resources (Tims & Bakker, 2010). Research on job crafting has rapidly increased over the past decade, but findings have thus far not been quantitatively synthesized. We first integrate job crafting as conceptualized by Tims and Bakker (2010) with a more general theoretical model of proactive work behavior. Then, we present a meta-analysis ($K = 122$ independent samples representing $N = 35,670$ workers) of relationships between job crafting behaviors and their various antecedents and work outcomes derived from our model. We consider both overall and dimension-level job crafting relationships. Notably, overall job crafting was found to be strongly associated with proactive personality ($r_c = 0.543$), promotion regulatory focus ($r_c = 0.509$), and work engagement ($r_c = 0.450$). Differential results emerged when considering specific job crafting dimensions. For example, increasing challenging job demands was associated with other-rated work performance ($r_c = 0.422$), whereas decreasing hindering job demands was related to turnover intentions ($r_c = 0.235$). Beyond these zero-order relationships, a meta-analytic confirmatory factor analysis provides support for the operationalization of overall job crafting based upon the proposed dimensions, with the exception of decreasing hindering demands. Additionally, results of meta-analytic relative weights analyses speak to the unique relationships of all four job crafting dimensions with different work outcomes.

1. Introduction

Job crafting is a specific form of proactive work behavior that involves employees actively changing the (perceived) characteristics of their jobs (Tims & Bakker, 2010; Wrzesniewski & Dutton, 2001). As job crafting is initiated by employees themselves, it has been described as an individualized, bottom-up, and proactive approach to job re-design, compared to top-down and “one-size-fits-all” approaches that are initiated by the organization (Demerouti & Bakker, 2014; Grant & Parker, 2009; Parker, 2014; Parker & Ohly, 2008). Cumulative evidence suggests that there is appreciable variability in relationships between discrete job characteristics and employee outcomes such as job satisfaction and performance (Fried & Ferris, 1987; Humphrey, Nahrgang, & Morgeson, 2007). Thus, in times of rapid organizational change, job crafting may constitute a promising alternative to traditional job re-design approaches.

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Researchers have argued that even in stable work environments and in jobs with low autonomy, employees are able to make some changes to their job demands and resources (Petrou, Demerouti, & Schaufeli, 2016).

Job crafting is not a new concept. Nearly 30 years ago, Kulik, Oldham, and Hackman (1987, p. 292) noted that “Another strategy for work redesign is a participative change process, in which jobholders are actively involved in determining what changes will be made in their jobs to improve the match with their own needs and skills [...] employees may on occasion redesign their jobs on their own initiative – either with or without management assent and cooperation.” Despite its longstanding definition, research concerning the antecedents, consequences, and correlates of job crafting has only increased over the past decade. This increase is due in large part to the publication of an article by Tims and Bakker (2010) that, based on the job demands-resources (JD-R) model (Bakker & Demerouti, 2007; Bakker & Demerouti, 2016; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), positioned job crafting as a theoretically important mechanism linking characteristics of the work environment to work outcomes. The JD-R model is a comprehensive theoretical framework for understanding how job design elements influence occupational well-being and work performance. The model describes how job demands and resources influence motivation-enhancing (e.g., work engagement) and strain-enhancing (e.g., exhaustion) processes and work performance. Accordingly, job crafting serves as an important link between work motivation and the cultivation of both job and personal resources that, in turn, help increase person-job fit (Bakker & Demerouti, 2016). To operationalize job crafting in terms of the JD-R model, Tims, Bakker, and Derks (2012) published a widely used scale designed to measure job crafting in terms of proactive behaviors that employees engage in to increase challenging and to decrease hindering job demands, as well as to increase structural and social job resources.

In this study, we present the results of a meta-analysis conducted to integrate extant research on job crafting as conceptualized by Tims and Bakker (2010). To organize this effort, we present a conceptual model (Fig. 1) that extends existing theorizing by positioning job crafting within well-established models of proactive work behavior (in particular, Bindl & Parker, 2010, but also Crant, 2000; Frese & Fay, 2001; Grant & Ashford, 2008; and Parker, Bindl, & Strauss, 2010). This model also builds upon recent theorizing on the antecedents and outcomes of job crafting (Demerouti, 2014; Wang, Demerouti, & Bakker, 2017) as a means of guiding hypotheses and corresponding empirical tests of the associations between job crafting and a range of relevant antecedents and outcomes. Our overarching goals and contributions here were three-fold and address current needs that broadly characterize this literature.

First, applying our model, we meta-analytically synthesize relationships of job crafting with individual differences, job characteristics, and individual-level work outcomes (Fig. 1). Second, because research based on Tims and Bakker's (2010) conceptualization has adopted different operationalizations of job crafting (e.g., Petrou, Demerouti, Peeters, Schaufeli, & Hetland, 2012; Tims et al., 2012), we considered job crafting in two different ways. On the one hand, we considered relationships with the four specific job crafting dimensions outlined by Tims and Bakker (2010), namely increasing challenging and decreasing hindering job demands, as well as increasing structural and social job resources. On the other hand, acknowledging that research has also conceptualized job crafting as a composite aggregation of these four dimensions (e.g., Akkermans & Tims, 2016; Bell & Njoli, 2016; Ingusci, Callea, Chirumbolo, & Urbini, 2016; Tims, Derks, & Bakker, 2016), we provide meta-analytic evidence for the interrelationships among the four forms of job crafting. We also conduct a meta-analytic confirmatory factor analysis (CFA) of these relationships and consider relationships of “overall” job crafting with associated antecedents and outcomes. Building upon the latter point, we additionally offer a series of moderator analyses, which address whether combining various job crafting dimensions yields substantially different conclusions regarding such effects. By addressing this goal, we aim to provide some necessary clarity surrounding the operation of overall versus dimension-level conceptualizations of job crafting.

Third, we more closely examine the role of dimension-specific forms of job crafting by decomposing the relative contribution of each of the four dimensions as predictors of work outcomes via meta-analytic relative weights analyses. This goal specifically addresses the need to understand the unique relationships between each job crafting dimension and the outcomes considered within our integrative model. In summary, our study contributes to an enhanced understanding of the nature of the job crafting construct by a) applying methods of quantitative synthesis to test the associations implied by an integrative model, b) investigating how these associations vary as a function of how job crafting is conceptualized, and c) exploring the differential relationships that job crafting dimensions have with work outcomes.

2. Job crafting: conceptualization and measurement

Job crafting can be differentiated conceptually from other proactive work behavior constructs, such as personal initiative, taking charge, and voice (Parker & Collins, 2010; Tornau & Frese, 2013, 2015), in that it is specifically directed at changing the (perceived) characteristics of one's job (Demerouti & Bakker, 2014). While other forms of proactive behavior may result in changes to one's job characteristics, the underlying intentions of these behaviors are more broadly focused (Frese, Garst, & Fay, 2007). Additionally, although our meta-analysis particularly focuses on the most commonly used approach to job crafting that has been offered by Tims and Bakker (2010) and Tims et al. (2012), a number of alternative conceptualizations and measures of job crafting do exist (see Table 1 for a summary).

Job crafting was first formally defined by Wrzesniewski and Dutton (2001) as “the physical and cognitive changes individuals make in the task or relational boundaries of their work” (p. 179) and “the action employees take to shape, mold, and redefine their jobs” (p. 180). Within this definition, physical changes refer to actual alterations of job characteristics, cognitive changes involve psychological redefinitions and reinterpretations of job characteristics without actual changes, and relational boundary changes entail altering the quantity or quality of workplace relationships. Wrzesniewski and Dutton suggest that employees are motivated to engage in job crafting to fulfill basic psychological needs for autonomy, positive self-image, and relatedness (cf. Ryan & Deci, 2000). To this end, job crafting leads to changes in employees' identity and perceived meaning of work which, in turn, lead to greater job

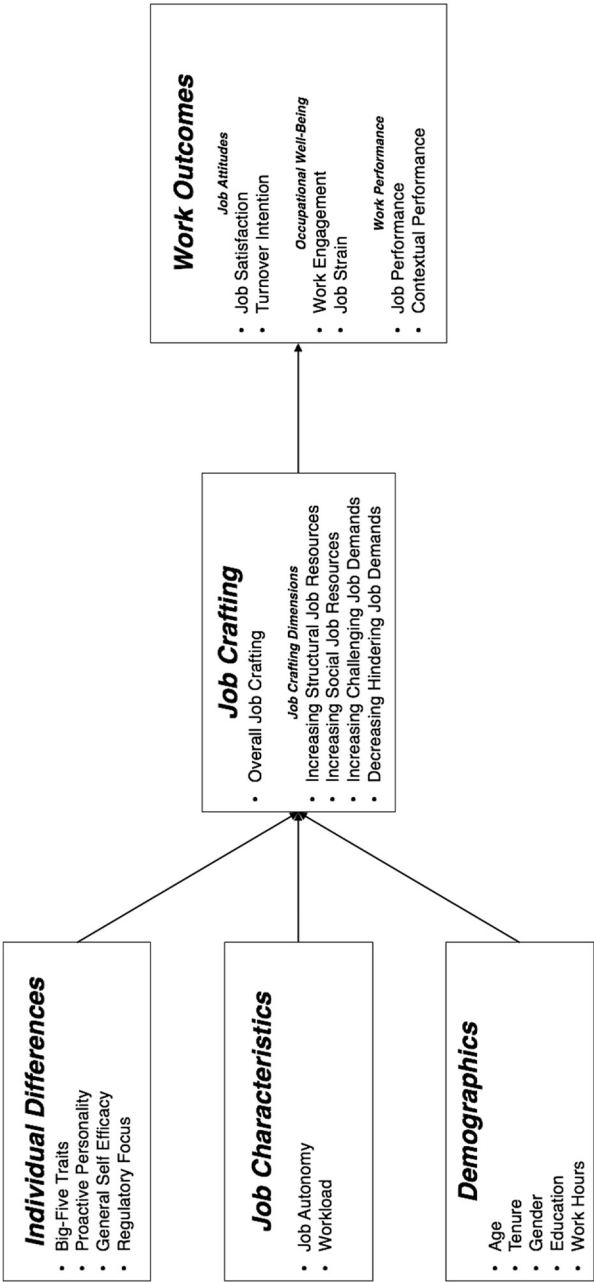


Fig. 1. Conceptual model & overview of relationships investigated in meta-analysis.

Table 1
Conceptualizations and measures of job crafting.

| Citation | Job crafting dimensions | Examples of job crafting behaviors and/or relevant scale items |
|--|-------------------------------------|---|
| Wrzesniewski & Dutton, 2001 | Task crafting | Taking control over job tasks; modifying the quantity (i.e., number) or quality (i.e., content) of job tasks. |
| | Relational crafting | Altering the quantity or quality of workplace relationships. |
| | Cognitive crafting | Psychological redefinitions and reinterpretations of job characteristics. |
| Ghitulescu (2006) | Task crafting | “How often do you teach concepts in small steps that are more manageable for some students in your math classes?” |
| | Relational crafting | “In an average month, about how many times do you talk to administrators about math instruction?” |
| | Cognitive crafting | “My job is very significant and important – the results of my work are likely to significantly affect the lives or well-being of other people.” |
| Leana et al. (2009) | Individual crafting | “How often do you introduce new approaches on your own to improve your work in the classroom?” |
| | Collaborative crafting | “How often do you decide together with your coworkers to change minor work procedures that you think are not productive (such as lunch time or transition routines)?” |
| Tims and Bakker (2010) | Increasing job demands | Adding job tasks; volunteering for interesting project groups; taking over tasks from their supervisor. |
| | Decreasing job demands | Asking colleagues to help them with their tasks; reducing the number of interactions with demanding customers or colleagues. |
| | Increasing job resources | Seeking social support; enhancing job autonomy. |
| Berg et al. (2010) | Job crafting | Task expanding (e.g., highlighting assigned tasks); job expanding (e.g., adding tasks); Role reframing (e.g., altering role perceptions). |
| | Leisure crafting | Vicarious experiencing; hobby experiencing |
| Volman (2011) | Task crafting | “I, by myself, made work more challenging.” |
| | Relational crafting | “I, by myself, ask advice from my co-workers to solve difficulties in my job.” |
| Tims et al. (2012) | Increasing structural job resources | “I try to develop my capabilities.” |
| | Increasing social job resources | “I ask my supervisor to coach me.” |
| | Increasing challenging job demands | “When an interesting project comes along, I offer myself proactively as a project co-worker.” |
| Nielsen and Abildgaard (2012) | Decreasing hindering job demands | “I try to ensure that I do not have to make many difficult decisions at work.” |
| | Increasing challenging job demands | “When a new task comes up, I sign up for it.” |
| | Decreasing social job demands | “I try to avoid emotionally challenging situations with my customers.” |
| Petrou et al. (2012) | Increasing social job resources | “I ask for feedback on my performance from customers.” |
| | Increasing quantitative job demands | “When there isn't much to do, I offer my help to colleagues.” |
| | Decreasing hindering job demands | “I ensure that my work is the least burdening/straining.” |
| Slemp and Vella-Brodrick (2013) | Seeking resources | “I ask others for feedback on my job performance.” |
| | Seeking challenges | “I ask for more tasks if I finish my work.” |
| | Reducing demands | “I try to ensure that my work is emotionally less intense.” |
| Niessen et al. (2016) | Task crafting | “Change the scope or types of tasks that you complete at work.” |
| | Relational crafting | “Engage in networking activities to establish more relationship.” |
| | Cognitive crafting | “Think about how your job gives you purpose.” |
| Lichtenthaler and Fischbach (2016a, 2016b) | Task crafting | “...I concentrate on specific tasks.” |
| | Relational crafting | “...I usually limit the amount of time I spend with people I do not get along well with, and only contact them for things that are absolutely necessary.” |
| | Cognitive crafting | “...I try to look upon the tasks and responsibilities I have at work as having a deeper meaning than is readily apparent.” |
| Lichtenthaler and Fischbach (2016a, 2016b) | Promotion-focused job crafting | Identical items to Tims et al. (2012) “increasing” dimensions. |
| | Prevention-focused job crafting | Identical items to Tims et al. (2012) “decreasing” dimension. |

satisfaction and performance. Job crafting influences identity development because it helps increase the fit between employees' views and definitions of themselves and their work. Wrzesniewski and Dutton (2001) also argue that job crafting influences employees' understanding of the purpose of their work (i.e., perceived meaning), because their job characteristics become more aligned with their individual abilities and needs.

Recently, researchers have developed measurement instruments to capture the dimensions of job crafting (i.e., physical, cognitive, and relational) proposed by Wrzesniewski and Dutton (2001) (e.g., Ghitulescu, 2006; Niessen, Weseler, & Kostova, 2016; Slemp & Vella-Brodrick, 2013; see Table 1). In parallel, a number of researchers have proposed alternative conceptualizations of job crafting (e.g., Berg, Grant, & Johnson, 2010; Leana, Appelbaum, & Shevchuk, 2009; see Table 1). The most widely known and adopted theoretical model was developed by Tims and Bakker (2010), who define job crafting as a form of proactive behavior that involves employees initiating changes in their (actual or perceived) job demands and resources to increase the fit between these job characteristics and their personal abilities and needs. Increased person-job fit, in turn, should lead to higher job satisfaction, work engagement, and perceived meaningfulness of work. Further grounding job crafting within the larger JD-R framework (e.g., Bakker & Demerouti, 2007; Demerouti et al., 2001), Bakker (2011) updated this general model to suggest that job crafting completes an in transitu feedback loop linking work engagement and performance to enhanced job and personal resources.

Based upon the theory offered by Tims and Bakker (2010), Tims et al. (2012) suggested that job crafting consists of four dimensions: increasing challenging job demands involves performing behaviors such as asking for more responsibilities and volunteering for special projects. Decreasing hindering job demands entails performing behaviors that aim to minimize physical, cognitive, and emotional demands, such as reducing workload and work-family conflict. Increasing structural job resources includes performing behaviors that aim to increase the autonomy, skill variety, and other motivational characteristics of the job. Finally, increasing social job resources entails asking for feedback as well as advice and support from supervisors and colleagues.

On the basis of factor-analytic evidence, Petrou et al. (2012) collapsed two of the dimensions in Tims and Bakker's (2010) conceptualization – increasing structural and social job resources – into one increasing job resources dimension and only differentiated between three types of job crafting. Likewise, Nielsen and Abildgaard (2012) developed a comparable, but much less widely used job crafting scale for blue-collar workers that additionally includes the dimensions “decreasing social job demands” and “increasing quantitative job demands.” Of note, in our meta-analysis, we focus on the four dimensions of job crafting originally proposed and represented in the measurement model offered by Tims et al. (2012), because these dimensions directly map onto the widely accepted and studied theoretical model offered by Tims and Bakker (2010) and because this scale is the most commonly used in the literature.

While these dimensions of job crafting are often considered independently in the literature, research has also aggregated scores across these dimensions to represent overall job crafting (e.g., Akkermans & Tims, 2016; Bell & Njoli, 2016; Ingusci et al., 2016; Tims et al., 2016). Indeed, this operationalization suggests that different related dimensions of job crafting reflect a latent, higher-order or composite job crafting construct. Considering various theoretical models of job crafting (e.g., Bakker, 2011; Tims & Bakker, 2010), this overall conceptualization is consistent with the idea that job crafting represents the orchestration of related proactive behaviors that are jointly enacted and represent striving towards enhanced person-environment fit.

Next, we will introduce an integrated theoretical model that explains links between various antecedents and consequences of job crafting. Prevailing theoretical models have variously positioned job crafting within the implied action-phase sequence of the JD-R (e.g., Bakker, 2011; Tims & Bakker, 2010), meaning that several constructs can be conceptualized both as antecedents and outcomes of job crafting. For instance, work engagement is likely to influence and to be influenced by job crafting (Bakker, 2010; Lu, Wang, Lu, Du, & Bakker, 2014). Given the non-experimental nature of the research considered by our meta-analysis, we necessarily consider individual differences, job characteristics, and work outcomes to be *correlates* rather than causal antecedents or outcomes of job crafting (see Fig. 1). However, we can consider theoretically grounded, empirically supported arguments for the classification of these variables as antecedents or outcomes of job crafting on the basis of theory and research.

3. Integrative theoretical model of job crafting

3.1. Job crafting as a form of proactive behavior

There has recently been increasing interest in identifying different forms of proactive work behaviors (Parker & Bindl, 2017), and empirical models have established a differentiated nomological network of related proactivity constructs (e.g., personal initiative, taking charge, voice; see Tornau & Frese, 2013). Moreover, a number of theoretical advancements have proposed various antecedents and outcomes of proactive behavior (e.g., Bindl & Parker, 2010; Crant, 2000; Grant & Ashford, 2008). Job crafting involves proactive changes that employees make to balance their job demands and resources with their personal capacities and needs. However, job crafting has yet to be formally integrated into these more general models of proactivity (e.g., Bindl & Parker, 2010). Two recent theoretical advancements put forward by Demerouti (2014) and Wang et al. (2017) hint at a variety of personal (e.g., proactive personality; general self-efficacy) and contextual antecedents (e.g., job resources, such as job autonomy; job demands, such as workload), as well as positive (e.g., work engagement; work performance) and negative (e.g., job strain) outcomes associated with job crafting.

These complimentary models of job crafting antecedents and outcomes very closely map onto more general models of proactive work behavior found in the literature. For example, an early model by Crant (2000) specifies individual differences (e.g., proactive personality, self-efficacy) and contextual factors (e.g., norms, social support) as predictors of proactive work behavior, and work performance and attitudes as outcomes. Frese and Fay (2001) offer a similar model that focuses specifically on personal initiative, but that also specifies environmental and person-level antecedents (i.e., personality; knowledge, skills, and abilities). Grant and Ashford (2008) extend these models to include additional situational (e.g., ambiguity) and dispositional (e.g., big five personality) antecedents to proactive work behavior. More comprehensive extensions of these models by Bindl, Parker, and colleagues (Bindl & Parker, 2010; Parker et al., 2010) specify distal individual differences (e.g., demographics, personality) and situational antecedents (e.g., job design), proximal individual difference antecedents (e.g., goals, affect), as well as individual work performance, career, and well-being outcomes.

Likewise, the job crafting models offered by Demerouti (2014) and Wang et al. (2017) are consistent with Tornau and Frese's (2013) integrative and empirically supported proactivity framework, which specifies both distal and proximal antecedents of proactive work behaviors, including personality and job characteristics, as well as work outcome variables, including job satisfaction and work performance. Thus, the conceptual model that serves as our theoretical framework in this study is grounded within the integration of these various perspectives on job crafting and proactive work behavior (see Fig. 1). We next elaborate on this model and more directly explain the nature of the proposed links tested in our meta-analysis. For reasons of parsimony, we took a theory-driven and affirmative approach to justify our hypotheses, meaning that we do not additionally justify why we do *not* expect certain relationships.

3.2. Job crafting and individual differences

Consistent with general models of proactivity (e.g., Bindl & Parker, 2010; Frese & Fay, 2001; Grant & Ashford, 2008), our integrative model of job crafting presented in Fig. 1 suggests that various personality characteristics and beliefs serve as individual difference antecedents of job crafting. In our meta-analysis, we examine relationships between job crafting and the traits included within the five-factor model of personality, as well as proactive personality, promotion and prevention regulatory focus, and general self-efficacy.

The five factor model of personality (i.e., the “Big Five”; Digman, 1990) is defined by trait conscientiousness, extraversion, neuroticism (i.e., low emotional stability), agreeableness, and openness to experience. In their dynamic model of proactivity, Grant and Ashford (2008) suggest that certain big five traits (i.e., conscientiousness, neuroticism, and openness to experience) are important for the development of proactive work behaviors (see also Wu & Li, 2017). Expanding upon these predictions, we expect that all of the big five traits are related to overall job crafting (see Bell & Njoli, 2016). Considering specific job crafting dimensions, conscientious employees are task-oriented and persistent. Considering the latter, Grant and Ashford (2008) emphasize the importance of persistence for the sustained enactment of proactive work behavior. Conscientiousness should thus facilitate increasing challenging job demands, decreasing hindering job demands, and increasing structural job resources. Extraverted employees are outgoing and sociable and are adept at managing social interactions (Asendorpf & Wilpers, 1998). As such, Wu and Li (2017) suggest that extraversion is particularly important for facilitating proactive behavior in relational contexts, thus higher extraversion should be associated with higher levels of increasing social job resources. Emotionally stable employees (i.e., those low in neuroticism) cope well with stressors, which should facilitate decreasing hindering job demands. Moreover, more emotionally stable people tend to experience positive emotions and have higher self-confidence (Judge, Locke, Durham, & Kluger, 1998), which may support the conviction to successfully influence change (Morrison & Phelps, 1999). Agreeable employees are friendly and team-oriented which, similar to extraversion, should enable increasing social job resources. Finally, employees with high levels of openness to experience are curious and creative, which may support the information-collection stages of proactive action processes (see Frese & Fay, 2001). Thus, openness should relate positively to increasing challenging and decreasing hindering job demands.

Considering proactive personality, employees who are generally more proactive are more likely to engage in all forms of job crafting because they tend to show high levels of initiative, identify opportunities, overcome barriers, and persevere until they reach their goals (Bakker, Tims, & Derks, 2012; Crant, Hu, & Jiang, 2017). In a domain-general sense, self-efficacy refers to people's confidence in their ability to accomplish a given task successfully (Bandura, 2000). We expect that general self-efficacy is positively related to increasing challenging demands and increasing structural and social job resources, given that employees with high general self-efficacy set ambitious goals for themselves, persist during goal pursuit, and use better strategies to accomplish their goals (Bandura, 2000; Kanten, 2014).

According to regulatory focus theory (Higgins, 1997), people with higher levels of promotion focus concentrate on their hopes, accomplishments, and gains while pursuing their goals, whereas people with higher levels of prevention focus concentrate on safety, responsibilities, and avoiding losses. We expect that employees with higher levels of promotion focus show greater levels of increasing challenging demands and increasing structural and social resources than employees with lower levels of promotion focus. Moreover, we predict that employees with higher levels of prevention focus will engage more in reducing hindering demands and less in other forms of job crafting than employees with lower levels of prevention focus. Research suggests that those with higher levels of promotion focus are more likely take steps to improve their person-job fit in general, whereas employees with higher levels of prevention focus are more focused on preventing negative outcomes (e.g., low performance, negative evaluations) by reducing hindering job demands (Bipp & Demerouti, 2015; Petrou & Demerouti, 2015; Wang et al., 2017).

3.3. Job crafting and job characteristics

Our integrative model of job crafting also considers job autonomy and workload as specific job characteristics. The inclusion of such job characteristics in our model mirrors past models of proactivity, which have positioned job characteristics as important antecedents to proactive work behaviors (e.g., Bindl & Parker, 2010; Grant & Ashford, 2008; Ohly & Schmitt, 2017). Consistent with the predictions of these models, we expect that job autonomy is positively related to overall job crafting. Additionally, we expect positive relationships between job autonomy and both increasing challenging job demands and increasing structural and social job resources, because job autonomy provides employees with opportunities and necessary information to make changes to their job characteristics based on their individual abilities and needs (Lyons, 2008; Tims, Bakker, & Derks, 2013). Moreover, we predict that workload is positively related to decreasing hindering demands as well as increasing structural and social job resources, because employees who experience a higher workload will be motivated to reduce the demands that are placed on them and to seek resources that help them manage these demands (Bakker & Demerouti, 2016).

3.4. Job crafting and work outcomes

Our integrative model of job crafting delineates important work outcomes that are consistent with the general model of proactive behavior by Bindl and Parker (2010; i.e., job performance and well-being). Likewise, consistent with Crant's (2000) model of proactive behavior, we consider job attitudes as outcomes of job crafting. Recent qualitative literature reviews have suggested that job crafting is associated with a variety of favorable work outcomes (Demerouti & Bakker, 2014; Wang et al., 2017). In their model of proactive work behavior, Bindl and Parker (2010) argue that proactive behavior is positively associated with job performance and well-being. Expanding upon this model, we meta-analytically review associations between job crafting and job attitudes (i.e., job satisfaction, turnover intentions), indicators of occupational well-being (i.e., work engagement, job strain), and work performance (i.e., self- and other-rated task performance, contextual performance) to gain a better understanding of these potential consequences of job crafting.

3.4.1. Job attitudes

We expect that job crafting is positively related to job satisfaction and negatively related to turnover intentions. One's attitude toward their job should result in part from improvements in job characteristics and perceived person-job fit due to engaging in job crafting (Edwards & Shipp, 2007; Wang et al., 2017). In particular, we predict that increasing challenging job demands and increasing structural and social job resources (but not decreasing hindering job demands) are positively related to favorable job attitudes (i.e., higher job satisfaction and lower turnover intentions).

3.4.2. Occupational well-being

Work engagement and job strain are important indicators of occupational well-being and are integral to the JD-R (Demerouti et al., 2001). Similar to job attitudes, work engagement and job strain should be influenced by job crafting via improved job characteristics and perceived person-job fit. Previous research indeed suggests that job crafting leads to improved employee well-being (Petrou, Demerouti, & Schaufeli, 2015; Petrou et al., 2012; Tims, Bakker, Derks, & van Rhenen, 2013) and that these relationships are mediated by enhanced person-job fit (Chen, Yen, & Tsai, 2014). We expect that increasing challenging job demands and increasing structural and social job resources (but not decreasing hindering job demands) are positively related to occupational well-being.

3.4.3. Work performance

Finally, we predict that job crafting, and particularly increasing challenging job demands and increasing structural and social job resources, are positively related to both self-rated and other-rated work performance and contextual performance (Borman & Motowidlo, 1997; Rotundo & Sackett, 2002). These job crafting behaviors should be positively related to work performance and contextual performance because they improve person-job fit which, in turn, facilitates performance (Edwards, Caplan, & Harrison, 1998; Kristof-Brown, Zimmerman, & Johnson, 2005). Several recent studies have found that job crafting is positively related to work performance (e.g., Bakker et al., 2012; Demerouti, Bakker, & Halbesleben, 2015; Tims, Bakker, & Derks, 2015b). However, findings regarding the relationship between job crafting and contextual performance are somewhat mixed. For instance, Gordon et al. (2015) found that decreasing hindering job demands was negatively related to contextual performance, whereas Tims et al. (2015b) found a non-significant effect of decreasing hindering job demands on contextual performance. Using meta-analytic methods, we aim to better understand the relationships between job crafting dimensions and different forms of performance.

3.5. Descriptive relationships with demographic and employment characteristics

Finally, our integrative model of job crafting specifies several demographic and employment characteristics. To be consistent with past meta-analytic models of proactivity constructs (Tornau & Frese, 2013) we conceptualize these relationships here as descriptive, rather than as substantive in nature. Moreover, because Bindl and Parker's (2010) model of proactivity specifies such demographic and employment characteristics as distal antecedents of proactive work behaviors, we likewise consider these variables here. We

examine descriptive relationships between job crafting and five commonly assessed demographic and employment characteristics: chronological age, gender, education, tenure, and work hours. Even though job crafting theories (e.g., Demerouti, 2014; Tims & Bakker, 2010; Wang et al., 2017) do not make specific predictions regarding these characteristics, it is still useful to understand the nature of such relationships, not only for comparing findings with research on other forms of proactive behavior (Tornau & Frese, 2013) and the planning of future research endeavors, but also for the continued development of enhanced theories of job crafting. To this end, it would be helpful to know whether job crafting is more or less common among younger or older employees, male or female employees, more or less educated employees, employees with shorter or longer tenure, and employees working fewer or more hours.

Some theorizing exists to support specific relationships between job crafting and demographic and employment characteristics. Based on human capital theory (Becker, 1975), it could be argued that older employees, as well as those with longer tenure and higher levels of education, may have greater accumulated job and general knowledge and thus are in a better position to craft their jobs compared to younger employees and those with shorter tenure and lower levels of education. Based upon action regulation theory, it could also be argued that older and more experienced employees (i.e., relative to younger and less experienced employees) are more likely to have developed cognitive routines in their work that are detrimental to behavioral changes like job crafting (Zacher, Hacker, & Frese, 2016).

Research concerning gender differences in job crafting is somewhat equivocal. For example, Petrou, Demerouti, and Xanthopoulou (2016) find that overall, men are more likely to engage in job crafting than women, whereas Van Hoof and Van Hooft (2014) find the opposite. There is also evidence for variability in this effect at the job crafting dimension level. For example, Van Hoof and Van Hooft (2014) report that women were more likely than men to craft via increasing structural job resources and increasing challenging job demands. Career development research has found that women may be afforded fewer challenging work experiences than their male counterparts (e.g., Lyness & Thompson, 2000; Ohlott, Ruderman, & McCauley, 1994; Van Velsor & Hughes, 1990). Because the pursuit of challenging job assignments is an important prerequisite for career advancement in many cases (Mainiero, 1994; Ragins, Townsend, & Mattis, 1998), job crafting may represent a particularly important opportunity for women to proactively manage their career progression. While formally untested, the results of our meta-analysis will shed light on these possibilities and provide directions for future research and theorizing.

4. Method

4.1. Inclusion criteria

As part of our efforts, we conducted two separate meta-analyses (i.e., a primary meta-analysis of overall job crafting and specific job crafting dimension relationships, and an ancillary meta-analysis of interrelations among the specific job crafting dimensions). Thus, we established two sets of a priori inclusion/exclusion criteria. For the primary analysis, we set six inclusion criteria to guide our literature searches. First, to qualify for inclusion, articles must have measured job crafting in terms of either (a) increasing structural job resources, increasing social job resources, increasing challenging job demands, or decreasing hindering job demands via the instrument developed by Tims et al. (2012) or a related instrument that likewise captures these dimensions of increasing and decreasing job demands and resources (e.g., Nielsen & Abildgaard, 2012; Petrou et al., 2012), or (b) overall job crafting via an aggregation of two or more of these dimensions.

Studies adopting alternative measurement instruments (see Table 1) were excluded from our analysis when such scales could not be readily mapped onto Tims and Bakker's (2010) theoretical framework and its related measurement model and associated scale items (i.e., Tims et al., 2012). Across all of our literature search efforts and attempts to obtain unpublished data and pre-press manuscripts, no studies measured multiple dimensions of job crafting that simultaneously map onto the Tims et al. (2012) and the Wrzesniewski and Dutton (2001) conceptualizations of job crafting. This is important to note, because this "gap" makes a direct empirical comparison between these alternative job crafting theories via meta-analytic synthesis impossible at this point in time.

In terms of conceptualizing overall job crafting in our analyses, either we coded such relationships directly from studies that reported job crafting as a composite score (e.g., Tims et al., 2016) or we computed a composite across available crafting dimension correlations using Hunter and Schmidt's (2004) composite formulae to represent overall job crafting relationships. This first inclusion criterion led to the exclusion of review articles (e.g., Demerouti, 2014; Demerouti & Bakker, 2014; Nielsen, 2013), studies adopting exclusively qualitative methodologies, and studies that investigated non-work forms of crafting (e.g., leisure crafting, Petrou & Bakker, 2016a).

Second, in addition to measuring job crafting in some capacity, at least one of the individual differences, job characteristics, work outcomes, or demographic variables from our integrative job crafting models must also have been measured (see Fig. 1). Thus, studies that only considered the psychometric qualities of job crafting scales were excluded from this primary analysis, as were studies that did not measure at least one of the relevant antecedent or outcome variables (e.g., Akin, Sarıçam, Kaya, & Demir, 2014).

Third, to avoid double counting (i.e., to maintain sample independence), we excluded studies in which authors clearly used the same dataset and reported the same correlations in more than one published study, unless different outcomes were clearly considered in both studies (e.g., Tims et al., 2013, and Tims, Bakker, & Derks, 2015a, both use the same sample; however, different outcome variables are reported in each study, and overlapping job crafting relationships were only coded from one study; similar overlapping samples are also present in both Petrou & Demerouti, 2015, and Petrou, Demerouti, & Xanthopoulou, 2016).

Related to this, in cases where both theses/dissertations and published versions of these theses/dissertations were obtained via

our literature searches, the study with *more* information (i.e., a greater number of relevant job crafting relationships) was coded (e.g., Study 1 from Chapter Six of Petrou's, 2013 dissertation contains more complete information than the resulting publication, Petrou et al., 2015). Similarly, in the case of one master's thesis (Hekkert-Koning, 2014), the sample used and the relationships reported completely overlapped with a more recent published work. Thus, we opted to code only the published work (Brenninkmeijer & Hekkert-Koning, 2015) and excluded the thesis. Studies reporting results in languages other than English were translated using translation software.

Consistent with meta-analytic best practices (e.g., Cooper, Hedges, & Valentine, 2009; Higgins & Green, 2011), we sought to actively include unpublished master's theses and doctoral dissertations in our meta-analysis ($K = 41$). In some universities, groups of bachelor's and master's students work together in "thesis circles" to complete such projects. In such cases, we coded non-overlapping relationships that were unique to each individual study to ensure sample independence. Such studies are noted in the references with the superscript "TC" and a number representing thesis circle membership (e.g., TC1).

Fourth, whenever longitudinal analyses were reported, we coded relationships based on time-one data for complete panel designs (e.g., Vogt, Hakanen, Brauchli, Jenny, & Bauer, 2016), and between job crafting and relevant correlates at other time points for incomplete panel designs (e.g., Nielsen & Abildgaard, 2012). Fifth, when an article reported results obtained from multiple independent samples, each sample was included separately in the meta-analysis (e.g., De Beer, Tims, & Bakker, 2016; Nielsen, Antino, Sanz-Vergel, & Rodríguez-Muñoz, 2017).

Finally, diary research has shown that employees engage in job crafting on a daily basis (Demerouti et al., 2015; Petrou et al., 2012; Tims, Bakker, & Derks, 2014). However, the number of studies using such designs is still small relative to others (i.e., we identified $K = 12$ diary studies). To be consistent with our operationalization of job crafting, we considered data at the between-person level of analysis only (i.e., within-person data aggregated to the between-person level) from such studies.

For the ancillary meta-analysis of dimension-level intercorrelations, we adopted an additional inclusion criterion. Specifically, to facilitate meta-analytic regression modelling and relative weights analysis, we additionally needed to quantify the strength of the intercorrelations between individual dimensions of job crafting. For this analysis, we only considered studies that measured all four job crafting dimensions included in the Tims et al. (2012) job crafting scale. Indeed, a number of studies excluded certain dimensions of the job crafting scale (e.g., Berdicchia, Nicolli, & Masino, 2016; Gordon et al., 2015) and were consequently omitted from this dimension-level analysis.

4.2. Literature search

All literature searching was done between April 1, 2016 and June 20, 2016, with supplementary literature searches conducted in December 2016 to support a revision effort. We initially searched the electronic database, Google Scholar, with follow-up searches conducted using EBSCOHost, Emerald, JSTOR, ProQuest, PsycINFO, ScienceDirect, and Web of Science. All searches used the key-word "job crafting" as well as the individual dimensions of job crafting as defined by Tims et al. (2012; i.e., "increasing structural job resources," "decreasing hindering job demands," "increasing social job resources," and "increasing challenging job demands"). For each subsequent database, we noted all non-redundant articles (i.e., uniquely identified articles not overlapping with previous searches).

Additionally, we conducted forward searches to find studies citing the original Tims and Bakker (2010) theory development paper, along with the Tims et al. (2012) job crafting scale development paper. To locate additional literature, we examined the reference lists of all retrieved articles and conducted systematic forward searches of studies that cited each retrieved article. This search process yielded an initial set of over 500 references. In a second step, based on our inclusion criteria, we selected all relevant quantitative-empirical studies on job crafting from these initial references by carefully examining the abstract, methods, and results of each article. We also conducted searches within the conference programs of the Academy of Management (years 2012 to 2015), the Society for Industrial and Organizational Psychology (years 2012 to 2016), and the European Association for Work and Organizational Psychology (years 2011, 2013, 2015), and we contacted all authors whose abstracts mentioned job crafting. Finally, to obtain unpublished data and in-press articles, we contacted researchers who have published previously on job crafting, and we requested articles using professional mailing lists and website postings. For one such unpublished dataset (Akkermans & Tims, 2016), a published article was noted while this manuscript was under review (Akkermans & Tims, 2017). Additionally, we searched for pre-press "online first" articles via various relevant journal websites (e.g., *Journal of Management*, *Journal of Organizational Behavior*, *Journal of Vocational Behavior*, *Human Relations*).

In total, our meta-analytic database contained 1429 effect sizes coded from $K = 108$ sources representing $K = 122$ independent samples and a total of $N = 35,670$ workers. Our ancillary meta-analysis of the intercorrelations between the Tims et al. (2012) job crafting dimensions was based upon a total of $K = 42$ independent samples, representing a subset of $N = 13,440$ workers. All included studies are marked with an asterisk (i.e., *) in the reference list.

While coding, we took efforts to contact authors to clarify information (e.g., the dummy coding pattern of gender) or missing data (e.g., scale reliabilities; intercorrelations among job crafting dimensions to facilitate composite formation). In most cases, such issues were quickly and easily clarified (i.e., in only $K = 4$ cases, we were unable to receive the required information for inclusion, and such studies were subsequently excluded). We additionally excluded one study that reported untenable correlations (i.e., Rofcanin, Berber, Koch, & Sevinc, 2015).

4.3. Measures of constructs

4.3.1. Included relationships

We meta-analyzed relationships between overall job crafting, job crafting dimensions, and the set of a priori identified individual differences, job characteristics, and work outcomes (Fig. 1). Consistent with past research and best methodological practices, we included such relationships in our meta-analytic models in cases where these relationships were represented in at least three ($K \geq 3$) independent samples that measured each of the four dimensions of job crafting that were originally included in the Tims et al. (2012) scale. As Valentine, Pigott, and Rothstein (2010) note, even when $K = 2$, meta-analysis is superior to other means of synthesis (e.g., the “cognitive algebra” by which one tries to mentally integrate findings across studies). Moreover, a number of previous meta-analyses in the organizational sciences have adopted this $K \geq 3$ criterion (e.g., Choi, Oh, & Colbert, 2015; Eby, Allen, Evans, Ng, & DuBois, 2008; Kirca, Hult, Deligonul, Perry, & Cavusgil, 2012; Meyer, Stanley, Herscovitch, & Topolnysky, 2002; Viswesvaran & Ones, 1995; Viswesvaran, Schmidt, & Ones, 2002). Ultimately only 2% (i.e., 3) of the 115 effect sizes reported in our meta-analysis are based on $K = 3$ studies; the average number of studies included across these 115 estimates is approximately $K = 12$. Initially, we set out to code relationships that eventually did not meet our minimum $K \geq 3$ criterion for each of the four Tims et al. (2012) dimensions (e.g., individual differences, including positive and negative affect and psychological capital; job characteristics, including skill variety and feedback, and work outcomes, including counterproductive work behaviors and organizational commitment). Supplemental analyses and results characterizing these data are available from the first author.

When overlapping variables were not available in at least three samples, we made efforts to combine relevant variables into a typology of synthetic construct groupings. This was the case for three work outcomes investigated here: 1) other-rated task performance was composed of supervisor, peer, and customer-rated task performance, 2) job strain was composed of burnout and emotional exhaustion, and 3) contextual performance was composed of self- and other-rated organizational citizenship behaviors and self-rated contextual performance. It should be noted that when coding effect sizes for demographic characteristics, age and tenure were conceptualized chronologically (i.e., in years). Gender was operationalized as dummy coded categories, such that higher values were indicative of females (i.e., 0 = Male, 1 = Female). Education was operationalized such that higher scores indicate higher levels of educational attainment. Additionally, tenure was considered in terms of both job (e.g., Berdicchia, 2015) and organizational (e.g., Peeters, Arts, & Demerouti, 2016) tenure.

4.3.2. Composite and dimension-level job crafting

For overall job crafting, relationships were either directly coded from primary studies (i.e., those reporting aggregated job crafting scores; e.g., Solberg & Wong, 2016; Tims et al., 2016) or combined from dimension-level relationships using composite formulae from Hunter and Schmidt (2004). In both cases, these relationships represent the association between a combination of job crafting dimensions and a given correlate.

With respect to relationships at the dimension level, we coded *heterogeneous* job crafting dimensions that most directly map onto the theoretical model offered by Tims and Bakker (2010) and the corresponding Tims et al. (2012) measure of job crafting. The scaling of job crafting offered by Petrou et al. (2012) combines the two resource-based crafting dimensions into one larger *homogenous* cluster of job crafting behavior (i.e., increasing job resources). As such, we did not code such homogenous clusters. However, because the items included in this cluster do generally map onto those of the Tims et al. (2012) scale, these dimensions were considered when computing composite correlations to represent overall job crafting relationships.

4.4. General overview of meta-analytic procedures

Following an exhaustive literature search, each of the first three authors independently coded approximately one-third of all studies applying the a priori determined inclusion criteria outlined above. Coding correlations and reliabilities directly from primary studies does not require subjective judgements (Cooper, 1998; Cooper et al., 2009; Hunter & Schmidt, 2004; Whetzel & McDaniel, 1988). Indeed, initial calibration coding on a random subset of 10 studies yielded perfect agreement among the three coders. Nonetheless, the coding team met for weekly coding calibration meetings, during which each study was individually considered by the team and any disagreements encountered were discussed until agreement was reached via consensus.

We corrected observed correlations for sampling and measurement error, and combined effect size estimates using Hunter and Schmidt's (2004) random-effects procedure. First, we corrected for sampling error by calculating sample size-weighted correlations. Second, where possible (i.e., for multi-item scales), we corrected for the lack of perfect reliability, as it is well-established that unreliability attenuates zero-order correlations (Hunter & Schmidt, 2004). Artifact distributions were used for cases in which a study did not report the reliability estimate for a given construct (Hunter & Schmidt, 2004).

In addition to the sample size-weighted correlation (r) and the sample size-weighted and reliability-corrected correlation (r_c), we report the 95% confidence interval and the 80% credibility interval for r_c , as well as the variance attributable to statistical artifacts (% var). A sample size-weighted and reliability-corrected correlation is considered statistically significant when its associated confidence interval does not include zero. If a credibility interval includes zero, moderators are likely present (Geyskens, Krishnan, Steenkamp, & Cunha, 2009). Alternatively, the 75% rule can be applied (i.e., a moderator is likely to be present when the percentage variance accounted for by statistical artifacts is < 75%, see Hunter & Schmidt, 2004).

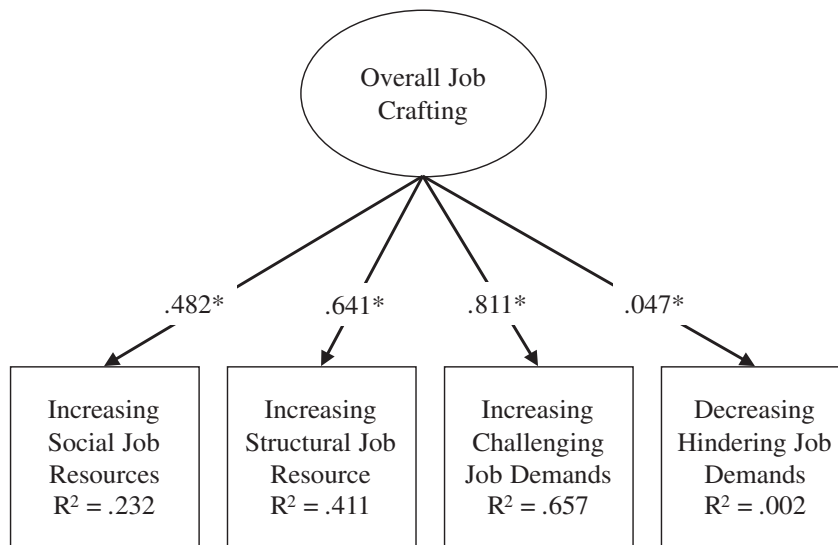


Fig. 2. Summary of standardized factor loadings for Tims et al. (2012) job crafting confirmatory factor analysis
 Note. $\chi^2 = 241.70$, $p < 0.05$, CFI = 0.97, TLI = 0.90, RMSEA = 0.09, SRMR = 0.04.

4.5. Meta-analytic confirmatory factor analysis

Given the conceptualization of overall job crafting in primary research, consideration of the latent structure of job crafting bears some attention. The use of overall job crafting here and in past research begs the question, to what extent is this an accurate representation of the job crafting construct? Our meta-analysis of intercorrelations among Tims et al. (2012) dimensions can partially speak to this concern. We subjected these correlations to a CFA, specified as a single latent variable representing overall job crafting, with each of the four Tims et al. (2012) dimensions loading onto this factor (see Fig. 2).

4.6. Meta-analytic multiple regression models

Estimating bivariate dimension-level job crafting and work outcome relationships is important for understanding how job crafting operates at the dimension level; however, to more closely address the unique and relative contribution of Tims et al.'s (2012) job crafting dimensions to the prediction of work outcomes, we also ran a series of meta-analytic multiple regression models. While it is unlikely that the substantive conclusions drawn from such models depend upon corrections for statistical artifacts (e.g., attenuation due to measurement error; Michel, Viswesvaran, & Thomas, 2011), some have cautioned against this practice (LeBreton, Scherer, & James, 2014). To be more conservative in our estimates of these effects, we ran these models using uncorrected (i.e., sample size-weighted but not reliability-corrected) meta-analytic estimates. Moreover, as suggested by Viswesvaran and Ones (1995), the sample size for each regression model was the harmonic mean of the sample size across the relevant correlations considered. For such models, each work outcome was regressed simultaneously onto all four Tims et al. (2012) job crafting dimensions.

When the predictors included in a regression model are correlated, the relative contribution of each predictor to the model R^2 cannot be accurately determined by examining the regression weights alone (LeBreton, Ployhart, & Ladd, 2004). To determine the relative contribution of each of the job crafting dimensions to the prediction of each work outcome, we conducted a relative weights analysis (Johnson, 2000). We repeated these analyses for each work outcome of interest. Relative weights analysis produces two types of coefficients – relative weights and rescaled relative weights. Relative weights reflect the proportion of variance explained in an outcome that is attributed to each of the predictor variables (e.g., any given job crafting dimension), while the rescaled relative weights reflect the percentage of predicted variance that is accounted for by each predictor variable (i.e., calculated by dividing the relative weights by the model R^2 ; LeBreton, Hargis, Griepentrog, Oswald, & Ployhart, 2007).

4.7. Publication status sensitivity analyses

Consistent with best practices for conducting meta-analysis (e.g., Cooper et al., 2009; Hunter & Schmidt, 2004), we took active steps to locate and obtain as many unpublished data sources as possible. Despite these efforts, the possibility of the so-called “file-drawer” problem (Rosenthal, 1979) could still result in publication bias and unduly affect the results presented here. Conversely, it might be argued that the consideration of a relatively large number of unpublished studies might itself present a systematic artifact that abides further consideration. We conducted two separate sensitivity analyses to address the influence of publication status on our conclusions. To ensure a reasonable distribution of published and unpublished studies, we considered only the three highest K outcomes from our primary analysis (i.e., work engagement, job satisfaction, and self-rated work performance) for both analyses.

The first sensitivity analysis directly addresses the possibility of publication bias. Publication bias occurs when the results

observed from primary studies (i.e., those that are readily available to review) systematically differ from the results in the population of all possible primary studies (McDaniel, Rothstein, & Whetzel, 2006). To address this, we used trim-and-fill procedures to examine the extent to which “missing” studies would change the conclusions drawn here. The trim-and-fill method is a funnel plot symmetry approach, which both identifies and corrects for publication bias (see Duval & Tweedie, 1998, 2000).

Whereas the first sensitivity analysis addresses whether the *exclusion* of unpublished data could affect our conclusions, the second sensitivity analysis considered whether the *inclusion* of unpublished data has a commensurate influence. To address this, we employed cumulative meta-analysis. In cumulative meta-analysis, studies are sorted by a variable of interest (i.e., in this case, publication status). Then, a series of iterative meta-analyses are conducted, each adding one additional effect size at a time. We ordered publication status into blocks as 1 = published studies, 2 = unpublished conference papers, 3 = unpublished data, and 4 = unpublished theses or dissertations, which were then sequentially entered into a cumulative meta-analysis.

Such cumulative results can be examined for evidence of what McDaniel (2009) calls “drift.” Meta-analytic results from the studies “first” entered into the cumulative analysis represent estimates of the population mean from published studies. Meta-analytic results from later stages of this iterative process represent those from the addition of unpublished studies to a distribution that already contains published studies. If unpublished studies are somehow biasing the conclusions, the cumulative results will “drift” in either a more positive or a more negative direction (i.e., reflecting the direction of this bias) as unpublished studies are added.

4.8. Overall job crafting moderator analysis

We did not hypothesize nor model substantive moderators of job crafting relationships for two reasons. First, tests of moderators must be firmly grounded within theory and, in contrast to assumptions about main effects, existing theories of job crafting inconsistently delineate the role and operation of substantive moderators (e.g., Demerouti, 2014; Tims & Bakker, 2010). Second, for the few cases where there is a delineation of theoretically justifiable moderators, there is an inconsistent and relatively diffuse representation of such moderators within primary studies. As such, we offer tests of homogeneity as evidence for future research to consider conditional effects that may influence the strength of relationships between job crafting, its dimensions, and the other variables considered here.

Although substantive moderators could not be addressed here, we did consider an important methodological moderator representing the construction of overall job crafting. While a growing number of studies consider overall job crafting as an aggregation of the four Tims et al. (2012) job crafting dimensions, there is also speculation that the decreasing hindering job demands dimensions represents a unique withdrawal (e.g., Demerouti, 2014; Tims et al., 2013) or prevention-focused form of job crafting (e.g., Lichtenthaler & Fischbach, 2016a, 2016b) separate from the other three dimensions. Our relative weights analyses can speak to the unique relationships that each of these job crafting dimensions has with the outcomes considered in Fig. 1. However, it is likewise important to ascertain what influence (if any) the differential inclusion of these dimensions has on the overall construal of job crafting. Whereas our meta-analytic CFA can speak to the tenability of this overall operationalization from a factor structure perspective, the aim of this moderator analysis is to determine how the construction of overall job crafting affects its relationship with relevant antecedents and outcomes.

When coding overall job crafting for our primary analyses, we additionally coded the composition of overall job crafting as either 1 = “excludes decreasing hindering job demands” or 2 = “includes decreasing hindering job demands,” based upon the way that job crafting was operationalized and measured within each primary study. Thus, we considered the inclusion or exclusions of decreasing hindering job demands across primary studies to be a natural independent manipulation, rather than a synthetic and dependent construal.

For this analysis, we considered any effects that contained at least $K = 2$ for each subgroup (i.e., to facilitate a comparison of least two studies each that either includes or excludes the decreasing hindering job demands dimension). Consistent with best practices (Cooper et al., 2009), we used weighted least squares regression models to estimate these conditional effects. As with our primary meta-analytic framework, we used Hunter-Schmidt random effects estimators and sample-size weighting for effect sizes. To be most conservative, we considered raw (i.e., uncorrected for predictor and criterion unreliability) correlations as inputs in these models.

We report omnibus Q -statistics and associated inferential tests for significant moderator effects along with I^2 estimates. The I^2 statistic is an expression of the inconsistency of studies’ results that indexes the percentage of variation across studies that is due to heterogeneity (interpreted as the proportion of the total variation among effect sizes that is due to systematic differences between effect sizes rather than by chance alone; see Higgins & Thompson, 2002; Higgins, Thompson, Deeks, & Altman, 2003; Shadish & Haddock, 2009 pp. 263). Higher I^2 values (i.e., those closer to 100%) suggest that a larger proportion of residual heterogeneity remains unaccounted for after moderators are modelled (e.g., values between 50% and 100% suggest “substantial” to “considerable” levels of heterogeneity, see Higgins & Green, 2011). Likewise, following the suggestions of Hunter and Schmidt (2004), we report 95% confidence intervals for each subgroup effect size to allow for direct comparisons between different levels of the moderator. Non-overlapping 95% confidence intervals suggest that moderator subgroups are statistically different from one another ($p < 0.05$).

5. Results

We first summarize the results of our meta-analytic CFA and then turn to our primary meta-analysis of zero-order effects and relative weights analyses. Finally, we discuss sensitivity and moderator analyses. Given the number of relationships we have considered, the summary of the zero-order effects focuses only on relationships with overall job crafting; we then expand upon notable

Table 2
Summary of meta-analytic relationships: individual differences as correlates of job crafting.

| Job crafting correlate | Type of job crafting | K | N | r | r _c | SD _{rc} | CI _L | CI _U | %Var | CV _L | CV _U |
|----------------------------|----------------------|----|------|--------|----------------|------------------|-----------------|-----------------|---------|-----------------|-----------------|
| Big Five agreeableness | Overall job crafting | 5 | 2944 | 0.198 | 0.272 | 0.220 | 0.224 | 0.319 | 13.580 | −0.010 | 0.554 |
| | Structural | 5 | 2944 | 0.279 | 0.404 | 0.112 | 0.356 | 0.453 | 51.772 | 0.260 | 0.548 |
| | Social | 5 | 2944 | 0.089 | 0.130 | 0.227 | 0.077 | 0.182 | 8.292 | −0.162 | 0.421 |
| | Challenging | 5 | 2944 | 0.169 | 0.246 | 0.126 | 0.195 | 0.298 | 31.421 | 0.085 | 0.408 |
| | Hindering | 5 | 2944 | 0.105 | 0.154 | 0.157 | 0.101 | 0.206 | 17.222 | −0.047 | 0.355 |
| Big Five conscientiousness | Overall job crafting | 5 | 2944 | 0.154 | 0.200 | 0.086 | 0.154 | 0.246 | 28.590 | 0.090 | 0.310 |
| | Structural | 5 | 2944 | 0.208 | 0.285 | 0.066 | 0.237 | 0.332 | 43.954 | 0.200 | 0.370 |
| | Social | 5 | 2944 | 0.017 | 0.024 | 0.051 | −0.026 | 0.074 | 55.717 | −0.042 | 0.089 |
| | Challenging | 5 | 2944 | 0.114 | 0.157 | 0.079 | 0.108 | 0.206 | 34.599 | 0.056 | 0.258 |
| | Hindering | 5 | 2944 | −0.043 | −0.060 | 0.118 | −0.110 | −0.010 | 19.237 | −0.211 | 0.091 |
| Big Five extraversion | Overall job crafting | 6 | 3075 | 0.194 | 0.224 | 0.176 | 0.185 | 0.263 | 7.329 | −0.001 | 0.450 |
| | Structural | 6 | 3075 | 0.169 | 0.205 | 0.101 | 0.163 | 0.247 | 21.512 | 0.075 | 0.335 |
| | Social | 6 | 3075 | 0.142 | 0.176 | 0.149 | 0.133 | 0.219 | 11.809 | −0.015 | 0.367 |
| | Challenging | 6 | 3075 | 0.246 | 0.302 | 0.088 | 0.261 | 0.342 | 25.548 | 0.189 | 0.414 |
| | Hindering | 6 | 3075 | −0.022 | −0.028 | 0.175 | −0.071 | 0.016 | 8.974 | −0.252 | 0.197 |
| Big Five neuroticism | Overall job crafting | 7 | 3566 | −0.017 | −0.021 | 0.116 | −0.062 | 0.019 | 18.510 | −0.170 | 0.127 |
| | Structural | 7 | 3566 | −0.100 | −0.132 | 0.147 | −0.175 | −0.090 | 14.411 | −0.321 | 0.056 |
| | Social | 7 | 3566 | −0.003 | −0.004 | 0.042 | −0.048 | 0.040 | 66.871 | −0.058 | 0.050 |
| | Challenging | 7 | 3566 | −0.046 | −0.061 | 0.144 | −0.104 | −0.018 | 14.369 | −0.246 | 0.123 |
| | Hindering | 6 | 3075 | 0.115 | 0.155 | 0.199 | 0.108 | 0.202 | 8.846 | −0.101 | 0.410 |
| Big Five openness | Overall job crafting | 5 | 2944 | 0.174 | 0.218 | 0.225 | 0.174 | 0.262 | 6.287 | −0.070 | 0.506 |
| | Structural | 5 | 2944 | 0.267 | 0.352 | 0.187 | 0.308 | 0.396 | 12.612 | 0.113 | 0.591 |
| | Social | 5 | 2944 | 0.044 | 0.059 | 0.175 | 0.011 | 0.107 | 9.133 | −0.166 | 0.284 |
| | Challenging | 5 | 2944 | 0.200 | 0.266 | 0.181 | 0.220 | 0.313 | 11.121 | 0.035 | 0.498 |
| | Hindering | 5 | 2944 | −0.075 | −0.100 | 0.084 | −0.148 | −0.052 | 31.167 | −0.208 | 0.008 |
| Proactive personality | Overall job crafting | 12 | 4189 | 0.474 | 0.543 | 0.036 | 0.516 | 0.570 | 69.974 | 0.497 | 0.590 |
| | Structural | 10 | 4434 | 0.518 | 0.631 | 0.000 | 0.605 | 0.657 | 100.000 | 0.605 | 0.657 |
| | Social | 10 | 4434 | 0.186 | 0.225 | 0.042 | 0.191 | 0.259 | 63.517 | 0.171 | 0.279 |
| | Challenging | 11 | 4636 | 0.526 | 0.639 | 0.105 | 0.614 | 0.664 | 17.330 | 0.505 | 0.773 |
| | Hindering | 8 | 3656 | −0.045 | −0.054 | 0.139 | −0.093 | −0.015 | 14.279 | −0.231 | 0.124 |
| General self-efficacy | Overall job crafting | 12 | 2418 | 0.335 | 0.395 | 0.157 | 0.353 | 0.437 | 20.212 | 0.194 | 0.596 |
| | Structural | 3 | 1238 | 0.436 | 0.542 | 0.084 | 0.486 | 0.598 | 31.290 | 0.435 | 0.649 |
| | Social | 4 | 1511 | 0.150 | 0.193 | 0.086 | 0.129 | 0.256 | 37.751 | 0.082 | 0.304 |
| | Challenging | 6 | 1568 | 0.334 | 0.432 | 0.085 | 0.375 | 0.489 | 53.518 | 0.324 | 0.540 |
| | Hindering | 6 | 1768 | −0.015 | −0.019 | 0.161 | −0.077 | 0.040 | 17.382 | −0.224 | 0.187 |
| Promotion focus | Overall job crafting | 12 | 3225 | 0.432 | 0.509 | 0.040 | 0.476 | 0.542 | 71.774 | 0.458 | 0.561 |
| | Structural | 6 | 1349 | 0.379 | 0.468 | 0.062 | 0.412 | 0.525 | 58.519 | 0.389 | 0.548 |
| | Social | 9 | 2193 | 0.356 | 0.445 | 0.052 | 0.399 | 0.491 | 65.805 | 0.378 | 0.512 |
| | Challenging | 11 | 2784 | 0.435 | 0.550 | 0.093 | 0.512 | 0.588 | 36.262 | 0.431 | 0.669 |
| | Hindering | 12 | 3225 | 0.021 | 0.026 | 0.095 | −0.017 | 0.070 | 40.066 | −0.095 | 0.148 |
| Prevention focus | Overall job crafting | 11 | 3138 | 0.129 | 0.157 | 0.123 | 0.115 | 0.199 | 25.271 | −0.001 | 0.315 |
| | Structural | 5 | 1262 | 0.014 | 0.018 | 0.000 | −0.054 | 0.090 | 100.000 | −0.054 | 0.090 |
| | Social | 8 | 2106 | 0.057 | 0.072 | 0.131 | 0.018 | 0.127 | 26.566 | −0.096 | 0.240 |
| | Challenging | 10 | 2697 | 0.073 | 0.095 | 0.114 | 0.046 | 0.144 | 32.529 | −0.051 | 0.241 |
| | Hindering | 11 | 3138 | 0.117 | 0.152 | 0.102 | 0.107 | 0.197 | 35.890 | 0.021 | 0.284 |

Note. K = cumulative number of studies; N = cumulative sample size; r = sample size-weighted correlation; r_c = sample size-weighted and reliability-corrected correlation; SD_{rc} = standard deviation of r_c; CI = 95% confidence interval for r_c; CV = 80% credibility interval for r_c; %var = variance attributable to statistical artifacts (sampling error & unreliability); social = increasing social job resources; structural = increasing structural job resources; challenging = increasing challenging job demands; hindering = decreasing hindering job demands.

dimension-level relationships in our discussion. Complete zero-order meta-analytic results of job crafting and its dimensions are summarized in Tables 2–5. Table 2 summarizes findings for individual differences, Tables 3 and 4 summarize findings for job characteristics and work outcomes, respectively, and Table 5 summarizes finding for demographic variables. All effects summarized below are statistically significant ($p < 0.05$), except where noted.

5.1. Testing the latent structure of job crafting

We specified a one-factor CFA model, in which all four Tims et al. (2012) job crafting dimensions loaded onto a single latent factor

Table 3
Summary of meta-analytic relationships: job characteristics as correlates of job crafting.

| Job crafting correlate | Type of job crafting | K | N | r | r _c | SD _{r_c} | CI _L | CI _U | %Var | CV _L | CV _U |
|------------------------|----------------------|----|------|--------|----------------|-----------------------------|-----------------|-----------------|--------|-----------------|-----------------|
| Job autonomy | Overall job crafting | 25 | 8805 | 0.240 | 0.279 | 0.083 | 0.256 | 0.302 | 34.531 | 0.173 | 0.385 |
| | Structural | 14 | 5644 | 0.369 | 0.456 | 0.101 | 0.428 | 0.484 | 23.948 | 0.327 | 0.586 |
| | Social | 16 | 5957 | 0.098 | 0.121 | 0.078 | 0.090 | 0.152 | 40.408 | 0.022 | 0.220 |
| | Challenging | 22 | 7722 | 0.261 | 0.322 | 0.110 | 0.296 | 0.347 | 25.469 | 0.181 | 0.463 |
| | Hindering | 18 | 6714 | −0.060 | −0.076 | 0.100 | −0.106 | −0.046 | 29.898 | −0.204 | 0.052 |
| Workload | Overall job crafting | 12 | 2878 | 0.144 | 0.164 | 0.088 | 0.123 | 0.205 | 40.601 | 0.052 | 0.276 |
| | Structural | 4 | 716 | 0.162 | 0.195 | 0.140 | 0.109 | 0.282 | 28.461 | 0.016 | 0.375 |
| | Social | 5 | 918 | 0.143 | 0.179 | 0.090 | 0.099 | 0.259 | 51.579 | 0.064 | 0.294 |
| | Challenging | 11 | 2288 | 0.143 | 0.181 | 0.128 | 0.130 | 0.233 | 32.267 | 0.018 | 0.345 |
| | Hindering | 12 | 2494 | −0.001 | −0.002 | 0.134 | −0.052 | 0.048 | 30.266 | −0.173 | 0.170 |

Note. K = cumulative number of studies; N = cumulative sample size; r = sample size-weighted correlation; r_c = sample size-weighted and reliability-corrected correlation; SD_{r_c} = standard deviation of r_c; CI = 95% confidence interval for r_c; CV = 80% credibility interval for r_c; %var. = variance attributable to statistical artifacts (sampling error & unreliability); social = increasing social job resources; structural = increasing structural job resources; challenging = increasing challenging job demands; hindering = decreasing hindering job demands.

representing overall job crafting (see Table 6 & Fig. 2). The fit of this model was satisfactory ($\chi^2_{(2)} = 241.70$, $p < 0.05$, CFI = 0.97, TLI = 0.90, RMSEA = 0.09, SRMR = 0.04). Whereas the pattern of meta-analytic intercorrelations (see Table 6) suggests that the Tims et al. (2012) job crafting dimensions exhibit a generally positive manifold (Spearman, 1904), a low standardized factor loading was observed between the decreasing hindering job demands dimension and the latent job crafting factor. While fit of this model to the data would suggest that these multiple forms of job crafting can be represented as an aggregate score, these results also hint that some caution should be exercised when construing job crafting as an “overall” construct (Akkermans & Tims, 2016; Bell & Njoli, 2016; Ingusci et al., 2016; Tims et al., 2016). Notwithstanding this finding, however, we further consider evidence for the operation of decreasing hindering job demands both in terms of its predictive capacity and in terms of its construction, below.

5.2. Testing the integrative model of job crafting

5.2.1. Job crafting and individual differences

Considering big five personality dimensions, we find positive relationships between overall job crafting and *agreeableness* ($r_c = 0.272$), *conscientiousness* ($r_c = 0.200$), *extraversion* ($r_c = 0.224$), and *openness to experience* ($r_c = 0.218$). In contrast, *neuroticism* is unrelated to overall job crafting. *Proactive personality* is positively related to overall job crafting ($r_c = 0.543$), as is *general self-efficacy* ($r_c = 0.395$). Considering *regulatory focus*, we find that *promotion* focus is positively related to overall job crafting ($r_c = 0.509$) and that *prevention* focus is likewise positively related to overall job crafting ($r_c = 0.157$).

5.2.2. Job crafting and job characteristics

Job autonomy ($r_c = 0.279$) and *workload* ($r_c = 0.164$) are both positively related to overall job crafting.

5.2.3. Job crafting and work outcomes

5.2.3.1. Job attitudes. *Job satisfaction* is positively related to overall job crafting ($r_c = 0.288$); however, overall job crafting was not significantly related to *turnover intentions*.

5.2.3.2. Occupational well-being. *Work engagement* is positively related to overall job crafting ($r_c = 0.450$), while *job strain* is negatively related to overall job crafting ($r_c = -0.125$).

5.2.3.3. Work performance. Both *self-rated work performance* ($r_c = 0.274$) and *other-rated work performance* are positively related to overall job crafting ($r_c = 0.184$). Additionally, *contextual performance* is positively related to overall job crafting ($r_c = 0.314$).

5.2.4. Demographic and employment characteristics

Considering *chronological age*, a negative relationship is observed with overall job crafting ($r_c = -0.100$). Likewise, *tenure* is weakly and negatively related to overall job crafting ($r_c = -0.105$). Additionally, we find small, positive relationships between overall job crafting and *gender* ($r_c = 0.027$), *education* ($r_c = 0.110$), and *work hours* ($r_c = 0.098$).

5.3. Summary of meta-analytic multiple regression models

Below, we report the results of the relative weights analyses summarizing the relative contribution of each of the Tims et al. (2012) job crafting dimensions to the prediction of work outcomes. Note that full results of these models are reported in Table 7, and only the most important predictors (i.e., in terms of absolute magnitude of variance explained) are summarized below.

Table 4

Summary of meta-analytic relationships: work outcomes as correlates of job crafting.

| Job crafting correlate | Type of job crafting | K | N | r | r _c | SD _{r_c} | CI _L | CI _U | %Var | CV _L | CV _U |
|-------------------------|----------------------|----|--------|--------|----------------|-----------------------------|-----------------|-----------------|---------|-----------------|-----------------|
| Job satisfaction | Overall job crafting | 20 | 6599 | 0.254 | 0.288 | 0.115 | 0.262 | 0.314 | 21.500 | 0.140 | 0.436 |
| | Structural | 9 | 4694 | 0.338 | 0.398 | 0.077 | 0.368 | 0.428 | 28.804 | 0.299 | 0.496 |
| | Social | 17 | 6163 | 0.207 | 0.248 | 0.123 | 0.219 | 0.277 | 19.883 | 0.090 | 0.406 |
| | Challenging | 16 | 5762 | 0.253 | 0.312 | 0.086 | 0.282 | 0.341 | 37.084 | 0.202 | 0.421 |
| | Hindering | 17 | 5658 | −0.099 | −0.124 | 0.204 | −0.156 | −0.091 | 10.197 | −0.385 | 0.138 |
| Turnover intentions | Overall job crafting | 4 | 2429 | −0.019 | −0.021 | 0.151 | −0.066 | 0.023 | 8.236 | −0.215 | 0.173 |
| | Structural | 4 | 2429 | −0.133 | −0.158 | 0.029 | −0.204 | −0.111 | 73.522 | −0.194 | −0.121 |
| | Social | 3 | 2240 | −0.019 | −0.022 | 0.015 | −0.070 | 0.026 | 88.310 | −0.042 | −0.002 |
| | Challenging | 4 | 2429 | −0.075 | −0.091 | 0.106 | −0.139 | −0.043 | 17.480 | −0.227 | 0.045 |
| | Hindering | 3 | 2240 | 0.202 | 0.235 | 0.023 | 0.189 | 0.282 | 77.232 | 0.207 | 0.264 |
| Work engagement | Overall job crafting | 60 | 21,635 | 0.401 | 0.450 | 0.135 | 0.438 | 0.463 | 15.075 | 0.277 | 0.623 |
| | Structural | 32 | 12,814 | 0.500 | 0.591 | 0.074 | 0.576 | 0.607 | 36.526 | 0.496 | 0.687 |
| | Social | 39 | 14,535 | 0.297 | 0.352 | 0.123 | 0.334 | 0.370 | 19.461 | 0.194 | 0.510 |
| | Challenging | 48 | 16,412 | 0.380 | 0.454 | 0.133 | 0.438 | 0.470 | 20.438 | 0.284 | 0.625 |
| | Hindering | 42 | 12,258 | −0.074 | −0.090 | 0.159 | −0.112 | −0.069 | 16.787 | −0.294 | 0.114 |
| Job strain | Overall job crafting | 18 | 7654 | −0.108 | −0.125 | 0.135 | −0.151 | −0.100 | 14.767 | −0.298 | 0.047 |
| | Structural | 9 | 3342 | −0.129 | −0.157 | 0.159 | −0.198 | −0.117 | 13.434 | −0.361 | 0.046 |
| | Social | 10 | 3726 | −0.039 | −0.046 | 0.092 | −0.085 | −0.008 | 31.447 | −0.165 | 0.072 |
| | Challenging | 15 | 5425 | −0.115 | −0.140 | 0.126 | −0.172 | −0.108 | 20.050 | −0.302 | 0.022 |
| | Hindering | 16 | 5631 | 0.119 | 0.150 | 0.168 | 0.118 | 0.183 | 13.752 | −0.065 | 0.366 |
| Self-rated performance | Overall job crafting | 27 | 7770 | 0.233 | 0.274 | 0.125 | 0.249 | 0.299 | 22.496 | 0.113 | 0.435 |
| | Structural | 14 | 5664 | 0.324 | 0.400 | 0.057 | 0.371 | 0.428 | 50.618 | 0.326 | 0.473 |
| | Social | 16 | 6125 | 0.106 | 0.133 | 0.119 | 0.102 | 0.165 | 22.507 | −0.019 | 0.286 |
| | Challenging | 23 | 7300 | 0.243 | 0.310 | 0.126 | 0.283 | 0.338 | 25.105 | 0.149 | 0.472 |
| | Hindering | 20 | 5804 | −0.055 | −0.070 | 0.176 | −0.103 | −0.037 | 15.330 | −0.296 | 0.155 |
| Other-rated performance | Overall job crafting | 7 | 1024 | 0.158 | 0.184 | 0.174 | 0.115 | 0.254 | 22.827 | −0.039 | 0.408 |
| | Structural | 4 | 543 | 0.212 | 0.276 | 0.000 | 0.171 | 0.381 | 100.000 | 0.171 | 0.381 |
| | Social | 6 | 930 | 0.167 | 0.211 | 0.118 | 0.132 | 0.291 | 42.111 | 0.061 | 0.362 |
| | Challenging | 5 | 659 | 0.319 | 0.422 | 0.119 | 0.331 | 0.513 | 45.610 | 0.269 | 0.574 |
| | Hindering | 4 | 721 | −0.010 | −0.013 | 0.189 | −0.108 | 0.082 | 20.961 | −0.255 | 0.229 |
| Contextual performance | Overall job crafting | 12 | 3689 | 0.262 | 0.314 | 0.172 | 0.278 | 0.351 | 13.405 | 0.095 | 0.534 |
| | Structural | 4 | 2318 | 0.417 | 0.506 | 0.024 | 0.465 | 0.547 | 78.813 | 0.475 | 0.537 |
| | Social | 6 | 2782 | 0.125 | 0.152 | 0.000 | 0.107 | 0.196 | 100.000 | 0.107 | 0.196 |
| | Challenging | 10 | 3360 | 0.322 | 0.429 | 0.161 | 0.389 | 0.469 | 19.730 | 0.223 | 0.635 |
| | Hindering | 10 | 3360 | −0.121 | −0.161 | 0.083 | −0.205 | −0.117 | 43.541 | −0.267 | −0.055 |

Note. K = cumulative number of studies; N = cumulative sample size; r = sample size-weighted correlation; r_c = sample size-weighted and reliability-corrected correlation; SD_{r_c} = standard deviation of r_c; CI = 95% confidence interval for r_c; CV = 80% credibility interval for r_c; %var. = variance attributable to statistical artifacts (sampling error & unreliability); social = increasing social job resources; structural = increasing structural job resources; challenging = increasing challenging job demands; hindering = decreasing hindering job demands; self-rated performance = self-rated work performance; other-rated performance = other rated work performance.

5.3.1. Job attitudes

As a set, job crafting explained $R^2 = 14\%$ of the variance in *job satisfaction*. Relative weights analysis indicated that increasing structural job resources accounted for 54.72% of this explained variance. With respect to *turnover intentions*, our analysis revealed that $R^2 = 6\%$ of the variance in turnover intentions can be attributed to these four job crafting dimensions. At the dimension level, decreasing hindering job demands accounted for 69.57% of the variance explained in turnover intentions.

5.3.2. Occupational well-being

Considering *work engagement*, job crafting dimensions accounted for $R^2 = 29\%$ of the variance in work engagement, and increasing structural job resources explained 58.74% of this total variability. The set of job crafting dimensions accounted for $R^2 = 3\%$ of the variance in *job strain* and decreasing hindering job demands explains 42.05% of this effect.

5.3.3. Work performance

Considering *self-rated job performance*, job crafting dimensions explained $R^2 = 12\%$ of the variance in self-rated job performance. The relative weights analysis showed that increasing structural job resources is the most important crafting dimension in terms of self-rated job performance, accounting for 66.44% of the variance explained across all four crafting dimensions. As a set, the four job crafting dimensions accounted for $R^2 = 11\%$ of the variance in *other-rated job performance*. Of the four dimensions, increasing challenging job demands accounted for 67.83% of this variance explained. With respect to *contextual performance*, job crafting

Table 5
Summary of meta-analytic relationships: demographics as correlates of job crafting.

| Job crafting correlate | Type of job crafting | K | N | r | r _c | SD _{rc} | CI _L | CI _U | %Var | CV _L | CV _U |
|------------------------|----------------------|----|--------|--------|----------------|------------------|-----------------|-----------------|---------|-----------------|-----------------|
| Age | Overall job crafting | 50 | 14,469 | −0.092 | −0.100 | 0.095 | −0.118 | −0.083 | 31.369 | −0.222 | 0.022 |
| | Structural | 21 | 6593 | 0.028 | 0.033 | 0.051 | 0.005 | 0.060 | 62.178 | −0.032 | 0.098 |
| | Social | 26 | 7370 | −0.167 | −0.194 | 0.122 | −0.220 | −0.168 | 24.346 | −0.351 | −0.037 |
| | Challenging | 33 | 9347 | −0.037 | −0.043 | 0.145 | −0.066 | −0.019 | 18.468 | −0.228 | 0.143 |
| | Hindering | 29 | 8470 | −0.033 | −0.039 | 0.126 | −0.064 | −0.014 | 22.678 | −0.201 | 0.123 |
| Tenure | Overall job crafting | 19 | 5705 | −0.095 | −0.105 | 0.069 | −0.133 | −0.076 | 45.907 | −0.193 | −0.016 |
| | Structural | 8 | 3453 | −0.025 | −0.029 | 0.088 | −0.067 | 0.009 | 27.679 | −0.142 | 0.084 |
| | Social | 8 | 3453 | −0.138 | −0.158 | 0.119 | −0.196 | −0.121 | 17.602 | −0.310 | −0.006 |
| | Challenging | 10 | 3618 | −0.083 | −0.092 | 0.072 | −0.128 | −0.056 | 39.128 | −0.185 | 0.001 |
| | Hindering | 9 | 3112 | −0.056 | −0.063 | 0.049 | −0.103 | −0.024 | 60.431 | −0.127 | 0.000 |
| Gender | Overall job crafting | 32 | 10,781 | 0.025 | 0.027 | 0.058 | 0.006 | 0.048 | 51.142 | −0.047 | 0.101 |
| | Structural | 13 | 4022 | 0.062 | 0.070 | 0.000 | 0.035 | 0.105 | 100.000 | 0.035 | 0.105 |
| | Social | 18 | 4799 | 0.069 | 0.080 | 0.033 | 0.047 | 0.112 | 82.202 | 0.038 | 0.122 |
| | Challenging | 23 | 6657 | 0.021 | 0.024 | 0.099 | −0.004 | 0.051 | 31.632 | −0.103 | 0.151 |
| | Hindering | 23 | 6707 | −0.020 | −0.023 | 0.064 | −0.051 | 0.005 | 53.107 | −0.105 | 0.059 |
| Education | Overall job crafting | 23 | 5785 | 0.100 | 0.110 | 0.112 | 0.082 | 0.138 | 28.128 | −0.034 | 0.253 |
| | Structural | 9 | 3502 | 0.098 | 0.116 | 0.097 | 0.077 | 0.154 | 28.401 | −0.009 | 0.240 |
| | Social | 13 | 4006 | 0.113 | 0.131 | 0.081 | 0.095 | 0.166 | 40.714 | 0.027 | 0.234 |
| | Challenging | 13 | 4038 | 0.123 | 0.145 | 0.152 | 0.109 | 0.181 | 16.556 | −0.050 | 0.340 |
| | Hindering | 14 | 3735 | −0.052 | −0.061 | 0.025 | −0.099 | −0.024 | 89.487 | −0.093 | −0.029 |
| Work hours | Overall job crafting | 8 | 1764 | 0.088 | 0.098 | 0.091 | 0.046 | 0.150 | 40.307 | −0.019 | 0.215 |
| | Structural | 5 | 995 | 0.092 | 0.106 | 0.058 | 0.035 | 0.176 | 65.749 | 0.031 | 0.180 |
| | Social | 5 | 995 | −0.011 | −0.012 | 0.031 | −0.083 | 0.058 | 87.170 | −0.052 | 0.027 |
| | Challenging | 4 | 856 | 0.154 | 0.171 | 0.132 | 0.098 | 0.244 | 24.168 | 0.002 | 0.340 |
| | Hindering | 4 | 778 | −0.052 | −0.060 | 0.000 | −0.140 | 0.020 | 100.000 | −0.140 | 0.020 |

Note. K = cumulative number of studies; N = cumulative sample size; r = sample size-weighted correlation; r_c = sample size-weighted and reliability-corrected correlation; SD_{rc} = standard deviation of r_c; CI = 95% confidence interval for r_c; CV = 80% credibility interval for r_c; %var. = variance attributable to statistical artifacts (sampling error & unreliability); social = increasing social job resources; structural = increasing structural job resources; challenging = increasing challenging job demands; hindering = decreasing hindering job demands.

Table 6
Meta-analysis of inter-relationship between job crafting dimensions.

| Job crafting relationship | K | N | r | r _c | CI _L | CI _U | %Var | CV _L | CV _U |
|---------------------------|----|--------|-------|----------------|-----------------|-----------------|--------|-----------------|-----------------|
| Social-structural | 42 | 13,440 | 0.306 | 0.398 | 0.378 | 0.418 | 18.811 | 0.211 | 0.585 |
| Social-challenging | 42 | 13,440 | 0.390 | 0.507 | 0.489 | 0.526 | 31.598 | 0.369 | 0.646 |
| Social-hindering | 42 | 13,440 | 0.133 | 0.174 | 0.152 | 0.196 | 12.375 | −0.075 | 0.424 |
| Structural-challenging | 42 | 13,440 | 0.521 | 0.671 | 0.655 | 0.687 | 23.220 | 0.510 | 0.832 |
| Structural-hindering | 42 | 13,440 | 0.005 | 0.006 | −0.016 | 0.028 | 22.198 | −0.168 | 0.181 |
| Challenging-hindering | 42 | 13,440 | 0.020 | 0.026 | 0.004 | 0.048 | 15.769 | −0.189 | 0.242 |

Note. K = cumulative number of studies; N = cumulative sample size; r = sample size-weighted correlation; r_c = sample size-weighted and reliability-corrected correlation; SD_{rc} = standard deviation of r_c; CI = 95% confidence interval for r_c; CV = 80% credibility interval for r_c; %var. = variance attributable to statistical artifacts (sampling error & unreliability). Social = increasing social job resources; structural = increasing structural job resources; challenging = increasing challenging job demands; hindering = decreasing hindering job demands.

explained $R^2 = 21\%$ of the variance. Increasing structural job resources accounted for 61.72% of this effect.

5.4. Publication status sensitivity analyses

5.4.1. Trim-and-fill models

Trim-and-fill estimates for job satisfaction ($r_{TF} = 0.254$) and self-rated work performance ($r_{TF} = 0.243$) were quite consistent with the raw zero-order estimates found in Table 4. However, there was some evidence that publication bias may be affecting the estimates of the work engagement parameter. Indeed, the trim-and-fill estimate was somewhat higher than the zero-order effect ($r_{TF} = 0.440$ versus $r = 0.401$), and the estimated number of missing studies was $K = 13$. Some caution must be taken when interpreting these findings, as this method has been noted to perform poorly (Terrin, Schmid, Lau, & Olkin, 2003; Peters, Sutton, Jones, Abrams & Rushton, 2007) when there is substantial between-study heterogeneity (i.e., as observed for work engagement: % var. = 15.08; $I^2 = 88.28\%$).

Table 7
Relative weights analysis.

| Job satisfaction | Dimension | <i>B</i> | <i>SE_B</i> | t-value | <i>p</i> | RW | % <i>R</i> ² |
|---|-------------|----------|-----------------------|----------|----------|-------|-------------------------|
| <i>R</i> ² = 0.14 <i>F</i> = 356.50, <i>p</i> < 0.05 | Social | 0.113 | 0.011 | 10.169 | < 0.001 | 0.024 | 16.635 |
| | Structural | 0.266 | 0.012 | 22.470 | < 0.001 | 0.078 | 54.724 |
| | Challenging | 0.073 | 0.012 | 5.933 | < 0.001 | 0.029 | 20.266 |
| | Hindering | − 0.117 | 0.010 | − 11.537 | < 0.001 | 0.012 | 8.375 |
| Turnover intentions | Dimension | <i>B</i> | <i>SE_B</i> | t-value | <i>p</i> | RW | % <i>R</i> ² |
| <i>R</i> ² = 0.06 <i>F</i> = 72.25, <i>p</i> < 0.05 | Social | − 0.003 | 0.016 | − 0.159 | 0.874 | 0.001 | 1.009 |
| | Structural | − 0.127 | 0.017 | − 7.530 | < 0.001 | 0.015 | 24.654 |
| | Challenging | − 0.012 | 0.017 | − 0.682 | 0.495 | 0.003 | 4.772 |
| | Hindering | 0.203 | 0.014 | 14.097 | < 0.001 | 0.041 | 69.565 |
| Work engagement | Dimension | <i>B</i> | <i>SE_B</i> | t-value | <i>p</i> | RW | % <i>R</i> ² |
| <i>R</i> ² = 0.29 <i>F</i> = 1220.12, <i>p</i> < 0.05 | Social | 0.142 | 0.008 | 17.805 | < 0.001 | 0.046 | 15.599 |
| | Structural | 0.394 | 0.009 | 46.158 | < 0.001 | 0.172 | 58.744 |
| | Challenging | 0.121 | 0.009 | 13.762 | < 0.001 | 0.067 | 22.953 |
| | Hindering | − 0.097 | 0.007 | − 13.350 | < 0.001 | 0.008 | 2.705 |
| Job strain | Dimension | <i>B</i> | <i>SE_B</i> | t-value | <i>p</i> | RW | % <i>R</i> ² |
| <i>R</i> ² = 0.03 <i>F</i> = 64.63, <i>p</i> < 0.05 | Social | 0.000 | 0.013 | 0.036 | 0.971 | 0.001 | 2.351 |
| | Structural | − 0.094 | 0.014 | − 6.896 | < 0.001 | 0.011 | 32.604 |
| | Challenging | − 0.069 | 0.014 | − 4.870 | < 0.001 | 0.008 | 22.994 |
| | Hindering | 0.121 | 0.012 | 10.372 | < 0.001 | 0.014 | 42.051 |
| Self-rated performance | Dimension | <i>B</i> | <i>SE_B</i> | t-value | <i>p</i> | RW | % <i>R</i> ² |
| <i>R</i> ² = 0.12 <i>F</i> = 305.07, <i>p</i> < 0.05 | Social | − 0.011 | 0.011 | − 1.051 | 0.293 | 0.004 | 3.519 |
| | Structural | 0.272 | 0.012 | 23.606 | < 0.001 | 0.077 | 66.435 |
| | Challenging | 0.107 | 0.012 | 8.961 | < 0.001 | 0.032 | 27.165 |
| | Hindering | − 0.057 | 0.010 | − 5.787 | < 0.001 | 0.003 | 2.881 |
| Other-rated performance | Dimension | <i>B</i> | <i>SE_B</i> | t-value | <i>p</i> | RW | % <i>R</i> ² |
| <i>R</i> ² = 0.11 <i>F</i> = 47.48, <i>p</i> < 0.05 | Social | 0.047 | 0.026 | 1.780 | 0.075 | 0.013 | 11.956 |
| | Structural | 0.056 | 0.028 | 2.003 | 0.045 | 0.021 | 19.875 |
| | Challenging | 0.272 | 0.029 | 9.392 | < 0.001 | 0.072 | 67.830 |
| | Hindering | − 0.022 | 0.024 | − 0.916 | 0.360 | 0.000 | 0.339 |
| Contextual performance | Dimension | <i>B</i> | <i>SE_B</i> | t-value | <i>p</i> | RW | % <i>R</i> ² |
| <i>R</i> ² = 0.21 <i>F</i> = 351.92, <i>p</i> < 0.05 | Social | − 0.024 | 0.013 | − 1.825 | 0.068 | 0.006 | 2.939 |
| | Structural | 0.345 | 0.014 | 24.146 | < 0.001 | 0.127 | 61.719 |
| | Challenging | 0.154 | 0.015 | 10.465 | < 0.001 | 0.057 | 27.857 |
| | Hindering | − 0.123 | 0.012 | − 10.052 | < 0.001 | 0.015 | 7.485 |

Note. *B* = regression weight, *SE_B* = standard error for *B*; RW = raw relative weight; %*R*² = rescaled raw relative weight as a percent of total variance explained by model. Social = increasing social job resources; structural = increasing structural job resources; challenging = increasing challenging job demands; hindering = decreasing hindering job demands.

5.4.2. Cumulative meta-analysis

The total number of studies considered in the cumulative meta-analysis of work engagement was *K* = 60. Initially, *K* = 25 published studies were entered iteratively, followed sequentially by *K* = 35 unpublished data sources. The observed cumulative effect after the initial entry of all published studies was *r*_{pub} = 0.390 [95% CI: 0.315; 0.466], whereas the observed overall cumulative effect including both published and unpublished studies was *r*_{total} = 0.401 [95% CI: 0.358; 0.445].

Likewise, the total number of studies considered in the cumulative meta-analysis of job satisfaction was *K* = 20. Initially, *K* = 8 published studies were entered iteratively, followed sequentially by *K* = 12 unpublished data sources. The observed cumulative effect after the initial entry of all published studies was *r*_{pub} = 0.283 [95% CI: 0.182; 0.385], whereas the observed overall cumulative effect including both published and unpublished studies was *r*_{total} = 0.254 [95% CI: 0.173; 0.334].

Finally, the total number of studies considered in the cumulative meta-analysis of self-rated work performance was *K* = 27. Initially, *K* = 12 published studies were entered iteratively, followed sequentially by *K* = 15 unpublished data sources. The observed cumulative effect after the initial entry of all published studies was *r*_{pub} = 0.249 [95% CI: 0.172; 0.327], whereas the observed overall cumulative effect including both published and unpublished studies was *r*_{total} = 0.233 [95% CI: 0.163; 0.303]. Across all three cumulative meta-analyses, the overlapping confidence intervals between blocks of published and unpublished studies suggest no

evidence of so-called “drifts” (McDaniel, 2009) associated with publication status.

5.5. Results of overall job crafting moderator analysis

In terms of formal tests of moderation, for all three of the antecedents (i.e., proactive personality, general self-efficacy, and job autonomy) and one of the outcomes (i.e., other-rated work performance), there was no evidence to suggest that the inclusion or exclusion of the decreasing hindering job demands dimension substantially changed the strength of the observed effects. The relationship for work engagement ($Q_{M(1)} = 9.237, p = 0.002, I^2 = 83.95\%$) was, however, significantly lower with the inclusion of decreasing hindering job demands, $r_{include} = 0.365$ [95% CI: 0.323; 0.406], than without, $r_{exclude} = 0.512$ [95% CI: 0.427; 0.598]. Likewise, the relationship for self-rated work performance ($Q_{M(1)} = 4.029, p = 0.045, I^2 = 70.90\%$) was significantly lower with the inclusion of decreasing hindering job demands, $r_{include} = 0.200$ [95% CI: 0.134; 0.266], than without, $r_{exclude} = 0.348$ [95% CI: 0.219; 0.478].

6. Discussion

The main aims of this study were to integrate research on job crafting as conceptualized by Tims and Bakker (2010) and Tims et al. (2012) by quantitatively synthesizing empirical findings on relevant antecedents and outcomes of job crafting, investigating how these associations vary as a function of how job crafting is conceptualized, and to examine the relative importance of different job crafting dimensions for predicting work outcomes. In the following sections, we summarize and interpret our findings, discuss relevant limitations, suggest implications for theory, and outline directions for future research.

6.1. Summary and interpretation of findings

Consistent with Bindl and Parker's (2010) general model of proactive behavior, we hypothesized that overall job crafting and some of its dimensions would be associated with certain personality characteristics and beliefs. We found meaningful relationships between overall job crafting and agreeableness, conscientiousness, extraversion, openness to experience, proactive personality, general self-efficacy, and promotion and prevention regulatory focus. The results for personality and general self-efficacy largely overlap with previous meta-analytic findings for other forms of proactive behavior (i.e., personal initiative, taking charge, and voice; Tornau & Frese, 2013). For instance, Tornau and Frese (2013) also found that conscientiousness, extraversion, openness, and agreeableness were positively, and neuroticism was negatively related to personal initiative. Findings for the job crafting dimensions were largely as expected too, but there were also some unexpected results. For example, consistent with expectations, we found that conscientiousness related positively to increasing structural job resources and increasing challenging job demands. In contrast, associations between conscientiousness and increasing social job resources and decreasing hindering demands were relatively small, and in the case of the latter, negative.

As expected, extraversion was positively related to increasing social job resources and, contrary to expectations, also to increasing structural job resources and increasing challenging job demands. One potential explanation for the latter findings is that extraversion has underlying elements of assertiveness, which is an important antecedent of proactivity (Major, Turner, & Fletcher, 2006). Also counter to expectations, we observed a positive relationship between neuroticism and decreasing hindering job demands, suggesting that less emotionally stable employees show greater efforts to reduce hindering demands than more emotionally stable employees. Neuroticism was further negatively related to increasing structural job resources and increasing challenging job demands. As hypothesized, agreeableness related positively with increasing social job resources, but also with the other job crafting dimensions in Tims and Bakker's (2010) model, including decreasing hindering job demands. Openness was positively related to increasing structural job resources and increasing challenging job demands, but it was also unexpectedly negatively related to decreasing hindering job demands. Perhaps the underlying curiosity and creativity inherent in people with high openness to experience direct their attention towards more productive expressions of job crafting (Demerouti et al., 2015).

All job crafting dimensions except for decreasing hindering job demands were positively and meaningfully associated with proactive personality, general self-efficacy, and promotion focus. These findings were consistent with expectations based upon the job crafting literature and the proactivity literature more generally (e.g., Parker et al., 2010), which suggest that these traits are associated with higher levels of job crafting behavior. In contrast, decreasing hindering job demands had weak and negative relationships with these traits. It may be that employees with high levels of proactive personality, general self-efficacy, and promotion focus direct more attention to “growth-oriented” job crafting behaviors than on decreasing hindering demands. We predicted and found a positive relationship between prevention focus and decreasing hindering demands. Unexpectedly, prevention focus was also weakly yet positively related to increasing social job resources and increasing challenging job demands. With respect to the latter finding, it may be that the concern for security and safety that characterizes people with a higher prevention focus leads them to enact socially focused forms of job crafting.

Consistent with the general model of proactive behavior (Bindl & Parker, 2010), we further considered job characteristics as antecedents of job crafting. We found that overall job crafting and all crafting dimensions – except for decreasing hindering job demands – were positively related to job autonomy and workload. Consistently, Tornau and Frese (2013) found that job autonomy was positively associated with personal initiative, however this study did not examine workload. We expected most of these positive relationships based on proactivity and job crafting theories; however, the positive association between workload and increasing challenging job demands and the negative associations between job autonomy and decreasing hindering job demands were contrary

to our expectations. Future research should explore why employees with a high workload would further increase their challenging job demands, and why higher levels of job autonomy might prevent employees from decreasing hindering demands. To the former point, the concept of active jobs (Karasek & Theorell, 1990) may be particularly relevant. Additionally, some have speculated that engaging in job crafting behaviors that decrease hindering job demands may signal withdrawal from work (e.g., Demerouti, 2014; Tims et al., 2013). Thus, such relationships may actually reflect a positive process (e.g., job characteristics facilitating more adaptive crafting behaviors targeted at increasing resources and challenging job demands).

Findings for job crafting and work outcomes were largely as expected based upon theoretical considerations and consistent with meta-analytic findings for other forms of proactive behavior (Tornau & Frese, 2013). Overall job crafting and its dimensions were positively related to job satisfaction, work engagement, self- and other-rated work performance, and contextual performance. Considering the relative weights analysis for dimension-level relationships, increasing structural job resources accounted for the most variance across these outcomes, with the exception of other-rated job performance which had the strongest associations with increasing challenging job demands. More generally, these relationships are consistent with theory suggesting that job crafting leads to improved person-job fit which, in turn, positively impacts job attitudes, occupational well-being, and different forms of job performance. Similarly, Tornau and Frese (2013) found that personal initiative was positively associated with job satisfaction and task performance. Again, the only job crafting dimension for which we found negative or non-significant associations with these favorable outcomes was decreasing hindering job demands.

Overall job crafting was negatively related to job strain and not significantly related to turnover intentions; specific job crafting dimensions related differentially to these work outcomes as reflected in both the zero-order analyses and the meta-analytic multiple regression models. As expected, increasing structural job resources and increasing challenging job demands related negatively to job strain and turnover intention. Further underscoring the argument that decreasing hindering job demands reflects withdrawal behaviors, we found a positive relationship between decreasing hindering job demands and job strain. However, it appears from the relative weights analyses that increasing structural job resources and increasing challenging job demands may serve to offset this negative influence. Likewise, we found a positive relationship between decreasing hindering job demands and turnover intentions. While our regression models and relative weights analyses suggest that job crafting as a set did not explain much of the variance in turnover intentions, most of the variance that was explained could be attributed to decreasing hindering job demands. We also observed non-significant relationships between increasing social job resources and turnover intentions, and a small yet significant negative relationship between increasing social job resources and job strain. These findings contribute to enhanced theorizing regarding proactive behavior, as researchers have so far neglected associations with occupational well-being and withdrawal (Parker & Bindl, 2017).

The general model of proactive behavior (Bindl & Parker, 2010) also considers demographic and employment characteristics as antecedents. In our study, overall job crafting was negatively related to age and tenure, and positively related to education and number of work hours. Regarding gender, women reported higher levels of job crafting than men. In contrast, Tornau and Frese (2013) found positive associations of personal initiative with age and education, somewhat higher personal initiative among men compared to women, and a non-significant association with tenure. The strongest negative relationships with age and tenure emerged for increasing social job resources, whereas the other relationships were weak or non-significant. One explanation for negative relationships of age and tenure with increasing social job resources may be that older workers already have established work routines and networks which they can rely on for social support and, thus, they may not need to further increase their social resources (Zacher et al., 2016). Further research is needed that directly investigates the roles of age and tenure for job crafting. For instance, more research should address why age and tenure may relate differentially to various forms of job crafting, whether or not age and tenure serve as boundary conditions for the effects of job crafting on various work outcomes, and – from a social normative and age-role perspective – whether or not job crafting is viewed differently (i.e., as actions perceived by others) for younger and older workers (Kooij, Tims, & Kanfer, 2015; Zacher & Kooij, 2017).

There were small yet significant gender differences observed for increasing structural and social job resources. In both cases, the direction of these effects suggests that women engage in job crafting to a greater extent than men. Consistent with a human capital argument (Becker, 1975), we find positive relationships between education and all job crafting dimensions except for decreasing hindering demands, which was negatively related to education. This might suggest that higher levels of education facilitate the accumulation of job knowledge and expertise which, in turn, facilitates job crafting. Finally, number of work hours was associated with overall crafting, and increasing structural job resources and challenging job demands, suggesting that those workers who spend additional time at work are more likely to obtain job resources such as autonomy and challenging job demands such as new projects. Alternatively, it may also be possible that engaging in these job crafting behaviors leads to an increase in the number of work hours.

Evidence gleaned across several analyses calls into question the role of decreasing hindering job demands in tandem with the other dimensions of job crafting outlined by Tims and Bakker (2010) and Tims et al. (2012). The CFA model specified on the basis of meta-analytically derived intercorrelations between these job crafting dimensions had a satisfactory fit but also suggested a very small factor loading and a small amount of variance explained between a general factor of job crafting and the decreasing hindering job demands dimension. While this factor analytic evidence seems damning in-and-of-itself, it also bears noting that for only two variables (i.e., work engagement and self-rated work performance) did we observe evidence that the inclusion of this dimension in the overall conceptualization of job crafting appreciably changes the strength of the job crafting relationship. These findings have interesting implications for the idea of “construct drift” (Nichols, 2006). Specifically, the adoption of alternative operationalizations of job crafting that differ from the one originally proposed by Tims et al. (2012) may lead to very different conclusions regarding these outcomes. Likewise, evidence from both the zero-order meta-analysis and the relative weights analyses suggests that there are unique patterns of correlations and predictive relationships associated with decreasing hindering job demands. For example, the zero-order analyses

suggest significant relationships with neuroticism and prevention regulatory focus, whereas our relative weights analysis suggests that decreasing hindering job demands is particularly relevant for the prediction of turnover intentions and job strain.

In summary, our meta-analytic findings on overall job crafting are largely consistent with propositions of the general model of proactive behavior (Bindl & Parker, 2010) and relevant research on other forms of proactive behavior, such as personal initiative (Tornau & Frese, 2013). Our findings regarding the associations between overall job crafting and the antecedents and outcomes considered here seem to suggest that overall job crafting is similar to other forms of proactive behavior. However, differential results observed across job crafting dimensions and the results of the CFA and relative weights analyses suggest that job crafting is not necessarily a homogeneous construct. Indeed, specific job crafting dimensions are differentially associated with both antecedents and work outcomes. In particular, the decreasing hindering demands dimension appears to differ markedly from the other three job crafting dimensions, and this observation deserves further attention in future research. The latter finding is also relevant to the development of enhanced theoretical models of proactivity. Indeed, past syntheses of proactivity constructs (Tornau & Frese, 2013) have not considered the possibly negative implications of proactive work behaviors, making our contribution to this literature particularly important.

6.2. Theoretical implications

In developing and testing our theoretical model, we focused attention on the integration of job crafting as conceptualized by Tims and Bakker (2010) with more general models of proactive work behavior. This integration should support future research concerning job crafting and inspire the redevelopment of theoretical models of proactive work behavior. Another important point to consider here is the integration of the various conceptualizations of job crafting behaviors that have been proposed in the literature (see Table 1). Although our meta-analysis could not address this integration empirically, we can offer some reasoned guidance to support future efforts directed at this concern.

At its core (i.e., as it is understood most generally both by Wrzesniewski & Dutton, 2001 and by Tims & Bakker, 2010), job crafting refers to various proactive efforts enacted to enhance person-environment fit (see also Wang et al., 2017). Person-environment fit has been the focus of proactive work behavior research for some time. For example, Parker and Collins (2010) differentiated three higher-order categories of proactive work behaviors that vary in the type of change (i.e., “proactive goals”) individuals seek to bring about (i.e., proactive person-environment behavior, proactive work behavior, and proactive strategic behavior). Most relevant to the present discussion, proactive person-environment fit behavior refers to those actions that aim to achieve enhanced fit between one's personal attributes and that of the work environment. Parker and Bindl (2017) further suggest that job crafting is a specific proactive strategy to bolster *supplies-values fit* at work (i.e., the extent to which one's work environment *supplies* the attributes that one *values*; Edwards, 2008; see also Ashford & Black, 1996 for a corollary argument). Curiously, little empirical research to date has directly examined the relationship between person-environment fit and job crafting (Lu et al., 2014; Niessen et al., 2016).

If a “bridge” were to be built between the models of job crafting offered by Wrzesniewski and Dutton (2001) and Tims and Bakker (2010), person-environment fit could thus serve as an important theoretical linkage between these two perspective and various models of proactive work behavior outlined here. In a more fine-grained sense, certain dimensions of job crafting from each model could be mapped onto one another. For example, while somewhat distinct, increasing social job resources as defined by Tims and Bakker (2010) could be argued to reflect attempts at relational crafting as defined by Wrzesniewski and Dutton (2001). Likewise, increasing challenging job demands and decreasing hindering job demands map onto the general idea of task crafting inasmuch as changing task boundaries means that employees modify the quantity (i.e., number) or quality (i.e., content) of their job tasks.

Despite these clear content overlaps, linkages between cognitive crafting as defined by Wrzesniewski and Dutton (2001) and those dimensions outlined by Tims and Bakker (2010) are less clear. Moreover, each of these proposed relationships requires thorough empirical consideration before a differentiated nomological network of job crafting behaviors and their outcomes can be established. We hope that these propositions serve as a call for more research on such an integrative perspective on job crafting. One additional benefit of such an integration across job crafting models may be to build a stronger empirical case for the role that job crafting plays for those long-term outcomes that could not be considered in our meta-analysis but that are associated with the cultivation of meaning at work (e.g., Berg, Dutton, & Wrzesniewski, 2013). We would argue that this represents a “missing piece” that is vital to fully realizing the integration of these two literatures.

6.3. Limitations and future research

Meta-analysis can be generally criticized on several fronts. For example, some would argue that meta-analysis inappropriately combines and summarizes divergent relationships. We have addressed this issue here by focusing our efforts not only on an overall conceptualization of job crafting but also on dimensions of job crafting that are based on widely accepted theoretical models. Additionally, some would criticize meta-analysis for either being reflective of the quality of the research that is available in the literature or dependent upon significant findings that have been published (i.e., the so-called “file drawer” problem). With respect to the former issue of study quality, we did exclude one study that was deemed to report untenable job crafting effects. Considering the latter issue of the file drawer problem more directly, we took comprehensive steps to locate and include unpublished data sources in our analyses, which should preclude such a criticism from being levied against this work. Our publication status sensitivity analysis and trim-and-fill analyses generally support this conclusion.

We acknowledge four additional limitations to the generalizability of our results that bear further consideration and elaboration as part of future research efforts. First, the focus of our meta-analysis was on the bivariate associations between job crafting and a variety

of individual differences, job characteristics, and work outcomes that a) map onto theory and b) are most representative of the job crafting literature at this point in time. However, more complex relationships between job crafting and such variables must be considered in future investigations. For example, future research needs to examine mediators of these relationships, such as objective and subjective person-job fit (Gordon et al., 2015). Speaking to this idea, Oldham and Hackman (2010) questioned whether the beneficial outcomes of job crafting derive from actual changes in job characteristics or from being involved in job crafting activities. Indeed, the primary studies considered here cannot tease apart such reciprocal causal processes. However, future research must endeavor to do so. Related to this, future research must consider various boundary conditions that facilitate/mitigate job crafting. We would argue that this is a concern for job crafting research as well as theory, which has inconsistently represented the role of moderators. Across job crafting models (e.g., Demerouti, 2014; Wang et al., 2017), only the model by Tims and Bakker (2010) specifies possible moderators (i.e., work characteristics and personality). In the broader literature on proactivity, Bindl and Parker (2010) offer that situational judgment, affect, and values are important moderators of the influence of proactive behavior on work outcomes.

Considering further the notion that crafting may have reciprocal relationships with certain variables, more research is needed on the cyclical effects of job crafting, job characteristics, and work outcomes. For instance, work engagement, person-environment fit, and leader-member exchange quality are likely to be both predictors and outcomes of job crafting (Bakker, 2011; Schaufeli, Bakker, & Van Rhenen, 2009; Wang et al., 2017). Non-experimental research cannot demonstrate causal relationships, and any meta-analysis of such non-experimental studies is likewise unable to do so. As such, an additional limitation of the present research is that all primary works considered herein are correlational in nature and, except for a relatively small subset of multi-wave panel studies and daily-diary studies, are cross-sectional/single time point and/or comprised of self-reports of work behaviors, including job crafting. While experimentally manipulating job crafting may be unrealistic, organizational interventions designed to enhance job crafting are within reason. So far, however, there is only very limited research on job crafting interventions (Demerouti & Bakker, 2014; Gordon, Demerouti, LeBlanc, Bipp, & Bakker, 2013; Van Mersbergen, 2012).

A second limitation to note is that a majority of research to-date has focused on positive outcomes rather than dysfunctional consequences of job crafting. Our analysis does suggest that decreasing hindering job demands is associated with higher turnover intentions and higher job strain, however relatively few studies have investigated these relationships and their causal direction is unclear. Indeed, there is the possibility that job crafting facilitates the introduction of certain inefficiencies into work processes, and the discretionary nature of job crafting – particularly task and relational focused actions – may lead to conflict among team members (Demerouti et al., 2015; Oldham & Hackman, 2010).

Third, beyond the within-person conceptualization of job crafting that is adopted by daily diary studies, job crafting is generally understood at the between-person level of analysis. As job crafting dictates some degree of discretion in the enactment of one's job role (e.g., through the enhancement of resources and through the enlargement and contraction of job demands) it is necessary to take a more nuanced multilevel perspective on job crafting. Indeed, job crafting must be understood at the individual level, but also as manifestations at the team and organizational levels (Tims et al., 2013), as well as in terms of cross-level job crafting (Leana et al., 2009) and collaborative job crafting (McClelland, Leach, Clegg, & McGowan, 2014). At present, our meta-analysis cannot address such multilevel effects as primary studies have yet to widely adopt such operationalizations.

Finally, further research is needed on job crafting and time, including intraindividual variation in job crafting over short durations and longer-term longitudinal research. Existing daily diary studies on job crafting have shown that job crafting varies substantially both within and between individuals (Demerouti et al., 2015; Petrou et al., 2012). Moreover, longitudinal studies on job crafting (e.g., Tims et al., 2015b) suggest that job crafting has longer-term effects on work performance. To this general idea, we were not able to include several immediate and long-term work outcomes of job crafting suggested by Wang et al. (2017) in the current meta-analysis. These outcomes deserve further primary research attention, including needs satisfaction, work meaning and identity, health, psychological ownership, employability, and organizational effectiveness.

7. Conclusion

We conceptually integrated job crafting into a general model of proactive behavior and conducted a comprehensive meta-analytic study of the relationships between job crafting and its associated dimensions with various individual differences, job characteristics, and work outcomes. Generally, we found that relationships for overall job crafting were similar to those found in studies on other forms of proactive behavior, whereas more differentiated results emerged when considering the four job crafting dimensions. Specifically, decreasing hindering demands seems to be less reflective of the overall job crafting construct and differently associated with antecedents and outcomes than the other three job crafting dimensions. Based upon these findings, future research should be cautious about the use of aggregate job crafting scores in this way. Likewise, a more complete “unpacking” of the adaptive and counterproductive implications of decreasing hindering job demands is warranted on the basis of these results. In sum, our findings suggest that job crafting is associated with individual differences and job characteristics, and that job crafting, in turn, is related to employees' job attitudes, occupational well-being, and different forms of work performance.

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