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Job crafting revisited: implications of an extended framework for active changes at work

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Job Crafting Revisited: Implications of an extended framework for active changes at work

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Abstract: Employees often self-initiate changes to their jobs, a process referred to as job crafting, yet we know little about why and how they initiate such changes. In this paper, we introduce and test an extended framework for job crafting, incorporating individuals' needs and regulatory focus. Our theoretical model posits that individual needs provide employees with the motivation to engage in distinct job-crafting strategies—task, relationship, skill, and cognitive crafting—and that work-related regulatory focus will be associated with promotion- or prevention-oriented forms of these strategies. Across three independent studies and using distinct research designs (Study 1: N=421 employees; Study 2: N=144, using experience sampling data; Study 3: N=388, using a lagged study design), our findings suggest that distinct job-crafting strategies, and their promotion- and prevention-oriented forms, can be meaningfully distinguished and that individual needs (for autonomy, competence, and relatedness) at work differentially shape job-crafting strategies. We also find that promotion- and prevention-oriented forms of job-crafting vary in their relationship with innovative work performance; and we find partial support for work-related regulatory foci strengthening the indirect effect of individual needs on innovative work performance via corresponding forms of job crafting. Our findings suggest that both individual needs and work-related regulatory foci are related to why and how employees will choose to craft their jobs, as well as to the consequences job crafting will have in organizations.

Employees often take initiative to change their existing jobs in idiosyncratic ways (Frese & Fay, 2001; Grant & Parker, 2009; Wrzesniewski & Dutton, 2001). Such job-crafting efforts, defined as "the actions employees take to shape, mold, and redefine their jobs" (Wrzesniewski & Dutton, 2001, p. 180), are a subset of proactive behaviors that are initiated by the employee, rather than externally rewarded by the organization (Parker, Bindl, & Strauss, 2010; Strauss & Parker, 2014). Research suggests job crafting occurs across jobs and industries (Nielsen & Abildgaard, 2012) as well as across hierarchical ranks (Berg, Wrzesniewski, & Dutton, 2010) and can promote important outcomes, such as increased organizational commitment (Leana, Appelbaum, & Shevchuk, 2009), work engagement (Bakker, Tims, & Derks, 2012; Bruning & Campion, in press), and meaningfulness (Wrzesniewski, LoBuglio, Dutton, & Berg, 2013), as well as improved performance at work (Petrou, Demerouti, & Schaufeli, 2015; Bruning & Campion, in press; also see meta-analytic evidence by Rudolph, Katz, Lavigne, & Zacher, 2017). This literature has established the existence of various types of job crafting, such as those directed toward changing task, skill, or relational aspects of the job. Further, research has explored the possibility that proactive changes may either add to or reduce aspects of one's job (Bruning & Campion, in press; Spychala & Sonnentag, 2011). However, scholars have placed less emphasis on *why* and *how* employees may engage in these different strategies of job crafting. This is our focus here.

With regard to *why* employees engage in different job-crafting strategies, original theorizing on job crafting (Wrzesniewski & Dutton, 2001; Niessen, Weseler, & Kostova, 2016; Slemp & Vella-Brodrick, 2014) argued that individual needs serve as internal driving forces providing motivation for job crafting. However, this work has remained relatively silent on distinguishing exactly which individual needs may lead to specific job-crafting behaviors. To develop a more precise understanding of the effects of individual needs on behavioral outcomes at work is a particularly important research avenue because assuming all

individual needs function similarly may obscure the existence of important differential relationships (e.g., Van den Broeck, Ferris, Chang, & Rosen, 2016). In particular, self-determination theory (Deci & Ryan, 1985) has established the importance of three core needs as drivers of behavior, namely, a need for relatedness (the need to feel close and connected to significant others), autonomy (the need to decide by oneself which activities to complete), and competence (the need to effectively bring about desired effects and outcomes; Gagné & Deci, 2005). Overwhelming evidence of the importance of fulfilling these core needs in order to realize important well-being, attitudinal, and behavioral outcomes at work (e.g., Van den Broeck et al., 2016; Wrzesniewski & Dutton, 2001) leads us to theorize that the drive to fulfil different needs at work will be positively associated with different directions for job crafting, that is, whether employees choose to engage in task, skill, relationship, or cognitive crafting.

With regard to *how*, drawing on regulatory focus theory (Higgins, 1997), we propose that depending on their regulatory focus, individuals may choose to either add to their existing jobs in explorative ways to maximize their gains (i.e., engage in "promotion-oriented" forms of job crafting), or to diminish aspects of their jobs in safety-oriented ways to avoid losses (i.e., engage in "prevention-oriented" forms of job crafting). Previous research has focused on the former; we understand much less about the prevention-oriented forms of job crafting and, as we will argue, they may represent meaningful ways of crafting one's job. In sum, we argue that the strength of individual needs drives why individuals engage in different types of job crafting (task, relationship, skill, or cognitive crafting) and that individuals' work-related regulatory focus shapes how individuals engage in job crafting, in terms of either promotion- or prevention-oriented forms of overall task, relationship, skill, or cognitive crafting. Developing a new framework of job crafting, we argue that both forms of job crafting, promotion- and prevention-oriented, represent deliberate strategies toward initiating changes to one's own job, and thus may result in important work outcomes.

Our research offers several contributions to the existing literature. The first key contribution is a comprehensive delineation of the nature of job crafting. Although researchers have previously noted the possibility that job crafting consists of not only expansive but also limiting forms (Wrzesniewski & Dutton, 2001; Bruning & Campion, in press), most research has deliberately considered and focused its theorizing only on the expansive, or promotion-oriented, form. By contrast, we establish a conceptual framework and empirically test the premise that limiting, or prevention-oriented, activities to one's job are prevalent, too, and matter for organizational outcomes. Understanding why and how particular job-crafting strategies will occur is indeed of practical significance, because they may result in different outcomes (Demerouti, Bakker, & Halbesleben, 2015; Wrzesniewski & Dutton, 2001; Spychala & Sonnentag, 2011; Bruning & Campion, in press). Our current study thus takes a much-needed step toward understanding and substantiating a revisited, comprehensive framework for promotion- versus prevention-oriented job crafting that more fully reflects the spectrum of job-crafting strategies that employees engage in at work.

Second, very little research has examined why and how employees might engage in distinct job-crafting strategies at work. Our revised framework of job crafting provides an integrative perspective of individual needs theories with regulatory focus theory, to address this issue. Although calls have been made to jointly investigate regulatory focus theory with other psychological perspectives (Lanaj, Chang, & Johnson, 2012), individual needs and regulatory focus perspectives at work have predominantly been considered separately. We argue that both individual needs and regulatory focus have important and complementary roles in motivating job crafting. In particular, in our revised framework of job crafting, we advance insights into the way individual needs provide the overall goal for job crafting, that is, *why* individuals engage in job crafting, whereas regulatory focus shapes the form, i.e., *how* job crafting occurs. Our current approach in this research meaningfully links with existing

theoretical perspectives of purposeful work behavior (Barrick, Mount, & Li, 2013) that conceive of work behaviors as influenced by individuals' goals, personality, and context.

The final theoretical contribution is more general for proactivity research. Job crafting is a specific type of proactive behavior (Grant & Parker, 2009); thus, our model offers wide-ranging implications for investigating types and forms of self-initiated change at work and, importantly, further distinguishes between promotion- and prevention-oriented forms of employee proactivity. In doing so, our research helps clarify and advance insights into the role of regulatory focus for proactivity, in particular the role of prevention-oriented forms of proactivity, in addition to promotion-oriented ones that have, implicitly, been the primary focus of proactivity research to date (Bindl & Parker, 2017). In this context, we substantiate and extend initial research in this domain (Liang et al., 2012; Spychala & Sonnentag, 2011; Bruning & Campion, in press) to show that prevention focus will likely shape *how* and not *whether* employees will engage in proactivity at work, by prompting individuals' engagement in prevention-oriented forms of job crafting. We introduce our job-crafting framework, next.

A Revised Framework for Job Crafting in the Workplace

Job-design research has documented how management can design enriched jobs through top-down processes (Hackman & Oldham, 1976; Parker, Morgeson, & Johns, 2017). A drawback of top-down job design is that the characteristics addressed in such an approach often do not capture idiosyncratic work situations. With a focus on the workplace as a whole, individual needs of employees are often outside the scope of what management can consider (Rousseau, Ho, & Greenberg, 2006). In other words, one size does not fit all. Instead, to meet their own individual needs, employees may be required to redesign their jobs under their own initiative (Wrzesniewski & Dutton, 2001) by changing the task itself, the way they think about it, the skills they use at their work, or the relational boundaries in their jobs.

First, employees engage in task crafting to the extent that they actively change "the number, scope, or type of job tasks done at work" in comparison to their prescribed formal job (Wrzesniewski & Dutton, 2001; p. 185). Employees engage in relationship crafting by making changes in how they interact with others at work (Wrzesniewski & Dutton, 2001). More recently, skill crafting has been developed as an additional, important type of job crafting, and represents employees' self-initiated efforts to change their skills at work to better carry out their own jobs (Wrzesniewski et al., 2012). Finally, employees engage in cognitive crafting when they view their jobs in a different way, namely, by undergoing a set of internal rather than behavioral changes (Wrzesniewski & Dutton, 2001). Overall, research supports these four distinct types of job crafting (e.g., Berg, Grant, & Johnson, 2010; Berg, Wrzesniewski, & Dutton, 2010) and suggests they are the likely outcome of needs-driven, motivational processes, given they constitute employees' self-initiated changes to their core work roles, as opposed to largely efficiency-focused changes in resources at work (Bruning & Campion, in press).

Although the foundational work acknowledges the possibility of both expansive and limiting job crafting (Wrzesniewski & Dutton, 2001), the expansive (or promotion-oriented) forms have received the most attention in the literature. In turn, where the limiting forms have been mentioned, they have primarily been positioned with negative connotations (Bruning & Campion, in press). Overall, theory that differentiates promotion- and prevention-oriented forms of job crafting, and empirical support for this distinction, is still nascent in the literature, despite the recognition that individuals may have different regulatory foci at work, and that forms of job crafting may differentially relate to outcomes (Demerouti et al., 2015).

Theories of regulatory focus propose that "although both promotion ... and prevention … involve a motivation to approach or attain a new task goal, they differ in their orientations toward *how* to successfully attain the goal" (Higgins et al., 2001, p.21). In other words, how

employees choose to pursue their goal-directed activities (i.e., their engagement in different types of job-crafting strategies) may differ. First, individuals with a promotion focus are inclined to see goals as hopes and aspirations (Crowe & Higgins, 1997), and to strive for gains while not making errors of omission or lacking in accomplishments (Higgins, 1997). Analogously, we argue that *promotion-oriented* job crafting represents a "gains" approach whereby the employee adds to and extends existing job aspects. For instance, a promotion-oriented form of relationship crafting involves approaching a wider range of colleagues at work to advance meaningful contact and to promote networking with people one did not already know. Promotion-oriented task crafting might represent efforts to seek out new projects and gains in one's job, such as adding complexity to tasks and increasing the scope of decisions made in the job. Promotion-oriented skill crafting might involve gaining a wide range of skills, for instance, by seeking out training opportunities and immersing oneself in stretch assignments. Similarly, individuals who engage in the promotion-oriented form of cognitive crafting will seek to gain new ways of viewing their overall job and will branch out to make links with how their job contributes to the broader organizational context.

By contrast, individuals with a prevention focus are "strategically inclined to avoid mismatches to desired end-states, [and] should be vigilant to insure safety and nonlosses" (Higgins, 1997, p. 1285). With a prevention focus, people see goals as duties and obligations, and when engaging with these goals, individuals strive to minimize possible obstacles or negative outcomes (Higgins, 1997). We argue that *prevention-oriented* job crafting represents active changes to one's job that will prevent negative outcomes from occurring. Yet note that in our formulation, prevention-oriented job crafting is not synonymous with withdrawal at work, and still constitutes a form of proactive behavior. For instance, a prevention-oriented form of relationship crafting might be to make one's relationships with others safer by focusing on a few trusted existing relationships and deepening relationships with valued

colleagues. A prevention-oriented form of task crafting might involve reducing stress by decreasing "multitasking" and ensuring that productivity is not lost by putting effort into those aspects of the job that are deemed most important. Similarly, prevention-oriented skill crafting entails minimizing failure by focusing on what one does best and optimizing one's performance in that area of expertise. Finally, a prevention-oriented form of cognitive crafting might entail focusing one's mind on the best parts of a job, including those about which one feels safe and comfortable.

Proactivity research more generally has focused on the notion of adding to the scope of one's work, rather than on limiting work (e.g., Parker & Collins, 2010; Bindl & Parker, 2017). However, some research has previously acknowledged that proactivity may not always entail such additive changes. For instance, researchers in the proactive-voice literature have identified a distinction between promotive versus prohibitive voice (Liang et al., 2012; p.75), whereby prohibitive voice is understood to "prevent problematic initiatives from taking place", rather than develop new ideas for changes at work. Similarly, Spychala and Sonnentag (2011, p.656) distinguished between promotion- and prevention-oriented initiative, whereby promotion-oriented initiative represents "discretionary behaviour that aims at taking control" and prevention-oriented initiative represents "discretionary behaviour that aims at preventing the reoccurrence of obstacles and stressors at work." This research found that promotion-oriented proactivity led to increased task conflict in teams, whereas prevention-oriented proactivity reduced task conflict. These findings imply that a distinction between different forms of proactivity is meaningful, and that, in some circumstances, prevention-oriented proactivity may indeed be more adaptive than promotion-oriented proactivity.

Because task, skill, relational, and cognitive job crafting entail changing one's own job more so than the external work environment (Parker & Collins, 2010), research has

proposed such changes are strongly driven by individual needs, with a view to enhance meaning in one's job (Wrzesniewski & Dutton, 2001), which makes these activities substantially distinct from taking initiative (Spychala & Sonnentag, 2011) or voicing concerns at work (Liang, Farh, & Farh, 2012). The emphasis on internal motivational processes in job crafting also suggests one's regulatory focus (i.e., promotion or prevention) may importantly relate to how one engages in task, relational, skill, or cognitive job crafting. In turn, our conceptual extension of prior work (e.g., Bruning & Campion, in press) addresses the questions of *why* and *how* individuals engage in the different strategies of job crafting. In addition, we allow for the possibility that both promotion- and prevention-oriented job crafting may be functional, given that both regulatory foci have been linked in differential ways to a wide range of important performance outcomes, such as in-role and safety performance, organizational citizenship behaviors (OCB), and innovation (see meta-analytic evidence by Lanaj et al., 2012). Thus, to integrate and extend existing theoretical perspectives on job crafting, individual needs, and regulatory focus at work, we propose the following:

Hypothesis 1: There are two distinct forms of task, relationship, cognitive, and skill-related job crafting: promotion- and prevention-oriented.

Motivation for Job-Crafting Strategies

Individuals have basic psychological needs they are motivated to fulfil (Latham & Pinder, 2005). Some needs-based theories, such as motive acquisition theory (McClelland, 1985), have focused on how individual needs, such as the needs for achievement, affiliation, or power, will drive different courses of actions in individuals. Other needs-based theories, in particular, self-determination theory (Deci & Ryan, 1985), have focused more on the consequences of the satisfaction of individual needs for differential growth-related outcomes, proposing that satisfaction of core psychological needs is essential for psychological growth,

optimal functioning, and well-being (Deci & Ryan, 2000; Gagné & Deci, 2005; Ryan & Deci, 2008; see Van den Broeck et al., 2016, for meta-analytic evidence).

Although not all needs-based theories discuss the strength of individual needs, perspectives such as the theory of purposeful work behavior (Barrick et al., 2013) have proposed that those actions that are relevant to one's individual needs, or higher-order goals, are particularly motivating to individuals. Researchers have also begun to meaningfully integrate different needs-related perspectives to argue that individual needs drive motive-congruent actions, which in turn predict greater levels of need satisfaction (Sheldon, 2011; Sheldon & Schüler, 2011). In this vein, the more importance a person places on a particular need, the stronger that need, and the more one will be motivated to satisfy it (Sheldon & Gunz, 2009). Hence, individual needs should be particularly important for motivating the engagement in job crafting (Wrzesniewski & Dutton, 2001), such that need strength drives employees' active change aspects of their work in ways that will satisfy those individual needs. Along these lines, Niessen et al. (2016) found that a higher need for positive self-image predicted subsequent job crafting, suggesting individual needs indeed play a role. Here, we extend this initial evidence and argue that the strength of individual needs motivates specific types of job crafting one engages in, by providing a direction for different job-crafting activities, as well as by facilitating the intensity of and persistence in these activities (e.g., Mitchell & Daniels, 2003). We outline our specific arguments next.

Individual needs and behavioral job crafting. Self-determination theory posits that the needs for autonomy, relatedness, and competence are universal and thus generally relevant to all individuals (Deci & Ryan, 1985). However, any one need may be more salient than the others at a given point in time (e.g., Barrick et al., 2013; Sheldon & Filak, 2008). In addition, a focus on each of the individual needs merits attention, so as to understand their differential relationships with important outcomes (Van den Broeck et al., 2016). Thus,

examining the influence of needs on job crafting more broadly may obscure important differential relationships between individual needs and strategies that individuals choose for crafting their jobs. Adding more precision to the basic argument that individual needs are key motivators of job crafting (e.g., Wrzesniewski & Dutton, 2001), we propose that needs for relatedness, autonomy, or competence will differentially motivate employees' engagement in those job-crafting strategies that most likely allow satisfaction of the corresponding need.

The need for relatedness captures the desire to feel connected to others (Deci & Ryan, 1985). We argue that individuals who have a strong need for relatedness at work will be likely to engage in relationship crafting. Theoretically, to satisfy this need, individuals are likely to engage in behaviors that bring them closer and make them feel more connected to others. Some suggestive evidence of this effect exists. For instance, research has shown that individuals who have a strong need for relatedness tend to have collectivist tendencies (Baumeister & Leary, 1995) and help group members (Den Hartog, De Hoogh, & Keegan, 2007). Wrzesniewski and Dutton (2001, p. 185) define relationship crafting as "changing either the quality or amount of interaction with others at work, or both," such that employees decide how frequently they wish to interact with others, and also determine the quality of those interactions. A need for relatedness at work indicates a desire to be more connected, and by changing the relational boundaries of their job through relationship crafting, employees may optimize interactions with others to satisfy their need for relatedness. We argue this drive might lead to either adding to one's network (promotion-oriented relationship crafting) or focusing on the most prized relationships while ridding oneself of harmful ones (prevention-oriented relationship crafting).

The need for competence is characterized by an individual's desire to feel masterful in one's behavior (Deci & Ryan, 1985), in order to produce desired outcomes (White, 1955). Research has argued the need for competence activates behaviors oriented toward

demonstrating mastery (Elliot & Dweck, 2005). We argue that employees who have a strong need for competence at work may in particular be motivated to self-initiate training opportunities or information related to skills needed for the job, or to deliberately put themselves in learning situations at work. The need for competence should thus drive employees' engagement in skill crafting, defined as exercising agency to engage in learning and to pursue self-development opportunities (Maurer, Pierce, & Shore, 2002; Wrzesniewski et al., 2012), whether that be exploring how to master new skills (promotion-oriented skill crafting) or to focus on advanced training in core skills (prevention-oriented skill crafting).

Finally, individuals might experience a need for autonomy, that is, the need to exercise control over one's actions (Deci & Ryan, 1985) and be the causal agent of their actions (Crant, 1995). Changing the tasks in which one is engaged at work, whether completing more tasks, a focused set of tasks, or different tasks (i.e., task crafting, Wrzesniewski & Dutton, 2001), provides a vehicle for this agency at work. Thus, if individuals have a strong need for autonomy in a given work context, they are likely to engage in task crafting. We argue that exercising control over one's tasks could occur either by adding tasks (promotion-oriented) or by focusing on a certain set of tasks (prevention-oriented task crafting). In sum, although needs overall have a motivating potential for behaviors at work, the strength of specific needs is likely to motivate and guide individuals to bring about change in distinct domains of their jobs. Because job-crafting strategies represent overarching goals to make changes to a particular area of one's job, rather than *how* these changes are enacted, we propose that needs will be positively related to both promotion- and prevention-oriented forms of job-crafting strategies. Our theorizing results in the following proposed relationships between individual needs and different job-crafting strategies:

Hypothesis 2: *Individual needs at work are differentially related to engagement in job-crafting strategies, such that*

H2(a) the strength of relatedness needs is positively related to engagement in promotion- and prevention-oriented relationship crafting;

H2(b) the strength of competence needs is positively related to engagement in promotion- and prevention-oriented skill crafting; and

H2(c) the strength of autonomy needs is positively related to engagement in promotion- and prevention-oriented task crafting.

Individual needs and cognitive job crafting. Alongside task, relationship, and skill crafting, employees may actively change how they think about their jobs (i.e., they engage in cognitive crafting; Wrzesniewski & Dutton, 2001). Changing cognitive boundaries refers to altering how one sees the job, for example, focusing on a specific part of the job that is deemed most important, or by exploring how one's job links and integrates with the broader organizational context (Wrzesniewski & Dutton, 2001). Cognitive crafting differs from relationship, skill, and task crafting to the extent that it is not behavioral, nor is it related to a specific domain—employees can think about tasks differently, they can think about their colleagues differently, and they can think about the match between their skills and the job differently. Indeed, research on self-leadership (e.g., Houghton & Neck, 2002) and self-concordance strategies (Unsworth & Mason, 2012; Unsworth & McNeill, 2017) has demonstrated individuals may change how they think about various aspects of their work. Hence, we propose that all individual needs will be positively related to both promotion- and prevention-oriented cognitive job crafting. As such, we hypothesize the following:

H2(d): The strength of the needs for relatedness, competence, and autonomy is positively related to engagement in promotion- and prevention-oriented cognitive crafting.

Regulatory focus, forms of job crafting and innovative work performance. In line with our core theorizing, we expect that individuals' engagement in promotion- versus prevention-oriented task, relationship, skill, and cognitive job crafting is shaped by corresponding regulatory foci. In this vein, whereas individual needs should provide individuals with overarching goals to engage in job-crafting strategies across overarching

domains (tasks, relationships, skills, and cognitive crafting), work-related regulatory foci will activate the engagement in either promotion- or prevention-oriented forms of job crafting. Further, these different forms of job crafting likely have differential effects on key workplace outcomes. To understand these differential effects, we focus on an important outcome in organizations that has been described as a core consequence of work-related regulatory focus (Lanaj et al., 2012): innovative work performance.

Innovative work performance consists of the production or adoption of novel, yet useful, ideas and their implementation (Scott & Bruce, 1994; Van de Ven, 1986). Innovative work performance also forms an important outcome from a self-determination theoretical perspective, because need satisfaction is positively associated with growth-related outcomes at work, such as innovation at work (e.g., Van den Broeck et al., 2016). Although job crafting has been linked to workplace outcomes such as core task performance and OCB (Rudolph et al., 2017), investigations into a link to innovative work performance remain scarce. Here, we argue that as employees craft their own jobs, they create scope to be more innovative at work (e.g., incorporating work tasks that will prompt innovative thoughts; crafting relationships with colleagues who can champion innovative ideas; focusing on skills that can be applied to a creative outlook on new products and processes in the organization; and adopting a view of one's work role that will spur the engagement in innovation for the organization, overall).

Our rationale suggests that both promotion- and prevention-oriented job-crafting forms (of task, relationship, skill, and cognitive crafting) will have a positive association with innovative work performance, because both can enable greater attention to the activities that constitute innovation. These activities include not only developing ideas that are novel, but also determining what will be implementable and appropriate, which often means narrowing a broad range of ideas down to a feasible set (DeDreu & West, 2001; Huang, Gibson, Kirkman, & Shapiro, 2017). Theory in this domain suggests that innovation does not occur if

novel ideas are not implementable (and likewise, implementation is impossible if novel ideas have not been developed), thus the two sets of processes are intertwined and non-substitutable, and both are foundational for innovation. Promotion-oriented job crafting is likely to be particularly useful for the generation of novels ideas, given prior research shows that a promotion focus encourages cognitive broadening (West, 1990; Fredrickson, 2001); hence, we expect that the promotion-oriented forms of job crafting will have an overall stronger positive relationship with innovative work performance than prevention-oriented forms. For instance, employees might seek out broader and new relationships with other individuals at work who have diverse expertise and could be sources of new ideas (promotion-oriented relationship crafting), to explore a wider set of skills at work that could extend one's ability to innovate (promotion-oriented skill crafting), to add to a work situation by enriching one's tasks and trying new activities that could result in innovation (promotion-oriented task crafting), or by thinking about one's job from a wider, broadened perspective so as to spark creative options (promotion-oriented cognitive crafting), which all could increase innovation.

Although they entail a focusing of one's effort, prevention-oriented forms of job crafting may still enable innovation activities (Grant & Ashford, 2008; Parker et al., 2010). Drawing on the regulatory focus research, individuals with a prevention focus are likely to strive to minimize possible obstacles or negative outcomes (Higgins, 1997). Hence, when engaging in job crafting to yield innovation with a prevention focus, active changes might be made to prevent negative setbacks or wasted effort from occurring. For example, a prevention-oriented form of relationship crafting that could yield innovation might involve changing one's relationships with others by focusing on a few trusted existing relationships and deepening relationships with valued colleagues, who have innovation experience or expertise that is anticipated to be helpful for innovation. A prevention-oriented form of task

crafting that might be related to innovation could involve ensuring effort is put into aspects of innovation that are deemed most important, or that have the greatest potential for implementation. Similarly, prevention-oriented skill crafting that would be fruitful for innovation might entail focusing one's innovative efforts on what one does best and optimizing one's performance in that area of expertise. Finally, a prevention-oriented form of cognitive crafting might entail focusing one's mind on innovation opportunities at work that are less risky, to avoid potential downfalls and obstructions. Indeed, research has shown that a prevention focus can increase creativity through greater cognitive perseverance (DeDreu, Baas, & Nijstad, 2008). Innovation entails focus and perseverance to determine not just the most novel ideas, but also the feasible set which are implementable (DeDreu & West, 2001). Thus, although the relationship may not be as strong, we do still expect prevention-oriented forms of job crafting to be positively related to innovative work performance.

In sum, we expect a differential positive association between job crafting and innovative work performance, such that the relationship is overall stronger for promotion- rather than prevention-oriented, job crafting forms. In addition, earlier we argued that job crafting is a means of fulfilling individual needs. Thus, rather than individual needs being directly related to innovation, we anticipate an indirect effect of individual needs through job crafting in predicting innovation. Further, we expect work-related promotion focus to strengthen the links between individual needs and promotion-oriented job-crafting strategies with innovative work performance. By contrast, we expect work-related prevention focus to strengthen the links between individual needs and prevention-oriented job-crafting strategies with innovation. Taken together, this logic suggests two final hypotheses:

Hypothesis 3: *The positive association between job crafting and innovative work performance will be stronger for promotion-oriented than for prevention-oriented forms of job crafting.*

Hypothesis 4: *Regulatory focus at work moderates the indirect effect of individual needs on innovation through job-crafting strategies, such that*

H4(a) the indirect effect of needs on innovation via promotion-oriented job-crafting strategies will be positive and will be enhanced as promotion focus at work increases; and

H4(b) the indirect effect of needs on innovation via prevention-oriented job-crafting strategies will be positive and will be enhanced as prevention focus at work increases.

Insert Figure 1 about here.

We tested our framework (see Figure 1) across three studies that build on and extend one another. Study 1 involved an initial test of our revised framework of job crafting, including the theorized distinction between promotion- and prevention-oriented forms of job crafting (testing Hypothesis 1) as well as the differential relationship between promotion- versus prevention-oriented forms of job crafting and innovative work performance (testing Hypothesis 3), across a wide range of occupations and industries in the United States. In Study 2, with a sample of employees across varied occupations and industries in the UK, using a daily diary design with data collected at the start and end of each day over one workweek to enhance measurement accuracy, we replicated our framework for job crafting (Hypothesis 1) and tested Hypothesis 2 regarding individual needs as core motivators of job crafting. Finally, in Study 3, surveying a panel of employees in the UK over time, we set out to replicate our test of Hypothesis 1, before moving on to test our full conceptual moderated mediation model (including Hypotheses 2, 3, and 4). This combination of studies and methods provided a comprehensive and reliable means of testing the robustness of our model.

Pilot Studies for Measure Development

We developed our measure of job crafting based on our theorizing that distinguishes between promotion- versus prevention-oriented forms for each of the types of job crafting (task, relationship, skill, and cognitive). Following recommendations by Hinkin (1998) for deductive scale development, we comprehensively researched and, where possible, drew on existing items from past job-crafting measures (Laurence, 2010; Tims, Bakker, & Derks, 2012; Leana et al., 2009; Slemp & Vella-Brodrick, 2013). We developed new items when

necessary to provide a balanced representation of the different dimensions of job crafting (see Appendix).

In particular, although Slemp and Vella-Brodrick's (2013) measure corresponded most closely with our theoretical framework of needs-driven job crafting (Wrzesniewski & Dutton, 2001) in that it differentiated between task, relationship, and cognitive crafting, it did not account for differences in promotion- versus prevention-oriented forms of job crafting, nor did it account for skill crafting (Wrzesniewski et al., 2012). Likewise, although applicable, Tims and colleagues' (2012) view draws on a demands-resources framework and differentiates crafting of resources at work, with an approach- or avoidance-orientation. Such a view–even when extended to the role and social elements (Bruning and Campion, in press)– does not allow for sufficient differentiation of the wide variety of job-crafting strategies (including task, relational, skill and cognitive crafting) which might occur as a result of motivated, self-initiated change as proposed in Wrzesniewski and Dutton's (2001) original theorizing. Hence, in our current framework, we establish a comprehensive, motivational framework of job crafting that includes different needs-driven job crafting strategies (task, relationship, skill, and cognitive crafting) as well as regulatory focus-based notions of promotion- versus prevention-oriented forms of each type of the job-crafting strategies.

We conducted two pilot studies through Mechanical Turk (MTurk; Amazon, 2017) to test our theorized dimensions of job crafting, using complementary statistical methods and soliciting expert feedback (colleagues in the field provided suggestions on further refining our measure). Our first study (Bindl, Unsworth, & Gibson, 2014) involved a sample of 414 employees and included both exploratory and confirmatory factor analyses using two random-split halves of the sample. Based on the results and advice from experts, we subsequently refined the wording of several items, resulting in a 33-item, eight-dimensional measure of job crafting. In a follow-up study, we administered our revised measure to a new

sample of 273 employees and conducted a series of confirmatory factor analyses using

Mplus, version 7.11, to test our proposed eight-factor model for the four types and two forms

of job crafting against other plausible alternatives. The initial fit of our hypothesized model

was satisfactory. However, to increase parsimony, we removed five additional items based on

factor loadings as well as theoretical considerations. We used this revised measure as a basis

for our Study 1.[1]

Study 1

In Study 1, we assessed the factor structure of our final job-crafting measure in a new,

independent sample (providing an initial test of Hypothesis 1) and tested the differential

association between promotion- versus prevention-oriented forms of job crafting and

innovative work performance (providing an initial test of Hypothesis 3).

Sample and Procedure

We recruited 600 employees across a wide variety of occupations and industries in the

United States to participate in our study via MTurk. They received $3 per completed survey[2].

Data obtained via MTurk have psychometric properties similar to data obtained using other

convenience sampling methods (Buhrmester, Kwang, & Gosling, 2011) and are externally

valid to use for field studies (Mor, Morris, & Joh, 2013). We followed recommendations for

quality checks (Mason & Suri, 2012), including restricting participation to individuals who

had satisfactory past completion rates (95% or above), resided in the US, had a minimum

qualification of US high school graduation (to ensure basic English language skills), and who

were employed. In addition, we followed Buhrmester and colleagues' (2011) advice to ensure

satisfactory data quality by obtaining multiple responses to prevent faking. Participants were

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[1] Additional information on detailed factor results of the pilot studies are available from the authors upon request. In addition, details on the origin of all items of our final measure are provided in the Appendix.

[2] The content and design of this study did not raise any significant concern with the institutional research ethics committee. It was fully compliant with the rules and regulations for conducting research at the institution of the first author, where the research was conducted.

invited to complete two surveys, one week apart, and we asked them to indicate their main job, at both time points. We asked them to respond to the measures with regard to the particular job they had indicated. In the final analysis sample, we included only participants who were still working in the same job when completing the second survey (removing 6 individuals). Finally, we included an attention-check item (a basic arithmetic question) and removed those individuals from the analyses who failed to follow instructions based on this item (10 individuals). We also removed incomplete and invalid responses (16 individuals).

The final sample size we used for analyses was n=421 (i.e., 70% of the initial sample) and included matched respondents who had completed both surveys (survey 1 included all demographic variables, and in survey 2, we asked participants to complete our job-crafting questionnaire and the innovative-work-performance measure). The sample was mostly white (82%) and predominantly female (55%), and participants ranged in age from 19 to 73 years (mean of 39 years; SD = 11.61). A large majority of the participants were employed full-time (88%), with their average workweek lasting 40 hours (SD = 8.49). Participants had been working in their organization for an average of seven years (median = 4.83; SD = 6.58).

Measures

Job crafting. We asked respondents to what extent they had engaged in the different job-crafting strategies over the past week, ranging from 1 (*not at all*) to 5 (*a great deal;* α = .70-.95). Sample items include "I tried to spend more time with a wide variety of people at work" (*promotion-oriented relationship crafting*), " I minimized my interactions with people at work that I did not get along with" (*prevention-oriented relationship crafting*), "I actively tried to develop wider capabilities in my job" (*promotion-oriented skill crafting*),"I channeled my efforts at work towards maintaining a specific area of expertise," (*prevention-oriented skill crafting*), "I added complexity to my tasks by changing their structure or sequence," (*promotion-oriented task crafting*), "I tried to simplify some of the tasks that I worked on,"

(*prevention-oriented task crafting),* "I thought about new ways of viewing my overall job,"

(*promotion-oriented cognitive crafting*) and *"*I assessed the different elements of my job to

determine which parts were most meaningful" (*prevention-oriented cognitive crafting*). We

provide all job-crafting items and detailed information of their origins in the Appendix.

Innovative work performance. We measured *innovative work performance* over the

past week (α = .93; example item: "I searched out new technologies, processes, techniques,

and/or product ideas"), using the established six-item measure by Scott and Bruce (1994). We

asked respondents to indicate their agreement with each item, ranging from 1 (*not at all*) to 5

(*a great deal*).

Control variables. To account for possible confounding effects in line with previous

research on well-being and proactivity at work (e.g., Bindl, Parker, Totterdell, & Hagger-

Johnson, 2012; Sonnentag & Starzyk, 2015), we controlled for participants' *gender*, *age*, and

their jobs' *hierarchical rank* (as indicated by the number of reports individuals had).

Results

Table 1 shows the descriptive statistics, internal consistencies, and zero-order

correlations for the major variables. To provide an initial test of Hypothesis 1, on the

meaningful distinction between promotion- and prevention-oriented forms of job crafting, we

conducted exploratory factor analyses, using principal axis factoring extraction with an

oblimin rotation. We additionally provided an initial test of Hypothesis 3, using path

modeling to assess the differential association of promotion- versus prevention-oriented job-

crafting strategies for innovative work performance. Because all our hypotheses were

directional and theory-driven, we used one-tailed tests (e.g., Kimmel, 1957).

Insert Figure 2 and Tables 1, 2, & 3 about here.

Hypothesis 1 predicted that there are two distinct forms of job-crafting strategies (task, relationship, cognitive, and skill crafting): promotion- and prevention-oriented. In initial support of the hypothesized dimensionality of job crafting, exploratory factor analyses showed that an eight-factor solution resulted in the cleanest factor structure (Osborne & Costello, 2009), with no item cross-loadings greater than .4 on different factors (see Table 2).

We used path modeling, comparing a series of nested models, to test Hypothesis 3 (see Table 3). To keep parameters and sample size to a reasonable ratio, we assessed the models using observed scale scores. Following from our baseline model (Model 1) and Model 2 (in which we added control variables, only), in Models 3 and 4, we introduced direct effects of job crafting strategies on innovative work performance. In Model 3, we first held equal the relationship between all job-crafting strategies and innovative work performance. In initial support of Hypothesis 3 regarding a differential association between promotion- versus prevention-oriented forms of job crafting and innovative work performance, Model 4 (our hypothesized model), in which we freed these parameters, had a significantly better fit to the data than its nested comparison models. In our fully freed Model 4, the positive association between promotion-oriented job-crafting forms and innovative work performance (for promotion-oriented task crafting: B=.22, SE = .04; for relationship crafting: B=.13, SE = .04; for skill crafting: B=.32, SE = .04, all p <.001; and for cognitive crafting: B=.12, SE = .04; p <.01) were stronger than for the respective prevention-oriented forms (for prevention-oriented task crafting: B=.07, SE = .04; relationship crafting: B= -.02, SE = .04; skill crafting: B=.01, SE = .04, all *ns*; and for cognitive crafting: B=.10, SE = .04, p<.05; see Figure 2). Together, individual needs explained 58.50% of the variance in innovative work performance (beyond the effects of control variables on innovative work performance). In addition, a direct test of the differential strength of association between promotion- versus prevention-oriented forms of job crafting and innovation suggests findings in line with our theorizing:

the average parameter size of promotion-oriented forms of job crafting to innovation links (average B = .20, SE = .01; p <.001) was greater than the average parameter size of prevention-oriented forms of job crafting with innovation (average B = .04, SE = .01; p <.01). In support of Hypothesis 3, the difference between these parameters was statistically significant (B = .16, SE = .02; p<.001).

Interim Discussion

Study 1 provides initial support for the distinct forms of promotion- and prevention-oriented job crafting. First, in initial support of Hypothesis 1, promotion- and prevention-oriented forms of the distinct job crafting strategies (task, relationship, skill, and cognitive crafting) loaded onto their hypothesized factors. In addition, in support of Hypothesis 3, promotion-oriented forms of job crafting were more strongly positively associated with innovative work performance than were prevention-oriented forms of job crafting.

These initial results from Study 1 demonstrate that an understanding of why and how individuals engage in different job-crafting strategies is important. Studies 2 and 3 build from this foundation. In particular, the next two studies more rigorously assess the differentiation of forms of job-crafting by using confirmatory factor analyses. Second, Studies 2 and 3 investigate individuals' motivation for engaging in these different types and forms of job crafting in the workplace. Finally, Study 3 replicates and extends the differential relationships of job crafting forms with innovative work performance by showing lagged effects over time.

Study 2

Sample and Procedure

To recruit participants, we advertised our study among the laboratory participant pool of a leading research university, based in a large metropolitan area in the UK, which included hundreds of working professionals. In accordance with the ethical procedures of the

university, we offered small financial incentives[3]. Since there is no consensus regarding the time frame over which job crafting occurs (Bindl & Parker, 2017), although our hypotheses were at the between-person level, we utilized an experience sampling method and captured job crafting on a daily basis over the course of one workweek to ensure we did not miss essential variance and to minimize retrospective biases (Reis & Gable, 2000). In addition, to minimize common-method variance, we separately assessed individual-need strength at the start of the workday, and daily job crafting at the end of the workday (Podsakoff, MacKenzie, & Podsakoff, 2003).

The study began with an online baseline survey that collected demographic and background data. In the subsequent workweek, from Monday to Friday, we asked employees to complete two short online surveys per day, one at the start (30 minutes into the workday), capturing motivation for job crafting by assessing morning individual needs, and one at the end (30 minutes before the end) of their working day, capturing daily job crafting. We provided employees with the survey links and asked them to set a personalized alarm clock to remind them to access the survey links each day. In addition, we sent automated email reminders to all participants at each time point, based on the average starting and ending time of the workday they had indicated in their baseline-survey response.

Of 194 initial volunteers, 156 participants (80%) completed the baseline survey. These participants then collectively completed a total of 731 morning surveys (93.7%) and 696 afternoon surveys (89.2%), for an overall daily survey response rate of 91.5% (i.e., 1427 out of 1560 possible responses). Excluding surveys that were completed at wrong times (e.g., morning surveys completed in the afternoon; morning and evening surveys completed within

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[3] The content and design of this study did not raise any significant concern with the institutional research ethics committee. It was fully compliant with the rules and regulations for conducting research at the institution of the first author, where the research was conducted.

a short period of time), and retaining only matched pairs of morning and afternoon surveys

from the same day, resulted in the removal of 12 participants from the final data set, giving us

617 days (i.e., complete start into the workday and end of workday survey responses) from

144 participants for use in our subsequent analyses.

Of these 144 participants, 67% were female, the mean age was 28 years (SD=6.67),

and the average organizational tenure was two years (median = 1.08; SD=3.39). Just over half

the participants (50.7%) held a leadership position. Average hours worked in a typical week

were 41 (SD = 8.44). Participants worked in a variety of industries, including education and

health services (35.7% of participants), professional and business services (19.4%), financial

services (13.2%), wholesale and retail (9.3%), government (3.9%), leisure and hospitality

(3.9%), as well as IT (3.1%). The remaining 11.5% were dispersed across a wide range of

industry sectors, including construction, manufacturing, transportation, agriculture, and

various other services industries.

Measures

Individual needs: competence, relatedness, autonomy. We measured individuals'

need strength for three types of needs with three items per type. Based on an established

measure by Sheldon and Hilpert (2012), we asked participants, "This morning, how

important is each of the following to you at work," with response coding ranging from 1 (*not

at all*) to 5 (*extremely*). Example items were for *need for competence*, "to do well even at the

hard things"; for *need for relatedness*, "to feel a sense of contact with people who care for

me, and whom I care for"; and for *need for autonomy* "to really do what interests me."

Job crafting. To reduce response fatigue of participants in this experience sampling

study, we assessed daily job crafting using a slightly shortened version (minus three items

across the diverse subscales; see Appendix for details) of our job-crafting measure validated

in Study 1. The questions asked participants the extent to which ("Today, to what extent…") they agreed with the corresponding statements (1 = *not at all*, 5 = *a great deal*).

Control variables. We used the same control variables (controlling for participants' *gender*, *age*, and their jobs' *hierarchical rank*) as in Study 1. In addition, on the daily level of analysis, we controlled for *day*, to account for systematic changes across the week.

Results

With our key study measures collected on a daily basis, we inherently have a multilevel data structure. As such, we first conducted separate multilevel confirmatory factor analyses (MCFA) of the proposed factor structure of job crafting and of individual needs. The hypothesized factor structure was the best fitting at both the daily level and the between-person level for both individual needs (measured in the morning) and job crafting (measured in the afternoon), and temporal measurement invariance was achieved for all measures.

In particular, in support of Hypothesis 1, the fit of the hypothesized eight-factor solution of job crafting was superior to competing four-factor (types of job crafting only), two-factor (forms of job crafting only) and one-factor (overall job crafting) alternatives (Hu & Bentler, 1999)[4] (chi-square = 827.80 on 448 df, CFI = .94, RMSEA = .04, SRMR within = .04, SRMR between = .06). Details of all MCFA analyses are available upon request.

Internal-consistency reliabilities for all scales were satisfactory: need for autonomy, across the five days, ranging from α = .80 – .88; need for relatedness, α = .88 – .95; need for competence, α = .86 – .92; promotion-oriented relationship crafting, α = .86 – .92; prevention-oriented relationship crafting, α = .71 – .81; promotion-oriented skill crafting, α = .89 – .93; prevention-oriented skill crafting, α = .80 – .84; promotion-oriented task, α = .87 – .90; prevention-oriented task crafting, α = .79 – .89; promotion-oriented cognitive crafting, α = .83 – .88; and prevention-oriented cognitive crafting, α = .64 – .75. As in Study 1, because

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[4] The hypothesized model gave a satisfactory fit at the day level after the removal of one item (see Appendix).

all our hypotheses were directional and theory-driven, we used one-tailed tests (e.g., Kimmel, 1957). Table 4 displays the descriptives for all study variables.

Insert Table 4 about here.

To test Hypothesis 2 while accounting for non-independence of the data, we conducted a multilevel path analysis (Hox, 2010) whereby the day-level model mirrored the person-level model. We used person mean-centered versions of the variables at the day level, with person mean (i.e., aggregate weekly) scores at the person level. For Model 1, an unconditional multilevel model, the ICC(1) exceeded .50 for each outcome, supporting the need to account for the nested nature of the data, and thus to test our between-person hypotheses using multilevel modeling. In Model 2, we added our control variables at each level. At the within-person level, given the longitudinal nature of our data collection, we controlled for the day of the week. At the between-person level, and in line with previous research on job crafting, we controlled for age, gender, and hierarchical rank. In Models 3 and 4, we added the hypothesized effects of individual needs on job crafting on the within-person (Model 3), as well as the between-person level (our final, hypothesized Model 4).

The estimated path coefficients of our final, hypothesized model (Model 4), which had a significantly better fit than any of the comparison models (see Table 5) and an overall excellent fit to the data (CFI = .97, RMSEA = .05, SRMR within = .03, SRMR between = .08, ratio of chi-square to degrees of freedom = 2.64), are shown in Figure 3.

Insert Table 5 and Figure 3 about here.

As hypothesized, we found that individuals who experienced a stronger need for relatedness were more likely to engage in both promotion and prevention-oriented relationship crafting (B = .32, SE = .07; p <.001; B = .15, SE = .08; p <.05), supporting

Hypothesis 2a. Need for relatedness explained 30.34% of the between-person variance in promotion-oriented relationship crafting and 8.70% in prevention-oriented relationship crafting, respectively, beyond the effects of control variables.

Likewise, in support of Hypothesis 2b, the strength of competence needs predicted engagement in both promotion- and prevention-oriented skill crafting (B = .26, SE = .08; p <.001; B = .44, SE = .07; p <.001). Competence needs explained 23.13% of the between-person variance in promotion-oriented skill crafting and 37.30% of the between-person variance in prevention-oriented skill crafting, beyond controls.

The strength of autonomy needs positively predicted promotion-oriented task crafting (B = .34, SE = .07; p <.001) but not prevention-oriented task crafting (B = .08, SE = .08; *ns*), thus partially supporting Hypothesis 2c. Autonomy needs explained 29.81% of the between-person variance in promotion-oriented task crafting and 1.77% of the between-person variance in prevention-oriented task crafting, beyond controls.

Finally we found that a strong need for autonomy positively predicted promotion-oriented cognitive crafting (B = .28, SE = .10; p <.01), whereas a need for relatedness and a need for competence predicted prevention-oriented cognitive crafting (B = .18, SE = .08; p <.05; B = .20, SE = .08; p <.01). Together, individual needs explained 26.36% of the between-person variance in promotion-oriented cognitive crafting and 27.53% of the between-person variance in prevention-oriented cognitive crafting, all beyond the effects of control variables. These findings lend partial support to Hypothesis 2d such that some, albeit not all, individual needs positively related to cognitive job crafting (see Figure 3).

Additional analyses. We conducted additional checks of our data to ensure robustness of the findings. We followed McCabe and colleagues' (2012) recommendation to use a completion rate of more than 20% of possible responses as a cut-off, using a slightly higher cut-off of n≥2 days to include only participants whose responses could be

meaningfully analyzed. The advantage of using as low a cut-off as possible is to ensure generalizability, such that our sample included participants with a wider range of work experiences. Nonetheless, we conducted another check with n≥3 days (which resulted in a sample size of n=134 individuals and n=598 observations), which replicated the patterns of findings of our main analyses, indicating results were robust across varying observation and sample sizes.

Interim Discussion

Complementing the results of Study 1, Study 2 provided further support for the distinctiveness of different job-crafting strategies (Hypothesis 1). Moreover, it highlighted the differential importance of individual needs as predictors of particular job-crafting strategies providing support for most, albeit not all, aspects of Hypothesis 2. In the next study, we built on these findings to examine how work-related regulatory foci differentially strengthen these distinct effects of individual needs on promotion- versus prevention-oriented job crafting. We thus set out to replicate and extend our findings in a separate, temporally lagged, study where we tested our full, theorized model, including predictors as well as outcomes of job crafting.

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Study 3

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Sample and Procedure

To recruit study participants, we again advertised our study among the laboratory participant pool of a leading UK research university, as well as of a survey panel provider that contains working participants from a wide range of industries across the UK and provided the opportunity to access a larger sample of employees.[5] In accordance with the ethical procedures of the first author's organization that provided ethics approval for this

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[5] For the final sample of N=388, an initial number of 92 individuals were recruited from the participant pool of the university, followed by another 296 individuals who were recruited through the survey panel provider. The key variables did not systematically differ between samples, and the pattern of findings remained intact when controlling for sample origin, providing a justification for the data to be merged into one overall sample.

study, we offered small financial incentives[6]. To minimize common-method variance (Podsakoff et al., 2003), we collected temporally lagged data, where trait measures (regulatory focus at work) and control variables were collected at time 1 (T1), independent variables (individual needs and job crafting, which we hypothesized to be occurring at the same time) were assessed at time 2 (T2; two weeks later), and the dependent variable, innovative work performance, was collected at time 3 (T3; three weeks after time 1)[7]. In line with our measurement of job crafting in Studies 1 and 2, we focused our hypothesis testing of job crafting on between-person processes that occurred over the course of one working week.

We initially invited 987 employed participants to complete the baseline survey at T1. Of these, 838 (84.9%) fully completed the baseline survey, including providing a valid job title of their current job. Only participants who had completed previous time points were invited to complete subsequent surveys: at T2, 509 participants responded (60.7%), and at T3, 451 participants completed the survey (88.6%). We added attention-check items at T2 and T3 and removed from the analyses those participants who did not complete this check correctly (22 participants at T2, and 13 at T3). We also removed participants who took less than five minutes to complete either of the three surveys based on preceding pilot tests with undergraduate research assistants, or who provided incomplete responses (28 participants), which resulted in a final sample of 388 individuals who had fully matched responses across all three time points (at an overall response rate of 39.3%).

Of these 388 participants, 39% were male, the average age was 44 years (SD=11.91), and the mean organizational tenure was eight years (median = 5.46; SD=8.26). Just over a third of the participants (36.9%) held a leadership position. Average hours worked in a typical week were 35 (SD = 10.42). Participants worked in a variety of industries, including

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[6] The content and design of this study did not raise any significant concern with the institutional research ethics committee. It was fully compliant with the rules and regulations for conducting research at the institution of the first author, where the research was conducted.

[7] Note that the data presented in this article were part of a broader data collection effort.

education and health services (27.1 %), professional and business services (9.8%), wholesale

and retail (9.8%), government (8.2%), leisure and hospitality (6.2%), manufacturing (5.7%),

IT (3.9%) and construction (3.6%). The remaining 25.7% were dispersed across a wide range

of industry sectors (e.g., finances and agriculture).

Measures

Work-related regulatory focus. We measured regulatory focus at work with the full

12-item measure by Ferris et al. (2013). Six items were used to measure promotion focus

(example item for promotion focus: "My goal at work is to fulfill my potential to the fullest

in my job"; $\alpha = .86$) as well as prevention focus (example item: "I am focused on failure

experiences that occur while working"; $\alpha = .83$; 1 = *strongly disagree*, 5 = *strongly agree*).

Individual needs: competence, relatedness, autonomy. We measured the strength

of individuals' needs over the course of a workweek, using the same adapted measure by

Sheldon and Hilpert (2012) as in Study 2 ($\alpha = .85\text{-}.91$, across the three individual needs).

Job crafting. We assessed job crafting over the course of a workweek, using the full,

final version of our job-crafting questionnaire, asking participants about the extent to which

("This week, to what extent…") they agreed with the corresponding statements (1 = *not at*

all, 5 = *a great deal;* $\alpha = .68\text{-}.95$; see Appendix for all job crafting items).

Innovative work performance. We measured *innovative work performance* using

the same, established six-item measure by Scott and Bruce (1994) as in Study 1 ($\alpha = .92$).

Control variables. We used the same control variables (controlling for participants'

gender, *age*, and their jobs' *hierarchical rank*) as in Studies 1 and 2.

Results

To provide an independent test of Hypothesis 1, we conducted a confirmatory factor

analysis (CFA) of the proposed eight-factor "forms x type" measurement model for job

crafting. We then compared this model with viable alternatives in which the job crafting

items were loaded onto a smaller number of factors representing four overall types of job crafting (task, relationship, skill, cognitive), two overall forms (promotion vs. prevention), or one overarching job-crafting measure, respectively. We also ran separate CFAs for our other study constructs of regulatory foci, individual needs, and innovative work performance.

We then conducted a series of path analyses to test Hypotheses 2 through 4, which formed a moderated mediation or "conditional process"-type model (Hayes, 2017). Specifically, we hypothesized that any indirect effects of individuals' needs (for each of autonomy, relatedness, and competence) on innovative work performance operate differentially via the different forms and types of job-crafting strategies, and that the effects of individual needs on job crafting are moderated by work-related regulatory foci (see Figure 1). To represent our constructs, we computed scale mean scores and used them in our path modeling rather than the latent variables themselves (given the large number of items used in measuring these constructs, combining our measurement models for job crafting, individual needs, regulatory foci, and innovative work performance would have given an unacceptably low parameter-to-sample-size ratio). We also computed the six possible interactions between each of the regulatory foci (promotion vs. prevention) and the three individual needs.

Starting from a baseline or independence model (Model 1), in which we assumed all measures were unrelated, followed by a control-variables-added-only model (Model 2), in Model 3 we added the hypothesized paths from our antecedents (individual needs) and moderators (regulatory foci) to our mediators (job-crafting strategies) and outcome (innovative work performance), and from our mediators to the outcome variable—but held the eight mediator-to-outcome relationships (i.e. from each of the distinct job crafting strategies to innovative work performance) equal, and fixed the effects of the individual needs x regulatory foci interaction terms on the mediators at zero (Model 3). We compared Model 3 with a less-restricted Model 4, in which we allowed the eight paths from job crafting

to innovative work performance to vary between different job-crafting strategies. To the extent that Model 4 resulted in an improved model fit, these results would suggest initial evidence of a differential strength of association of different job crafting strategies with our key outcome variable of innovative work performance. Finally, in Model 5, we freed the effects of interaction terms, thus testing our full, moderated mediation model of job crafting.

Models were tested using Mplus software version 8 (Muthén & Muthén, 1998-2015), using Mplus code for moderated mediation developed by Stride, Gardner, Catley, and Thomas (2015). As in the previous Studies 1 and 2, because all our hypotheses were directional and theory-driven, we used one-tailed tests (e.g., Kimmel, 1957). In addition, as before, we controlled for the effects of demographic variables age, gender and hierarchical rank on all outcomes. When testing conditional indirect effects, we calculated bootstrapped 95% confidence intervals as recommended by Hayes (2017), using 10,000 bootstrapped resamples. For probing the conditional direct and indirect effects, we calculated and tested "simple slopes" values at low (-1 SD from the mean) and high (+1 SD from the mean) values of the moderators (work-related regulatory foci). Finally, we tested for the significance of difference of simple slopes between high versus low values of the moderators.

Insert Tables 6, 7, & 8 about here.

Table 6 displays the descriptive statistics, internal-consistency reliabilities, and zero-order correlations for the study variables. In further support of Hypothesis 1 (over and above the results found in Studies 1 and 2), the hypothesized eight-factor measurement model for job crafting (Model 1) gave a satisfactory fit to the data (chi-square = 738.37 on 322 df, CFI = .94, RMSEA = .06, SRMR = .05) and a significantly better fit than alternative models in which job-crafting items were consolidated into a smaller number of factors representing four

overall types (task, relationship, skill, and cognitive crafting); two forms (promotion vs. prevention) of job crafting; or into one overarching job-crafting measure (see Table 7).

To test Hypotheses 2a-d, 3 and 4a-b we compared our competing path analyses models (see Table 8). Adding control variables significantly improved our model ($\Delta \chi^2$ =1446.55, Δdf = 55; p<.001; Model 2 vs. Model 1), as did adding the hypothesized paths from individual needs (and regulatory foci) to job crafting and from job crafting to innovative work performance ($\Delta \chi^2$ =462.81, Δdf = 34; p<.001; Model 3 vs. Model 2). Allowing the eight paths from job crafting to innovative work performance to differ from each other likewise improved our model fit ($\Delta \chi^2$ =15.47, Δdf = 7, p<.05; vs. Model 4 vs. Model 3), thus offering initial support for Hypothesis 3 regarding the differential prediction of distinct job-crafting strategies on innovative work performance. Finally, adding the interaction terms between regulatory foci and individual needs as predictors of job crafting (Model 5) also improved model fit ($\Delta \chi^2$ =31.72, Δdf = 12, p<.001; vs. Model 4), thus offering initial support for Hypotheses 4a-b.

The path estimates from our best model, Model 5 (given in Table 9), also offered more specific support for Hypotheses 2a-d, 3 and 4a-b. Specifically, in partial support of Hypothesis 2a, individuals who experienced a stronger need for relatedness were more likely to engage in promotion- but not prevention-oriented relationship crafting. The conditional effects for promotion-oriented relationship crafting were all positive and statistically significant (B=.22, SE=.05; B=.25, SE=.06; for low and high values of promotion focus, respectively; both p<.001), but those on prevention-oriented relationship crafting at low and high values of prevention focus were not (B=.05, SE=.06; B=-.03, SE=.06; respectively, both *ns*).

In support of Hypothesis 2b, individuals who experienced a stronger need for competence were more likely to engage in promotion- as well as prevention-oriented skill

crafting. The conditional effects of the need for competence on promotion-oriented skill crafting at low and high values of promotion focus were all positive and statistically significant (B=.21, SE=.06; B=.35, SE=.08; both p<.001; respectively), as were the conditional effects of need for competence on prevention-oriented skill crafting at low and high values of prevention focus (B=.24, SE=.07; B=.34, SE=.06, both p<.001; respectively).

Hypothesis 2c was likewise supported: individuals who experienced a stronger need for autonomy were more likely to engage in promotion- as well as prevention-oriented task crafting. Specifically the conditional effects of the need for autonomy on promotion-oriented task crafting at low and high values of promotion focus were each positive and statistically significant (simple slopes: B=.11, SE=.06, p<.05; B=.33, SE=.07, p<.001), as were the conditional effects of need for autonomy on prevention-oriented task crafting at high (although not at low) values of prevention focus (simple slopes: B=.08, SE=.06, *ns*; B=.25, SE=.08, p<.01, for low and high levels of the moderator, respectively).

Finally, in partial support of Hypothesis 2d, individuals who experienced a stronger need for relatedness were more likely to engage in promotion- as well as prevention-oriented cognitive crafting. The conditional effects of the need for relatedness on promotion-oriented cognitive crafting at low and high values of promotion focus were positive and statistically significant (B=.22, SE=.06; B=.19, SE=.06; both p<.001), as were the conditional effects of need for relatedness on prevention-oriented cognitive crafting at high (although not low) values of prevention focus (B=.06, SE=.06, *ns*; B=.16, SE=.06, p<.01, for low and high levels of the moderator, respectively). In addition, strong needs for competence predicted increased promotion-oriented cognitive crafting. The conditional effects at high (although not low) values of promotion focus were again positive and statistically significant (simple slopes: B=.04, SE=.05, *ns*; B=.23, SE=.08, p<.01, for low and high values of the moderator, respectively). In initial support of Hypothesis 3, the paths between the promotion-oriented

forms of job crafting and innovative work performance were stronger than the respective

paths between the prevention-oriented forms of job crafting and innovation (Table 9 -

continued, rows 4 to 11, column 10). In addition, a supplementary test in which we

computed, and then tested between, the averages of these paths showed that the average

effect of promotion-oriented forms of job crafting on innovative work performance (average

B = .14, SE = .02, p<.001) was significantly greater than the average of the prevention-

oriented job crafting effects on innovative work performance (average B = .04, SE = .02,

p<.05; difference between the average parameters: B=.10, SE=.04; p<.01).

Together, incremental variance explained in innovative work performance of the key

variables in this model (beyond the effects of control variables) was 42%.

Insert Tables 9 and 10 & Figure 4 about here.

Finally, Hypothesis 4a and 4b were partially supported. Work-related promotion focus

strengthened the positive effects of the need for autonomy and competence on promotion-

oriented forms of task and skill crafting (path coefficients for the interaction effects: B=.16,

SE=.06; p<.01; B=.10, SE=.05; p<.05, respectively) and the need for competence on

promotion-oriented cognitive crafting (B=.14, SE=.05, p<.01). Specifically, for employees

with a strong promotion focus, the simple slopes for the relationship between individual

needs and job crafting were positive and differed significantly from zero (for the autonomy

needs to task crafting-link: B=.33, SE=.07, p<.001; for the competence needs to skill

crafting-link: B=.35, SE=.08, p<.001; and for the competence needs to cognitive crafting-

link: B=.23, SE=.08, p<.01). In contrast, for employees with a weak promotion focus, the

simple slopes were weaker (for the autonomy needs to task crafting-link: B=.11, SE=.06,

p<.05; for the competence needs to skill crafting-link: B=.21, SE=.06, p<.001; and for the

competence needs to cognitive crafting-link: B=.04, SE=.05, *ns*). In addition, the difference

between slopes at high versus low levels of the moderator were statistically significant in all cases (for the autonomy needs to task crafting-link: B=.22, SE=.08, p<.01; for the competence needs to skill crafting-link: B=.14, SE=.07, p<.05; and for the competence needs to cognitive crafting-link: B=.19, SE=.07, p<.01). These interaction effects are summarized in Table 9 and illustrated in Figure 4. When combined with the subsequent effects of job-crafting strategies on innovative work performance, the results showed the conditional indirect effects from individual needs of autonomy and competence on innovative work performance via promotion-oriented forms of task and skill crafting, respectively, were significantly positive and enhanced by promotion focus, thus supporting Hypothesis 4a. Conditional indirect effects and their respective bootstrapped 95% confidence intervals are given in Table 10.

Likewise, work-related prevention focus strengthened the positive effects of the need for autonomy on prevention-oriented task crafting (B=.10, SE=.06, p<.05; see Table 9 and Figure 4). Specifically, for employees with a strong prevention focus, the simple slopes for the relationship between autonomy needs and task crafting were positive and differed significantly from zero (B=.25, SE=.08, p<.01). In contrast, for employees with a weak prevention focus, the simple slopes were non-significant (B=.08, SE=.06, *ns*). In addition, the difference between slopes at high versus low levels of the moderator were statistically significant (B=.17, SE=.10, p<.05). This finding, in turn, strengthened the indirect effects of the need for autonomy on innovative work performance via the prevention-oriented form of task crafting, partially supporting Hypothesis 4b (although becoming more strongly positive as prevention focus increased, the conditional indirect effects, here, were not significantly above zero; see Table 10).

Discussion

Although job crafting is vital to modern workplaces (Bakker et al., 2012; Leana et al., 2009; Wrzesniewski et al., 2013), previous research has provided only limited insights into why and how employees craft their jobs. Several frameworks have incorporated individual needs as motivators, but without specifying which particular need drives which types of crafting, and therefore, these frameworks only serve as a coarse guide as to what motivates job crafting. Furthermore, researchers have primarily focused on promotion-oriented forms of job crafting whereby employees seek to add to existing domains in the job, with very little attention given to the prevention forms, thus failing to reveal more nuanced means of crafting one's job. In this paper, we developed an extended framework for job crafting, drawing from regulatory focus theory (Higgins et al., 2001), to include both promotion- and prevention-oriented forms of four distinct types of job crafting (task, relationship, skill, and cognitive crafting). We developed a measure for this framework and tested a theoretically derived model linking different individual needs with specific types, and work-related regulatory foci with different forms, of job crafting. Finally, we showed that different forms of job crafting were differentially associated with overall innovative work performance. Based on our investigations across the three independent studies in this paper, we provide an answer for the *why* and *how* of individuals' engagement in job crafting. Below we describe how our findings inform both theory and practice.

Introducing an Extended Framework for Job Crafting

The extended framework for job crafting expands our understanding by incorporating two main forms—promotion- versus prevention-oriented job crafting—across four overarching types of job crafting (task, relational, skill, and cognitive crafting). To our knowledge, this framework is the most comprehensive one for job crafting in the literature to date, evidencing myriad means by which employees proactively initiate changes to their own jobs. Across three independent studies and complementary statistical procedures of

exploratory and confirmatory factor analyses, we found consistent evidence for our extended model of job crafting and demonstrated its improvement over simpler frameworks (e.g., Bruning & Campion, in press). In Studies 1 and 3, we also showed that promotion- and prevention-oriented forms of job crafting had differential associations with innovative work performance: the link between promotion-oriented forms of job crafting with innovative work performance was significantly stronger than the link between prevention-oriented forms of job crafting and innovation. In addition, the indirect, positive link between individual needs and innovative work performance via the promotion-oriented forms of job crafting (in particular, for the behavioral types of job crafting: task and skill crafting) was strongest when promotion focus at work was high. In sum, our findings indicate that the distinction between promotion- and prevention-oriented forms of the different types of job crafting is viable and that it matters for organizations.

Individual needs and types of job crafting. We largely found support for our hypothesized relationships between individual needs and engagement in distinct job-crafting strategies. Specifically, across two studies and using different study designs, we found that, as hypothesized, individuals' need for competence predicted engagement in skill crafting (including both *promotion* and *prevention* forms). In addition, we found consistent evidence that individuals who experienced strong relatedness needs were more likely to engage in relationship crafting (although in Study 3, strength of relatedness needs only predicted the promotion-oriented form of relationship crafting). Finally, across these two studies, autonomy-need strength was overall positively related to task crafting (albeit in Study 2, this was only true for the promotion-oriented form of task crafting). Between the two studies, we also found that individual needs predicted the engagement in cognitive crafting (promotion- as well as prevention-oriented), with those needs somewhat varying across the two studies. All told, these findings provide rather consistent evidence for the links we anticipated

between individual needs and distinct types of job crafting. We suspect that the observed slight differences across studies in the link between needs and job crafting may be due to the different ways in which we aggregated the data across Studies 2 and 3, as well as due to contextual factors that shape job crafting beyond needs and personality (Barrick et al., 2013).

Together, these findings indicate that the strength of specific needs at work is related to the type of job-crafting activities in which employees will choose to engage. Findings also indicate that the relationship between individual needs and promotion-oriented job crafting may be more pervasive than the link between needs and prevention-oriented job crafting, calling for future investigation of the contexts in which prevention-oriented job crafting is more or less driven by individual needs. In this context, we encourage research that examines other possible antecedents, such as, for instance, prior experiences with job crafting, feedback, or performance appraisals. Finally, whereas previous job-crafting research focused on needs and their satisfaction more generally (Niessen et al., 2016; Slemp & Vella-Brodrick, 2013; Wrzesniewski & Dutton, 2001), our research contributes with important insights regarding the motivational processes that unfold as employees start to craft their jobs in idiosyncratic ways. The current differentiation of distinct individual needs in our paper also speaks to calls from needs researchers who have previously argued its importance (Van den Broeck et al., 2016). In sum, our findings indeed demonstrate the importance of a more differentiated understanding of which individual needs drive specific work behaviors.

Our findings also provide support for the possibility that employees engage in cognitive crafting (both promotion- and prevention-oriented), which has received much less attention in the literature. Even if individuals do not engage in overt changes at work, they do not simply "switch off," but rather may change the way they think about their jobs. Previous research has argued that individuals will choose to engage in cognitive crafting when they cannot change the job itself (Wrzesniewski & Dutton, 2001). Although we did not test this

argument, we could assume that individuals will opt to cognitively craft their jobs when they have unmet individual needs but their work situation is strong (Mischel & Shoda, 1995), such that they do not feel they can change the task, relational, or skill-related boundaries in their work. Our findings and instrument offer a starting point for further research in this area.

Regulatory foci and forms of job crafting. A second domain of contribution results from our theorizing in this paper regarding the role of work-related regulatory foci for job crafting. We extended existing job-crafting research, which is dominated by a logic that pertains to individual needs (e.g., Wrzesniewski & Dutton, 2001), by investigating the role of regulatory focus at work for shaping different forms of job crafting, and its implications for innovative work performance. Importantly, our findings showed that across two independent studies (Studies 1 and 3), promotion- and prevention-oriented forms of job crafting were differentially associated with innovative work performance, such that the positive relationship between promotion-oriented forms of job crafting and innovation was stronger than that between prevention-oriented forms of job crafting and innovation (average associations were B = .20 and B = .14, for promotion-oriented job crafting; and B = .04, for prevention-oriented job crafting, in these two studies). In addition, in our Study 3, where we investigated the role of work-related regulatory foci in strengthening the indirect, positive links between needs and innovative work performance via different forms of job crafting, we found that a strong promotion focus at work strengthened the indirect effects of individual needs on innovative work performance, particularly via the promotion-oriented forms of behavioral (task and skill) types of crafting, in support of our overall theorizing.

Although prevention-oriented forms of job crafting had a weaker positive association with innovative work performance, we would like to reiterate that prevention-oriented forms of job crafting are not "negative" per se. Rather, they enable employees to craft their own jobs in ways that are personally meaningful and potent, and are driven by certain needs, as

evidenced by the positive associations in our studies between individual needs and the prevention-oriented forms of job crafting. Hence, for some employees, engaging in prevention-oriented job crafting is likely a path to need fulfillment at work. In turn, evidence suggests satisfaction of individual needs leads to important outcomes, such as high performance and improved well-being (Deci & Ryan, 2000; Gagné & Deci, 2005). Further, across the studies, several of the prevention-oriented forms of job crafting were indeed positively related to innovative work performance, thus indicating these forms should not necessarily be avoided, nor do they always signal withdrawal. For instance, it may be that promotion-oriented forms of job crafting are particularly beneficial for the idea generation aspects of innovation, while prevention-oriented forms of job crafting are more strongly linked to implementation. Yet, given innovation cannot occur without both generation of novel ideas and implementation of those ideas, both forms of job crafting are likely essential in bringing about innovation at work. In addition, we suspect that prevention-oriented job crafting may be even more important for certain work outcomes than promotion-oriented job crafting. We encourage future research to examine this possibility. Broadly speaking, we welcome future research investigating the contexts and conditions in which organizationally desirable job-crafting activities can be fostered. Our findings indicate that exploring different patterns of job-crafting in organizations, and their effects on a wider range of workplace outcomes across work contexts, would be a fruitful research avenue to pursue.

Practical Implications

Our results indicate that specific types and forms of job-crafting activities are likely to occur as employees experience different needs and regulatory foci at work. Research has shown that the strength of individual needs will increase goal-relevant action toward need satisfaction (Sheldon, 2011; Sheldon & Schüler, 2011). The implications for job design are clear: recognizing that the strength of individual needs varies across employees and allowing

them the opportunity to adjust tasks, relationships, and skills in ways that enable need-fulfillment at work is important. Employers can advance this process, for instance, by providing good opportunities for skill development, creating workspaces that facilitate meaningful interaction between colleagues and across teams, and providing employees with discretion in their jobs. Research on self-determination theory has emphasized the importance of "autonomy support" for need satisfaction and performance (Deci, Connell, & Ryan, 1989; Gagné, 2003). This notion implies managers, in particular, must understand and acknowledge employees' perspectives, encourage self-initiative, minimize control wherever possible, and provide relevant information to employees. Our study adds to this research by showing how job crafting may offer a viable avenue for employees to self-initiate satisfaction of their needs. Hence, managers are advised to be aware of the needs of their employees and to help transform employees' needs into those behaviors that are most desirable for the organization.

Our study also contributes by systematically distinguishing between promotion- and prevention-oriented forms of task, relationship, skill, and cognitive job crafting. Thus far, job-crafting research—and proactivity research more generally—has mainly focused on promotion forms of initiating changes at work (e.g., Bindl & Parker, 2017). We show the value of prevention-oriented forms of job crafting, and that regulatory foci may be related to the link between individual needs, forms of job crafting, and important work outcomes, such as innovative work performance. Organizations hoping to promote certain work outcomes may want to take heed of the potential of regulatory foci to shape different forms of job crafting that can be beneficial for bringing about the specific outcomes of interest. In sum, our findings imply organizations must understand and differentiate between different forms and types of job crafting, to help promote the outcomes that are desirable in a given context.

Limitations and Future Research

As with any study, ours has certain limitations that suggest potentially useful avenues for future research. First, our theorizing implies causal effects of individual needs, regulatory foci, job-crafting activities, and innovative work performance. However, although we measured the focal variables over time and in an order consistent with the presumed causal effects (in particular in Studies 2 and 3), alternative explanations may still exist. For instance, based on the original theorizing in job crafting (Wrzesniewski & Dutton, 2001), our rationale is that individuals are driven by their needs to engage in job crafting to ultimately satisfy these same needs. In this sense, over time, positive or negative spirals of job-crafting activities with needs at work could occur, depending on whether these needs are ultimately satisfied through job-crafting activities, and future research could investigate this possibility.

Similarly, although we showed that different types and forms of job crafting are associated with important work outcomes (innovative work performance), we did not consider the quality or sustainability of the job-crafting efforts, but rather focused on examining the extent to which employees engaged in them. In situations where job-crafting behavior is unsuccessful, employees may stop engaging in it and may find other avenues, such as disengaging from their work, for managing their needs. Hence, job crafting is likely more functional than other activities over the long term, and future empirical research should investigate these longer-term potential consequences of job crafting, in greater depth.

Third, although a strength of our design is that it allowed us to obtain diverse samples of employees, our approach did not allow for any in-depth investigation of specific jobs, occupations, or industries. Individual needs may be more or less important to prompting different forms or types of job crafting in different occupations or jobs; future research could explore this possibility. For instance, an organization hoping to explore and expand operations might find it more effective to bring about these outcomes by ensuring high work-related promotion foci in their employees, given our findings that such regulatory focus may

strengthen the link between individual needs and innovation via promotion-oriented forms of job crafting. On the other hand, an organization wishing to exploit an existing niche and maintain a narrower focus on current activities may be less well served by such a regulatory focus and may instead allow for more organically occurring changes (e.g., Strauss, Lepoutre, & Wood, 2017). In sum, research is now needed to investigate the contextual boundary conditions under which either form of job crafting (promotion- vs. prevention-oriented) may be particularly beneficial in organizations. Our study provides an empirically grounded measurement instrument for doing so in the future.

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Figure 1 *Proposed moderated mediation model linking individual needs to innovative work performance via job crafting, moderated by regulatory focus*
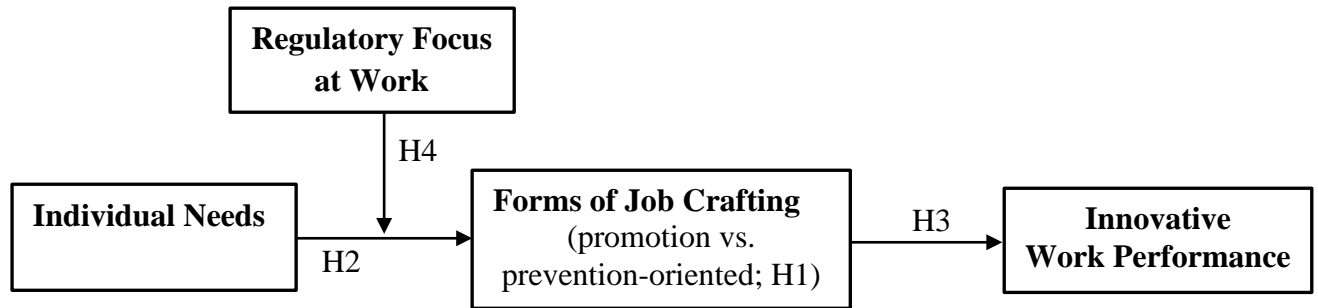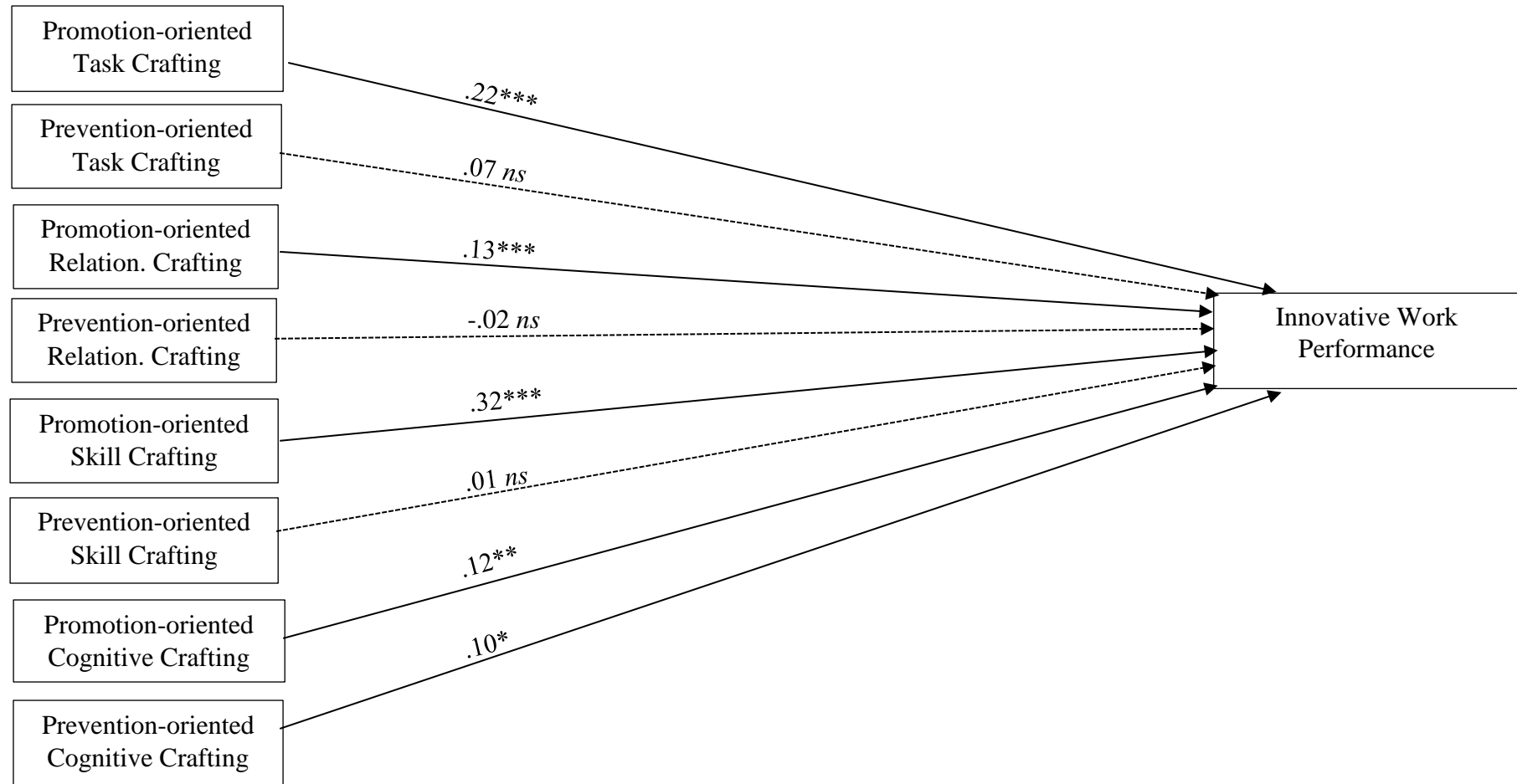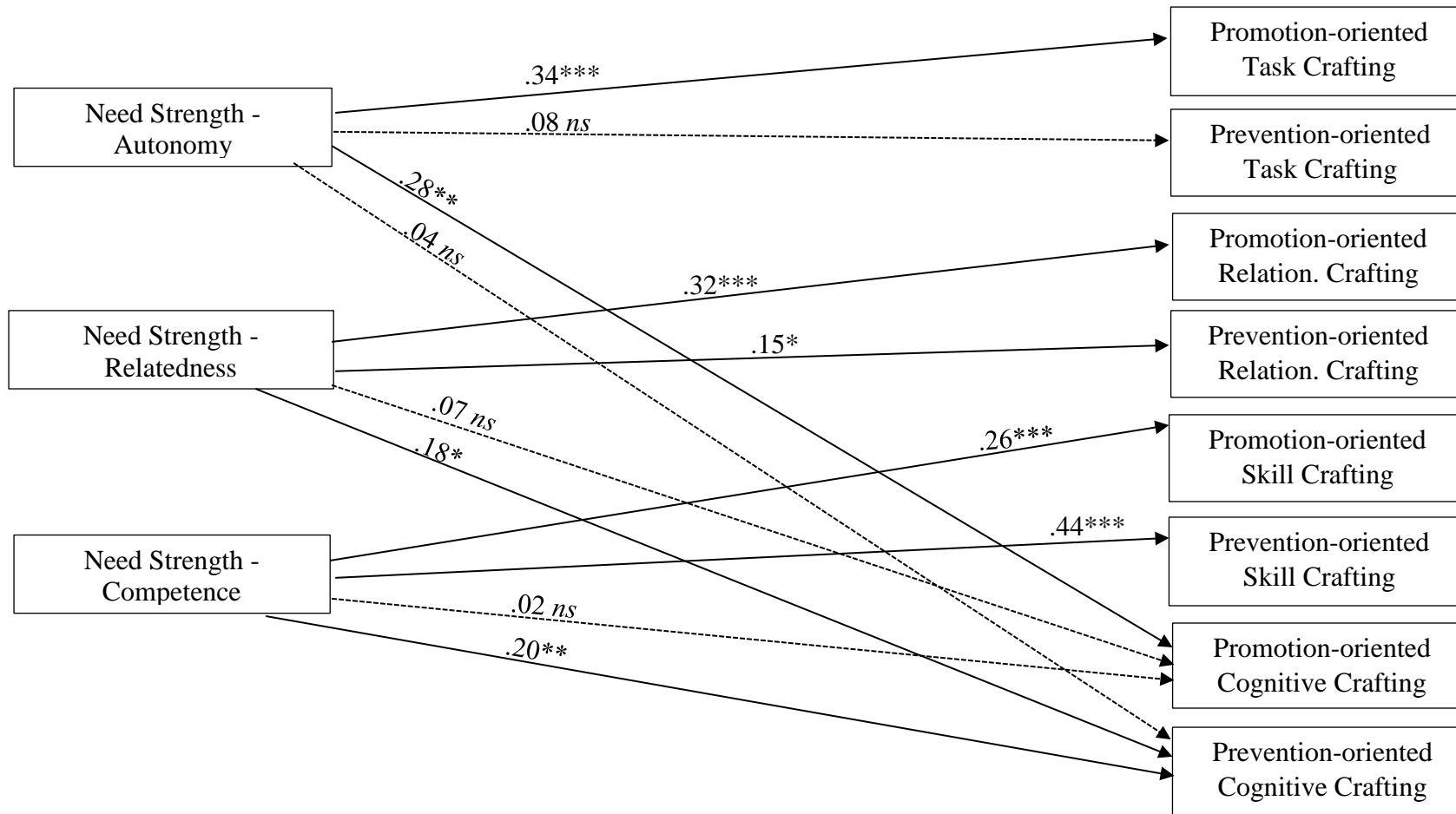
Figure 2 *Study 1 Results – Forms of Job Crafting as Predictors of Innovative Work Performance*

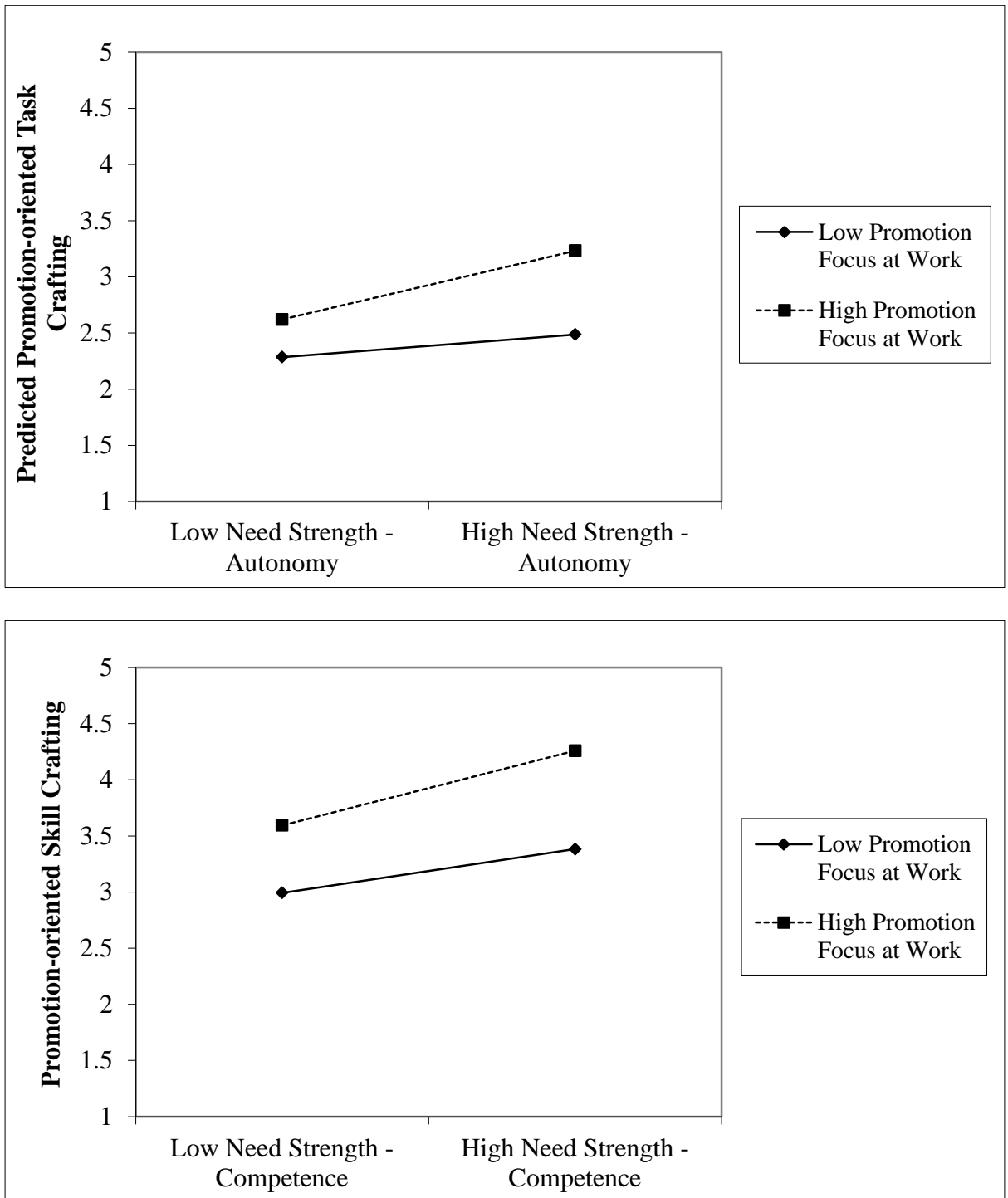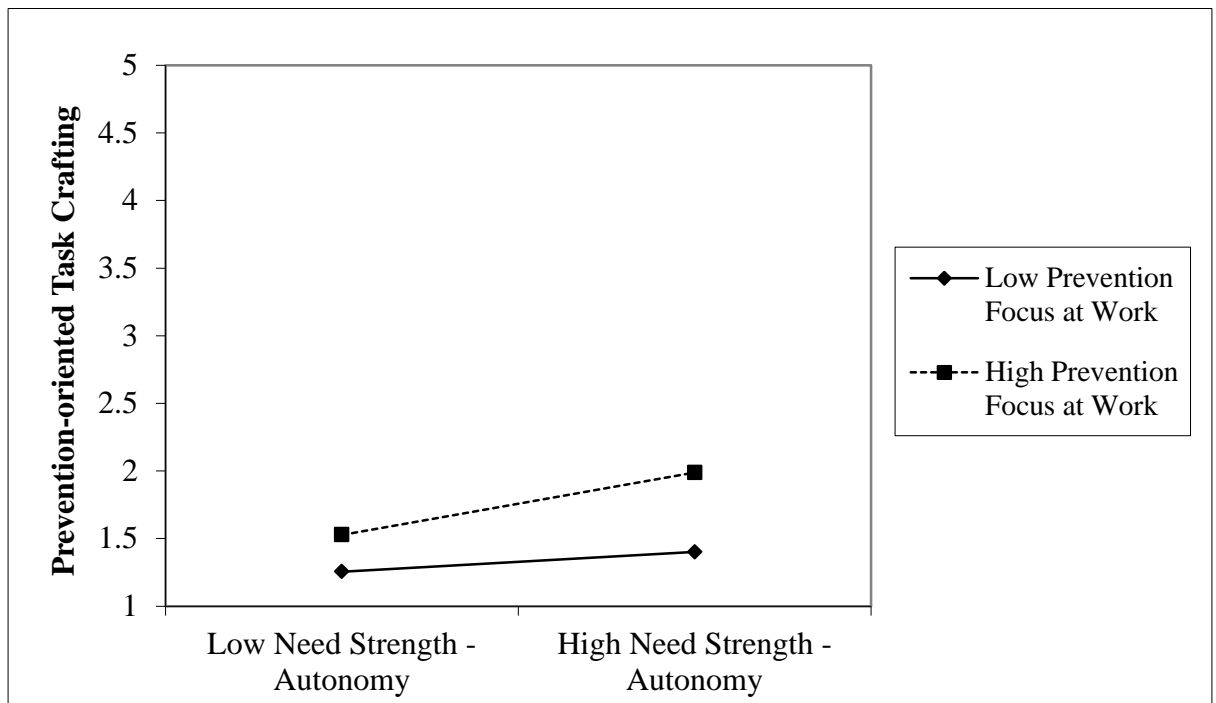**Figure 3** *Study 2 Results – Individual Needs as Predictors of Job Crafting*

Figure 4 *Study 3 – Moderating effects of work-related regulatory focus on the relationship*

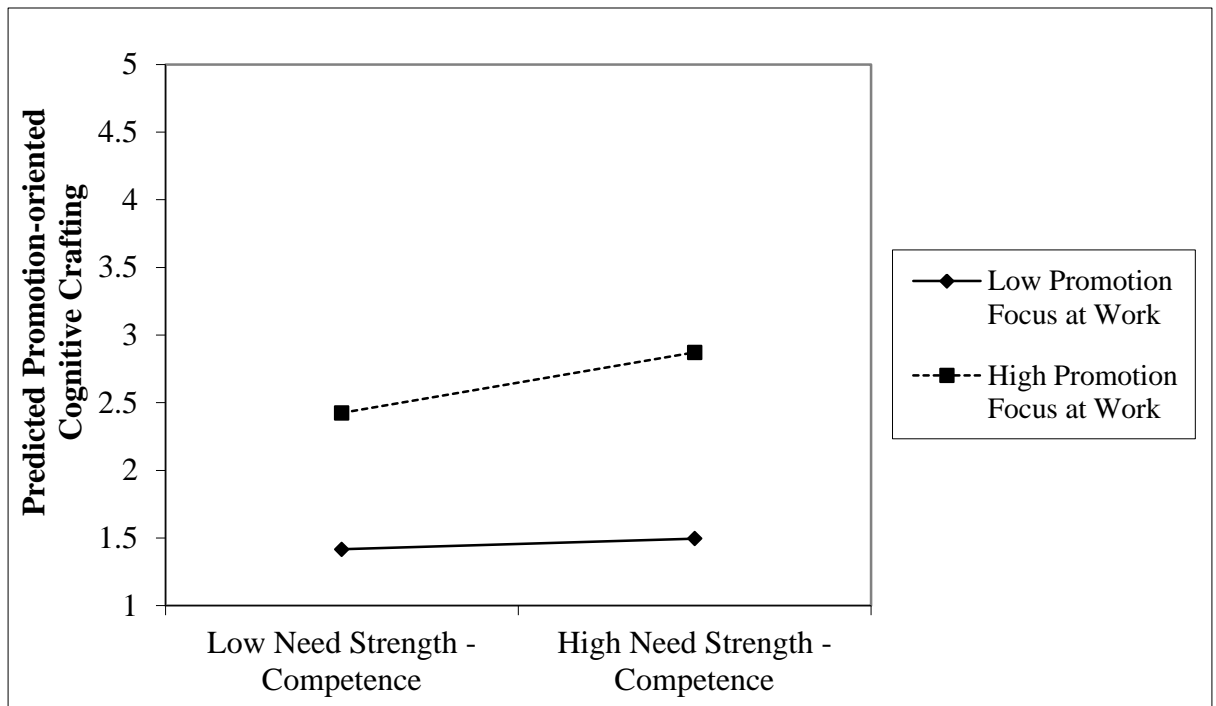*between individual needs and forms of job crafting*

Figure 4 *Study 3 – Moderating effects of work-related regulatory focus on the relationship between individual needs and forms of job crafting - Continued*

Notes. Relationships of individual needs on forms of job crafting at levels of work-related regulatory foci are at one standard deviation above and below the mean, adjusted for control variables.

Table 1 *Study 1 – Means, Standard Deviations, and Correlations of Study Variables*

Variables	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Gender (0 = Female, 1 = Male)	0.45	0.50	---											
2. Age	38.95	11.61	-.17**	---										
3. Hierarchical rank (no. of reports)	5.31	16.46	.02	.01	---									
4. Promotion-oriented Relationship Crafting	2.25	1.02	.04	-.08	.16**	*.92*								
5. Prevention-oriented Relationship Crafting	2.00	1.02	.02	-.16**	-.03	.08	*.81*							
6. Promotion-oriented Skill Crafting	2.75	1.14	.10	-.02	.10*	.53**	.18**	*.95*						
7. Prevention-oriented Skill Crafting	2.90	1.03	.07	.01	.07	.32**	.37**	.49**	*.82*					
8. Promotion-oriented Task Crafting	2.20	1.02	.06	-.03	.13**	.49**	.24**	.68**	.41**	*.90*				
9. Prevention-oriented Task Crafting	2.03	0.92	.13**	-.15**	.04	.38**	.49**	.29**	.45**	.32**	*.82*			
10. Promotion-oriented Cognitive Crafting	2.75	1.01	-.04	-.01	.04	.59**	.12*	.58**	.45**	.54**	.24**	*.83*		
11. Prevention-oriented Cognitive Crafting	2.41	0.93	.04	-.05	.05	.32**	.45**	.34**	.48**	.32**	.43**	.33**	*.70*	
12. Innovative Work Performance	2.26	1.01	.13*	-.03	.12*	.56**	.20**	.71**	.44**	.65**	.35**	.57**	.39**	*.93*

Notes. N= 421; Internal consistency values (Cronbach's Alphas) appear across the diagonal in italics. $^*p < .05$, $^{**}p < .01$.

Table 2 *Study 1 – Principal Axis Factor Analysis (Oblimin Rotation)*

Items	Factor loadings							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
I actively took on more tasks in my work.	**.51**	.00	.09	.08	.24	.05	.02	.10
I added complexity to my tasks by changing their structure or sequence.	**.81**	-.11	-.02	-.05	.02	.04	.07	-.03
I changed my tasks so that they were more challenging.	**.91**	.00	.02	-.01	-.02	.07	-.01	.02
I increased the number of difficult decisions I made in my work.	**.70**	.07	.09	.06	.14	.01	-.02	-.03
I actively reduced the scope of tasks I worked on.	.17	**-.58**	.11	.19	-.10	-.09	.07	-.03
I tried to simplify some of the tasks that I worked on.	.00	**-.79**	.00	-.08	.12	.10	-.09	.01
I sought to make some of my work mentally less intense.	-.08	**-.74**	.03	.11	.02	.05	.04	-.10
I actively sought to meet new people at work.	.05	.00	**.81**	.07	-.06	-.04	.06	-.05
I made efforts to get to know other people at work better.	-.04	-.04	**.90**	-.02	.00	.05	-.02	-.01
I sought to interact with other people at work, regardless of how well I knew them.	-.02	-.02	**.81**	-.10	.06	.03	-.02	.07
I tried to spend more time with a wide variety of people at work.	.06	.00	**.86**	.03	.00	-.06	.05	-.05
I minimized my interactions with people at work that I did not get along with.	-.15	-.04	.04	**.72**	.04	.13	-.06	.02
I changed my work so that I only interacted with people that I felt good about working with.	.04	-.03	.06	**.78**	.06	.01	.04	-.04
I tried to avoid situations at work where I had to meet new people.	.11	-.03	-.12	**.71**	-.05	-.03	.02	-.02
I actively tried to develop wider capabilities in my job.	.10	-.06	.00	.00	**.79**	-.01	.03	-.09
I tried to learn new things at work that went beyond my core skills.	.07	-.06	-.01	-.05	**.83**	.04	.05	.01
I actively explored new skills to do my overall job.	-.01	.01	-.02	.06	**.93**	.01	.05	.03
I sought out opportunities for extending my overall skills at work.	.02	.01	.09	.02	**.87**	.00	-.03	-.02
I channeled my efforts at work towards maintaining a specific area of expertise.	.13	-.08	.03	.01	-.05	**.68**	.01	-.09
I sought to develop those skills in my job that helped prevent negative work outcomes.	-.01	-.01	-.02	.08	-.07	**.83**	-.01	-.05
I made sure I stayed on top of knowledge in core areas of my job.	.02	.00	.01	.00	.16	**.64**	.08	.06
I tried to think of my job as a whole, rather than as separate tasks.	.04	-.08	.13	.01	.06	.08	**.58**	.14
I thought about how my job contributed to the organization's goals.	.08	.07	.11	-.08	.11	.19	**.51**	-.06
I thought about new ways of viewing my overall job.	.18	-.01	.05	.03	.17	-.02	**.53**	-.26
I thought about ways in which my job as a whole contributed to society.	.01	.09	.15	.05	.12	.07	**.56**	-.19
I focused my mind on the best parts of my job, while trying to ignore those parts I didn't like.	-.08	-.10	.02	.05	.01	.06	.07	**-.52**
I assessed the different elements of my job to determine which parts were most meaningful.	.07	-.09	.04	.00	.00	.08	.19	**-.71**
I tried to think of my job as a set of separate tasks, rather than as a whole.	.08	.01	.07	.11	.10	.09	-.33	**-.48**

Notes. N=421. F1 = Promotion-oriented Task Crafting, F2 = Prevention-oriented Task Crafting, F3 = Promotion-oriented Relationship Crafting, F4 = Prevention-oriented Relationship Crafting, F5 = Promotion-oriented Skill Crafting, F6 = Prevention-oriented Skill Crafting, F7 = Promotion-oriented Cognitive Crafting, F8 = Prevention-oriented Cognitive Crafting.

Table 3 *Study 1 – Path analysis models testing Hypothesis 3*

Model		χ^2,df	$\Delta \chi^2$, Δdf†	CFI	RMSEA	SRMR
Model 1	Baseline Model (all variables uncorrelated)	401.26, 11	---	---	---	---
Model 2	Control variables added	388.72, 8	12.54, 3**	.02	.34	.15
Introducing direct effects of job crafting on innovative work performance						
Model 3	Adding direct effects of job crafting on innovative work performance, fixing effects of job-crafting forms (promotion- vs. prevention-oriented) on innovation to be equal	87.70, 7	301.02, 1***	.79	.17	.03
Model 4	Adding direct effects of job crafting on innovative work performance, with effects of all job-crafting forms on innovation freed to vary	0, 0	87.70, 7***	1.00	.00	.00

Notes. N = 421. † Difference assessed vs. previously best model. One-tailed p-value tested. *$p < .05$, **$p < .01$, ***$p < .001$.

Table 4 *Study 2 – Means, Standard Deviations, and Correlations of Study Variables at the Between-Person Level*

	Variable	M	SD	1.	2.	3.	4.	5.	6.	7.
1.	Promotion-oriented Task Crafting	2.21	.74							
2.	Prevention-oriented Task Crafting	2.35	.80	.35**						
3.	Promotion-oriented Relationship Crafting	2.28	.71	.63**	.57**					
4.	Prevention-oriented Relationship Crafting	1.98	.83	.40**	.80**	.52**				
5.	Promotion-oriented Skill Crafting	2.66	.79	.76**	.45**	.79**	.40**			
6.	Prevention-oriented Skill Crafting	2.80	.70	.66**	.58**	.69**	.42**	.83**		
7.	Promotion-oriented Cognitive Crafting	2.33	.84	.70**	.41**	.66**	.35**	.73**	.64**	
8.	Prevention-oriented Cognitive Crafting	2.49	.74	.57**	.73**	.68**	.64**	.66**	.81**	.74**
9.	Need for Relatedness	2.76	.89	.41**	.42**	.59**	.44**	.36**	.43**	.44**
10.	Need for Autonomy	3.03	.86	.57**	.22*	.44**	.22*	.42**	.45**	.53**
11.	Need for Competence	3.41	.76	.44**	.21*	.35**	.03	.46**	.63**	.37**
12.	Age	27.82	6.67	-.13	-.21*	-.26**	-.19*	-.24*	-.16	-.13
13.	Gender (0=Female, 1=Male)	.33	.47	.17	.25**	.23*	.18*	.17	.26**	.29**
14.	Hierarchical rank (no. of reports)	2.04	3.62	.14	.22*	.02	.20*	.08	.15	.10

	Variable	8.	9.	10.	11.	12.	13.
9.	Need for Relatedness	.58**					
10.	Need for Autonomy	.44**	.62**				
11.	Need for Competence	.43**	.39**	.50**			
12.	Age (years)	-.21*	-.13	.07	.05		
13.	Gender (0=Female, 1=Male)	.21*	.05	.09	.14	.15	
14.	Hierarchical rank (no. of reports)	.24*	.13	.12	.16	.02	.10

Notes. N = 144 persons. * *p* < .05, ** *p* < .01.

Table 5 *Study 2 –Multilevel path analysis models, investigating individual needs as predictors of job crafting*

Model		χ^2, df	$\Delta \chi^2$, Δdf†	CFI	RMSEA	SRMR within	SRMR between
Model 1	Unconditional Model	259.33, 80	---	.88	.06	.05	.23
Model 2	Control variables added	190.27, 48	69.06, 32***	.90	.07	.05	.19
Introducing direct effects of individual needs on job crafting							
Model 3	Individual needs added on the within-person level only	140.31, 36	49.96, 12***	.93	.07	.05	.19
Model 4	Individual needs also added on the between-person level *(final, hypothesized model)*	63.30, 24	77.01, 12***	.97	.05	.03	.08

Notes. N = 617 days (morning and evening responses) from 144 persons. †difference assessed vs. previously best model. One-tailed p-value tested. * *p* < *.05,* ** *p* < *.01,* *** *p* < *.001*.

Table 6 *Study 3 – Means, Standard Deviations, and Correlations of Study Variables*

Variables	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	
1. Gender (0=Female, 1=Male) (T1)	0.39	0.49	---																
2. Age (years) (T1)	43.75	11.91	.13*	---															
3. Hierarchical rank (no. of reports) (T1)	4.15	19.75	.06	.09	---														
4. Promotion Focus at Work (T1)	3.89	0.72	-.09	-.07	.11*	.86													
5. Prevention Focus at Work (T1)	2.86	0.88	-.05	-.21**	-.02	-.14**	.83												
6. Need Strength - Autonomy (T2)	3.57	0.93	.02	.03	.10	.38**	-.06	.85											
7. Need Strength – Competence (T2)	3.67	0.96	-.04	.03	.12*	.41**	.02	.54**	.91										
8. Need Strength – Relatedness (T2)	3.11	1.10	-.14**	-.08	.06	.38**	.04	.50**	.44**	.90									
9. Promotion-oriented Task Crafting (T2)	2.25	1.02	-.07	-.20**	.07	.34**	.05	.35**	.48**	.34**	.89								
10. Prevention-oriented Task Crafting (T2)	2.27	1.00	.04	-.12*	.08	.20**	.20**	.24**	.22**	.31**	.35**	.82							
11. Promotion-oriented Relationship Crafting (T2)	2.25	1.05	-.07	-.16**	.08	.35**	.07	.28**	.32**	.46**	.59**	.32**	.91						
12. Prevention-oriented Relationship Crafting (T2)	1.77	0.87	.06	-.12*	.04	.02	.13*	.04	.02	.11*	.21**	.40**	.10	.77					
13. Promotion-oriented Skill Crafting (T2)	2.59	1.22	-.04	-.22**	.04	.40**	-.01	.32**	.46**	.39**	.68**	.31**	.61**	.16**	.95				
14. Prevention-oriented Skill Crafting (T2)	2.89	1.05	.03	-.03	.09	.38**	.02	.37**	.47**	.35**	.54**	.36**	.51**	.13*	.65**	.83			
15. Promotion-oriented Cognitive Crafting (T2)	2.73	1.03	-.03	-.06	.14**	.51**	.01	.36**	.46**	.50**	.59**	.35**	.62**	.13**	.59**	.61**	.83		
16. Prevention-oriented Cognitive Crafting (T2)	2.45	0.96	-.09	-.14**	.14**	.33**	.10*	.27**	.31**	.38**	.47**	.43**	.46**	.35**	.45**	.51**	.58**	.68	
17. Innovative Work Performance (T3)	2.19	1.02	.03	-.14**	.14**	.42**	-.09	.34**	.41**	.36**	.56**	.34**	.54**	.18**	.58**	.48**	.54**	.40**	.92

Notes. N= 388; Internal consistency values (Cronbach's Alphas) appear across the diagonal in italics. T1=Time 1, T2=Time 2, T3=Time 3. * *p < .05, ** p < .01.*

Table 7 *Study 3 –Confirmatory Factor Analysis for Job-Crafting Strategies Factors*

Model	Descriptives	χ^2,df	$\Delta \chi^2, \Delta df$†	CFI	RMSEA	SRMR
Model 1	Hypothesized Model: Eight dimensions of job crafting (promotion RC, prevention RC, promotion SC, prevention SC, promotion TC, prevention TC, promotion CC, prevention CC)	738.37, 322	----	.94	.06	.05
Model 2	Four factors of Job Crafting: RC (Promotion, Prevention), SC (Promotion, Prevention), TC (Promotion, Prevention), CC (Promotion, Prevention)	1822.13, 344	1083.76, 22[***]	.80	.11	.10
Model 3	Two factors of Job Crafting: Promotion-oriented Forms of Job Crafting (RC, SC, TC, CC) vs. Prevention-oriented Forms of Job Crafting (RC, SC, TC, CC)	2831.33, 349	2092.96, 27[***]	.66	.14	.10
Model 4	One factor of Job Crafting: Overall Job Crafting	3095.21, 350	2356.84, 28[***]	.63	.14	.10

Notes. N = 388. †difference assessed vs. hypothesized Model 1. RC = Relationship Crafting, SC = Skill Crafting, TC= Task Crafting, CC = Cognitive Crafting. One-tailed p-value tested. * *p < .05, ** p < .01, *** p < .001*.

Table 8 *Study 3 – Nested Path Analysis Models Predicting Innovative Work Performance from Individual Needs via Job-Crafting Strategies, moderated by work-related regulatory focus*

Model		χ^2, df	$\Delta \chi^2, \Delta df$†	CFI	RMSEA	SRMR
Model 1	Baseline (Independence) Model	2100.65, 162	---	---	---	---
Model 2	Control variables added	654.10, 107	1446.55, 55***	.72	.12	.20
Introducing direct effects of individual needs and regulatory foci on job crafting						
Model 3	Model including direct effects of individual needs and regulatory foci on job crafting, effects of job-crafting strategies on innovation fixed to be equal	191.29, 73	462.81, 34***	.94	.07	.05
Model 4	Model including direct effects of individual needs and regulatory foci on job crafting, effects of job-crafting strategies on innovation freed to vary	175.82, 66	15.47, 7*	.94	.07	.05
Introducing hypothesized interaction effects						
Model 5	Hypothesized Moderated Mediation model, as per Model 4, additionally including interaction effects of the 12 hypothesized interaction effects	144.10, 54	31.72, 12***	.95	.07	.06

Notes. N = 384. †difference assessed vs. previously best model. One-tailed p-value tested. * *p < .05, ** p < .01, *** p < .001.*

Table 9 *Unstandardized path coefficients from moderated mediation analyses predicting work performance from individual needs via job-crafting strategies, moderated by work-related regulatory focus (Model 5)*

Predictors/ Mediators	Mediators = Job-Crafting Strategies																DV = Innovation	
	Prom TC		Prev TC		Prom RC		Prev RC		Prom SC		Prev SC		Prom CC		Prev CC		Innov. Work Performance	
	B	(SE)	B	(SE)	B	(SE)	B	(SE)	B	(SE)	B	(SE)	B	(SE)	B	(SE)	B	(SE)
Gender	.00	(.09)	.14	(.10)	-.01	(.10)	.17*	(.09)	.03	(.11)	.15	(.09)	.08	(.08)	-.09	(.09)	.13	(.08)
Age (years)	-.02***	(.00)	-.01*	(.00)	-.01*	(.00)	-.01*	(.00)	-.02***	(.00)	.00	(.00)	.00	(.00)	-.01*	(.00)	.00	(.00)
Hierarch. Rank	.00	(.00)	.00	(.01)	.00	(.00)	.00	(.01)	.00	(.01)	.00	(.00)	.00	(.00)	.01*	(.00)	.00	(.00)
Prom. Focus	-.17	(.22)	.25***	(.08)	.32**	(.13)	.03	(.08)	.15	(.18)	.43***	(.08)	.34*	(.17)	.33***	(.07)	.15*	(.07)
Prev. Focus	.08	(.06)	-.10	(.21)	.08	(.06)	.27*	(.15)	-.02	(.07)	-.16	(.16)	.07	(.05)	-.17	(.19)	-.14**	(.05)
Need Autonomy	-.39*	(.22)	-.11	(.16)	--	--	--	--	--	--	--	--	.19	(.24)	.11	(.17)	.05	(.06)
Need Relatedness	--	--	--	--	.17	(.18)	.15	(.14)	--	--	--	--	.27	(.21)	-.05	(.15)	-.01	(.05)
Need Competence	--	--	--	--	--	--	--	--	-.12	(.18)	.11	(.13)	-.39*	(.18)	-.12	(.17)	.07	(.05)
NA* Prom. Focus	**.16****	**(.06)**	--	--	--	--	--	--	--	--	--	--	-.06	(.06)	--	--	--	--
NA* Prev. Focus	--	--	**.10***	**(.06)**	--	--	--	--	--	--	--	--	--	--	-.03	(.06)	--	--
NR* Prom. Focus	--	--	--	--	.02	(.05)	--	--	--	--	--	--	-.02	(.05)	--	--	--	--
NR* Prev. Focus	--	--	--	--	--	--	-.05	(.05)	--	--	--	--	--	--	.06	(.05)	--	--
NC* Prom. Focus	--	--	--	--	--	--	--	--	**.10***	**(.05)**	--	--	**.14****	**(.05)**	--	--	--	--
NC* Prev. Focus	--	--	--	--	--	--	--	--	--	--	.06	(.04)	--	--	.06	(.05)	--	--

Table 9 *Unstandardized Path Coefficients from Moderated Mediation Analyses Predicting Work Performance from Individual Needs via Job-Crafting Strategies, Moderated by Regulatory Focus (Model 5) - Continued*

Predictors/ Mediators	Mediators = Job-Crafting Strategies																DV = Innovation	
	Prom TC		Prev TC		Prom RC		Prev RC		Prom SC		Prev SC		Prom CC		Prev CC		Innov. Work Performance	
	B	(SE)	B	(SE)	B	(SE)	B	(SE)	B	(SE)	B	(SE)	B	(SE)	B	(SE)	B	(SE)
Prom TC	--		--		--		--		--		--		--		--		.15**	(.06)
Prev TC	--		--		--		--		--		--		--		--		.09*	(.05)
Prom RC	--		--		--		--		--		--		--		--		.18**	(.06)
Prev RC	--		--		--		--		--		--		--		--		.06	(.05)
Prom SC	--		--		--		--		--		--		--		--		.16**	(.06)
Prev SC	--		--		--		--		--		--		--		--		.01	(.07)
Prom CC	--		--		--		--		--		--		--		--		.08	(.06)
Prev CC	--		--		--		--		--		--		--		--		-.01	(.06)

Notes. N=384. Gender was dummy coded (0=Female, 1=Male). TC = Task crafting; RC = Relationship crafting; SC = Skill Crafting; CC = Cognitive crafting. Prom = Promotion-oriented, Prev = Prevention-oriented. NA= Need for Autonomy, NR = Need for Relatedness, NC = Need for Competence. DV=dependent variable. Innov. = Innovative. One-tailed p-value tested. * $p < .05$, ** $p < .01$, *** $p < .001$. Detailed results on all direct, indirect and total effects are available from the authors, upon request.

Table 10 *Bootstrapping Results for Test of Conditional Indirect Effects from Individual Needs to Innovative Work Performance via Job-Crafting Strategies, at Low and High Values of the Moderators (Regulatory Foci)*

IVs		Need Strength-Autonomy		Need Strength-Relatedness		Need Strength-Competence	
Mediators	Value of RF	Cond. ind. effect *(SE)*	Lower 95% CI	Cond. ind. effect *(SE)*	Lower 95% CI	Cond. ind. effect *(SE)*	Lower 95% CI
PRO-TC	- 1 SD (3.19)	.02 *(.01)*	.00				
	+ 1 SD (4.61)	.05* *(.02)*	.02				
PRE-TC	- 1 SD (1.98)	.01 *(.01)*	.00				
	+ 1 SD (3.74)	.02 *(.02)*	.00				
PRO-RC	- 1 SD (3.19)			.04** *(.02)*	.02		
	+ 1 SD (4.61)			.04* *(.02)*	.02		
PRE-RC	- 1 SD (1.98)			.00 *(.00)*	.00		
	+ 1 SD (3.74)			.00 *(.01)*	-.02		
PRO-SC	- 1 SD (3.19)					.03* *(.02)*	.01
	+ 1 SD (4.61)					.06** *(.02)*	.03
PRE-SC	- 1 SD (1.98)					.00 *(.02)*	-.02
	+ 1 SD (3.74)					.00 *(.02)*	-.04
PRO-CC	- 1 SD (3.19)	.00 *(.01)*	-.01	.02 *(.02)*	.00	.00 *(.01)*	.00
	+ 1 SD (4.61)	-.01 *(.01)*	-.03	.02 *(.01)*	.00	.02 *(.02)*	.00
PRE-CC	- 1 SD (1.98)	.00 *(.01)*	-.01	.00 *(.01)*	-.01	.00 *(.01)*	-.01
	+ 1 SD (3.74)	.00 *(.01)*	-.01	.00 *(.01)*	-.02	.00 *(.01)*	-.02

Notes. N=384. Results are based on 10,000 bootstrap samples. CI-confidence interval. TC = Task crafting; RC = Relationship crafting; SC = Skill Crafting; CC = Cognitive crafting. PRO = Promotion-oriented, PRE = Prevention-oriented. RF=Regulatory Focus (promotion- vs. prevention-focus; for PRO- vs. PRE-oriented mediators, respectively). IVs = independent variables. Dependent variable = Innovative work performance. One-tailed p-value tested. * *p < .05,* ** *p < .01,* *** *p < .001.*

Appendix

Items Used in the Job Crafting Questionnaire

Promotion-oriented Relationship Crafting

1. I actively sought to meet new people at work. [b]
2. I made efforts to get to know other people at work better. [c]
3. I sought to interact with other people at work, regardless of how well I knew them. [b]
4. I tried to spend more time with a wide variety of people at work.

Prevention-oriented Relationship Crafting

5. I minimized my interactions with people at work that I did not get along with. [a]
6. I changed my work so that I only interacted with people that I felt good about working with. [b]
7. I tried to avoid situations at work where I had to meet new people. [b]

Promotion-oriented Skill Crafting

8. I actively tried to develop wider capabilities in my job. [a]
9. I tried to learn new things at work that went beyond my core skills. [a]
10. I actively explored new skills to do my overall job.
11. I sought out opportunities for extending my overall skills at work.

Prevention-oriented Skill Crafting

12. I channeled my efforts at work towards maintaining a specific area of expertise.
13. I sought to develop those skills in my job that helped prevent negative work outcomes.
14. I made sure I stayed on top of knowledge in core areas of my job.

Promotion-oriented Task Crafting

15. I actively took on more tasks in my work. [a]
16. I added complexity to my tasks by changing their structure or sequence.
17. I changed my tasks so that they were more challenging. [b]
18. I increased the number of difficult decisions I made in my work. [b]

Prevention-oriented Task Crafting

19. I actively reduced the scope of tasks I worked on. [c]
20. I tried to simplify some of the tasks that I worked on. [d]
21. I sought to make some of my work mentally less intense. [a]

Promotion-oriented Cognitive Crafting

22. I tried to think of my job as a whole, rather than as separate tasks.
23. I thought about how my job contributed to the organization's goals. [c]
24. I thought about new ways of viewing my overall job.
25. I thought about ways in which my job as a whole contributed to society. [c]

Prevention-oriented Cognitive Crafting

26. I focused my mind on the best parts of my job, while trying to ignore those parts I didn't like.
27. I assessed the different elements of my job to determine which parts were most meaningful.
28. I tried to think of my job as a set of separate tasks, rather than as a 'whole'.

Notes. This final, 28-item based job crafting questionnaire contains five items taken or adapted from Tims et al. (2012)[a], six items from Laurence (2010)[b], four items from Slemp and Vella-Brodrick (2013)[c] and one item from Leana et al. (2009)[d]. To provide a more balanced overview for each of the eight theorized dimensions of job crafting, these were complemented with 12 newly developed items, based on the definitions of the theorized dimensions, as well as feedback from experts in the field. Detailed overviews of initial pilot work is available from the authors, upon request. In Studies 1 and 3, we used the full version of the job crafting questionnaire. In Study 2, our ESM study, we used a slightly shortened version of the questionnaire, without the following items: 7, 10, and 22. In addition, in this same study, we had to subsequently remove item 28, due to poor properties.