

THESIS

THE THEORETICAL DEVELOPMENT AND EMPIRICAL TESTING OF THE MEASURE  
OF JOB CRAFTING (MJC)

Submitted by

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## ABSTRACT

### THE THEORETICAL DEVELOPMENT AND EMPIRICAL TESTING OF THE MEASURE OF JOB CRAFTING (MJC)

This study outlines the construction, development, and initial testing of a theoretically-based measure of job crafting. The resulting measure reflects three dimensions of job crafting behaviors – task, relational, and cognitive crafting, as hypothesized by theory. Based on two samples of Subject Matter Experts and two developmental samples, the results found in this study establish initial content, internal structure, and construct validity evidence for the Measure of Job Crafting. The measure also demonstrated high reliability of scores across samples. This measure will be a useful tool in future research about job crafting, including whether crafting predicts meaningfulness in work.

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## INTRODUCTION AND LITERATURE REVIEW

The heart of psychology is concerned with studying and understanding the basis of human nature, thought, emotions, and behaviors. Initially, approaches to studying psychology focused heavily on avoiding dysfunction and resolving issues that interfered with daily functioning. More recently, a new tradition emerged and the field adopted a more positive view, aiming to identify the ways in which people can optimize functioning, achieve happiness, and foster positive well-being (Seligman & Csikszentmihalyi, 2000). Positive psychology spans across a broad range of topics (e.g. creativity, leadership, love, religion; Seligman, Steen, Park, & Peterson, 2005), and has offered especially unique insight into the workplace. Coined “Positive Organizational Scholarship,” these practices highlight the importance of trust, well-being, cooperation, and other ‘positive’ variables in the workplace that illuminate how organizations and their people can operate best (Cameron, Dutton, & Quinn, 2003).

In this new tradition, meaning of work emerged as a focal topic. In its simplest terms, meaning is derived when people make sense of their work; understanding work in relation to the self, others, and ideas like purpose and values (Pratt & Ashforth, 2003). Researchers have attempted to measure and understand meaning of work through constructs like work centrality, work involvement, and commitment (Wrzesniewski, 2003); however, recent research has defined and measured the concept of meaning more directly (e.g., Steger, Dik, & Duffy, 2012). People derive meaningfulness from work when it is significant, serves an important purpose, and integrates valued parts of personal identity into work activities (Berg, Dutton, & Wrzesniewski, 2013). Meaningfulness is related to important outcomes like psychological well-being (Arnold, Kelloway, McKee, Turner, & Barling, 2007), performance, satisfaction, and motivation (Humphrey, Nahrgang, & Morgeson, 2007). Meaning is particularly important for work

engagement, which is an ‘energetic state’ (Olivier & Rothmann, 2007) of being physically, emotionally, and cognitively engrossed in and connected to one’s work (Kahn, 1990; May, Gilson, & Harter, 2004). The tie from meaningfulness to engagement is important because engagement has been linked to a variety of positive outcomes like productivity and customer satisfaction (Harter, Schmidt, & Hayes, 2002). Research has shown that experienced meaningfulness is the greatest predictor of engagement at work, above factors like psychological safety, coworker relationships, and perceived fit (Olivier & Rothmann, 2007).

Put simply, meaning at work matters. People desire meaningfulness and purpose in their lives (Pratt & Ashforth, 2003) and for many, a great proportion of life is spent at work such that it becomes an important source of meaning. So how do employees create meaningfulness? Research suggests some mechanisms for how meaningfulness is experienced (Rosso, Dekas, & Wrzesniewski, 2010) and theoretical frameworks are proposed to explain meaning (Pratt & Ashforth, 2003), but in general, researchers are still studying what exactly leads to meaningfulness (Wrzesniewski, Dutton, & Debebe, 2003). One perspective is that jobs themselves are the source of meaning and can be designed in a way that elicits meaning for employees. This view is consistent with traditional job design theories (Hackman & Oldham, 1976). However, other perspectives suggest that personality and person demographics like socioeconomic status and education shape how meaning is derived from work (Brief, Brett, Raskas, & Stein, 1997).

Yet another perspective emphasizes the individual’s role, placing the ‘self’ as the primary determinant of experienced meaning (Rosso et al., 2010). Consistent with this view, Wrzesniewski and Dutton (2001) introduced a concept called job crafting, in which individuals enhance their own meaningfulness and personal identity in work. Job crafting is defined as “the

process of employees redefining and reimagining their job designs in personally meaningful ways” (Berg et al., 2013, p. 81). This process may translate into a variety of behaviors, but in each case, employees alter their work to integrate their own strengths, passions, and interests (Berg, Dutton, & Wrzesniewski, 2007), which creates a heightened experience of meaningfulness. Job crafting theory is a motivational model, suggesting that specific needs lead employees to craft their jobs (Wrzesniewski & Dutton, 2001). Other job design theories (e.g., job characteristics theory; Hackman & Oldham, 1976) are also motivational frameworks, but they operate from the organization’s viewpoint, showing how managers can design jobs to be inherently more satisfying and engaging. Job crafting is complementary in that it shows how an individual, not only an organization, plays an active role in shaping experiences in the workplace.

Though job crafting has been explored in a theoretical sense (e.g., Ko, 2011; Lyons, 2008; Wrzesniewski, Berg, & Dutton, 2010), there are currently no measures that reflect the original theory. Therefore, we do not know if job crafting, as proposed by Wrzesniewski and Dutton, creates meaning or whether it can be used to foster employee engagement. Researchers (e.g., Laurence, 2010; Lyons, 2008; Oldham & Hackman, 2010) have posed many important questions about crafting such as: (1) Can crafting help understand work-related outcomes above and beyond traditional work design models? (2) Are there certain types of individuals who actively shape their work and who actively create meaningfulness for themselves? And (3) Can people be coached or trained in crafting techniques, which would prove directly fruitful for employees, and indirectly for the organizations? Without a reliable and valid way to assess job crafting, we cannot answer these questions or test for antecedents, correlates, or outcomes. Much of the preliminary work, including interviews (e.g., Berg, Grant, & Johnson, 2010) and other

qualitative studies (e.g., Ko, 2011; Lyons, 2008), suggest that job crafting does enhance meaning of work; the next step is to develop a measure and obtain further evidence to support job crafting as a meaning-making approach.

Other researchers have also recognized this next step and proposed scales for measuring job crafting (e.g., Leana, Appelbaum, & Shevchuk, 2009; Tims, Bakker, & Derks, 2012). These scales, however, were not developed to specifically test job crafting theory or are not applicable to a broad group of workers. To either support or disconfirm job crafting theory as it has been conceptualized, the measure needs to reflect the original theory. Once initial evidence is gained, the theory can be tested against other, well-established frameworks to distinguish the place of job crafting amongst other constructs. Wrzesniewski and Dutton's (2001) full model, expanded by Berg and colleagues' (2013), is presented in Figure 1.

The purpose of this study is to create a measure, the Measure of Job Crafting (MJC), that reflects Wrzesniewski and Dutton's (2001) original theoretical model to advance the understanding of how job crafting promotes meaningfulness at work. Developing a scale also enables future research to address important questions about the nature and effectiveness of job crafting.

### **The Meaning in Work**

The following study is a scale development project and the primary topic is job crafting; however, job crafting is intended to increase meaningfulness of work. Therefore, it is essential to understand what meaningfulness is and why it is important in the workplace. Furthermore, if research can establish an empirical link between job crafting and meaningfulness, job crafting has the potential to become a powerful intervention that can foster meaningfulness in work for employees.

Meaning is simply an interpretation of something in its context, an evaluation of what it is and how it relates to other things (Rosso et al., 2010). Meaning of work results from sensemaking – integrating and interpreting roles, group memberships, and personal identity to make sense of work (Pratt & Ashforth, 2003). Although meaning can be positive, neutral, or negative, typically when discussed in the literature it is intended to represent positive meaning, which can more accurately be described as meaningfulness (Rosso et al., 2010). Rosso and colleagues suggest that discussing types of meaning is appropriate, but the overall significance of a job or task is more accurately captured by the terms meaningful or meaningfulness. Meaningfulness, therefore, is one’s perception that work is “purposeful and significant” (Pratt & Ashforth, 2003, pp. 311). It is a subjective evaluation that can change and may arise for different reasons for different people (Pratt & Ashforth, 2003).

**The importance of meaning.** Philosophers have questioned meaning for ages. Some of the most fundamental questions in psychology involve happiness, health, and functioning, which are all connected to meaning. People want to find meaningfulness (Steger, Mann, Michels, & Cooper, 2009). They seek out coaching (Hamlin, Ellinger, & Beattie, 2006) and read about meaning on popular blogs like the Harvard Business Review Blog Network (e.g., Hansen & Keltner, 2012). People not only express a desire for meaningfulness, science supports that it is important for optimal functioning (Baumeister & Leary, 1995; Cartwright & Holmes, 2006; Hackman & Oldham, 1976). The research on meaning naturally grew into another field that focuses specifically on the importance of meaning in work (Steger & Dik, 2009; Wrzesniewski, 2003). Most people spend a substantial amount of time working (Bureau of Labor Statistics, 2012), thus it is understandable that people want to derive some kind of meaning from the very activity that consumes most of their time.

Experienced meaningfulness is linked to lower levels of anxiety and depression, and better overall health compared to those who do not perceive meaningfulness or who seek meaning in their lives (Steger et al., 2009). Meaningful activities are related to increased fulfillment of basic psychological needs like autonomy, competence, and relatedness (Eakman, 2013). Meaning in work is especially important because those who experience greater meaningfulness in their work tend to have overall greater meaning in life as well (Steger & Dik, 2009). Meaningfulness also tends to increase intrinsic motivation (Rosso et al., 2010), which leads to a host of other beneficial outcomes like healthy cognitive development (Ryan & Deci, 2008), well-being, psychological adjustment (Baard, Deci, & Ryan, 2004), creativity, learning, and self-esteem (Deci, Connell, & Ryan, 1989). Evidence also shows that meaningful work is negatively correlated with withdrawal from work and absenteeism, and positively correlated with job satisfaction, organizational commitment, and organizational citizenship behaviors (Steger et al., 2012). This pool of research demonstrates how important meaning is for personal and work-related functioning.

The implications of work meaning were demonstrated well by O'Brien (1992), who summarized a group of studies that asked people if they would continue working even if there was no financial necessity. In every study, over 50% of participants indicated that they would, and some studies showed as many as 90% expressed a desire to continue working. These findings were partially attributed to a search for meaning and personal identity in work. Given the weight of meaning and identity found in work, it is helpful to understand where meaning comes from and how employees may derive meaningfulness for themselves through techniques like job crafting.

**Where does meaning come from?** Researchers are still working to determine the origins of meaningfulness (Dik, Steger, Fitch-Martin, & Onder, 2013). Authors have theorized about the creation of meaning (e.g., Pratt & Ashforth, 2003), but more empirical support is needed to tease apart where meaning comes from and what factors tend to be most important. Meaning is complex and one thing is clear: there is no single, straightforward answer.

**Sources of meaning.** Dik and colleagues (2013) integrated past research and identified potential sources and mechanisms of meaning. Meaningfulness is thought to come from four primary sources: others, context, the self, and spirituality (Dik et al., 2013). When people make sense out of their actions and environments, they are often influenced by others. People may use others' attitudes and beliefs as a base of comparison (Festinger, 1954), or may be impacted by the views of others who are respected and admired (Cialdini & Goldstein, 2004) and especially by leaders (Avolio, Gardner, Walumbwa, Luthans, & May, 2004). Social relationships positively contribute to experienced meaning in work (Cartwright & Holmes, 2006) and group membership can highly influence thoughts and actions (Forsyth & Burnette, 2010). The views and actions of others send messages about the perceived value and significance of work.

The overall work context also influences meaningfulness (Dik et al., 2013). Many factors contribute to work context, one being the specific characteristics of a job. Work characteristics like task significance and skill variety have repeatedly shown to increase meaningfulness (Humphrey et al., 2007). Other factors like organizational culture and climate, an organization's mission, and economic conditions can also impact meaning (Rosso et al., 2010).

Meaning can arise from norms or shared perceptions, but ultimately an individual can create it as well (Rosso et al., 2010). Individuals are undoubtedly influenced by other factors, as described above, but ultimately make sense of their own worlds to form perceptions and create

meaning (Pratt & Ashforth, 2003). This is incredibly powerful, as employees can influence their own experiences and perceptions of work. For example, employees report increased meaningfulness when work serves as an outlet for personal strengths, passions, and interests (Wrzesniewski et al., 2010). In addition, the idea of person-environment fit explains how work can be an extension of personal values, resulting in greater satisfaction and commitment (Verquer, Beehr, & Wagner, 2003). Individual values, beliefs, and motivations all shape the meaning of work (Rosso et al., 2010).

Dik and colleagues (2013) also discuss a growing trend of research about spiritual work as a source of meaning. This research indicates that work can be seen as a purpose that is greater than oneself, a calling rather than simply a job or occupation, which is related to greater life and work satisfaction and better health (Wrzesniewski, McCauley, Rozin, & Schwartz, 1997).

***Mechanisms of meaning.*** Sources of meaning, or where meaning originates from, are distinguished from mechanisms of meaning. Mechanisms are different processes and reasons that underlie how and why people experience meaningfulness. The mechanisms were discussed in detail by Rosso et al. (2010) and include authenticity, self-efficacy, self-esteem, purpose, belongingness, transcendence, and interpersonal sensemaking. *Authenticity* represents a match between a person's actual thoughts, attitudes, and behavior and idealized ones (Kernis & Goldman, 2005). A person can achieve authenticity through work when he or she expresses true values, beliefs, and personal identities, reflecting the true self through work-related activities and relationships. *Self-efficacy* is the belief that one has the capability to accomplish something or to produce a desired outcome (Bandura, 1977). This is a mechanism of meaning because employees are presented with opportunities to demonstrate their capabilities and to enact desired control over facets of their work. Feeling competent, and in some cases, feeling like work contributes to

an overall greater good allows people to also feel intrinsically motivated because of their work (Gagne & Deci, 2005). *Self-esteem*, a belief in one's inherent worth and value (Greenberg et al., 1992), can be enhanced by work activities. Feeling valuable and building a positive view of the self fosters meaningfulness in work. The forth mechanism is *purpose*, or having "direction and intentionality" (Rosso et al., 2010, pp. 110). Much evidence supports that purpose contributes to meaning (Duffy, Bott, Allan, & Dik, 2012; Rosso et al., 2010) and measurement scales often include items that refer to purpose when measuring meaning in life or meaning of work (e.g. Steger & Dik., 2009). Work experiences can also satisfy a *belongingness*, which increases meaningfulness (Baumeister & Leary, 1995). People innately need to relate to others, experience personal connections, and identify with groups (Ryan & Deci, 2008). Meaning arises from group memberships that are valued or respected and from the social support that forms as a result of these relationships at work (Cartwright & Holmes, 2006). Another mechanism is called *transcendence*, which explains the feeling of being a part of something greater than the self (Rosso et al., 2010). Transcendence allows people to recognize the impact they are having on their work, their organization, or the greater community (Pratt & Ashforth, 2003). The final mechanism, *cultural and interpersonal sensemaking*, captures how our perceptions of meaning are constrained because of the ways we are raised and values that are encouraged by our communities. Meaning is socially constructed and thus will be impacted by societal cues and messages (Wrzesniewski et al., 2003).

If job crafting influences meaningfulness, as it is theorized to do, it likely does so through one or more of these mechanisms. Thus, if crafting does lead to increased meaningfulness in work, it likely also predicts one or several of these mechanisms of meaning. Understanding the

mechanisms of meaning can outline potential ways in which job crafting leads to meaningfulness.

**Job crafting and meaningful work.** People want to derive positive meaning from work and science indicates that meaningfulness is important, but how exactly can people create it in their own jobs? Job crafting is one technique that people can use to actively foster more meaningfulness in their own lives. Job crafting fills a gap in how meaningfulness is created at work. Specifically, some employees have mentors and supervisors who create environments that cultivate meaningful work (Hackman & Oldham, 1976); however, others do not. Job crafting enables employees to personally shape how they do their jobs, how they view work, and how they interact with others to create meaning all on their own.

Researchers have concluded from past studies that people are fairly passive in the process of creating meaning and primarily interpret cues around them (Rosso et al., 2010). However, recent studies on job crafting demonstrate this is not always the case (Wrzesniewski et al., 2010). Job crafting theory (Wrzesniewski & Dutton, 2001) places employees in the driver's seat, helping understand to what extent people can be active in this meaning-making process. The nature of work is changing, becoming more fluid, with flexible boundaries and increased teamwork. With these changes, the social context is considered more important than ever (Rosso et al., 2010). Job crafting reflects the social nature of meaning in work and captures the multi-source nature of meaning, showing how it can come from changing perceptions (the self), relations with others, and altering the context of work.

### **Job Crafting Theory**

Employees actively engage in certain behaviors with the primary goal of increasing the meaningfulness of their work (Berg, Grant, & Johnson, 2010). These employees not only express

a need and desire for a purpose in what they do on a daily basis, but are able to personally change facets of their work to make it more meaningful. These types of self-initiated alterations to work are now known as *job crafting* (Wrzesniewski & Dutton, 2001). Job crafting involves proactively reframing and reorganizing work tasks, relationships, and the ways in which one thinks about work to derive more meaningfulness (Berg et al., 2013). The primary intent of job crafting is to increase meaningfulness, molding work so that it feels significant, serves an important purpose, and integrates valued parts of one's personal identity.

There are several characteristics that distinguish job crafting from other models of work design. Fundamentally, job crafting is employee-driven, a 'bottom-up' process of work design (Wrzesniewski & Dutton, 2001). Traditionally, managers design and develop tasks, but individuals can also take-on some of this responsibility on their own. Thus, anyone should be able to craft and alter his or her work (Berg et al., 2013), though certain jobs may lend themselves more naturally to crafting or certain people may be more prone to engage in crafting (Berg, Wrzesniewski, & Dutton, 2010; Lyons, 2008). So why do some people craft while others do not? There are certain specific needs that motivate employees to craft their work. According to job crafting theory (shown in Figure 1; Berg et al., 2007; Wrzesniewski & Dutton, 2001), when employees need or desire more control over their work, additional meaning, or more fulfilling relationships, they are motivated to craft. Crafting then leads to specific outcomes like changing job design and the social environment at work. These changes then lead to general individual outcomes, which primarily include changes in meaning and work identity, but also increased achievement and enjoyment at work (Berg, Grant, & Johnson, 2010).

Another characteristic of job crafting distinguishing it from other job design approaches is that it is behavioral in nature. Employees actively shape different facets of their job. Crafting

involves actions rather than beliefs or cognitions about abilities. Part of crafting may involve reframing thoughts about work, but even this process is focused on the behavioral alteration of thoughts. Crafting should be described as, “I work to change my thoughts about the meaning of work,” rather than, “I believe I can find meaning in my work.”

It is quite idealistic to think that anyone could make any job more meaningful. As with most ideas, it is a bit more complicated and job crafting theory suggests that the process may be contingent on several factors (i.e., moderators; Wrzesniewski & Dutton, 2001). Figure 1 presents preliminary ideas for moderating variables, but the two that arise most often in the literature are efficacy and perceived opportunity to craft. If people do not see possibilities to alter their work or do not think they have the ability to do so, they likely will not attempt job crafting behaviors (Berg, Wrzesniewski, & Dutton, 2010). Many researchers have speculated about the effect of different moderating variables (e.g., Laurence, 2010), but empirical support would help discern what factors are most influential in encouraging or discouraging crafting in the workplace.

**The roots of job crafting theory.** Job crafting is a relatively new construct, but it is rooted in a long tradition of studying work design and understanding what makes work more motivating and satisfying. There is a large body of research showing how jobs can be designed to elicit positive outcomes like higher satisfaction and lower turnover intentions (Edwards, Scully, & Brtek, 2000; Fried & Ferris, 1987; Morgeson & Campion, 2002). Job design efforts can focus on ergonomic factors (Campion & Thayer, 1985), stressors in the workplace (Edwards et al., 2000), or adding more responsibility to a job (Humphrey et al., 2007). Job characteristics theory (JCT; Hackman & Oldham, 1976) is one well-known and widely accepted model in this field of study (Judge & Klinger, 2009). With JCT and other traditional frameworks, job design has been in the hands of the organization through redesigning tasks, processes, and various other work

characteristics for the employee (Morgeson & Campion 2003). These types of changes are initiated by management, presenting a top-down approach to job design (Wrzesniewski & Dutton, 2001). From this perspective, jobs are interpreted based on the work or a task and by changing the facets of work, satisfaction and performance can be improved (Hackman & Oldham, 1976). However, these traditional work design models have been criticized (Grant & Parker, 2009; Morgeson & Campion, 2002; Oldham & Hackman, 2010). Primarily, they fail to consider the roles of context, social influences, and employee initiative in work design.

In response to these criticisms, work design theories and models became more complex (e.g., Humphrey et al., 2007; Edwards et al., 2000) and researchers have begun to focus on employee initiative and relational aspects of work (e.g., Grant, 2007; Grant & Parker, 2009). Wrzesniewski and Dutton (2001) have facilitated this new direction by presenting job crafting theory. They argued that in addition to organizational efforts to design jobs, employees often take active roles in creating their own tasks and relationships at work. Based on this approach, employees create the interpretation of a job rather than the job being objective and separate from the employee.

Job crafting operates from a social information processing perspective (Salancik & Pfeffer, 1978) where work is not created objectively, but is socially constructed by employees. This process involves receiving and interpreting social cues from others to understand the meaning of work. Rather than simply using work characteristics as cues for how to think, feel, and perform, crafting behaviors result in outcomes that provide feedback for what to make of a job or task (Wrzesniewski & Dutton, 2001). In other words, employees are not just recipients of task or social cues, but can actively alter these cues to create more meaningfulness. Wrzesniewski and Dutton (2001) also suggest that their model builds on the overall perspective

by mapping out the specific meaning and identity changes that accompany crafting behaviors. This highlights a key difference between job crafting and traditional work design models: because crafting is employee-centered and initiated, the intended outcomes are different. Crafting is concerned with creating more meaningfulness and a more fulfilling work identity, not directly with improving work attitudes and performance or resolving problems.

**Specific dimensions of job crafting.** Job crafting can be conceptualized as an employee-centered, behavioral, socially constructed work design process that intends to foster more meaningfulness and identity in work. Berg and colleagues (2013) define three dimensions of crafting based on the original job crafting theory (Wrzesniewski & Dutton, 2001), traditional work design theories, and the crafting techniques summarized by Berg, Grant, and Johnson (2010): task crafting, relational crafting, and cognitive/perceptions crafting.

*Task crafting* involves changing the boundaries associated with specific tasks. Employees can accomplish this by adding meaningful tasks to their work, emphasizing meaningful tasks, or redesigning tasks to make them more meaningful (Berg et al., 2013). For example, serving on an organization's event planning committee may align with personal values of community involvement and provide the opportunity to use planning and organizational skills in a different capacity than normal work tasks. Or in another example, an employee may initiate a company wellness program because he or she values health and work-life balance. Certain jobs may be more conducive to task crafting than others because they allow more freedom to make decisions or to try new approaches. However, even small changes in tasks may result in a greater sense of purpose, responsibility, or competence (Wrzesniewski & Dutton, 2001).

*Cognitive or perceptions crafting* involves reframing the way a person thinks about work. For example, an employee may choose to view a performance appraisal meeting as

developmental rather than focusing on its tie to compensation. This form of crafting can involve expanding, focusing, or connecting perceptions (Berg et al., 2013). To expand perceptions, employees can embody a holistic view of work, highlighting the purpose and impact of certain work activities in the organization as a whole. In contrast, focusing perceptions is when an employee actively narrows thinking to the most valuable aspects of a job. This type of reframing results in less energy spent thinking about peripheral work activities that are not as meaningful. In addition to these techniques, employees can draw connections between work and their personal identities, identifying how aspects of a job provide opportunities to live out personal values and interests.

The third main dimension of crafting is *relational crafting*. For many workers, altering personal interactions at work can derive a great deal of meaningfulness (Wrzesniewski et al., 2003). Take, for example, an employee who decides to mentor an intern or an employee who recognizes a colleague's need for social support. As another example, hairstylists often connect with their clients on a very personal level, listening to and sharing important life details during appointments. To craft relationships, sometimes employees build new connections. They can also reframe the purpose of current relationships, bringing a greater sense of meaningfulness and understanding to interpersonal exchanges. Employees can also adapt relationships by taking on a supportive or mentoring-type role. Providing support creates purpose in a relationship, and when support is reciprocated, the meaningfulness of that relationship grows even more (Eisenberger, Armeli, Rexwinkel, Lynch, & Rhoades, 2001).

**The theoretical nomological network.** As conceptualized by job crafting theory, job crafting is 1) employee centered, 2) intended to increase meaningfulness or change work identity (not a retroactive process that intends to resolve problems like other, related constructs), 3) social

in nature, and 4) can occur in any job (Wrzesniewski & Dutton, 2001). To help understand what exactly job crafting is and what it looks like in the workplace, researchers (e.g., Ko, 2011; Wrzesniewski & Dutton, 2001) have outlined the theoretical similarities and differences between job crafting and other constructs. Although crafting is considered conceptually similar to other variables, it is presented as a unique process because of its focus on meaning and personal identity. Table 1 provides an overview of how job crafting relates to other constructs.

To gain a better picture of job crafting, it is first helpful to think about constructs that are similar. For example, crafting behaviors may resemble organizational citizenship behaviors (OCBs; Organ, 1988). OCBs are any behaviors that are not formally required by a job but that contribute to the overall organization's goals. These often include helping coworkers, demonstrating loyalty to the organization, or displaying sportsmanship (Podsakoff, MacKenzie, Paine, & Bachrach, 2000). OCBs and job crafting are similar because they are both voluntary.

Another similar construct is creative performance (Oldham & Cummings, 1996), which is introducing new ideas or procedures into a job to perform better or to make a role more efficient. Again, this is similar to crafting because it is voluntary, but also because altering facets of work typically requires a certain level of thinking outside the box.

Job crafting has also been compared to personal initiative (e.g., Wrzesniewski & Dutton, 2001). Personal initiative is characterized by behaviors that are self-initiated and demonstrate going 'above and beyond' what is formally expected (Frese, Kring, Soose, & Zempel, 1996). However, these actions are intended to problem-solve and help the overall organization (Ko, 2011), whereas job crafting may not.

Job crafting is most likely similar to the above constructs because they are all voluntary actions not formally required by a job. However, the basic motivation of job crafting is different

than with these other constructs. Job crafting intends to develop meaningfulness and personal identity at work. The other constructs are all focused on the organization. So even if the behaviors may look similar as they play out in the workplace, job crafting is motivated by different factors and focuses only on the individual, not groups or the organization. Because OCBs, personal initiative, and creative performance are conceptually similar to job crafting, one can expect a positive correlation between these variables. Though job crafting may resemble other constructs, its intention is different, as it focuses primarily on meaning and identity. Thus, the antecedents of job crafting are likely going to be different than with other similar constructs, like OCB or personal initiative (Wrzesniewski & Dutton, 2001).

To understand job crafting, it is also useful to contemplate the constructs that are considered conceptually distinct from job crafting. Job crafting has been distinguished from other job design practices (e.g., Ko, 2011), which involve organizational efforts to change work so it fosters employee motivation and satisfaction (Hackman & Oldham, 1980). The key difference here is that other design practices are orchestrated by management, not individual employees such as with job crafting. More recent theories of job design factor in contextual and social components (e.g., Humphrey et al., 2007), but this has not always been the case. Job crafting still differs from job design, however, because crafting emphasizes the role of social interaction in the workplace and is not just a consideration of contextual or social factors.

Job crafting is also different from adaptive performance (Pulakos, Arad, Donovan, & Plamondon, 2000). This type of performance is when employees adjust to new and unexpected requirements of a job. Job crafting may require some flexibility as an employee alters boundaries of the job, but adaptive performance is focused only on formally required tasks and is a reactive process, whereas job crafting is proactive.

In comparing other processes, job crafting is different from role innovation (Schein, 1971) or role making (Graen & Scandura, 1987). Role innovation molds a job to address societal issues, which is thought to create better person-organization fit with the employee. Role making is a planned and formal process that adds elements to a role, and eventually the elements are included as a formal part of the job. Both role innovation and role making share some similarities with job crafting, however they are primarily reactive, problem-solving techniques that are focused on the organization and not on the individual employee.

Lastly, job crafting has also been compared to task revision, which is correcting inefficiencies or problems in a current task (Staw & Boettger, 1990). Job crafting may involve altering tasks, but this is not the only crafting technique and the motivation is for increased meaningfulness, not resolving issues for the organization.

To be established as a separate construct, job crafting should be theoretically and empirically distinguishable from these other ideas. If research can show that job crafting is positively related to similar constructs and not associated with dissimilar constructs, it supports the conceptualization of job crafting in relation to other, well-established ideas. If job crafting is related to variables as theory suggests it should be, this would contribute to construct validity evidence (Cronbach & Meehl, 1955; Murphy & Davidshofer, 1991).

**Job crafting leads to meaningful work.** Several studies have shown that meaningful work leads to beneficial outcomes for both individuals (Dik et al., 2013) and the organizations for whom they work (Lyons, 2008; Wrzesniewski et al., 2010). Pinpointing specific ways to create meaningfulness can lead to powerful interventions that train or coach employees on creating positive meaning for themselves. Furthermore, these interventions present the opportunity to empirically test why certain processes, like job crafting, foster meaningfulness.

Conceptually, crafting ties in well to the proposed mechanisms of meaning, which were discussed above. Successfully altering boundaries of work will likely increase experiences of authenticity, self-efficacy, self-esteem, purpose, belongingness, transcendence, and interpersonal sensemaking. Because crafting may satisfy one or more of these mechanisms, crafting behaviors should predict meaningfulness.

Change in the meaning of work has become the primary focus in the job crafting literature, but research suggests that crafting behaviors can lead to other outcomes as well, such as achievement, resilience, and competence (see Figure 1). When originally proposing the theory, Wrzesniewski and Dutton (2001) described how job crafting would primarily impact work meaning and identity. The idea of identity is one that most people can explain, but in research, this construct has been more difficult to define, conceptualize, and measure (Campbell, Trapnell, Heine, Katz, Lavallee, & Lehman, 1996). In the most basic sense, job crafting is expected to alter people's identities in a way that reflects more positively on their own self-concepts, interactions with others, and their contributions at work (Wrzesniewski & Dutton, 2001).

As the research on job crafting has progressed, other individual outcomes have been investigated. Job crafting has been studied with job attitudes like satisfaction and commitment (Leana et al., 2009) and also psychological states like engagement (Bakker, Tims, & Derks, 2012). Evidence has also shown how crafting behaviors can influence positive emotions and experiences of flow during work (Ko, 2011). Even though job crafting is not directly intended to influence work productivity, some studies have shown positive relationships between crafting behaviors and job performance (Bakker et al., 2012; Leana et al., 2009). In some cases, crafting can also lead to unintended negative effects like stress and regret (Berg, Grant, & Johnson,

2010). However, the focus tends to remain on positive outcomes, showing how crafting can predict competence, personal growth, and work-related coping skills (Berg et al., 2007).

Although job crafting is thought to predict changes in meaning, personal identities, and resiliency (Berg et al., 2007), these relationships cannot be tested without a measure of job crafting that has demonstrated reliability of scores and validity evidence. Research thus far has laid a foundation that outlines a positive relationship between job crafting and beneficial outcomes. The next step would be to empirically investigate the proposed relationships and to fully test job crafting theory.

### **Measuring Job Crafting**

Without an accurate measure of Wrzesniewski and Dutton's (2001) theoretical framework of job crafting, one cannot test how job crafting relates to other constructs and cannot confirm its role in the meaning literature. As crafting is a relatively new idea, the measurement of this concept is still in a developmental stage. Extensive interviews led to the formation and support of Job Crafting Theory (Berg, Grant, & Johnson, 2010; Berg, Wrzesniewski, & Dutton, 2010; Leana et al., 2009; Lyons, 2008). Other qualitative methods like the diary method (Ko, 2011; Petrou, Demerouti, Peeters, Schaufeli, & Hetland, 2012) have also contributed to the study of crafting. Qualitative methods provide rich data and are useful when developing theory, but they are also time and labor intensive. To test a theory with larger samples and across more diverse samples, quantitative methods are preferred. Only very recently have researchers begun to develop scales that study job crafting quantitatively. None of the current job crafting measures have been widely used, tested, or accepted. Thus, there is plenty of room to develop measures for crafting in general and for the specific types of crafting.

In an initial search for published job crafting scales, three emerged. Leana et al. (2009) created a measure to distinguish individual and collaborative job crafting. Job crafting was originally conceptualized by Wrzesniewski and Dutton (2001) as efforts that individuals engage in to alter the boundaries of their work situations. Leana and colleagues made the case that groups or teams may engage in crafting behaviors together, especially when work is highly interdependent. Members of the team can alter their boundaries in relation to what others would like to expand or contract in their duties. For example, a certain task may be less desirable to one team member, but highly desirable to another. By giving the undesirable task to a colleague who finds it appealing, time is freed to initiate other activities that are consistent with the first person's strengths or passions. The individual and collaborative crafting scales were tested with teachers and teaching-aides in childcare centers. The scale items are specific to a school context (the items are provided in Leana et al., 2009) and are not easily applicable to all work contexts. Though Leana et al.'s work is valuable, my research questions pertain to a broader work context and to individuals rather than groups. Since my focus is on individual efforts to craft in the workplace and on focusing on Wrzesniewski and Dutton's (2001) theoretical framework, the scale developed by Leana et al. is not appropriate.

The second scale was developed by Tims et al. (2012) to measure overall job crafting framed within the job demands-resources model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). This model highlights how job demands lead to strain and job resources are motivating, but also how adequate job resources can buffer the effect of job demands (Bakker & Demerouti, 2007). The scale developed by Tims and colleagues does not distinguish by type of crafting but rather, has four dimensions of crafting: increasing social job resources, increasing structural job resources, increasing challenging job demands, and

decreasing hindering job demands. The scale was developed and tested using several samples of Dutch participants. Reasonable reliability of scores were obtained (Cronbach's alphas were between .76 and .81 for the four subscales). Validity evidence and model fit indices were also provided, further supporting the dimensions of the scale. Although this scale shows promising psychometric properties, it does not test job crafting theory, but rather, the job demands-resources model. Without specifically testing job crafting theory as it is conceptualized, there is no evidence to support or deny the three types of job crafting, whether job crafting leads to hypothesized outcomes, or whether specific motivations lead to crafting behaviors. Rather than define job crafting by another model, my goal is to develop a scale for job crafting based on its original theory and then, once strong evidence has been collected for the scale, test it against other models to demonstrate their distinctiveness. Thus, the scale by Tims et al. (2012) is also not appropriate for the proposed study.

The last published scale I found was created by Slemp and Vella-Brodrick (2013). Their scale was constructed to reflect job crafting theory as proposed by Wrzesniewski and Dutton (2001), supporting three dimensions of crafting. However, the scale was only tested with one Australian sample and therefore needs further evidence to support its validity. Furthermore, given the small samples used in their study, more evidence would be necessary to endorse this scale. Lastly, several items within their scales are double-barreled and all items are rated on a frequency-based scale rather than an endorsement-based scale, which is not consistent with the theory of job crafting. Thus, although Slemp and Vella-Brodrick made efforts in the right direction, that is creating a job crafting scale based on Wrzesniewski and Dutton's theory, much can be improved in that direction.

To ensure a comprehensive search on job crafting and to identify any potential existing scales not yet published but that could be leveraged in this project, I expanded my literature search to include doctoral dissertations, and one emerged. Laurence (2010) created a scale that measured the different types of job crafting. This scale also distinguishes between expansion and contraction crafting, showing that employees may increase or decrease the boundaries of their tasks (somewhat similar to the different dimensions in Tims et al.'s scale). Laurence felt this was an important distinction because until that point, job crafting had been conceptualized as expanding boundaries (adding tasks or new relationships), though recent elaborations on job crafting theory (e.g., Berg et al., 2013) emphasize both increasing and decreasing specific facets of work. This measure included subscales for the different types of crafting behaviors. The final survey included a separate scale for task crafting (referred to as physical crafting), but combined relational and cognitive crafting into a single subscale. No justification was provided to explain why these types of crafting were combined. One might postulate that the items loaded on the same factor (and that physical crafting loaded onto its own factor), but no model fit indices or tests were provided in the study. Scores obtained on the subscales did show good reliability of scores (Cronbach's alpha was between .90 and .92), but no validity evidence was obtained. Scale development was not a focus in Laurence's (2010) study, therefore it is difficult to evaluate the quality of his measure. For example, there is little description about how items were written, developed, or tested. In addition, some of the items could be revised, eliminating double-barreled phrases and redundant statements (e.g., "I have taken steps to enhance the amount of communication I have with others . . ." in the Expansion Oriented Job Crafting versus, "I have taken steps to limit the amount of communication I have with others . . ." in the Contraction Oriented Job Crating, p. 162). Though not appropriate to use in and of itself, his scale may serve

as a useful source of item generation since it relies on Wrzesniewski and Dutton's original theory. To advance the study of job crafting and its relation to creating meaningfulness at work, I propose the development of a measure that reflects Wrzesniewski and Dutton's original theory

### **A new measure of job crafting – the MJC**

The purpose of this study was to develop and test a theoretically derived scale that measures job crafting as proposed by Wrzesniewski, and Dutton (2001). Based on the original theory and recent extensions to the theory (e.g., Berg et al., 2013; Berg, Grant, & Johnson, 2010; Berg, Wrzesniewski, & Dutton, 2010), a measure of job crafting should capture the multifaceted nature of the construct, focus on the individual (self-referenced items), and describe crafting behaviorally (e.g., as opposed to perceptions or attitudes).

The scale developed here reflects the three key dimensions of job crafting behaviors that have been proposed by the theory: task, relational, and cognitive crafting. Given that the dimensions should be related but distinct, I propose that these factors correlate no more than about  $r = .30$ , indicating that they are moderately related, but distinct dimensions of job crafting (Cohen, 1988; Gow, Whiteman, Pattie, & Deary, 2005; Hackman & Oldham, 1975). Therefore, I hypothesize:

*H1: Job crafting comprises three distinct and related factors: task, relational, and cognitive crafting.*

An employee may not engage in all three forms of crafting at any one point in time, but to fully understand job crafting, each dimension should be measured and the three should be considered together (J. Berg, September 30, 2013, personal communication). Thus, based on the theory, a three-factor model should fit the data better than alternative models. For example, a one-factor model would suggest that job crafting represents a single construct (Raykov &

Marcoulides, 2011), which is not differentiated by tasks, relationships, or perceptions. This is not consistent with the theory (Berg et al., 2013), so if the three-factor model shows better fit than the alternative one-factor model, it will provide evidence that the measure fits the structure of job crafting theory.

A two-factor model will also be compared as an alternative model. Other researchers have proposed scales that model a two-factor structure, even though theory suggests these conceptualizations should not fit as well as the three-factor model. Tims and colleagues (2012; also Laurence, 2010) proposed a model that distinguishes expansive behaviors from contraction behaviors. Tims et al. derived a scale from a different theoretical basis, thus their specific model will not serve as an alternative structure; however, the two-factor expansion-contraction differentiation will be tested as an alternative model. According to job crafting theory, crafting behaviors may include growing or shrinking facets of work, but the behavior (e.g., task, relationship, or perception) is most important in distinguishing crafting methods (Berg et al., 2013). Thus, if a three-factor model fits better than the two-factor model, it again provides evidence that the measures fit the job crafting theory.

I will also observe a third alternative model where the dimensions of job crafting load on a higher-order factor. A higher-order factor suggests that a latent factor serves as an underlying construct that “exists at a deeper and more embedded level than its dimensions” (Law, Wong, & Mobley, 1998, p. 742), such as with general mental ability (Paden, 1981) and core self-evaluations (Judge, Erez, Bono, & Thoresen, 2003). Large intercorrelations among the dimensions of a scale can be indicative of a higher-order factor model. For example, when Rich, LePine, and Crawford (2010) developed a scale of job engagement, the average intercorrelations between the engagement dimensions was  $r = .65$ , evidence they used to support a higher-order

factor. Job crafting theory does not propose that a higher-order factor operates at a different level than the three dimensions of job crafting. Therefore, if the scale dimensions share moderate correlations (rather than high correlations), it will provide evidence in support of a tri-dimensional model of job crafting. Based on the arguments above, I hypothesize the following:

*H2: A three-factor model fits the data better than a one-factor, two-factor, and higher-order factor model.*

To further support job crafting theory, job crafting behaviors, as measured by the MJC, should be positively related to other conceptually similar behaviors. As reviewed in *The theoretical and nomological network* section above, job crafting has been compared to extra-role behaviors (Wrzesniewski & Dutton, 2001) in that people may engage in tasks and responsibilities that are not required of the job. For this study, job crafting is related to contextual performance, which is defined as supporting the “broader organizational, social, and psychological environment in which the technical core must function” (Motowidlo & Van Scotter, 1994, p. 476). Although contextual performance may resemble job crafting behaviors, job crafting is not focused at resolving problems or achieving better task performance as with contextual performance and therefore the two constructs should only be moderately correlated.

*H3: All three dimensions of job crafting are positively related to contextual performance, but are not redundant with contextual performance.*

Job crafting may also be related to job involvement, which is the extent to which a person psychologically identifies with his or her job (Kanungo, 1982). Job involvement includes beliefs such as, “I have very strong ties with my present job which would be very difficult to break,” and “I like to be absorbed in my job most of the time” (p. 342). Employees do not need to feel involved with their jobs to engage in job crafting behaviors, but those who have high job

involvement may also be more likely to craft their jobs. These constructs capture different experiences at work, but may sometimes be demonstrated through similar behaviors.

*H4: All three dimensions of job crafting are positively related to job involvement, but are not redundant with job involvement.*

Job crafting is also likely to be related to creativity (Wrzesniewski, LoBuglio, Dutton, & Berg, 2013), as both concepts involve altering boundaries of tasks and responsibilities associated with work. Although job crafting may involve some creativity, workers can exhibit creativity in other ways, making it a broader construct than job crafting. Additionally, employees often use creativity to resolve problems in the workplace (Amabile, 1996); job crafting is not primarily concerned with problem-solving, but with creating meaning (Wrzesniewski & Dutton, 2001). Despite these differences, the concepts of creativity and job crafting probably share some relationship.

*H5: All three dimensions of job crafting are positively related to creativity, but are not redundant with creativity.*

## METHOD

### Participants

**Phase 1 data sample: SMEs.** For the first phase of the study, Subject Matter Experts (SMEs) were recruited from two primary sources. First, a sample of 10 (recommended by Lindell, Brandt, & Whitney, 1999) industrial/organizational and vocational psychology graduate students completed the initial item review. At a large Western university, the survey was sent through a listserv to all students in these departments (about 25 people) and the first 10 people to respond were selected for the study. These students were recruited because of their familiarity with basic measurement principles and topics related to work and job crafting. Other studies (e.g., Little, Kluemper, Nelson, & Gooty, 2012) have solicited similar types of experts. All graduate students (3 males and 7 females) were asked to rate the representativeness of the items and to comment on general item content and clarity. Students were compensated with a gift card in return for their participation.

Items were revised based on the first item review and then were rated by a second and different group of SMEs. This group was composed of researchers who have published papers or who have collaborated on chapters about job crafting. These experts were recruited because of their valuable insights as to whether items reflect the original job crafting theory. In total, of the 17 professional SMEs recruited for this part of the study, 6 completed the second item review. All participants were male and had, on average, about 18 years of experience studying topics related to psychology and meaning of work. Although all respondents were male, females were recruited for the study, but were unable to participate at the time of data collection.

**Phase 2 data: The development samples.** In this phase of the study, two large samples of working adults were recruited; one sample was used for an initial confirmatory factor analysis

(CFA) and the second as a cross-validation sample. There has been in-depth discussion about the ideal number of participants needed to perform factor analysis. For example, some recommend using about 5-10 participants per item (Floyd & Widaman, 1995), or that about 300 participants is sufficient (DeVellis, 2012). Rules of thumb for this decision can be misleading (MacCallum, Widaman, Zhang, & Hong, 1999), but based on a scan of the literature, a sample size of about 300 is typically considered sufficiently large. It is important to pick samples that are representative of the population of interest; otherwise, the resulting factor structure may not generalize to the group of people it is intended (DeVellis, 2012). Thus, a broad sample of working adults was most appropriate for this project.

Because of the breadth of the sample desired for this scale development project, I recruited samples using the Mechanical Turk website (MTurk; [www.MTurk.com](http://www.MTurk.com)), which has been used in a variety of other work-related studies (e.g., Kaufmann, Schulze, & Veit, 2011). MTurk allows researchers to recruit survey respondents who range in age, demographic characteristics, and employment status from over 100 countries (Buhrmester, Kwang, & Gosling, 2011). All surveys are completed online and survey respondents are compensated a pre-determined amount in return for their participation. Data collected from MTurk has produced reliability of scores similar to other common samples used in psychological research (Buhrmester et al., 2011; Sprouse, 2011) and provides access to a working sample, which is essential to understand the nature of job crafting. Some researchers have questioned whether MTurk users are truly representative of the general population (e.g., Bohannon, 2011) and whether they are motivated to perform conscientiously on the surveys (e.g., Downs, Holbrook, Sheng, & Cranor, 2010). Studies have shown that MTurk users are generally younger, more often female, and earn less income than the general population of U.S. Internet users (Ipeirotis,

2010). Even though MTurk may not be fully representative of the U.S. population, based on its accessibility, low cost, and breadth of sample characteristics, it has been recommended as a good source for data collection, especially in pilot testing and early phases of research (Ross, Irani, Silberman, Zaldivar, & Tomlinson, 2010).

Based on information found on discussion forums about MTurk, it was deemed appropriate to compensate each participant \$1.00-\$1.50 for about 15-20 minutes of his or her time. All participants in the first development sample were compensated \$1.50 (for about 15 minutes) and all participants in the second development sample were compensated \$1.00 (for about 10 minutes). I kept each survey available online through MTurk until enough data was collected to have adequately large samples.

***Development sample 1.*** For the first development sample, 465 total participants were surveyed. When using survey methodology to collect data, it is important to detect lack of motivation and effort that can contribute to random and systematic error in responding (Huang, Curran, Keeney, Poposki, & DeShon, 2012). Per the recommendations made by Huang and colleagues, I observed the response frequency, response time, and invariance in responding to exclude cases that did not meet minimum requirements for demonstrating effortful responding.

When response frequency is low (a participant has largely missing data), it may indicate that a participant hurried through the survey at the expense of skipping items to reach the end of the questionnaire and receive compensation. For this sample, only people who answered 95% of the questions were retained, resulting in seven participants dropped per response infrequency.

In addition to missing data, the time it takes a participant to complete the survey can indicate the amount of effort put forth when responding. The survey for development sample 1 included 102 total questions. We can expect that it would take a certain amount of time to

complete the survey if all questions were read, processed, and then responded to. Based on pilot testing, it took at least eight minutes to complete the development sample 1 survey. Anyone who took the survey in less time likely did not read or thoughtfully consider the items. Based on minimum completion time, 235 participants were excluded from the dataset.

Per the third main recommendation of Huang et al. (2012), those who demonstrated response invariance (no variation in responding) were also excluded from the dataset. Even when a participant strongly endorses an idea or construct, we can expect that there would be some variation in the subject's response pattern, especially across several different scales. For this sample, anyone who selected the same response option (e.g., "Agree) for all items was removed from the dataset. Based on this requirement, nine participants were dropped.

As a final data-screening technique, all subjects who failed to meet the requirements of the study (being employed and working at least 20 hours per week) were removed from the pool of participants; 27 people failed to meet these requirements and were removed from the dataset. Combined, these data screening requirements resulted in a sample of 215 U.S. working adults.

Data used in the first development sample ( $n = 215$ ) included male (61%) and female (39%) participants from ages 19 to 69 ( $M = 33.66$ ,  $SD = 10.23$ ). Additionally, the sample included U.S. workers from a variety of demographic groups, including White/European American (79%), Black/African American (7%), Asian/Asian American (7%), and Hispanic/Latino (6%). Of the participants, 53% graduated from college, 17% are currently in college, and 30% do not have a college degree. The sample includes supervisors and upper-management workers (45%) and also non-management workers (55%). Both part-time (working at least 20 hours per week, 63%) and full-time (40 or more hours per week, 37%) workers were included, as these groups sometimes have different demographic characteristics (Thorsteinson,

2003) and current research suggests that job crafting is possible for any group of people in any type of work situation (Berg et al., 2013). Workers also came from a variety of industries such as retail (19%), information (13%), professional, scientific, and technical services (11%), and health care (9%).

***Development sample 2.*** For the second development sample, 458 total participants were surveyed. In effort to increase the quality of responses (as compared to the first development sample), in addition to the requirements that MTurk workers be from the U.S. and employed at least part-time, all participants were also required to have a 75% HIT approval rating<sup>1</sup>. As with development sample 1, the recommendations made by Huang and colleagues (2012) guided the data cleaning process.

Minimum completion time for this survey was estimated in a pilot test with two independent subjects. Anyone who completed the survey of 73 questions in under 3.5 minutes (n = 51) was removed from the dataset. Participants who did not fulfill the survey requirements (were unemployed or worked less than 20 hours per week) were also removed (n = 32). To address response frequency, anyone who did not answer 95% of the questions was flagged for removal; no participants were excluded at this stage.

Finally, response invariance was observed. This survey included other pre-established scales that proved useful in determining the measurement invariance. This is especially true when considering the creativity scale, which included positively and negatively worded items. For each participant and before reverse coding any items, I calculated the mean variance for each scale (each dimension of crafting, creativity, job involvement, and contextual performance).

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<sup>1</sup> On MTurk, participants can be recruited and screened using a variety of qualifications, such as the location in which they live and the percent of “HITs” (or tasks) that a person has completed successfully. Responses can be rejected if they do not fulfill established requirements for the HIT. For development sample 2, it was required that all workers had a HIT approval rating of 75%, which means their work has been accepted at least 75% of the time on MTurk (Amazon Web Services, 2012).

These variances were then aggregated for each participant to create overall mean variance scores. As a conservative cut-off, anyone who had a mean variance less than 0.25 was excluded from the data. Per this requirement, 12 participants were removed. In total, the data screening process resulted in 363 total responses to use for subsequent analyses.

Data used in the second development sample ( $n = 363$ ) included male (58%) and female (42%) participants from ages 19 to 82 ( $M = 34.53$ ,  $SD = 10.72$ ). Similar to the first development sample, U.S. workers were from a variety of demographic groups, including White/European American (75%), Black/African American (8%), Asian/Asian American (7%), and Hispanic/Latino (8%). In this sample, 49% of workers graduated from college, 21% are currently in college, and 30% do not have a college degree. All workers had to be employed at least part-time (47%) but many worked full-time at 40 or more hours per week (53%). The sample included mostly non-managerial workers (55%) but included workers from several industries like retail (16%), professional, scientific, and technical services (9%), education (12%), health care (14%) and arts, entertainment, and recreation (11%).

## **Procedure**

To develop a measure of job crafting, I used a deductive and confirmatory approach based on Wrzesniewski and Dutton's (2001) job crafting theory and the recommendations for scale development presented in DeVellis (2012). The deductive-type approach to scale development is most appropriate for theory testing, consistent with the purpose of this study, and an exploratory approach is most appropriate for theory generation (Johnson & Christensen, 2008). I developed and tested a measure of job crafting using classical test theory, which assumes that observed scores are a result of a combination of respondents' true scores and error (DeVellis, 2012; Nunally & Bernstein, 1994). Based on this model, error should be random,

uncorrelated with the true score and other errors, and the amount of error should be equal for all items.

Scale development can be a difficult and complex undertaking (Hinkin, 1998). When initiating this process, it is helpful to model procedures after other successful scale development papers (e.g., Brown, Trevino, & Harrison, 2005; Rich et al., 2010), but also to refer to chapters and books that present comprehensive guidelines for scale development. DeVellis (2012) presents a series of steps that are simple to understand, yet thoroughly cover critical considerations. Others have used the recommendations of DeVellis to guide their scale development processes (e.g., Van Dyne, Graham, & Dienesch, 1994) and his guidelines mirror well-established practices discussed by other prominent authors in the field (e.g., Ghiselli, Campbell, & Zedeck, 1981; Hinkin, 1998; Raykov & Marcoulides, 2011). To build his arguments and recommendations, DeVellis integrated recent works on measurement and scale development (e.g., Buchwald, 2006; Lord & Novick, 2008) with seminal works in the field (e.g., Duncan, 1984; Lord & Novick, & Birnbaum 1968; Nunnally, 1978).

When little is known about a construct, exploratory methods like interviews and focus groups are used for initial scale development and testing. Results from several qualitative studies (e.g., Berg, Grant, & Johnson, 2010; Ko, 2011; Lyons, 2008; Wrzesniewski & Dutton, 2001) have lead researchers to formulate the definition and theory of job crafting. The next logical step in the progression is to develop a scale that reflects the theory and verify that it assesses the construct. Then, successive studies can use the measure to determine if the definition and conceptualization of job crafting is supported with empirical data. This deductive approach has been used by a number of other researchers who have developed measures for a range of constructs such as culture change (Gejewski, Price, Coffland, Boyle, & Bott, 2013), acceptable

parenting practices (Budd, Behling, Li, Parikshak, Gershenson, Feuer, & Danko, 2012), newcomer socialization (Haueter, Macan & Winter, 2003), and managerial coaching skills (McLean, Yang, Kuo, Tolbert, & Larkin, 2005).

The scale development followed the recommendations of DeVellis (2012). The first four steps of the scale development process help provide initial content validity evidence for the scale. Steps five, six, and seven involve testing and evaluating the scale items, providing initial evidence about the reliability of scores, structure of the scale, and construct validity. Finally, step eight requires making decisions about which items to retain in the MJC.

**Step 1: Purpose of the scale.** The purpose of this scale is to measure the construct of job crafting, as defined by job crafting theory (Berg et al., 2013; Wrzesniewski & Dutton, 2001). Based on the theory, there are three specific forms of job crafting behaviors and the scale will be designed to measure each one of these types. At this stage it is also necessary to consider the level of specificity and the time frame that the scale will assess (DeVellis, 2012). Very specific job crafting behaviors may look quite different from job to job; therefore, the scale items must reflect a broader definition of job crafting, ensuring applicability across job types. Other scales that have been developed for specific groups of employees (e.g., Leana et al., 2009) demonstrate potential utility for a measure for job crafting but cannot readily be used beyond their specific groups. Opportunities for crafting exist in a variety of occupations and levels within organizations (Berg, Wrzesniewski, & Dutton, 2010); thus, a scale that generalizes across these groups is most useful for future applications and research.

At this stage it is also necessary to consider what time frame the scale will measure. A scale of job crafting could ask questions about current crafting behaviors (crafting taking place presently), or past behaviors that occurred over a specified amount of time (e.g., in the past two

weeks, over the last month, etc.). Although crafting is an ongoing process (Berg et al., 2013), a scale that captures current crafting behaviors (rather than past behaviors) is most useful to initially understand how crafting works. There is presently no research that suggests the longevity of crafting benefits or how long crafting must continue to lead to outcomes; thus, measuring current crafting is most appropriate for the scale. Questions about the effect of accumulated crafting behaviors or to what extent crafting influences outcomes over time can be addressed once a better understanding of the process of job crafting is obtained. Measuring current crafting behaviors also reduces potential errors due to memory, as past behaviors, especially over a long time period, may be less salient or forgotten (Eisenhower, Mathiowetz, & Morganstein, 2011).

**Step 2: Generate the item pool.** A good set of items will capture the full content domain for each type of job crafting (Murphy & Davidshofer, 1991). In other words, the scale items should fully encompass behaviors related to each type of crafting, exhausting the potential ways to describe what crafting is without being redundant. The initial pool of items created for this scale reflects three dimensions of job crafting as described in the literature, pulling primarily from the conceptualization presented in recent theoretical work on job crafting and meaningful work (Berg et al., 2013; Berg, Grant, & Johnson, 2010; Berg, Wrzesniewski, & Dutton, 2010). Consistent with the theory, all items measure job crafting at the individual level (as opposed to a team or organizational level), and are behaviorally worded. Each dimension is represented by an equal number of items, as no one type of crafting is more central to the overall construct of job crafting than the others (Berg et al., 2013; DeVellis, 2012; Wrzesniewski & Dutton, 2001).

Other job crafting scales (e.g., Laurence, 2010; Tims et al., 2012) distinguish between expansive and contraction crafting. Based on these views, some crafting may involve growing

facets of work, whereas other forms of crafting may shrink aspects of work. Differentiating these behaviors is consistent with Wrzesniewski and Dutton's (2001) theory, but including positively and negatively worded items can confuse survey respondents, potentially introducing error into their ratings (Cordery & Sevastos, 1993; Greenberger, Chen, Dmitrieva, & Farruggia, 2003). The primary reason that job crafters shrink facets of a job is to make time or increase capabilities to refocus attention on other facets that create more meaningfulness. Thus, the simple act of reducing job boundaries is not the key, only that it is done *for the sake* of incorporating other strengths, passions, and interests in work.

Based on the theory, the job crafting scale does not need separate factors for expanding and contracting work boundaries; instead, these ideas can be captured in single items. For example, these two items from Laurence (2010), "I have taken steps to change the way I go about doing my work and to expand the scope of my work goals," and "I have taken steps to change the way I go about doing my work and to limit the scope of my work goals," are redundant and could be combined by saying: "I have taken steps to alter the scope of my work goals to focus on my strengths." This more parsimonious wording reflects that some goals may have increased, whereas others are receiving less attention. This is only one example, but when considering the items already generated by other researchers for potential inclusion in this scale, some can be modified to reflect the definitions of task, relational, and cognitive crafting as they are presented in Berg et al. (2013). When generating items for the MJC, I was also careful to avoid double-barreled statements. By wording scale items in a consistent manner, wording effects will not mask or interfere with the observed relationships between items (DeVellis, 2012).

DeVellis (2012) recommends generating roughly three or four times the number of items that the final scale will have. The final number of items is dependent on many factors, so it is best to generate as many items as possible. The properties of the scale emerged through testing, indicating the ideal number of items to retain for each factor. At the very least, each scale dimension requires at least three items to calculate reliability coefficients (Raykov & Marcoulides, 2011).

I began generating items by referencing other job crafting scales (e.g., Laurence, 2010; Leana et al., 2009; Slemp & Vella-Brodrick, 2013), as some of their items are representative of the original job crafting theory. I also consulted with industrial/organizational and vocational psychology colleagues who are familiar with the content area to generate ideas and write new items that reflect job crafting theory. Consulting with Subject Matter Experts to formally rate the representativeness of the items came at a later step in the development process, after a large initial pool of items was produced. See Appendix A for the list of initial items.

**Step 3: Determine the format for measurement.** During this step, researchers determine the type of response scale that will be used to measure the construct of interest. There are a variety of response scales (e.g., Likert scales, semantic differential scales), each with their own advantages and disadvantages. For example, Guttman scales contain items that reflect progressively higher levels of a construct and if a survey respondent endorses one item, he or she should also endorse all the items up until that point (Proctor, 1970). This is particularly useful for objective information like how often someone exercises or in cases where the construct has a natural hierarchical order (DeVellis, 2012). The literature on job crafting does not suggest that certain behaviors must follow from others and thus, this approach is not appropriate for the scale developed here, the Measure of Job Crafting (MJC). Another response option is a Thurstone

scale, which contains items that pinpoint specific levels of a construct (Edwards & Kenney, 1946), such as the attitudes toward feminism and the women's movement scale (Fassinger, 1994). In reality, this type of scale is difficult to develop (Nunnally, 1978) and its challenges typically outweigh its benefits (DeVellis, 2012). It is important to consider the format of the response scale because it needs to be compatible with the way items or questions are phrased (DeVellis, 2012), which impacts generating the item pool (step 2).

A Likert-type response scale seems most appropriate for the MJC because it allows respondents to indicate their levels of agreement or endorsement of items. Other job crafting scales have measured crafting on Likert scales with response anchors of “never” to “often” (Leana et al., 2009; Slemp & Vella-Brodrick, 2013; Tims et al., 2012) or “not at all” to “very much so” (Laurence, 2010). This type of response scale reflects how frequently an employee engages in crafting behaviors and the range of response options intentionally or unintentionally assumes that the occurrence of crafting is central to the construct. Questions about the frequency of crafting are not unimportant, but they are not the primary focus of the theory. The primary focus has been describing the behaviors and ways in which people craft because some behaviors may not be frequent, but important for meaningfulness nonetheless. Some behaviors may happen only rarely, but may be highly important for a person's sensemaking and interpretation of work. Thus, the MJC will describe the ways people craft their jobs.

Another important feature of this scale is that it does not provide a middle point for people to indicate “Neither agree nor disagree” or “Neutral.” When the interest lies in to what extent people endorse a statement or whether people are leaning one way or another about an item, including a middle point can introduce error and fails to capture the subtleties of the behavior (Presser & Schuman, 1980). Additionally, per recommendations from the Subject

Matter Experts, this scale includes more positive response options than negative ones. The SMEs felt that people would be more likely to do these behaviors than to not engage in them (or “Strongly Disagree”). To prevent a restriction of range in responding, this response scale was modeled after the Minnesota Satisfaction Questionnaire (Weiss, Dawis, & England, 1967), which also includes more positive response options to address this exact problem. In the original version of the satisfaction questionnaire, Weiss and colleagues found that responses were typically skewed when assessing satisfaction on a Very Satisfied, Satisfied, “N” (Neither Satisfied nor Dissatisfied, Dissatisfied, and Very Dissatisfied) scale because the majority of people would select “Satisfied” or “Very Satisfied.” The scale was revised in 1967 to include more positive response options: Not Satisfied, Somewhat Satisfied, Satisfied, Very Satisfied, and Extremely Satisfied. This series of response choices elicits more normal distributions in responses and greater variance and so is recommended when normative data are not required (University of Minnesota: Vocational Psychology Research, 2012). MJC items are rated on a 1-5 Likert-type scale where 1= Disagree, 2= Somewhat Agree, 3= Agree, 4= Strongly Agree, 5=Very Strongly Agree.

**Step 4: Experts review initial item pool.** The next step in the process was to have a panel of SMEs review the initial item pool. Experts typically rate the relevance or representativeness of each item and may also directly indicate whether an item should be retained for the scale or eliminated (Polit & Beck, 2006). Agreement between SMEs (represented by the  $r_{wg(J)}$  index; Lindell, Brandt, & Whitney, 1999) contributes to content validity evidence, showing that collectively the items are believed to capture the true essence of the construct (Murphy & Davidshofer, 1991). Experts may also make recommendations to include

additional items that are deemed necessary to fully capture the content domain of job crafting (DeVellis, 2012). Finally, experts can comment on the clarity and wording of specific items.

Another technique used to explore new constructs is the Q-sort, or Q methodology. This method has been used to create personality profiles (e.g., California Q-Set, Block, 1961), but it has also been used in scale development studies to collect initial content validity evidence (e.g., Nahm, Vonderembse, & Koufteros, 2003; Swafford, Ghosh, & Murthy, 2006). However, Q methodology is often used inconsistently and incorrectly in the literature (Dziopa & Ahern, 2011) and is confused with other techniques like cluster analysis (Thomas & Watson, 2002). The discrepancies in the Q methodology literature make it difficult to navigate the appropriate procedures and to determine whether the technique is more appropriate than other methods, like SME ratings of representativeness. At its core, Q methodology is used to reveal subjective points of view or opinions about a topic (Thomas & Watson, 2002; Van Exel & de Graaf, 1999). Van Exel and de Graaf (2005) explain that “because there is no external criterion for a person’s point of view, the issue of validity of Q sorts does not apply” (p. 18). This method is considered most appropriate when concepts are not well-established and may not have even been defined (Ekinici & Riley, 1999). Moreover, some authors suggest that because it is an exploratory method, it is inappropriate to use when researchers can formulate hypotheses about the construct (Dziopa & Ahern, 2011). In contrast, for reviewing an initial pool of items, the Q methodology may be beneficial because subjects can consider all items in relation to all other items, rather than independently (Van Exel & de Graaf, 2005). Additionally, some studies show that this method is rated as more enjoyable than other methods for reviewing items (Van Exel & de Graaf, 2005). Despite these benefits, the intent of this method does not seem to match the goal of this study. That is, the goal of this phase of the study is not to reveal SME opinions of job crafting, but to

identify which items match the theoretical conceptualization of job crafting. After a thorough review of the literature, the Q-sort technique did not seem appropriate to use for reviewing the initial item pool.

To review and rate items, experts were provided with the specific definitions for each type of job crafting (taken from Berg and colleagues' 2013 chapter) and the list of generated items for each dimension. See Appendix A for a list of the initial pool of items and the crafting definitions. Each SME rated the item's relevance to the given definition of job crafting on a 1 to 5 point scale, 1 = not at all relevant, 2 = minimally relevant, 3 = moderately relevant, 4 = substantially relevant, and 5 = extremely relevant (Lindell & Brandt, 1999). Thus, SMEs were presented with the definition for task crafting and then rated the representativeness for all task crafting items in relation to this definition. Similarly, SMEs completed this process for both cognitive crafting items (in relation to the cognitive crafting definition) and relational crafting items (by referencing the relational crafting definition). SMEs were also provided with space to comment on item clarity, grammar, and structure. Based on the SME comments and ratings of relevance, items were modified or eliminated entirely.

The revised set of items (presented in Appendix B) was then reviewed by a second group of SMEs, who again rated the item relevance using a similar procedure as with the first round of SMEs, a practice recommended in initial scale development (Polit & Beck, 2006). This second review can reduce and improve the item pool, creating a list of quality items to test with a development sample.

**Step 5: Consider including validation items.** Before testing the structure of a scale with a development sample, DeVellis (2012) recommends considering the inclusion of other constructs that can be used to obtain validity evidence. Even though testing relationships with

other variables is one of the most common ways to obtain validity evidence, it is important to recognize that validity evidence can come from multiple sources. According to the *Standards for Educational and Psychological Testing* (1999), validity evidence can be obtained from sources such as the test content, internal structure of the measure, relationships to other variables, validity generalization, and consequences of the decisions made based on the measure. This project focuses on validity evidence obtained from understanding the content and internal structure of the scale. In addition to these primary goals, three other scales were included to compare related constructs to the Measure of Job Crafting. Based on construct comparisons made in the literature (e.g., Berg et al., 2013), creativity, contextual performance, and job involvement scales were selected to acquire further validity evidence. These scales are fully detailed in the *Measures* section below.

**Step 6: Test items with a development sample.** The survey was administered online to two samples of working adults via the Mechanical Turk website. The samples needed to be adequately large and representative of the intended population for which the scale is going to be used (DeVellis, 2012). In addition to rating the job crafting items, all participants were asked to provide general demographic information such as age, gender, race/ethnicity, education, and occupation, so as to understand and describe the characteristics of the sample.

Because MJC items were rated by a single respondent at a single point in time, common method bias may have affected relationships between items or between the scale dimensions (Lindell & Whitney, 2001). In a recent article, Podsakoff, MacKenzie, and Podsakoff (2012) reviewed why common method bias can pose a problem and they make recommendations for dealing with this problem. One recommendation is to obtain data from multiple sources, such as from an employee and a supervisor. This recommendation, however, is most appropriate when

using some variables (e.g., motivation) to predict other variables (e.g., performance). Other recommendations include creating temporal, proximal, or psychological distance. With temporal distance, a survey may be split into two forms and given at two time points. However, this solution greatly increases the complexity of the study, the time it takes to collect data, and the cost (Podsakoff et al., 2012). Therefore, this approach was not used in this study. The order of items in a scale can increase the observed relationship between items, such that items closer in proximity in a scale will be more highly correlated (Weijters, Geuens, & Schillewaert, 2009). To prevent this form of method bias, the order of the items in the survey was randomized for all participants.

Other issues identified by Podsakoff, MacKenzie, Lee, and Podsakoff (2003), such as consistency motif (the tendency to maintain consistency in responses), implicit theories (rating based on implicit theory of behavior rather than actual behavior), or leniency bias (attributing desirable traits when rating others) do not apply to the MJC because people will be rating their own behaviors and not those of others. Item characteristic issues such as social desirability, demand characteristics, and ambiguity can be addressed during item writing (Podsakoff et al., 2003). By adhering to these practices, the potential for common method bias should be reduced to a minimum (common scale formats and anchors which occur with the use of Likert-type response scales cannot be eliminated; Podsakoff et al., 2003).

**Step 7: Evaluate the items.** This step represents the core of what people refer to when they think about scale development; the analysis of item responses. A variety of analyses guide decisions for which items best represent the construct of job crafting. I first outline the sub-steps of this stage in scale development and then provide the details of each sub-step below.

First, I began by conducting a confirmatory factor analysis with the data collected from the first development sample, which supported the structure of the scale. I then examined a correlation matrix of all the scale items and calculated a reliability coefficient for each scale dimension. In subsequent analyses with the first development sample data, I pinpointed which items characterize job crafting behaviors best and could be retained to test with the second development sample. With the second development sample data, I conducted a confirmatory factor analysis and then examined a correlation matrix of the data, the reliability estimates for the scale dimensions, and the basic item characteristics (e.g., item discrimination) to determine a final set of items to include in the MJC.

***Development sample 1 analysis.*** I conducted a CFA with the data collected from the first development sample. A primary goal of this study is to confirm (or disconfirm) the structure that has been proposed by job crafting theory (Wrzesniewski & Dutton, 2001), which is aligned with a confirmatory factor analysis approach (DeVellis, 2012). Developing a measure that reflects the construct of job crafting will allow the overall theoretical framework to be tested in future studies. A CFA is most consistent with this goal, as it provides evidence about the structure of the scale and the representativeness of each item to its respective scale dimension. The information gained through a CFA determines if items and factors relate in ways that are predicted by existing theory. Additionally, based on the size of the sample ( $n=215$ ), the data could not be randomly split into two for purposes of running both an EFA and a CFA as is sometimes done in scale development projects (e.g., Slemp & Vella-Brodrick, 2013). Even though this practice is not uncommon, it is also not ideal, as the samples are not independent and so do not provide independent evidence in support of the factor structure.

Factor analysis has four primary goals (DeVellis, 2012). Factor analysis provides information that can help a researcher decide how many underlying concepts (also called constructs, dimensions, or factors) are captured in a set of items. In the case of the proposed job crafting scale, there should be three factors, one for each specific type of job crafting. The second primary goal of factor analysis is to “condense information” (DeVellis, 2012, p. 117), creating a scale that measures the construct of interest well but with a smaller subset of items. This allows for the reduction of the full list of generated items to a smaller, more manageable and representative list. The third goal is to determine the meaning of the factors, based both on theoretical justification and the ways in which items covary with each other. Lastly, factor analysis can pinpoint items that are performing well or poorly in the scale dimensions.

For the CFA, I specified a three-factor model that constrained certain items to load on their respective (expected) factors, and then examined fit statistics (discussed in the *Results* section, starting on page 54) to see if the model represented the data well. I also specified one-factor and two-factor alternative models for comparison. After looking at the overall fit of the model, I looked at the item factor loadings to decide which items best define the factors. High item loadings are desirable, but loadings should be at least .40 (Raykov & Marcoulides, 2011). Low factor loadings can indicate a potential item that may need revised or dropped all together. Decisions to retain or drop items should be made based not only on factor loadings, but also the information described in the sub-steps below (DeVellis, 2012).

From the CFA, I also calculated a discrepancy matrix. This process involves subtracting the observed item correlation matrix from the predicted one and if large discrepancies emerge (typically anything greater than .10), those particular items may be causing misfit in the scale (McDonald, 1999). The discrepancy matrix highlights where items are correlating more or less

than they ought to be, suggesting these items may need to be eliminated from the scale. I eliminated as much discrepancy as possible, so when items had multiple large discrepancies, they were removed from the scale.

**Reliability.** The second sub-step in evaluating the scale items involves calculating the reliability coefficient for each dimension of the scale. Reliability estimates to what extent a scale is measuring the true score of a construct versus error (DeVellis, 2012). There are several methods for obtaining reliability estimates but based on a scale's purpose, some are more appropriate than others. For example, test-retest reliability, which assesses to what extent scores remain stable over time (Murphy & Davidshofer, 1991) may be interesting for future studies, but current research does not suggest that job crafting behaviors remain constant (Berg et al., 2013) and so one would not expect to obtain this type of reliability evidence. Another common form of reliability is interrater reliability, which refers to consistency across different raters (Murphy & Davidshofer, 1991); however, this stage of the project is not using multiple raters and so this type of reliability evidence is not applicable.

Internal consistency reliability is most relevant for this scale, as it indicates whether all items are related to one another and measure the same construct (DeVellis, 2012). Coefficient alpha is a common measure of internal consistency. This estimate indicates how interrelated items are, which should mean that they are all tapping into the construct similarly (Cronbach, 1951; Raykov & Marcoulides, 2011). Values of about .70 are considered minimally acceptable and values of .90 or above are preferred (Nunnally & Bernstein, 1994). Alpha coefficient specifies how related items are; however, this is not a direct measure of the homogeneity/unidimensionality of the scale (whether a single construct is being measured; Raykov & Marcoulides, 2011). Omega (McDonald, 1999) is a statistic that indicates

homogeneity, and follows similar rules of thumb as alpha coefficient, with values of .80 - .90 suggesting reliability of scores (Raykov & Marcoulides, 2011). For this project, both alpha coefficient and omega were estimated.

***Basic item analysis.*** In the third sub-step, I looked at the specific features of the items to determine which items were best for the scale. For classical item analysis, one must consider the item-scale correlations, which are also called item discrimination values. If an item correlates strongly with the overall score (.40 to .50; Varma, 2006), it is highly representative of the latent construct. For example, when an item demonstrates high discrimination, it can distinguish someone who is high on task job crafting versus a person who scores low on that dimension. To calculate item discrimination values, items within a factor were correlated with a total score for that particular factor. For example, all task crafting items were averaged to create a total dimension score and then each task crafting item score was correlated with the total dimension score. Additionally, cognitive crafting item scores were correlated with a total cognitive dimension score and relational crafting item scores were correlated with a relational crafting dimension total. Items are not correlated with a total scale score because a person will not necessarily rate similarly on all dimensions of job crafting. Items with low correlations (values < .10; Varma, 2006) do not discriminate well on the latent construct, providing less information than items that distinguish well. I used corrected item-total correlations, as the uncorrected values can inflate the correlations (DeVellis, 2012).

Next, I calculated item difficulties (the items' means) and variances. The item difficulty represents to what extent people overall endorse the item, or participate in job crafting behaviors. Item variance shows to what extent people differ when rating the items. A good scale will tap into all levels of job crafting behaviors; if items fall on either extreme (being highly endorsed by

most people or almost never endorsed), they are only detecting certain levels of job crafting (DeVellis, 2012). In addition, if all people answer similarly (resulting in low item variance), then the items will not be able to discriminate people's job crafting behaviors. Ideally, items will have large variances and means close to the central value on the Likert scale, demonstrating that items represent the whole spectrum of job crafting behaviors.

Based on the CFA, dimension reliabilities, and basic item analysis, I made decisions about which items to retain, revise, or drop from the MJC (see the *Results* section for a full description of these decisions). This revised scale was then tested and cross-validated with the second development sample.

***Development sample 2 analysis.*** The analysis for second development sample followed the procedures used with the first sample. I conducted a CFA and compared the hypothesized three-factor model with one- and two-factor alternative models. I observed the factor loadings and discrepancies to detect problematic items in the scale. I also used item characteristics and the scale dimension reliability estimates to determine if all items should be retained for the final version of the MJC scale.

**Step 8: Optimize the scale length.** Creating the optimal scale length is important because although longer scales tend to be more reliable, they may be unrealistic to administer (DeVellis, 2012). Even though there is no single best way to determine the final items in a scale, the process is guided by the steps of the item evaluation. It is important to consider multiple pieces of information, relying on both the data and theory, to justify decisions.

Multiple pieces of information were considered to optimize the length of the MJC, which was accomplished using the second development sample. When items had low factor loadings (DeVellis, 2012), high discrepancies (McDonald, 1999), and low item-discrimination (Raykov &

Marcoulides, 2011) they were removed from the scale. Low item discrimination also targets items that impact the reliability, since they are not as highly correlated with the scale or with other items (DeVellis, 2012). This information, in conjunction with the experts' initial ratings of item relevance and clarity, provided evidence in support of the hypothesized factor structure, optimal scale length, and content validity of the scale.

## **Measures**

Job crafting was assessed using the items developed in this study (see the previous section for a description of this process). Appendix C and D present the job crafting scales used with development samples 1 and 2.

Contextual performance was assessed using Motowidlo and Van Scotter's (1994) scale. All items were rated from 1 to 5, *Not at all Likely* to *Extremely Likely*. This scale has shown reliability of scores in past research ( $\alpha = .95$ ; Motowidlo & Van Scotter, 1994) as well in the current research project ( $\alpha = .89$ ).

Creativity was assessed using the creativity facet from the Hogan Personality Inventory, which is included in the International Personality Item Pool (Goldberg, Johnson, Eber, Hogan, Ashton, Cloninger, & Gough, 2006; Hogan & Hogan, 1995). Participants selected *True* or *False* for each item and then all endorsed items were summed to derive a creativity score. This scale has shown reliability of scores in past research ( $\alpha = .83$ ; International Personality Item Pool) as well in the current research project ( $\alpha = .79$ ).

Job involvement was assessed using Kanungo's (1982) 10-item scale. All items were rated from 1 to 5, *Disagree* to *Agree*. This scale has shown reliability of scores in past research ( $\alpha = .87$ ; Kanungo, 1982) as well in the current research project ( $\alpha = .90$ ). The full scales used to measure contextual performance, creativity, and job involvement are presented in Appendix D.

## RESULTS

When developing and testing the scale items, each step builds on the next and evidence was considered collectively while making decisions about which items to keep or remove from the measure.

### **Initial Item Review**

Information gained through the initial item review was used to eliminate poorly worded items and items that were perceived as being outside the scope of the job crafting construct. This resulted in the scale that was tested with development sample 1. This stage of the process contributes content validity evidence for the scale.

The first round of SMEs rated each item's relevance, given the specific definition of the construct. These ratings were used to calculate an index of rater agreement, denoted  $r_{wg(J)}$  (Lindell, Brandt, & Whitney, 1999). The index typically falls between 0 and 1, with higher scores representing greater agreement among raters. A general rule of thumb is that  $r_{wg(J)}$  should be greater than .70 (Cohen, Doveh, & Eick, 2001). There are other indices of SME agreement, such as the content validity ratio (Polit and Beck, 2006). For a content validity ratio (CVR), the number of experts who rate an item as "highly relevant" is compared to the overall number of raters. For this study, I calculated two versions of the CVR, one using only ratings of "Extremely Relevant" (the maximum rating possible) and one using ratings of "Substantially Relevant" and "Extremely relevant," as both of these classifications denote strong items. Depending on the number of raters, various cut-offs for CVR can indicate high levels of agreement (Lawshe, 1975). For this sample of 10 SMEs, a ratio of at least .62 would indicate acceptable agreement of an item's representativeness.

The results for the first round of SMEs are presented in Tables 2-4. Items with a high mean rating of representativeness, high  $r_{wg}$ , and high CVR values were marked as items to include in the scale. All items (with the exception of task4) had a mean of 3.0 or greater, which is equivalent to at least “Moderately Relevant” to the scale. Rater agreement did not meet the recommended cut-offs for many of the items, but there were patterns of items that showed high mean representativeness and higher  $r_{wg}$  and CVR values.

At this stage of the scale development process, removing too many items could result in a pool of items too small to test with a development sample. Thus, rather than remove items based on agreement scores, I primarily used the qualitative comments to revise items. Additionally, because all items were thought to be at least moderately representative of the construct, it seemed unnecessary to remove any at this point. Qualitative comments included suggestions for item wording, level of vocabulary, and clarity. When asked to identify concepts or ideas not captured in the survey, SMEs indicated that the definitions were reflected and did not present suggestions for additional items to include in the MJC. Although experts did not detect any major lacking conceptual areas, after reviewing the data from this round of review, a couple items from the recently published Slemp and Vella-Brodrick (2013) scale were identified as relevant and modified versions of these items were added to the item pool.

Revised items were presented to a second group of Subject Matter Experts, who are all published researchers on the topics of job crafting or meaningfulness in work. Mean representativeness ratings,  $r_{wg}$ , and CVR values were calculated for this group of SMEs (see Tables 5-7 for a summary of the results). Items with a mean rating less than 3.0 (meaning they were “Minimally Relevant” or “Not at all Relevant”) were completely removed from the scale. This resulted in dropping four task crafting items (task 1, 5, 6, and 24), two cognitive crafting

items (cognitive 16 and 24), and four relational crafting items (relational 12, 17, 18, and 34). Agreement scores ( $r_{wg}$ , and CVR) were interpreted with caution given the small sample ( $n=6$ ). Samples less than 10 are not recommended when calculating  $r_{wg}$  (Lindell, Brandt, & Whitney, 1999) and so high agreement was marked as a strength for items, but items were not removed due to lower levels of rater agreement.

The second group of SMEs also included qualitative comments and suggestions. There were no suggestions for additional items and no comments indicating that major content was missing from the scale. Some experts felt that the scale was more positively slanted and might not fully represent crafting behaviors that involve minimizing parts of a job. SMEs also identified some items that could reflect other constructs (e.g., organizational citizenship behaviors). These comments were used to revise items when possible. Recommendations about item wording and clarity were used to improve the MJC.

### **Development Sample 1 Results**

Items with relevance ratings of 3.0 or higher were included in the development sample 1 survey. However, for the analyses, only items with a mean SME representativeness rating of 3.5 or greater were included. This reduced the pool of items to a more manageable size and retained only the most relevant job crafting statements. This resulted in 20 task crafting items, 19 cognitive items, and 16 relational crafting items. I began by evaluating the item characteristics (Step 7 in DeVellis's guidelines), which involves several analyses. First, I calculated the item means and variances, see Table 8. For survey items that have a correct or most desirable answer, item means represent the difficulty, or likelihood that a person will select a particular response choice (DeVellis, 2012). For a scale like job crafting, there is no correct answer, so an item's mean indicates the likelihood that a response will be endorsed. For example, if an item is rated

on a scale of 1, Strongly Disagree, to 7, Strongly Agree, and the mean is 6.3, most people strongly endorsed the item. To make sure items are capturing the full range of possible responses, items with means close to the center response (aka 4 on a scale of 1-7), but that also have high variability in responses, are ideal (DeVellis, 2012). This way, the scale can tap into all levels of job crafting behaviors. Based on item means and variances, no items were pinpointed as problematic.

Next, the corrected item-scale correlations were calculated in R by correlating an item with a scale total that did not include that same item, reducing the chance of inflated relationships (DeVellis, 2012), see Table 8. Since there are three dimensions in this scale, each item was correlated with an overall score for its respective dimension, not a total scale score. High item-scale correlations, or item discrimination, show that an item is representative of its factor (McDonald, 1999). Highly discriminating items are preferred because they more accurately indicate those who are 'high' job crafters compared to those who are not. A discrimination value of .3 is typically used as an acceptable level of discrimination (Oosterhof, 1990) and items with discrimination lower than this should be removed, especially if other evidence (e.g., intercorrelations with other items) also suggests that they are poor items. For the MJC, all items met the .3 discrimination cut-off and many had high discrimination values, so all items were retained at this stage of analysis.

**Development sample 1 confirmatory factor analysis.** To test model fit, several fit indices were observed. First, the chi-square test of model fit was observed to gain an overall understanding of whether the proposed model – a three-factor model in this case – fits the data (Raykov & Marcoulides, 2011). This test compares the predicted covariance matrix (which is based on theory) with the observed one. Thus, a non-significant test statistic would support the

model, showing that the predicted model fit is no different than the observed data (Floyd & Widaman, 1995). However, this test is highly sensitive to sample size so a significant chi-square does not solely determine the performance of the scale (McDonald & Ho, 2002).

The root mean square error of approximation (RMSEA) is another statistic that is a test of misfit, or to what extent the observed data does not mirror the hypothesized model. Thus, small values are desired and typically anything less than .05 is considered evidence in support of the proposed model (Raykov & Marcoulides, 2011). The RMSEA is not as sensitive to sample size as the chi-square test (Raykov & Marcoulides, 2011). Other fit indices such as the comparative fit index (CFI) and Tucker-Lewis index (TLI) represent to what extent the specified model fits the data well. If these values are close to 1 (typically at least .90-.95), then the model shows acceptable fit (Raykov & Marcoulides, 2011). Indicators of model fit can be compared to support the fit of one model over another (Floyd & Widaman, 1995). After retaining the best items in the MJC scale, I compared a one-factor, two-factor, and three-factor model using a chi-square difference test to assess hypothesis two (see Table 13).

In addition to overall model fit, individual item factor loadings, which indicate to what extent each item explains variance in the dimension (Raykov & Marcoulides, 2011) were considered. To be included with a factor, the item loadings should be at least .30 or .40 but higher factor loadings are desirable (Floyd & Widaman, 1995).

Calculating a discrepancy matrix can help pinpoint which items are performing poorly in the model. This process involves subtracting the observed item correlation matrix from the predicted one and if large discrepancies emerge (typically anything greater than .10 or less than -.10), those particular items may be causing misfit in the scale (McDonald, 1999). The

discrepancy matrix highlights where items are correlating more or less than they ought to be, suggesting these items may need eliminated from the scale.

Thus, to summarize my overall approach for retaining items in the scale, I considered multiple pieces of information to remove the most problematic or least representative items first in an attempt to improve the model fit. I first removed items that operated poorly based on more than one of the following: having lower correlations with other items in the scale, large discrepancy values, lower discrimination power, and lower factor loadings as compared to other items. Then, as the scale was refined, some items were dropped on the basis of one indicator or another (e.g., either factor loadings or high discrepancy), but in general, I aimed to use converging evidence and not just a single indicator to retain items for the MJC.

Using the Lavaan statistical package in R, version 3.0.2, I conducted a CFA with maximum likelihood estimation. The three-factor model which contained all 54 items showed poor fit based on recommended cut-offs (Hu & Bentler, 1999),  $\chi^2(1427) = 2847.84, p < .001$ ; comparative fit index (CFI) = .79; Tucker-Lewis index (TLI) = .78; root mean square error of approximation (RMSEA) = .07; and the standard root mean square residual (SRMR) = .09, but it did show better fit than a one-factor model,  $\chi^2(1430) = 3722.03, p < .001$ ; CFI = .67; TLI = .64; RMSEA = .09; and SRMR = .09. Results are summarized in Table 9. These findings were not surprising as one main goal of the study was to reduce the pool of items and find the best indicators of job crafting.

To reduce the number of items, items with the lowest factor loadings (any item with a factor loading  $< .60$ ; see Table 8) were removed from the scale. This resulted in a 41-item scale. The reduced scale, although an improvement from the full version, showed poor fit to a three-factor model,  $\chi^2(776) = 1540.48, p < .001$ ; CFI = .85; TLI = .84; RMSEA = .07; and SRMR =

.08. To further reduce the number of items, items with the lowest factor loadings (see Table 8) and the largest discrepancies (see Tables 10-12) were eliminated, resulting in a 27-item scale.

The final scale, with 9-items per job crafting dimension, was fit to a three-factor model. This model showed improved fit:  $\chi^2(321) = 682.31, p < .001$ ; CFI = .89; TLI = .88; RMSEA = .07; and SRMR = .08. A three-factor model fit the data significantly better than a one-factor,  $\chi^2(324) = 1391.94, p < .001$ ; CFI = .67; and RMSEA = .11, or two-factor model<sup>2</sup>,  $\chi^2(323) = 1367.74, p < .001$ ; CFI = .67; and RMSEA = .12 (see Table 13 for a full summary of the model comparisons). This supports both Hypothesis 1 and 2. When testing a higher-order factor where all three job crafting dimensions load on a general factor, the fit was exactly the same as the three-factor model but the dimensions did load highly on the general factor (task = .74; cognitive = .88, relational = .69). This evidence could be used to support a three-dimensional, higher-order model of job crafting. In addition to the overall fit, all items in the final scale loaded highly on their respective factors (see Table 14) and the discrepancy matrix showed only a few remaining large residuals (see Tables 15-17).

Although greater fit would be desirable, because this is the first test of the scale, the model fit was deemed acceptable. Additionally, because the items loaded strongly on their respective dimensions, showed high discrimination, and because the scale would be cross-validated with a second sample, the evidence presented here shows good initial support for a three-factor measure of job crafting.

**Development sample 1 reliability.** Internal consistency reliability was calculated for each scale factor (see Table 18) using R, version 3.0.2. Omega captures how homogeneous items are, demonstrating that they measure a single dimension of crafting (McDonald, 1999), and

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<sup>2</sup> For the 2-factor model, task8, 10, 16, 26, cog3, 5, 8, 16, 17, 20, 24, 25, 26, rel2, 6, 7, 19, 21, and 30 were classified as an “expanding” factor and task6, 7, 12, 25, 27, rel8, 28, and 29 were classified as a “change” factor. The scale does not directly reflect “shrinking” boundaries of a job.

Cronbach's alpha measures how interrelated items are (Cronbach, 1951; Raykov & Marcoulides, 2011). Both of these indicators assess the scale's reliability. All three dimensions of the MJC showed good reliability of scores, task crafting:  $\alpha = .90$ ,  $\omega = .93$ ; cognitive crafting:  $\alpha = .90$ ,  $\omega = .92$ ; and relational crafting:  $\alpha = .91$ ,  $\omega = .93$ .

### **Development Sample 2 Results – Cross Validation of the MJC**

**Basic item analysis.** Items with extreme difficulties (means) and low variability can pose problems for the scale (DeVellis, 2012). By observing the means and standard deviations of all items in this sample, none were identified as potentially problematic. As shown in Table 19, none of the items had extremely large or small means, which supports that these items can detect many levels of the construct, not just a narrow portion. Additionally, all items showed high levels of discrimination power (high correlations with a corrected scale-total score). Items with discrimination values greater than .3 show acceptable discrimination (Oosterhof, 1990), but items with the greatest discrimination power are preferred for the final scale. Based on this information, all items were retained in the scale.

**Confirmatory factor analysis.** Using the Lavaan statistical package in R, version 3.0.2, I conducted a CFA with maximum likelihood estimation from the data collected in development sample 2. A three-factor model was fit to the data, but the fit did not meet recommended cut-offs (e.g., Hu & Bentler, 1999),  $\chi^2(321) = 972.54$ ,  $p < .001$ ; comparative fit index (CFI) = .87; Tucker-Lewis index (TLI) = .86; root mean square error of approximation (RMSEA) = .08; and the standard root mean square residual (SRMR) = .06. The three-factor model did show better fit than a one-factor model,  $\chi^2(324) = 2453.34$ ,  $p < .001$ ; CFI = .59; TLI = .55; RMSEA = .14; and SRMR = .12. These results are presented in Table 20. To improve the model, I examined the

item factor loadings (see Table 19) and the discrepancy matrix (see Tables 21-23) to detect problematic items.

For the task crafting dimension, items task6 and task7 shared a large discrepancy (.27). Looking back at SME ratings, these items also both had lower mean representativeness ratings. Although both items had acceptable factor loadings, (.64 for both) and discrimination power (.71 for both), both factor loadings were among the lowest compared to other task crafting items. Additionally, these items had lower inter-item correlations (see Table 24). Removing task6 from the pool of items resulted in fewer discrepancies than removing task7, so task6 was eliminated from the MJC.

For cognitive crafting, item cog20 had the lowest factor loading (.53) and the lowest discrimination power (.62). This item also shared a large discrepancy (.11) with item cog24. For these reasons, cog20 was removed from the MJC.

The relational crafting scale had several large discrepancies, but only between sets of items; there was no single item with more residuals than other items. Item rel21 and rel19 shared the largest residual (.13). Even though item rel28 had the lowest factor loading and discrimination power, these values are still well above recommended levels (DeVellis, 2012) and removing rel28 from the MJC did not resolve any of the large discrepancies in the model. Thus, item rel21 was eliminated, as it showed a lower loading than item rel19 and also resulted in fewer discrepancies.

After removing three items from the MJC (one item for each dimension), the fit of the 24-item scale was assessed. This three-factor model showed slightly better fit than the 27-item scale,  $\chi^2(249) = 668.31, p < .001$ ; CFI = .91; TLI = .89; RMSEA = .07; and SRMR = .06, but still showed room for improved model fit. Thus, using a similar process as described above, factor

loadings, inter-item correlations, and the discrepancy matrix were used to remove potentially problematic items. This resulted in the elimination of task25, cog26, and rel7.

The final 21-items were tested for fit to a three-factor model. This model showed good fit,  $\chi^2(186) = 459.38, p < .001$ ; CFI = .93; TLI = .92; RMSEA = .06; and SRMR = .05, in support of Hypothesis 1. All items showed high factor loadings on their respective factors (see Table 27) and with one exception for the task crafting items, no large residuals were observed in the discrepancy matrix (see Tables 28-30). The three-factor model also showed significantly better fit compared to a one-factor and two-factor model<sup>3</sup> (see Table 31), supporting Hypothesis 2. The test of a higher-order factor model showed the exact same fit as the three-factor model, but presented support for the higher-order model due each dimension demonstrating a high standardized loading on a general factor (task loading = .57, cognitive loading = .84, relational loading = .73).

**MJC reliability.** Similar to the procedure followed for development sample 1, the dimensions' reliabilities were calculated for the data collected from development sample 2 (presented in Table 32). For the final 21-item scale, the task crafting dimension ( $\alpha = .84, \omega = .87$ ) cognitive crafting dimension ( $\alpha = .89, \omega = .93$ ), relational dimension ( $\alpha = .89, \omega = .91$ ), and overall job crafting ( $\alpha = .91, \omega = .94$ ) showed good internal consistency reliability.

**MJC content validity evidence.** The items selected for the final version of the MJC all had SME representativeness ratings of 3.5 or higher (see Table 33). To ensure that the final version of the MJC captures the full content range of job crafting, two independent raters (both of whom served as SMEs in prior development of the scale) also classified each item into one of three categories presented in the dimension definitions (Berg et al., 2013). The raters had perfect

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<sup>3</sup> For the 2-factor model, task8, 10, 16, 26, cog3, 5, 8, 16, 17, 24, 25, rel2, 6, 19, and 30 were classified as an “expanding” factor and task7, 12, 27, rel8, 28, and 29 were classified as a “change” factor. The scale does not directly reflect “shrinking” boundaries of a job.

agreement in sorting the items into the respective categories (see Tables 33-35). The task dimension contains items that relate to emphasizing, adding, and redesigning tasks. The cognitive dimension includes items that reflect expanding, focusing, and linking perceptions. And finally, the relational dimension is comprised of items about building, reframing, and adapting relationships. This evidence supports the content validity of the MJC.

**Construct validity evidence.** Each dimension of the MJC was correlated with creativity, job involvement, and contextual performance. Due to support for a higher-order factor, a composite job crafting score was also created by averaging scores across the three job crafting dimensions; the composite job crafting score was also correlated with creativity, involvement, and contextual performance. The results are presented in Table 36.

There was a significant correlation between contextual performance and task ( $r = .21$ ), cognitive ( $r = .48$ ), relational ( $r = .46$ ), and composite job crafting ( $r = .49$ ). This evidence supports Hypothesis 3. Job involvement was also related to job crafting, supporting Hypothesis 4. Involvement was most strongly correlated with the job crafting composite score ( $r = .54$ ), but it was also significantly related to task ( $r = .38$ ), cognitive ( $r = .49$ ), and relational crafting ( $r = .40$ ). Contrary to Hypothesis 5, creativity was not significantly related to any dimension of job crafting or the composite job crafting score.

## DISCUSSION

Through the steps outlined in this paper, a multidimensional measure of job crafting was developed, tested, and supported. Consistent with hypothesis one, the scale reflects job crafting theory (Berg et al., 2013; Wrzesniewski & Dutton, 2001) by defining three related, yet distinct dimensions of job crafting behaviors – task, cognitive, and relational crafting. The findings from this study also supported hypothesis two, showing that a three-factor model fit significantly better than a single-factor model. Additionally, the three-factor model fit significantly better than a two-factor model which only distinguished behaviors as either “expanding” or “contracting” (or changing) facets related to work. This suggests that the type of boundary being altered – tasks, relationships, or perceptions – reflects job crafting more closely than the direction of changes to a job.

The resulting job crafting measure also demonstrated internal consistency reliability. Data was collected from two samples of experts who know about job crafting and measurement theory as well as from two samples of working adults, who are ultimately the population of interest when discussing the implications and impact of job crafting behaviors. The combined evidence from these particular samples helps establish internal structure, face, and content validity for the measure of job crafting.

As further evidence in support of the MJC, job crafting was positively related to contextual performance and job involvement, two constructs which are conceptually similar to job crafting, yet distinct. Employees who engage in extra-role behaviors, such as helping peers complete tasks, and those who psychologically identify with their jobs also tended to engage in job crafting behaviors. Thus, hypotheses three and four were supported. This provides initial

construct validity evidence for the MJC and contributes to our understanding of job crafting as it relates to other important work-related behaviors and attitudes.

Contrary to hypothesis five, creativity was not significantly related to job crafting. The average for creativity was 8.3 on a scale of 10, so it could be that with such a narrow range of creativity scores, we were not able to detect relationships between creativity and job crafting. Additionally, although both creativity and job crafting can involve changing parts of a job, and perhaps in ways that are unique, innovative, and original, creativity may be more conceptually dissimilar to job crafting than we expected. Especially when the scale includes items like, “I love to read challenging material” and “I do not have a good imagination,” it may be capturing a trait that is quite removed from work or a person’s specific job. It would be interesting to investigate whether types of crafting are associated with work-specific creativity. Future studies could also test whether creativity alters perceived opportunity to craft, which is a potentially important antecedent to job crafting behaviors (Wrzesniewski & Dutton, 2001).

### **Conclusions about the Scale**

Job crafting is a behaviorally oriented and employee-centered construct that is comprised of three distinct dimensions – task, relational, and cognitive crafting. Although these dimensions are unique, each type of job crafting aims to increase the meaningfulness of work and so the dimensions are strongly inter-related. This suggests that job crafting may be conceptualized as a higher-order factor. It is appropriate to distinguish the types of crafting because the three-factor model fit better than a single-factor model and the types of crafting were associated with other constructs to differing levels (e.g., contextual performance was related to task crafting,  $r = .21$ , and relational crafting,  $r = .48$ , differently). However, it also makes sense that a person who engages in one type of crafting may also employ other crafting techniques. Depending on the

research question, the evidence found here supports that either holistic job crafting may be studied (through use of an overall job crafting score) or that individual dimensions may be observed to better understand specific types of crafting behaviors.

As suggested by the theory of job crafting, task crafting involves altering tasks at work by adding, emphasizing, or redesigning activities to derive more meaningfulness (Berg et al., 2013). In looking at the specific task crafting items (see Appendix E), both interest and passion/enjoyment emerged as primary foci in many of the items. This hedonistic focus is consistent with job crafting theory, suggesting that people may evoke more meaning in work through the actual work tasks they are doing, rather than only using them as a means to an end (e.g., for rewards or advancement).

Also consistent with job crafting theory, cognitive crafting involves reframing thoughts about work to expand, focus, or link perceptions (Berg et al., 2013). The final cognitive crafting items (shown in Appendix E) also emphasize the importance of purpose. Purpose has often been conceptualized as an important component of meaningfulness (Steger et al., 2012) and was listed as a primary mechanism of meaningfulness by Rosso and colleagues (2010). The extent to which these cognitive crafting items reflect purpose and envisioning the self as part of a greater whole demonstrates how cognitive crafting likely leads to increased meaningfulness in work.

Consistent with past conceptualizations (e.g., Berg et al., 2013), the relational crafting dimension of the MJC involves building, reframing, or adapting relationships at work to create meaningfulness. These strategies are compatible with the idea that relationships are strongly tied to belongingness and self-esteem, which both emerged as patterns in the relational crafting items in the MJC (see Appendix E). Belongingness has been recognized as a basic human need (Ryan

& Deci, 2008) and a primary driver of motivation (Baumeister & Leary, 1995) so it is fitting that this idea came through strongly in the relational crafting items.

Crafting is likely associated with other work-related constructs, but this study provides initial evidence that the resulting measure contains items that reflect job crafting behaviors rather than other psychological constructs. Other scales have been criticized for their items because they do not seem distinct from other measures. A main goal of this study was to produce items that distinctly measure job crafting as it is understood by Wrzesniewski and Dutton's (2001) model. With this new measure, job crafting theory can be tested empirically. Without this measure that reflects the theoretical definition and understanding of job crafting, there is no way to test the other pieces of the model, namely, whether job crafting leads to increased meaningfulness in the workplace. The topic of job crafting has gained increasing attention in the literature but numerous questions remained unanswered. One primary reason is the lack of an adequate measure that will allow us to investigate our questions. With this established scale, researchers can address these important questions and expand on the literature that already exists about the importance of job crafting.

### **Limitations of the Study**

This study is not without its limitations. Although the first development sample was large enough to conduct the necessary statistical analyses, over half of the sample had to be removed due to invariant responding and lack of effortful responding. There is evidence that the remaining sample provided quality data, given the replication of the factor structure in the cross-validation sample, but eliminating half of development sample 1 was not ideal.

Secondly, although job crafting was compared to three other similar constructs, more convergent and discriminant validity evidence is needed. Job crafting should be related to

important outcomes like meaningfulness of work and work identity to support the theory of job crafting. Validity is bound or constrained by reliability (Raykov & Marcoulides, 2011), therefore validity evidence should only be collected and interpreted if the items operate properly (demonstrate adequate reliability of scores and demonstrate a consistent factor structure). The content and face validity evidence, in addition to the reliability evidence, gathered in this study is a necessary foundation for obtaining validity evidence in future studies.

By the multi-stage nature of this project, I can converge pieces of information and identify patterns to understand how best to measure job crafting behaviors. However, each stage of the process relies on self-report data at a single point in time, which may introduce common method bias (Podsakoff et al., 2012). Some preventative efforts, such as increasing proximal and psychological distance are taken in the study to reduce the bias, but future studies should collect data at multiple points in time from multiple sources.

Although conclusions are made about the underlying factor structure of a construct based on CFA results, the structure can be a function of the sample used (DeVellis, 2012). Thus, it is recommended to test the factor structure with yet another cross-validation sample (Floyd & Widaman, 1995), confirming that the structure emerges with other representative groups of people. It will be important for the next studies to replicate the three-factor structure derived in this study, providing further support for the measure and job crafting theory.

### **Future Steps and Directions**

**My directions for future research.** To extend this study, I plan to conduct a validation study wherein the factor structure of the MJC is confirmed using a different sample. The goal is to collect construct validity evidence by exploring convergent and discriminant relationships with other variables. Additionally, I will investigate whether job crafting behaviors predict

meaningfulness or specific mechanisms of meaning (as described in Rosso et al., 2010). Establishing these relationships would support job crafting theory (Wrzesniewski & Dutton, 2001) and contribute to the understanding of how people derive meaningfulness in their work, which remains largely untested (Rosso et al., 2010). Such a study requires either an experimental or quasi-experimental methodology, which could provide even stronger support in favor of the theory if manipulations of job crafting lead to changes in meaningfulness over time. Collecting this additional validity evidence will further test job crafting theory, support the use of the MJC to measure job crafting behaviors, and contribute to the overall understanding of job crafting.

**General directions for future research.** Future research should replicate the findings of this study, confirming the factor structure with other samples (Floyd & Widaman, 1995). These studies should also compare job crafting to other, well-established constructs to continue contributing to construct validity evidence. As shown in Table 1, the concept of job crafting has been compared to a variety of other work-related constructs. Empirical evidence that supports these hypothesized relationships would support job crafting as it has been conceptualized by the theory (Murphy & Davidshofer, 1991).

Longitudinal studies would also be particularly beneficial, as there is currently no research about the role of time in job crafting, despite its hypothesized dynamic nature (Berg et al., 2013). The literature would benefit from learning how long crafting behaviors have to endure before they contribute to increased meaningfulness, or how long the effects of crafting impact important work-related outcomes. Additionally, researchers could investigate time trade-offs that people use when crafting their work; if crafting involves adding components into work tasks, spending more time reflecting about the purpose of work, or building additional relationships, either people will have to spend more hours of the day doing these behaviors (on top of all the

other responsibilities they need to accomplish) or they will have to reduce other work activities to make time for job crafting. Perhaps job crafting also happens outside the workplace, which creates an even more complex picture for the time during which job crafting can occur. Other researchers have commented on the importance of “work shrinking” and that minimizing unimportant or meaningless facets of work are equally important to “expansive” job crafting behaviors (Tims et al., 2012). Although growing and shrinking of work boundaries may occur in isolation, it is more likely that they occur together in a complex balancing act of shrinking parts of work to create time and space for more meaningful components. This perspective was taken when writing the items for the MJC. Rather than focusing solely on growing or shrinking, it is that work boundaries are *changed*, in some direction, to create more meaningfulness in work. In practice, however, either the growing or the shrinking of work boundaries may be more salient to employees and it would be interesting to investigate the allocation of time and energy when job crafting.

Once evidence shows that job crafting does lead to increased meaningfulness, it will be important to understand *why*. Job crafting may be related to mechanisms of meaning, such as authenticity, self-esteem, and transcendence (full list of mechanisms presented and described in Rosso et al., 2010). Crafting may also satisfy basic human needs, such as those presented by Self-Determination Theory (Ryan & Deci, 2008), which may lead to better functioning and positive outcomes in the workplace (Gagne & Deci, 2005). Ultimately, job crafting theory suggests that job crafting is self-initiated and not necessarily a function of specific work characteristics, unlike what traditional work design theories would suggest (Hackman & Oldham, 1976). Although job crafting is conceptualized as being rooted in the individual employee, the employee does not work in a vacuum and the social context of the work

environment is expected to impact job crafting behaviors (Salancik & Pfeffer, 1978; Wrzesniewski & Dutton, 2001). Thus, even though job crafting is *possible* for all employees, certain jobs and industries, certain organizational cultures and leaders, specific work tasks, and specific work environments may be more conducive to job crafting than others. Future research should investigate under what circumstances employees are most likely to job craft and furthermore, which job crafting efforts result in greater meaningfulness in work. It may be the case that certain types of people select into jobs that are more supportive of job crafting behaviors. In contrast, relational crafting and especially cognitive crafting are not visible to others in the organization and so may be utilized by more employees in more diverse situations than task crafting behaviors. To fully understand the nature of job crafting and why it facilitates meaning in work, future research should understand what contextual variables are related to job crafting and what variables are related to perceived opportunity and control, two important antecedents to job crafting. Understanding the path between job crafting and meaning in work would contribute to our understanding of both of these constructs.

## CONCLUSION

Job crafting has received increasing attention in the industrial/organizational and management literatures (Grant & Shin, 2012). Initial research has sparked interest in the topic and aroused important questions like: Can job crafting increase meaningfulness in work and is it linked with other mechanisms that derive work meaning? Do certain people, based on personality, skills or abilities, craft more in their jobs than other employees? How can organizations benefit from job crafting behaviors, either directly or indirectly? Without a theoretically grounded measure of job crafting, these questions will remain unanswered. Given the vast benefits of meaningfulness in work (Dik et al., 2013), job crafting could emerge as an empirically supported construct and intervention. Other proposed measures of job crafting (e.g., Laurence, 2011; Tims et al., 2012) fail to test job crafting theory, leaving several gaps in our conceptual understanding of job crafting. The results from this study provide initial content and construct validity evidence as well as bridge an important measurement gap by developing and testing a reliable, multidimensional measure in support of job crafting theory.

**Table 1:**  
*Job crafting nomological net*

Construct	Similarities with Job Crafting	Differences with Job Crafting
<i>Adaptive performance</i> : Able to adjust to new and unexpected requirements of a job. (Pulakos, Arad, Donovan, & Plamondon, 2000)	Adjusting to facets of work. Can be social in nature.	Focus on job requirements. Individual skills and abilities may be more central. Reactive rather than proactive.
<i>Creative performance</i> : Presenting new ideas and processes at work (Oldham & Cummings, 1996)	Introducing new ideas and processes. Encouraged by intrinsic motivation.	Aimed to meet organization's goals. Linked specifically with personality.
<i>Job design</i> : Organizational efforts to change work so that it fosters employee motivation and satisfaction (Hackman & Oldham, 1980)	Efforts increase motivation and satisfaction.	Initiated by the organization.
<i>OCBs</i> : Behaviors that are not formally required by a job but that contribute to the overall organization's goals (Organ, 1988)	Voluntary. Not part of a formal job description.	Focus is to help the organization or others in the organization.
<i>Personal initiative</i> : Behaviors that are self-initiated and demonstrate going 'above and beyond' what is formally expected in a job (Frese, Krings, Soose & Zempel, 1996)	Self-initiated. Behavior not formally required by the job.	Aimed at solving problems for the organization. Reactive rather than proactive.
<i>Role innovation</i> : Molding a job to create better fit by addressing issues in the larger society/community (Schein, 1971)	Creates better person-job fit.	Reactive rather than proactive. Focus on problem-solving. Addressing societal problems.
<i>Role making</i> : A planned and formal process that adds elements to a role, eventually including them as a formal part of the job (Graen & Scandura, 1987)	Altering tasks.	Purpose is task accomplishment. Formal, planned and sequential process.
<i>Task revision</i> : Working to correct inefficiencies or problems in a current task (Staw & Boettger, 1990)	Self-initiated. Altering tasks.	Focused on job requirements. Aimed to help the organization.

*Note.* Adapted information from tables provided in Ko (2011) and Wrzesniewski and Dutton (2001).

**Table 2.***Phase I Subject Matter Experts (SME): Initial item pool and SME ratings for task crafting.*

Task Crafting items:		<i>M</i>	<i>rwg</i>	<i>CVR</i> 1	<i>CVR</i> 2
1	I seek challenging tasks in my job.	4.0	0.44	-0.2	0.4
2	I purposely incorporate new approaches to improve my work.	3.9	0.17	-0.2	0.4
3	I change minor work procedures that I do not think are productive.	3.3	0.44	-0.6	-0.4
4	I change my work tasks to make them easier to accomplish.	2.9	0.28	-0.8	-0.4
5	I put myself in a position to see projects through to completion.	4.0	0.44	-0.2	0.4
6	I have taken steps to increase my freedom to make decisions about when to complete work tasks.	3.3	0.55	-0.8	-0.2
7	I have taken steps to increase my freedom to make decisions about how I complete tasks.	4.3	0.66	0.0	0.6
8	I integrate my personal interests into my work tasks.	4.7	0.77	0.6	0.8
9	I have changed certain work tasks to make them more worthwhile.	4.7	0.77	0.6	0.8
10	I have changed the way I complete certain tasks to make them more interesting.	4.6	0.53	0.6	0.8
11	I have added responsibilities that I am passionate about into my work.	4.8	0.91	0.6	1.0
12	I seek work responsibilities that allow me to use my strengths.	4.0	0.56	-0.4	0.6
13	I alter my tasks to spend more time doing the parts I enjoy most.	4.1	0.17	0.0	0.6
14	I seize opportunities to take on new tasks that will help me develop.	4.0	0.56	-0.2	0.2
15	I make time to work on projects that I find interesting.	4.5	0.75	0.2	0.8
16	I volunteer for activities at work because they seem interesting to me.	4.1	0.06	0.2	0.4
17	I prioritize my time so I can work on activities that I find worthwhile.	4.6	0.53	0.6	0.8
18	I take on tasks that I enjoy but that are not a part of my job description.	4.0	0.67	-0.4	0.4
19	I incorporate tasks into my daily routine that I find enjoyable but not required for my job.	3.7	0.22	-0.4	0.2
20	In order to make my job feel more worthwhile, I take on extra projects at work.	4.1	0.51	-0.2	0.6
21	To hone new skills, I take on tasks that are not required for my job.	3.5	0.53	-0.6	-0.2
22	I find myself allocating more time to tasks that I find interesting.	4.4	0.64	0.2	0.6
23	When working on more than one project, I put more energy	4.4	0.64	0.2	0.6

	into the project(s) that I find personally rewarding.				
24	I tend to put off doing tasks that I find dull and boring.	3.6	0.09	-0.4	0.2
25	When working on a project that I find important, I will put time into it outside of work.	3.9	0.17	-0.2	0.4
26	I change my schedule to make more time for the activities that I want to fit into my work load.	4.2	0.58	-0.2	0.8
27	If I finish the tasks that I don't like to do at work, I reward myself by working on a task that I do enjoy.	3.3	0.55	-0.8	-0.2

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*Note:* The reported mean is the mean rated representativeness of the item. rwg = rater agreement. CVR1 includes only items rated as “Extremely Relevant.” CVR2 includes items rated as “Extremely Relevant” and “Substantially Relevant”

**Table 3.***Phase I Subject Matter Experts (SME): Initial item pool and SME ratings for cognitive crafting.*

Cognitive Crafting items:		<i>M</i>	rwg	CVR1	CVR2
1	I try to think about my work in new ways.	4.3	0.66	0.0	0.6
2	When faced with a challenge, I try to view my work from a different perspective.	4.2	0.69	-0.2	0.6
3	I actively remind myself what the purpose of my work is.	4.5	0.86	0.0	1.0
4	I actively think about the impact that my work activities have on the organization as a whole.	4.5	0.75	0.2	0.8
5	I actively think about the impact of my work on the stakeholders of the organization.	4.0	0.44	-0.2	0.4
6	I spend my time thinking about the parts of my job that are important to me.	4.5	0.75	0.2	0.8
7	I spend more time thinking about my work activities that are important to me than the activities that are not.	4.0	0.33	-0.4	0.8
8	When reflecting on my work, I think about how it fulfills my personal values.	4.5	0.75	0.2	0.8
9	I try to focus on why my work is worthwhile.	4.3	0.55	0.2	0.4
10	I find myself thinking about why my work is important.	4.6	0.76	0.4	0.8
11	When thinking about my work, I focus on the parts that are most interesting.	3.5	0.53	-0.8	0.2
12	When thinking about my work, I don't get stuck focusing on the insignificant details.	3.2	0.47	-0.8	-0.2
13	When at work, I reframe my thinking to be more positive.	3.6	0.64	-0.8	0.2
14	I choose to pay attention to the valuable parts of my work.	4.2	0.58	0.0	0.4
15	At work, I focus my attention on my strengths.	3.5	0.64	-0.8	0.0
16	I think about how using my strengths can improve the ways I do my job.	3.8	0.36	-0.2	0.0
17	Focusing on the greater purpose of my job helps me get through the everyday tasks I have to do.	4.5	0.64	0.4	0.6
18	Knowing that my work is an important piece of a larger outcome helps me stay motivated.	4.9	0.95	0.8	1.0
19	Viewing the purpose of my job in terms of the tasks that I believe are important helps me stay motivated.	4.4	0.53	0.2	0.8
20	I reflect on the connections between my job and personal interests.	4.1	0.51	0.0	0.2
21	I think of ways my job can connect to other interests I have outside of work.	3.7	0.33	-0.4	0.2
22	I try to connect uninteresting work projects with my personal interest so I can stay motivated.	3.8	0.65	-0.8	0.4
23	I see how my work responsibilities mirror my personal values.	4.3	0.66	0.0	0.6
24	The work activities that I consider top priorities are worthwhile.	3.8	0.47	-0.4	0.2

25	I pinpoint what is most rewarding about my job and focus my attention on that.	4.4	0.42	0.4	0.6
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*Note:* The reported mean is the mean rated representativeness of the item. rwg = rater agreement. CVR1 includes only items rated as “Extremely Relevant.” CVR2 includes items rated as “Extremely Relevant” and “Substantially Relevant”

**Table 4.***Phase I Subject Matter Experts (SME): Initial item pool and SME ratings for relational crafting.*

Relational Crafting items:		<i>M</i>	<i>rwg</i>	<i>CVR</i> 1	<i>CVR</i> 2
1	I make a point to work closely with people I enjoy.	4.1	0.39	0.0	0.4
2	In my job, I work to establish connections with people.	4.0	0.33	0.0	0.2
3	I learn about my own strengths by working with others.	3.9	0.17	0.0	0.2
4	I learn about my own weaknesses by working with others.	3.9	0.17	0.0	0.2
5	I work with others who can teach me new approaches to improve my work.	4.3	0.66	0.0	0.6
6	I give myself opportunities to meet new people at work.	3.7	0.55	-0.6	0.2
7	I network with people who can help me achieve my work goals.	4.2	0.47	0.0	0.6
8	The ways I choose to interact with others at work adds value to my job.	4.9	0.95	0.8	1.0
9	I share my expertise with others at work who can benefit from it.	4.1	0.17	0.2	0.4
10	I actively seek roles where I can help others at work learn.	4.1	0.17	0.2	0.4
11	I support others at work.	3.9	0.28	-0.2	0.4
12	I make sure to return favors for those who have supported me at work.	3.4	-0.02	-0.4	0.0
13	I actively change the purpose of my work relationships.	3.4	0.09	-0.4	0.0
14	I change the purpose of my work relationships to build connections with others.	3.8	0.15	-0.2	0.0
15	When my needs are not being met, I reach out to others who can help me.	4.3	0.66	0.0	0.6
16	I change how I communicate with others at work so they understand me better.	3.6	0.09	-0.4	0.2
17	I talk about the purpose of my relationships with others.	3.3	0.44	-1.0	0.2
18	I talk about my interests with others at work.	4.3	0.66	0.0	0.6
19	I email my coworkers to specifically ask how they are handling work-related stress.	3.0	0.22	-0.6	-0.4
20	I send my coworkers resources that I think they will find valuable.	3.9	0.17	0.0	0.2
21	I ask others at work to help me develop my skills.	4.4	0.76	0.0	0.8
22	I try to spend time with other employees that view my work as important.	4.2	0.58	-0.2	0.8
23	I form relationships with clients/customers because it allows me to conceptualize how important my job is.	4.3	0.66	0.0	0.6
24	I network with other people at my job who share my interests.	4.2	0.58	0.0	0.4
25	If I want to gain a new skill, I seek out guidance from people at work who are experts.	4.2	0.58	-0.2	0.8
26	If my relationship with my co-worker(s) is unproductive, I take the initiative to develop a more beneficial relationship.	4.5	0.53	0.4	0.8
27	I perform behaviors that are not a part of my specified work role in order to create more valuable relationships with my co-	4.3	0.33	0.4	0.4

workers.

28	I make sure my coworkers know that I am available if they need help with a project.	3.7	-0.01	-0.2	0.2
29	If a co-worker is less experienced than I am, I take the initiative to help train him or her.	3.7	-0.12	0.0	0.0
30	When a new employee is hired, I help him or her acclimate to the job even though it is not required of me.	3.9	0.06	0.0	0.2
31	To connect more with others at work, I have changed the ways I communicate (e.g., meeting face-to-face rather than emailing).	4.4	0.42	0.4	0.6
32	I find value in my work because of the people with whom I work.	4.1	0.51	-0.2	0.6

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*Note:* The reported mean is the mean rated representativeness of the item. rwg = rater agreement. CVR1 includes only items rated as “Extremely Relevant.” CVR2 includes items rated as “Extremely Relevant” and “Substantially Relevant”

**Table 5.***Phase 2 Subject Matter Experts (SME): Item pool and SME ratings for task crafting.*

Task Crafting items:	<i>M</i>	<i>rwg</i>	<i>CVR</i> 1	<i>CVR</i> 2
1 I seek to do challenging tasks in my job.	2.3	0.47	-1.0	-0.7
2 When I am able to, I purposely use new approaches to improve how I do my job.	4.0	0.60	-0.3	0.3
3 I change minor work procedures that I do not think are productive.	3.0	0.20	-0.7	-0.3
4 I change my work tasks to make them easier to accomplish.	3.3	-0.13	-0.3	0.0
5 I put myself in a position to see projects through to completion.	2.7	0.07	-0.7	-0.7
6 I take steps to increase the freedom I have to make decisions about when to complete work tasks.	2.8	0.52	-1.0	-0.3
7 I take steps to increase the freedom I have to make decisions about how I complete work tasks.	3.8	0.32	-0.3	0.3
8 I incorporate my personal interests into my work tasks.	4.2	0.65	-0.3	0.3
9 I change certain work tasks to make them more worthwhile to me.	5.0	1.00	1.0	1.0
10 I change the way I complete certain work tasks to make them more interesting to me.	4.7	0.87	0.3	1.0
11 I add responsibilities I am passionate about into my work.	4.3	0.27	0.3	0.7
12 I look for work responsibilities that allow me to use my strengths.	4.7	0.87	0.3	1.0
13 I change my work tasks to spend more time doing the parts I enjoy most.	4.3	0.67	0.0	0.7
14 I seize opportunities to take on new tasks that will help me develop.	4.3	0.87	-0.3	1.0
15 I make time to work on projects I find interesting.	4.0	1.00	-1.0	1.0
16 I volunteer for activities at work because they seem interesting to me.	3.5	0.05	-0.3	0.0
17 I prioritize my time so I can work on activities I find worthwhile.	4.2	0.32	0.0	0.7
18 I take on work tasks I enjoy but are not a part of my job description.	4.3	0.27	0.3	0.7
19 I incorporate work tasks into my daily routine I find enjoyable but are not required for my job.	4.3	0.27	0.3	0.7
20 In order to make my job feel more worthwhile, I take on extra projects at work.	4.2	0.72	-0.3	0.7
21 To practice new skills, I take on tasks that are not required for my job.	3.4	0.35	-0.7	-0.3
22 I find myself allocating more time to work tasks I find interesting than those I do not.	3.8	0.72	-0.7	0.3
23 When working on more than one project, I put more energy into the project(s) I find personally rewarding.	4.2	0.92	-0.7	1.0
24 I tend to put off doing tasks that I find boring.	2.8	0.52	-1.0	-0.3

25	When working on a project that I find important, I put time into it outside of work.	3.3	0.47	-0.7	-0.3
26	I change my schedule to make time for the activities that I want to fit into my work load.	3.7	0.67	-0.7	0.0
27	If I finish my work tasks that I don't like to do, I reward myself by working on a work task that I do enjoy.	3.5	0.65	-1.0	0.3
28	I change the scope of tasks I'm responsible for at work **	3.5	0.05	-0.7	0.3
29	I take on new work tasks that better suit my interests. **	4.5	0.85	0.0	1.0
30	I prefer to work on tasks that suit my skills. **	3.5	0.65	-1.0	0.3
31	I prefer to work on tasks that match my interests. **	3.3	0.67	-1.0	0.0

*Note:* \*\*Items adapted from Slemp & Vella-Brodrick (2013). The reported mean is the mean rated representativeness of the item. rwg = rater agreement. CVR1 includes only items rated as "Extremely Relevant." CVR2 includes items rated as "Extremely Relevant" and "Substantially Relevant"

**Table 6.***Phase 2 Subject Matter Experts (SME): Item pool and SME ratings for cognitive crafting.*

Cognitive Crafting items:		<i>M</i>	rwg	CVR 1	CVR 2
1	When faced with an obstacle, I try to think about my work in new ways.	2.8	0.32	-0.7	-0.7
2	When feeling frustrated, I try to view my work from a different perspective.	3.0	0.20	-0.7	-0.3
3	I actively remind myself what the purpose of my work is.	4.5	0.85	0.0	1.0
4	I actively think about the impact that my work activities have on the organization as a whole.	4.3	0.67	0.0	0.7
5	I actively think about the impact my work has on those who care most about the success of the organization.	4.0	0.80	-0.7	0.7
6	I spend time thinking about the parts of my job that are important to me.	3.0	-0.40	-0.7	0.0
7	I spend more time thinking about my work activities that are important to me than the activities that are not.	3.0	0.00	-0.7	-0.3
8	When reflecting on my work, I think about how it fulfills my personal values.	4.3	0.67	0.0	0.7
9	I try to focus on why my work is worthwhile rather than thinking about the parts I don't like as much.	4.3	0.87	-0.3	1.0
10	I find myself thinking about why my work is important.	4.3	0.87	-0.3	1.0
11	When thinking about my work, I focus on the parts that are most interesting.	3.0	0.40	-0.7	-0.7
12	When thinking about my work, I don't get stuck focusing on the insignificant details.	3.3	0.67	-1.0	0.0
13	When at work, I reframe my thinking to be constructive.	3.3	0.27	-0.7	0.0
14	I choose to pay attention to the valuable parts of my work.	3.8	0.52	-0.7	0.7
15	At work, I focus my attention on tasks that use my strengths.	3.5	0.45	-0.7	0.0
16	I think about ways to improve my job using my strengths.	2.8	0.72	-1.0	-0.7
17	Focusing on the greater purpose of my job helps me get through the everyday tasks I have to do.	4.3	0.27	0.3	0.7
18	Knowing that my work is an important piece of a larger purpose helps me stay motivated.	3.8	0.32	-0.3	0.3
19	To help me stay motivated, I view the purpose of my job in terms of the work tasks I believe to be most important.	3.8	0.52	-0.3	0.0
20	I reflect on the similarities between my job and personal interests.	3.0	0.60	-1.0	-0.3
21	I think of ways my job can relate to other interests I have outside of work.	3.5	0.45	-0.7	0.0
22	I connect uninteresting work projects with my personal interests so I can stay motivated.	3.7	0.47	-0.7	0.3
23	I see how my work responsibilities mirror my personal values.	3.7	0.67	-1.0	0.7
24	Of all my work activities, those that are considered top priority are also worthwhile to me.	2.7	0.27	-1.0	-0.3

25	I pinpoint what is most rewarding about my job and focus my attention on that.	4.2	0.92	-0.7	1.0
26	I think about how my job gives my life purpose. **	4.5	0.65	0.3	0.7
27	I remind myself about the significance that my work has for the success of the organization. **	4.0	0.50	-0.3	0.0
28	I think about the ways in which my work tasks positively impact my life. **	3.8	-0.08	0.0	0.3

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*Note:* \*\*Items adapted from Slemp & Vella-Brodrick (2013). The reported mean is the mean rated representativeness of the item. rwg = rater agreement. CVR1 includes only items rated as “Extremely Relevant.” CVR2 includes items rated as “Extremely Relevant” and “Substantially Relevant”

**Table 7.***Phase 2 Subject Matter Experts (SME): Item pool and SME ratings for relational crafting.*

Relational Crafting items:		<i>M</i>	<i>rwg</i>	<i>CVR</i> 1	<i>CVR</i> 2
1	I make a point to work closely with people I enjoy.	3.8	-0.35	-0.2	0.6
2	In my job, I work to establish personal connections with people.	4.2	0.65	-0.2	0.6
3	I work with others so I can learn about my own strengths.	3.0	0.50	-1.0	-0.2
4	I work with others so I can learn about my own weaknesses.	3.0	0.50	-1.0	-0.2
5	I choose to work with others who can teach me new approaches to improve my work.	3.8	0.54	-0.6	0.0
6	I create opportunities to meet new people at work.	4.0	0.67	-0.6	0.5
7	I collaborate with people who can help me achieve my work goals.	3.8	0.65	-0.6	0.2
8	The ways I choose to interact with others at work adds value to my job.	4.0	0.50	-0.2	0.2
9	I share my expertise with others at work who can benefit from it.	3.3	0.54	-1.0	0.0
10	At work, I actively seek roles where I can help others learn.	3.4	0.10	-0.6	0.2
11	I find it personally rewarding to support others at work.	3.0	0.00	-1.0	0.0
12	I make sure to return favors for those who have supported me at work.	2.0	0.75	-1.0	-1.0
13	I actively change the purpose of my work relationships.	3.4	-0.15	-0.2	-0.2
14	I change the purpose of my work relationships to build connections with others.	4.4	0.85	-0.2	1.0
15	When my needs are not being met, I reach out to others who can help me find ways to meet them.	3.4	0.60	-1.0	0.2
16	I change how I communicate with others at work because I want them to understand me better.	3.5	0.83	-1.0	0.0
17	I talk about the nature of my relationships with others to whom I feel close with.	2.2	0.40	-1.0	-0.6
18	I talk about my interests with others at work.	2.6	0.60	-1.0	-0.6
19	I reach out to coworkers to ask how they are handling work-related stress.	3.4	0.35	-0.6	-0.2
20	I send my coworkers resources I think they will find valuable.	3.0	0.50	-1.0	-0.2
21	I ask others at work to help me develop my skills.	3.4	0.10	-0.6	0.2
22	I try to spend time with other employees who view my work as important.	3.5	0.83	-1.0	0.0
23	I form relationships with clients/customers because it allows me to appreciate how important my job is.	4.8	0.90	0.6	1.0
24	I collaborate with other people at my workplace who share my interests.	3.8	0.65	-0.6	0.2
25	If I want to gain a new skill, I seek out guidance from people at work who are experts in using that skill.	3.4	0.60	-1.0	0.2
26	If my relationship with my coworker(s) is unproductive, I take the initiative to develop a more productive relationship.	4.0	0.25	-0.2	0.6
27	Sometimes I take on extra work tasks to create more valuable	3.4	0.85	-1.0	-0.2

	relationships with my coworkers.				
28	I like being available if my coworkers need help with a project.	3.4	0.35	-0.6	-0.2
29	If a coworker is less experienced than I am, I find it personally rewarding to help train him or her.	3.4	0.10	-0.6	0.2
30	When a new employee is hired, I find it personally rewarding to help him or her acclimate to the job.	3.4	0.10	-0.6	0.2
31	To connect more closely with others at work, I change the ways I communicate (e.g., meeting face-to-face rather than emailing).	4.4	0.85	-0.2	1.0
32	I find value in my work because of my relationships with my peers/coworkers.	3.6	0.10	-0.2	-0.2
33	I make an effort to get to know people well at work. **	4.0	0.25	-0.2	0.6
34	I attend work-related social functions. **	2.0	0.75	-1.0	-1.0
35	I choose to mentor new employees (officially or unofficially). **	3.6	0.35	-0.6	0.2
36	I make friends with people at work who have similar interests or skills as I have. **	3.0	0.25	-0.6	-0.6

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*Note:* \*\*Items adapted from Slemp & Vella-Brodrick (2013). The reported mean is the mean rated representativeness of the item. rwg = rater agreement. CVR1 includes only items rated as “Extremely Relevant.” CVR2 includes items rated as “Extremely Relevant” and “Substantially Relevant”

**Table 8.***Development sample 1: Item characteristics and factor loadings across three models.*

	<i>M</i>	<i>SD</i>	Model A Factor Loading	Model A Item Discrim.	Model B Factor Loading	Model B Item Discrim.	Model C Factor Loading	Model C Item Discrim.
Task1	3.31	0.99	.51	0.55				
Task5*	2.75	1.17	.71	0.70	0.73	0.74		
<b>Task6**</b>	2.68	1.13	.73	0.75	0.74	0.77	0.78	0.81
<b>Task7**</b>	2.96	1.12	.67	0.70	0.65	0.69	0.70	0.74
<b>Task8**</b>	2.89	1.23	.79	0.78	0.79	0.79	0.74	0.76
Task9	3.58	0.97	.53	0.54				
<b>Task10**</b>	2.76	1.20	.67	0.70	0.68	0.73	0.72	0.77
Task11	3.27	1.06	.54	0.55				
<b>Task12**</b>	3.35	1.05	.73	0.73	0.71	0.72	0.69	0.72
Task14*	3.26	1.01	.60	0.61	0.59	0.61		
Task15*	2.57	1.21	.72	0.73	0.72	0.74		
<b>Task16**</b>	2.60	1.20	.73	0.73	0.73	0.74	0.69	0.73
Task17*	2.35	1.21	.61	0.62	0.62	0.64		
Task20	3.07	1.17	.59	0.60				
Task21	3.14	1.17	.58	0.59				
Task23*	2.77	1.17	.68	0.69	0.69	0.71		
Task24	2.93	1.13	.60	0.61				
<b>Task25**</b>	2.49	1.14	.62	0.66	0.65	0.68	0.64	0.69
<b>Task26**</b>	3.06	1.11	.73	0.75	0.71	0.74	0.73	0.76
<b>Task27**</b>	2.77	1.16	.68	0.72	0.70	0.74	0.73	0.78
Cog1	2.92	1.07	.53	0.56				
<b>Cog3**</b>	2.77	1.07	.65	0.64	0.65	0.69	0.66	0.71
Cog4*	3.01	1.09	.65	0.63	0.67	0.70		
<b>Cog5**</b>	2.89	1.15	.68	0.67	0.69	0.71	0.67	0.71
<b>Cog8**</b>	2.68	1.14	.78	0.77	0.79	0.79	0.79	0.80
Cog9*	3.11	1.01	.61	0.62	0.60	0.64		
Cog10*	2.90	1.15	.67	0.65	0.67	0.71		
Cog14	3.43	0.99	.52	0.58				
Cog15	3.29	1.00	.41	0.48				
<b>Cog16**</b>	3.09	1.13	.70	0.70	0.70	0.73	0.70	0.75
<b>Cog17**</b>	3.03	1.17	.72	0.71	0.73	0.76	0.75	0.79
Cog18	2.96	1.07	.49	0.53				
<b>Cog20**</b>	2.65	1.18	.70	0.70	0.70	0.71	0.68	0.71
Cog21*	2.60	1.10	.63	0.64	0.62	0.64		
Cog22*	2.81	1.11	.66	0.67	0.65	0.68		
Cog23	2.97	0.99	.54	0.59				
<b>Cog24**</b>	2.59	1.16	.73	0.70	0.74	0.77	0.75	0.79
<b>Cog25**</b>	3.00	1.06	.69	0.67	0.71	0.74	0.70	0.75
<b>Cog26**</b>	2.86	1.04	.71	0.71	0.70	0.72	0.70	0.72
Rel1*	3.32	1.08	.60	0.60	0.61	0.65		

<b>Rel2**</b>	3.11	1.14	.75	0.74	0.75	0.77	0.79	0.81
Rel5*	3.18	1.09	.68	0.68	0.68	0.70		
<b>Rel6**</b>	2.61	1.18	.72	0.71	0.72	0.74	0.74	0.77
<b>Rel7**</b>	3.29	1.02	.71	0.71	0.71	0.74	0.68	0.72
<b>Rel8**</b>	3.19	1.10	.74	0.74	0.74	0.76	0.75	0.78
Rel13*	2.76	1.10	.68	0.67	0.67	0.69		
Rel15*	2.88	1.18	.62	0.64	0.61	0.66		
<b>Rel19**</b>	2.79	1.12	.72	0.72	0.72	0.74	0.69	0.73
Rel20	3.02	1.19	.56	0.59				
<b>Rel21**</b>	3.08	1.03	.68	0.66	0.69	0.71	0.68	0.71
Rel23	2.69	1.08	.53	0.56				
<b>Rel28**</b>	2.76	1.20	.67	0.67	0.67	0.72	0.65	0.71
<b>Rel29**</b>	2.88	1.18	.75	0.75	0.76	0.78	0.77	0.79
<b>Rel30**</b>	3.07	1.18	.73	0.73	0.74	0.76	0.78	0.81
Rel31	2.79	1.22	.54	0.64				

*Note.* “Discrim” = Discrimination. In all models, task crafting items were constrained to Factor 1; cognitive items were constrained to Factor 2; relational items were constrained to Factor 3. Model A: 54-item 3-Factor scale. Model B: 41-item 3-Factor scale. Model C: 27-item 3-Factor scale. No symbol: Items included only in 54-item model. \*Items included in 54- and 41-item models. \*\*Items retained in 27-item model.

**Table 9.**  
*Development sample 1: Comparing alternative models*

Model	$\chi^2$	<i>df</i>	CFI	TLI	RMSEA	SRMR
Model A Single Factor Model	3722.03	1430	.67	.64	.09	.09
Model A 3-Factor Model	2847.84	1427	.79	.78	.07	.09
Model B Single Factor Model	2399.04	779	.68	.67	.10	.09
Model B 3-Factor Model	1540.48	776	.85	.84	.07	.08
Model C Single Factor Model	3550.60	351	.67	.64	.12	.11
Model C 3-Factor Model	682.31	321	.89	.88	.07	.08

*Note.* Model A: 54-item scale. Model B: 41-item scale. Model C: 27-item scale. CFI = comparative fit index; TLI = Tucker–Lewis Index. RMSEA = Root Mean Square Error of Approximation. SRMR = Standardized Root Mean Square Residual

**Table 10.***Development sample 1: 3-factor, 41-item model Discrepancy Matrix for task crafting items.*

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	task5	0.00													
2	task6	-0.03	0.00												
3	task7	-0.01	<b>0.10</b>	0.00											
4	task8	0.02	-0.04	-0.06	0.00										
5	task10	-0.02	<b>0.10</b>	0.09	-0.08	0.00									
6	task12	0.00	-0.06	0.03	0.06	0.00	0.00								
7	task14	-0.05	0.03	0.00	0.04	-0.02	<b>0.12</b>	0.00							
8	task15	-0.02	-0.08	-0.09	0.02	-0.02	-0.02	-0.08	0.00						
9	task16	-0.03	-0.03	0.00	0.01	-0.06	0.00	-0.02	<b>0.11</b>	0.00					
10	task17	0.02	-0.03	-0.05	0.00	-0.07	<b>-0.10</b>	-0.09	<b>0.13</b>	0.04	0.00				
11	task23	0.02	-0.04	-0.07	0.05	-0.01	0.02	0.03	0.01	0.03	-0.01	0.00			
12	task25	0.03	<b>0.10</b>	-0.03	0.03	0.06	<b>-0.10</b>	-0.05	-0.02	-0.06	0.03	0.02	0.00		
13	task26	-0.04	0.03	0.09	-0.05	0.10	0.09	0.04	0.04	-0.02	-0.02	-0.08	<b>-0.11</b>	0.00	
14	task27	-0.02	<b>0.14</b>	<b>0.11</b>	-0.09	<b>0.13</b>	-0.10	-0.03	-0.03	-0.03	-0.01	-0.03	<b>0.11</b>	0.03	0.00

*Note.* Large discrepancy/residual values are bold.

**Table 11.***Development sample 1: 3-factor, 41-item model Discrepancy Matrix for cognitive crafting items.*

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	cog3	0.00													
2	cog4	0.01	0.00												
3	cog5	-0.02	<b>0.19</b>	0.00											
4	cog8	-0.03	-0.09	-0.06	0.00										
5	cog9	0.04	-0.05	-0.01	0.02	0.00									
6	cog10	0.05	-0.05	0.00	-0.04	0.00	0.00								
7	cog16	0.02	-0.06	-0.05	0.02	<b>0.12</b>	0.09	0.00							
8	cog17	<b>0.11</b>	0.03	0.00	-0.01	0.02	0.02	<b>0.10</b>	0.00						
9	cog20	-0.07	-0.02	-0.06	0.01	-0.01	0.04	-0.01	-0.09	0.00					
10	cog21	-0.06	-0.06	-0.05	0.00	-0.02	0.00	-0.10	<b>-0.11</b>	<b>0.17</b>	0.00				
11	cog22	-0.03	0.01	0.01	<b>0.12</b>	-0.01	-0.10	-0.02	0.00	-0.05	-0.02	0.00			
12	cog24	0.06	-0.05	-0.09	0.06	-0.03	0.06	0.00	0.02	0.00	0.00	0.02	0.00		
13	cog25	0.01	<b>0.23</b>	0.16	-0.09	-0.04	-0.02	0.02	0.08	-0.08	-0.04	-0.04	-0.05	0.00	
14	cog26	-0.04	-0.03	-0.06	0.05	-0.01	0.01	-0.05	-0.05	0.04	0.09	-0.01	0.05	-0.06	0.00

*Note.* Large discrepancy/residual values are bold.

**Table 12.***Development sample 1: 3-factor, 41-item model Discrepancy Matrix for relational crafting items.*

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	rel1	0.00												
2	rel2	-0.04	0.00											
3	rel5	0.00	-0.05	0.00										
4	rel6	-0.02	0.06	-0.05	0.00									
5	rel7	<b>0.12</b>	-0.04	<b>0.14</b>	-0.05	0.00								
6	rel8	-0.03	0.06	0.01	-0.01	0.01	0.00							
7	rel13	-0.06	-0.03	-0.05	0.02	-0.10	-0.01	0.00						
8	rel15	0.00	-0.07	0.02	-0.08	-0.01	-0.05	<b>0.10</b>	0.00					
9	rel19	0.04	-0.08	0.00	0.02	0.02	-0.05	0.01	0.10	0.00				
10	rel21	0.03	0.03	0.08	-0.06	0.07	-0.02	-0.03	-0.04	-0.04	0.00			
11	rel28	-0.05	-0.03	0.05	0.01	-0.01	-0.04	0.03	<b>0.15</b>	0.04	-0.09	0.00		
12	rel29	0.05	0.09	-0.05	0.04	-0.05	0.03	0.02	-0.04	-0.06	-0.01	-0.06	0.00	
13	rel30	-0.07	<b>0.12</b>	<b>-0.10</b>	0.04	-0.07	0.07	-0.01	<b>-0.10</b>	-0.02	0.03	0.04	0.05	0.00

*Note.* Large discrepancy/residual values are bold.

**Table 13.***Development sample 1: Final 27-item model confirmatory factor analysis.*

Structure	$\chi^2$	<i>df</i>	CFI	TLI	SRMR	RMSEA	$\Delta\chi^2$
Single Factor	1391.94	324	.666	.638	.124	.106	709.63
2-Factor	1367.74	323	.673	.645	.108	.123	685.43
3-Factor	682.31	321	.887	.877	.078	.072	

*Note.* n = 215. CFI = comparative fit index; TLI = Tucker–Lewis Index. RMSEA = Root Mean Square Error of Approximation. SRMR = Standardized Root Mean Square Residual. All  $\chi^2$  and  $\Delta\chi^2$  values are  $p < .001$ .

$\Delta\chi^2$  tests relative to the three-factor model.

**Table 14.***Development sample 1: Final scale items and item factor loadings.*

	MJC Items	<i>M</i>	<i>SD</i>	$\alpha, \omega$	Loading
	<i>Task Crafting</i>			.90, .93	
1	I change certain work tasks to make them more worthwhile to me. (Task6)	2.68	1.13		.78
2	I change the way I complete certain work tasks to make them more interesting to me. (Task7)	2.96	1.12		.70
3	I add tasks I am passionate about into my work. (Task8)	2.89	1.23		.74
4	I change my work tasks to spend more time doing the parts I enjoy most. (Task10)	2.76	1.20		.72
5	I make time to work on projects I find interesting. (Task12)	3.35	1.05		.69
6	I incorporate work tasks into my daily routine I find enjoyable but are not required for my job. (Task16)	2.60	1.20		.69
7	I change the scope of tasks I'm responsible for at work. (Task25)	2.49	1.14		.64
8	I take on new work tasks that better suit my interests. (Task26)	3.06	1.11		.73
9	I change my tasks to better suit my skills. (Task27)	2.77	1.16		.73
	<i>Cognitive Crafting</i>			.90, .92	
10	I actively remind myself what the purpose of my work is. (Cog3)	2.77	1.07		.66
11	I actively think about the impact my work has on those who care most about the success of the organization. (Cog5)	2.89	1.15		.67
12	When reflecting on my work, I think about how it fulfills my personal values. (Cog8)	2.68	1.14		.79
13	Focusing on the greater purpose of my job helps me get through the everyday tasks I have to do. (Cog16)	3.09	1.13		.70
14	Reminding myself that my work is an important piece of a larger purpose helps me stay motivated. (Cog17)	3.03	1.17		.75
15	I think of ways my job can relate to other interests I have outside of work. (Cog20)	2.65	1.18		.68
16	I think about how my job gives my life purpose. (Cog24)	2.59	1.16		.75
17	I remind myself about the significance that my work has for the success of the organization. (Cog25)	3.00	1.06		.70
18	I think about the ways in which my work tasks positively impact my life. (Cog26)	2.86	1.04		.70
	<i>Relational Crafting</i>			.91, .93	
19	In my job, I work to establish personal connections with people. (Rel2)	3.11	1.14		.79
20	I create opportunities to meet new people at work. (Rel6)	2.61	1.18		.74

21	I collaborate with people who can help me achieve my work goals. (Rel17)	3.29	1.02	.68
22	The ways I choose to interact with others at work adds value to my job. (Rel8)	3.19	1.10	.75
23	I try to spend time with other employees who view my work as important. (Rel19)	2.79	1.12	.69
24	I make an effort to collaborate with other people at my workplace who share my interests. (Rel21)	3.08	1.03	.68
25	To connect more closely with others at work, I change the ways I communicate (e.g., meeting face-to-face rather than emailing). (Rel28)	2.76	1.20	.65
26	I find value in my work because of my relationships with my peers/coworkers. (Rel29)	2.88	1.18	.77
27	I make an effort to get to know people well at work. (Rel30)	3.07	1.18	.78

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*Note.* All task crafting item were constrained to Factor 1; cognitive items were constrained to Factor 2; relational crafting items were constrained to Factor 3.

**Table 15.**

*Development sample 1: Final 3-factor, 27-item model Discrepancy Matrix for task crafting items.*

	1	2	3	4	5	6	7	8	9
1 task6	0.00								
2 task7	0.03	0.00							
3 task8	-0.04	-0.07	0.00						
4 task10	0.04	0.04	-0.08	0.00					
5 task12	-0.08	0.01	<b>0.10</b>	-0.02	0.00				
6 task16	-0.03	-0.01	0.06	-0.06	0.04	0.00			
7 task25	0.07	-0.06	0.05	0.03	-0.09	-0.04	0.00		
8 task26	-0.01	0.05	-0.03	0.06	0.08	-0.01	<b>-0.12</b>	0.00	
9 task27	0.08	0.05	-0.09	0.07	<b>-0.11</b>	-0.03	0.09	0.00	0.00

*Note.* Large discrepancy/residual values are bold.

**Table 16.**

*Development sample 1: Final 3-factor, 27-item model Discrepancy Matrix for cognitive crafting items.*

	1	2	3	4	5	6	7	8	9
1 cog3	0.00								
2 cog5	-0.01	0.00							
3 cog8	-0.04	-0.05	0.00						
4 cog16	0.02	-0.04	0.02	0.00					
5 cog17	<b>0.10</b>	0.00	-0.03	0.09	0.00				
6 cog20	-0.06	-0.03	0.02	0.00	-0.09	0.00			
7 cog24	0.05	-0.08	0.06	-0.01	0.00	0.01	0.00		
8 cog25	0.02	<b>0.18</b>	-0.08	0.02	0.08	-0.06	-0.05	0.00	
9 cog26	-0.04	-0.04	0.05	-0.04	-0.06	0.06	0.05	-0.05	0.00

*Note.* Large discrepancy/residual values are bold.

**Table 17.**

*Development sample 1: Final 3-factor, 27-item model Discrepancy Matrix for relational crafting items.*

	1	2	3	4	5	6	7	8	9
1 rel2	0.00								
2 rel6	0.02	0.00							
3 rel7	-0.04	-0.04	0.00						
4 rel8	0.02	-0.03	0.02	0.00					
5 rel19	-0.08	0.03	0.06	-0.04	0.00				
6 rel21	0.02	-0.06	<b>0.10</b>	-0.02	-0.01	0.00			
7 rel28	-0.04	0.01	0.03	-0.03	0.08	-0.07	0.00		
8 rel29	0.05	0.02	-0.03	0.01	-0.05	-0.01	-0.05	0.00	
9 rel30	0.06	0.00	-0.08	0.03	-0.03	0.01	0.03	0.01	0.00

*Note.* Large discrepancy/residual values are bold.

**Table 18.***Development sample 1 correlation table and reliabilities for job crafting dimensions*

Dimension	<i>M</i> ( <i>SD</i> )	1	2	3	4
1 Task Crafting	2.58 (.87)	(.90, .93)			
2 Relational Crafting	2.83 (.85)	.60	(.90, .92)		
3 Cognitive Crafting	2.96 (.85)	.45	.56	(.91, .93)	
4 Overall Job Crafting	2.87 (.87)	.82	.86	.81	(.94, .96)

*Note.*  $p < .001$  for all correlations. For reliabilities, alpha is reported first, followed by omega.

**Table 19.***Development sample 2: Item characteristics and factor loadings across three models.*

	<i>M</i>	<i>SD</i>	Model A Factor Loading	Model A Item Discrim.	Model B Factor Loading	Model B Item Discrim.	Model C Factor Loading	Model C Item Discrim.
Task6	2.57	1.19	0.64	0.71				
Task7**	3.03	1.13	0.64	0.71	0.58	0.67	0.59	0.68
Task8**	2.90	1.21	0.69	0.73	0.68	0.74	0.71	0.75
Task10**	2.74	1.12	0.63	0.69	0.61	0.69	0.61	0.70
Task12**	3.31	1.05	0.66	0.69	0.67	0.72	0.71	0.74
Task16**	2.54	1.13	0.60	0.65	0.60	0.67	0.59	0.67
Task25*	2.22	1.09	0.70	0.73	0.70	0.74		
Task26**	2.77	1.14	0.70	0.72	0.72	0.74	0.69	0.73
Task27**	2.67	1.10	0.73	0.74	0.75	0.76	0.72	0.75
Cog3**	2.96	1.16	0.56	0.62	0.57	0.64	0.57	0.65
Cog5**	3.00	1.21	0.76	0.77	0.76	0.78	0.77	0.80
Cog8**	2.87	1.17	0.72	0.77	0.71	0.76	0.70	0.75
Cog16**	3.09	1.24	0.82	0.82	0.82	0.84	0.83	0.85
Cog17**	3.10	1.17	0.83	0.83	0.84	0.84	0.85	0.86
Cog20	2.67	1.17	0.53	0.62				
Cog24**	2.66	1.31	0.71	0.77	0.70	0.76	0.68	0.75
Cog25**	2.91	1.18	0.79	0.79	0.79	0.80	0.79	0.81
Cog26*	2.95	1.12	0.65	0.71	0.64	0.70		
Rel2**	3.10	1.20	0.75	0.78	0.78	0.80	0.79	0.81
Rel6**	2.72	1.22	0.70	0.74	0.72	0.76	0.73	0.77
Rel7*	3.27	0.98	0.68	0.71	0.66	0.70		
Rel8**	3.27	1.01	0.72	0.76	0.72	0.76	0.69	0.74
Rel19**	2.98	1.06	0.77	0.79	0.73	0.77	0.72	0.76
Rel21	3.17	1.07	0.75	0.78				
Rel28**	2.75	1.17	0.61	0.68	0.61	0.69	0.61	0.70
Rel29**	2.83	1.13	0.75	0.78	0.75	0.78	0.76	0.79
Rel30**	3.02	1.22	0.79	0.82	0.80	0.83	0.80	0.83

*Note.* “Discrim.” = Discrimination. In all models, task crafting items were constrained to Factor 1; cognitive items were constrained to Factor 2; relational items were constrained to Factor 3. Model A: 27-item 3-Factor scale. Model B: 24-item 3-Factor scale. Model C: 21-item 3-Factor scale. No symbol: Items included only in 27-item model. \*Items included in 27- and 24-item models. \*\*Items retained in 21-item model.

**Table 20.**  
*Development sample 2: Comparing alternative models*

Model	$\chi^2$	<i>df</i>	CFI	TLI	RMSEA	SRMR
Model A Single Factor Model	2453.34	324	.59	.55	.14	.12
Model A 3-Factor Model	972.54	321	.87	.86	.08	.06
Model B Single Factor Model	1916.49	252	.62	.59	.14	.11
Model B 3-Factor Model	668.31	249	.91	.89	.07	.06
Model C Single Factor Model	1524.68	189	.64	.60	.14	.11
Model C 3-Factor Model	459.38	186	.93	.92	.06	.05

*Note.* Model A: 9-item scale. Model B: 8-item scale. Model C: 7-item scale. CFI = comparative fit index; TLI = Tucker–Lewis Index. RMSEA = Root Mean Square Error of Approximation. SRMR = Standardized Root Mean Square Residual

**Table 21.***Development sample 2: 3-factor, 27-item model Discrepancy Matrix for task crafting items.*

		1	2	3	4	5	6	7	8	9
1	task6	0.00								
2	task7	<b>0.27</b>	0.00							
3	task8	-0.01	0.05	0.00						
4	task10	0.08	0.03	-0.03	0.00					
5	task12	-0.08	0.00	0.07	-0.01	0.00				
6	task16	-0.03	0.00	0.03	-0.05	0.05	0.00			
7	task25	0.01	-0.06	-0.05	-0.02	<b>-0.11</b>	0.07	0.00		
8	task26	-0.07	<b>-0.11</b>	-0.05	0.01	0.06	-0.05	0.07	0.00	
9	task27	-0.06	-0.10	-0.04	0.05	-0.01	-0.04	0.07	0.09	0.00

*Note.* Large discrepancy/residual values are bold.

**Table 22.***Development sample 2: 3-factor, 27-item model Discrepancy Matrix for cognitive crafting items.*

	1	2	3	4	5	6	7	8	9
1 cog3	0.00								
2 cog5	0.03	0.00							
3 cog8	-0.01	-0.01	0.00						
4 cog16	0.04	-0.03	-0.02	0.00					
5 cog17	0.03	-0.01	-0.01	0.07	0.00				
6 cog20	-0.02	-0.02	0.08	-0.07	-0.07	0.00			
7 cog24	-0.08	-0.07	0.05	-0.01	-0.02	<b>0.11</b>	0.00		
8 cog25	-0.01	<b>0.11</b>	-0.07	-0.01	0.01	-0.02	-0.02	0.00	
9 cog26	-0.04	-0.08	0.09	-0.01	-0.05	0.10	<b>0.12</b>	-0.05	0.00

*Note.* Large discrepancy/residual values are bold.

**Table 23.**

*Development sample 2: 3-factor, 27-item model Discrepancy Matrix for relational crafting items.*

	1	2	3	4	5	6	7	8	9
1 rel2	0.00								
2 rel6	<b>0.12</b>	0.00							
3 rel7	-0.06	-0.06	0.00						
4 rel8	0.02	-0.04	<b>0.12</b>	0.00					
5 rel19	-0.05	-0.06	0.03	-0.01	0.00				
6 rel21	-0.08	-0.05	0.07	0.00	<b>0.13</b>	0.00			
7 rel28	-0.04	0.02	-0.01	0.00	0.01	0.01	0.00		
8 rel29	0.01	-0.06	-0.06	-0.01	-0.01	-0.01	0.03	0.00	
9 rel30	0.04	0.07	-0.03	-0.04	-0.06	-0.03	-0.01	0.10	0.00

*Note.* Large discrepancy/residual values are bold.

**Table 24.***Development sample 2: Correlations among task crafting items.*

	1	2	3	4	5	6	7	8	9
1 task6	1.00								
2 task7	0.68	1.00							
3 task8	0.43	0.49	1.00						
4 task10	0.49	0.43	0.41	1.00					
5 task12	0.34	0.42	0.52	0.41	1.00				
6 task16	0.35	0.38	0.44	0.33	0.45	1.00			
7 task25	0.46	0.39	0.43	0.42	0.35	0.49	1.00		
8 task26	0.37	0.34	0.42	0.44	0.52	0.36	0.56	1.00	
9 task27	0.41	0.37	0.46	0.50	0.47	0.39	0.58	0.60	1.00

**Table 25.***Development sample 2: Correlations among cognitive crafting items.*

	1	2	3	4	5	6	7	8	9
1 cog3	1.00								
2 cog5	0.46	1.00							
3 cog8	0.39	0.53	1.00						
4 cog16	0.50	0.59	0.57	1.00					
5 cog17	0.50	0.62	0.58	0.75	1.00				
6 cog20	0.28	0.39	0.46	0.37	0.37	1.00			
7 cog24	0.32	0.47	0.56	0.57	0.57	0.49	1.00		
8 cog25	0.43	0.70	0.49	0.63	0.67	0.39	0.54	1.00	
9 cog26	0.32	0.41	0.56	0.51	0.49	0.44	0.58	0.46	1.00

**Table 26.***Development sample 2: Correlations among relational crafting items.*

	1	2	3	4	5	6	7	8	9
1 rel2	1.00								
2 rel6	0.65	1.00							
3 rel7	0.45	0.41	1.00						
4 rel8	0.56	0.47	0.61	1.00					
5 rel19	0.53	0.48	0.55	0.55	1.00				
6 rel21	0.49	0.48	0.57	0.55	0.71	1.00			
7 rel28	0.42	0.45	0.41	0.45	0.49	0.47	1.00		
8 rel29	0.57	0.46	0.44	0.53	0.57	0.55	0.48	1.00	
9 rel30	0.63	0.62	0.50	0.53	0.55	0.57	0.47	0.68	1.00

**Table 27.**  
*Development sample 2: Final 21-item MJC scale.*

MJC Items	<i>M</i>	<i>SD</i>	<i>α, ω</i>	Loading
<i>Task Crafting</i>			.84, .87	
1 I change the way I complete certain work tasks to make them more interesting to me. (Task7)	3.03	1.13		0.59
2 I add tasks I am passionate about into my work. (Task8)	2.90	1.21		0.71
3 I change my work tasks to spend more time doing the parts I enjoy most. (Task10)	2.74	1.12		0.61
4 I make time to work on projects I find interesting. (Task12)	3.31	1.05		0.71
5 I incorporate work tasks into my daily routine I find enjoyable but are not required for my job. (Task16)	2.54	1.13		0.59
6 I take on new work tasks that better suit my interests. (Task26)	2.77	1.14		0.69
7 I change my tasks to better suit my skills. (Task27)	2.67	1.10		0.72
<i>Cognitive Crafting</i>			.89, .93	
8 I actively remind myself what the purpose of my work is. (Cog3)	2.96	1.16		0.57
9 I actively think about the impact my work has on those who care most about the success of the organization. (Cog5)	3.00	1.21		0.77
10 When reflecting on my work, I think about how it fulfills my personal values. (Cog8)	2.87	1.17		0.70
11 Focusing on the greater purpose of my job helps me get through the everyday tasks I have to do. (Cog16)	3.09	1.24		0.83
12 Reminding myself that my work is an important piece of a larger purpose helps me stay motivated. (Cog17)	3.10	1.17		0.85
13 I think about how my job gives my life purpose. (Cog24)	2.66	1.31		0.68
14 I remind myself about the significance that my work has for the success of the organization. (Cog25)	2.91	1.18		0.79
<i>Relational Crafting</i>			.89, .91	
15 In my job, I work to establish personal connections with people. (Rel2)	3.10	1.20		0.79
16 I create opportunities to meet new people at work. (Rel6)	2.72	1.22		0.73
17 The ways I choose to interact with others at work adds value to my job. (Rel8)	3.27	1.01		0.69
18 I try to spend time with other employees who view my work as important. (Rel19)	2.98	1.06		0.72
19 To connect more closely with others at work, I change the ways I communicate (e.g., meeting face-to-face rather than emailing). (Rel28)	2.75	1.17		0.61
20 I find value in my work because of my relationships with my peers/coworkers. (Rel29)	2.83	1.13		0.76
21 I make an effort to get to know people well at work. (Rel30)	3.02	1.22		0.80

*Note.* All task crafting item were constrained to Factor 1; cognitive items were constrained to Factor 2; relational crafting items were constrained to Factor 3.

**Table 28.***Development sample 2: Final 21-item model Discrepancy Matrix for task crafting items.*

		1	2	3	4	5	6	7
1	task7	0.00						
2	task8	0.07	0.00					
3	task10	0.07	-0.03	0.00				
4	task12	-0.01	0.02	-0.03	0.00			
5	task16	0.03	0.02	-0.03	0.03	0.00		
6	task26	-0.07	-0.06	0.02	0.02	-0.04	0.00	
7	task27	-0.05	-0.05	0.07	-0.04	-0.03	<b>0.11</b>	0.00

*Note.* Large discrepancy/residual values are bold.

**Table 29.***Development sample 2: Final 21-item model Discrepancy Matrix for cognitive crafting items.*

		1	2	3	4	5	6	7
1	cog3	0.00						
2	cog5	0.02	0.00					
3	cog8	0.00	0.00	0.00				
4	cog16	0.03	-0.04	-0.01	0.00			
5	cog17	0.01	-0.03	0.00	0.05	0.00		
6	cog24	-0.07	-0.06	0.09	0.01	-0.01	0.00	
7	cog25	-0.02	0.09	-0.06	-0.03	-0.01	0.00	0.00

*Note.* Large discrepancy/residual values are bold.

**Table 30.***Development sample 2: Final 21-item model Discrepancy Matrix for relational crafting items.*

	1	2	3	4	5	6	7
1 rel2	0.00						
2 rel6	0.07	0.00					
3 rel8	0.01	-0.04	0.00				
4 rel19	-0.04	-0.04	0.05	0.00			
5 rel28	-0.06	0.00	0.03	0.05	0.00		
6 rel29	-0.03	-0.09	0.00	0.03	0.03	0.00	
7 rel30	-0.01	0.03	-0.03	-0.03	-0.02	0.08	0.00

*Note.* Large discrepancy/residual values are bold.

**Table 31.***Development sample 2: Final 21-item model confirmatory factor analysis.*

Structure	$\chi^2$	<i>df</i>	CFI	TLI	SRMR	RMSEA	$\Delta\chi^2$
Single Factor	1524.68	189	.641	.601	.112	.140	1065.30
2-Factor	1505.02	188	.646	.604	.115	.139	1045.64
3-Factor	459.38	186	.926	.917	.053	.064	

*Note.*  $n = 363$ . CFI = comparative fit index; TLI = Tucker–Lewis Index. RMSEA = Root Mean Square Error of Approximation. SRMR = Standardized Root Mean Square Residual; All  $\chi^2$  and  $\Delta\chi^2$  values are  $p < .001$ .

$\Delta\chi^2$  tests relative to the three-factor model.

**Table 32.***Development sample 2 correlation table and reliabilities for job crafting dimensions*

Dimension	1	2	3	4
1 Task Crafting	(.84, .87)			
2 Relational Crafting	.35	(.89, .93)		
3 Cognitive Crafting	.42	.56	(.89, .91)	
4 Overall Job Crafting	.72	.85	.81	(.91, .94)

*Note.*  $p < .001$  for all correlations. For reliabilities, alpha is reported first, followed by omega.

**Table 33.***Subject Matter Expert (SME) ratings of task crafting item content.*

Task crafting items:	<i>M</i>	Adding	Emphasizing	Redesigning
1 I change the way I complete certain work tasks to make them more interesting to me.	4.7			X
2 I add tasks I am passionate about into my work.	4.3	X		
3 I change my work tasks to spend more time doing the parts I enjoy most.	4.3		X	
4 I make time to work on projects I find interesting.	4.0		X	
5 I incorporate work tasks into my daily routine that I find enjoyable but are not required for my job.	4.3	X		
6 I take on new work tasks that better suit my interests.	4.5	X		
7 I change my work tasks to better suit my skills.	3.5			X

*Note:* The reported mean is the mean rated representativeness of the item from SMEs. Adding = Adding tasks: Employees can add whole tasks or projects that they find meaningful into their jobs; Emphasizing = Emphasizing tasks: Employees can take advantage of any tasks that they see as meaningful that already are part of their jobs by allocating more time, energy, and attention to them; Redesigning = Redesigning tasks: Especially when time constraints make adding or emphasizing tasks difficult, employees can find ways to re-engineer existing tasks to make them more meaningful. An “X” indicates to which of the three categories SMEs classified items.

**Table 34.***Subject Matter Expert (SME) ratings of cognitive crafting item content.*

Cognitive crafting items:	<i>M</i>	Expanding	Focusing	Linking
1 I actively remind myself what the purpose of my work is.	4.5	X		
2 I actively think about the impact my work has on those who care most about the success of the organization.	4.0		X	
3 When reflecting on my work, I think about how it fulfills my personal values.	4.3			X
4 Focusing on the greater purpose of my job helps me get through the everyday tasks I have to do.	4.3	X		
5 Reminding myself that my work is an important piece of a larger purpose helps me stay motivated.	3.8	X		
6 I think about how my job gives my life purpose.	4.5			X
7 I remind myself about the significance that my work has for the success of the organization.	4.0		X	

*Note:* The reported mean is the mean rated representativeness of the item from SMEs. Expanding = Expanding perceptions: Employees can cultivate meaningfulness by broadening their perceptions of the impact or purpose of their jobs. This often takes the form of employees thinking about their jobs as a whole, rather than a set of separate tasks and relationships; Focusing = Focusing perceptions: In contrast to expanding perceptions, employees can also foster meaningfulness by narrowing their mental scope of the purpose of their job on specific tasks and relationships that are significant or valuable to them; Linking = Linking perceptions: In addition to focusing perceptions, employees can take advantage of existing components of their jobs by drawing mental connections between specific tasks or relationships and interests, outcomes, or aspects of their identities that are meaningful to them. An “X” indicates to which of the three categories SMEs classified items.

**Table 35.***Subject Matter Expert (SME) ratings of relational crafting item content.*

Relational crafting items:	<i>M</i>	Building	Reframing	Adapting
1 In my job, I work to establish personal connections with people.	4.2	X		
2 I create opportunities to meet new people at work.	4.0	X		
3 The ways I choose to interact with others at work adds value to my job.	4.0		X	
4 I try to spend time with other employees who view my work as important.	3.5	X		
5 To connect more closely with others at work, I change the ways I communicate (e.g., meeting face-to-face rather than emailing).	4.4		X	
6 I find value in my work because of my relationships with my peers/coworkers.	3.6			X
7 I make an effort to get to know people well at work.	4.0	X		

*Note:* The reported mean is the mean rated representativeness of the item from SMEs. Building = Building relationships: Employees can craft their jobs to cultivate meaningfulness by forging relationships with others who enable them to feel a sense of pride, dignity, or worth; Reframing = Reframing relationships: Employees can craft their work relationships by changing the nature of the relationship to be about a new, more meaningful purpose; Adapting = Adapting relationships: Rather than change the purpose of relationships or adding new ones, employees can craft their existing relationships to cultivate meaningfulness by providing others with valuable help and support in carrying out their jobs, thus encouraging others to give valuable help and support in return. An “X” indicates to which of the three categories SMEs classified items.

**Table 36.**

*Development sample 2 correlations and Cronbach's alphas among the job crafting, contextual performance, job involvement, and creativity scales*

Dimension	<i>M</i> ( <i>SD</i> )	1	2	3	4	5	6	7
1 Task Crafting	2.85 (.81)	(.84)						
2 Relational Crafting	2.95 (.89)	0.42*	(.89)					
3 Cognitive Crafting	2.94 (.94)	0.35*	0.56*	(.89)				
4 Overall Job Crafting	2.92 (.70)	0.72*	0.85*	0.81*	(.91)			
5 Contextual Performance	3.95 (.54)	0.21*	0.48*	0.46*	0.49*	(.89)		
6 Job Involvement	2.16 (.65)	0.38*	0.49*	0.40*	0.54*	0.19*	(.79)	
7 Creativity	8.26 (2.22)	-0.01	-0.02	0.03	0.00	0.03	0.05	(.90)

*Note.* \* $p < .001$

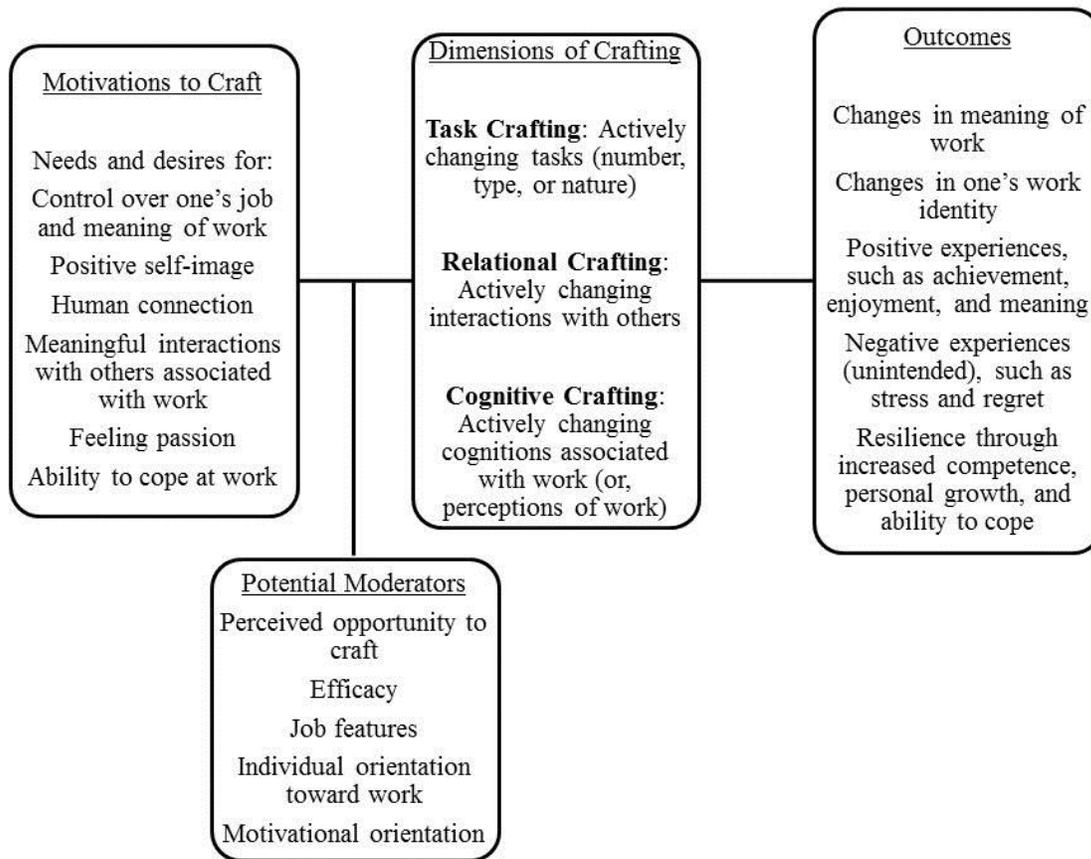


Figure 1. A Model of Job Crafting (adapted from Berg, Dutton & Wrzesniewski, 2007; Wrzesniewski & Dutton, 2001)

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## APPENDIX A: ORIGINAL POOL OF ITEMS – PHASE 1 SME SURVEY

Rated on a 1-5 scale: 1= *Not at all relevant*, 2=*Minimally relevant*, 3=*Moderately relevant*, 4=*Substantially relevant*, 5=*Extremely relevant*

### Task Crafting:

Please read the **Task Crafting** definition below carefully. We will then ask you to read a series of items and rate the relevance of each for the task crafting dimension. **“Relevance” means that the item fits with the definition provided and captures/reflects the dimension of task crafting.** You are also provided with an opportunity below each item to make comments on item clarity, wording, or general thoughts, should you choose to do so. This step is not required, but provided for you in case you would like to make a comment about a specific item.

**Task crafting** is changing the boundaries associated with specific tasks to make them more meaningful. This typically takes the form of:

- **Adding tasks:** Employees can add whole tasks or projects that they find meaningful into their jobs.
- **Emphasizing tasks:** Employees can take advantage of any tasks that they see as meaningful that already are part of their jobs by allocating more time, energy, and attention to them.
- **Redesigning tasks:** Especially when time constraints make adding or emphasizing tasks difficult, employees can find ways to re-engineer existing tasks to make them more meaningful.

1. I seek challenging tasks in my job.
2. I purposely incorporate new approaches to improve my work.
3. I change minor work procedures that I do not think are productive.
4. I change my work tasks to make them easier to accomplish.
5. I put myself in a position to see projects through to completion.
6. I have taken steps to increase my freedom to make decisions about when to complete work tasks.
7. I have taken steps to increase my freedom to make decisions about how I complete tasks.
8. I integrate my personal interests into my work tasks.
9. I have changed certain work tasks to make them more worthwhile.
10. I have changed the way I complete certain tasks to make them more interesting.
11. I have added responsibilities that I am passionate about into my work.
12. I seek work responsibilities that allow me to use my strengths.
13. I alter my tasks to spend more time doing the parts I enjoy most.
14. I seize opportunities to take on new tasks that will help me develop.
15. I make time to work on projects that I find interesting.
16. I volunteer for activities at work because they seem interesting to me.
17. I prioritize my time so I can work on activities that I find worthwhile.
18. I take on tasks that I enjoy but that are not a part of my job description.
19. I incorporate tasks into my daily routine that I find enjoyable but not required for my job.
20. In order to make my job feel more worthwhile, I take on extra projects at work.
21. To hone new skills, I take on tasks that are not required for my job.

22. I find myself allocating more time to tasks that I find interesting.
23. When working on more than one project, I put more energy into the project(s) that I find personally rewarding.
24. I tend to put off doing tasks that I find dull and boring.
25. When working on a project that I find important, I will put time into it outside of work.
26. I change my schedule to make more time for the activities that I want to fit into my work load.
27. If I finish the tasks that I don't like to do at work, I reward myself by working on a task that I do enjoy.

#### Cognitive Crafting:

Please read the **Cognitive Crafting** definition below carefully. We will then ask you to read a series of items and rate the relevance of each for the cognitive crafting dimension. **“Relevance” means that the item fits with the definition provided and captures/reflects the dimension of cognitive crafting.** You are also provided with an opportunity below each item to make comments on item clarity, wording, or general thoughts, should you choose to do so. This step is not required, but provided for you in case you would like to make a comment about a specific item.

**Cognitive crafting** is reframing the way a person thinks about work to make it more meaningful. This typically takes the form of:

- **Expanding perceptions:** Employees can cultivate meaningfulness by broadening their perceptions of the impact or purpose of their jobs. This often takes the form of employees thinking about their jobs as a whole, rather than a set of separate tasks and relationships.
- **Focusing perceptions:** In contrast to expanding perceptions, employees can also foster meaningfulness by narrowing their mental scope of the purpose of their job on specific tasks and relationships that are significant or valuable to them.
- **Linking perceptions:** In addition to focusing perceptions, employees can take advantage of existing components of their jobs by drawing mental connections between specific tasks or relationships and interests, outcomes, or aspects of their identities that are meaningful to them.

1. I try to think about my work in new ways.
2. When faced with a challenge, I try to view my work from a different perspective.
3. I actively remind myself what the purpose of my work is.
4. I actively think about the impact that my work activities have on the organization as a whole.
5. I actively think about the impact of my work on the stakeholders of the organization.
6. I spend my time thinking about the parts of my job that are important to me.
7. I spend more time thinking about my work activities that are important to me than the activities that are not.
8. When reflecting on my work, I think about how it fulfills my personal values.
9. I try to focus on why my work is worthwhile.
10. I find myself thinking about why my work is important.
11. When thinking about my work, I focus on the parts that are most interesting.
12. When thinking about my work, I don't get stuck focusing on the insignificant details.

13. When at work, I reframe my thinking to be more positive.
14. I choose to pay attention to the valuable parts of my work.
15. At work, I focus my attention on my strengths.
16. I think about how using my strengths can improve the ways I do my job.
17. Focusing on the greater purpose of my job helps me get through the everyday tasks I have to do.
18. Knowing that my work is an important piece of a larger outcome helps me stay motivated.
19. Viewing the purpose of my job in terms of the tasks that I believe are important helps me stay motivated.
20. I reflect on the connections between my job and personal interests.
21. I think of ways my job can connect to other interests I have outside of work.
22. I try to connect uninteresting work projects with my personal interest so I can stay motivated.
23. I see how my work responsibilities mirror my personal values.
24. The work activities that I consider top priorities are worthwhile.
25. I pinpoint what is most rewarding about my job and focus my attention on that.

#### Relational Crafting:

Please read the **Relational Crafting** definition below carefully. We will then ask you to read a series of items and rate the relevance of each for the relational crafting dimension. **“Relevance” means that the item fits with the definition provided and captures/reflects the dimension of relational crafting.** You are also provided with an opportunity below each item to make comments on item clarity, wording, or general thoughts, should you choose to do so. This step is not required, but provided for you in case you would like to make a comment about a specific item.

**Relational crafting** is altering personal interactions at work to create meaningfulness. This typically takes the form of:

- **Building relationships:** Employees can craft their jobs to cultivate meaningfulness by forging relationships with others who enable them to feel a sense of pride, dignity, or worth.
- **Reframing relationships:** Employees can craft their work relationships by changing the nature of the relationship to be about a new, more meaningful purpose.
- **Adapting relationships:** Rather than change the purpose of relationships or adding new ones, employees can craft their existing relationships to cultivate meaningfulness by providing others with valuable help and support in carrying out their jobs, thus encouraging others to give valuable help and support in return.

1. I make a point to work closely with people I enjoy.
2. In my job, I work to establish connections with people.
3. I learn about my own strengths by working with others.
4. I learn about my own weaknesses by working with others.
5. I work with others who can teach me new approaches to improve my work.
6. I give myself opportunities to meet new people at work.
7. I network with people who can help me achieve my work goals.

8. The ways I choose to interact with others at work adds value to my job.
9. I share my expertise with others at work who can benefit from it.
10. I actively seek roles where I can help others at work learn.
11. I support others at work.
12. I make sure to return favors for those who have supported me at work.
13. I actively change the purpose of my work relationships.
14. I change the purpose of my work relationships to build connections with others.
15. When my needs are not being met, I reach out to others who can help me.
16. I change how I communicate with others at work so they understand me better.
17. I talk about the purpose of my relationships with others.
18. I talk about my interests with others at work.
19. I email my coworkers to specifically ask how they are handling work-related stress.
20. I send my coworkers resources that I think they will find valuable.
21. I ask others at work to help me develop my skills.
22. I try to spend time with other employees that view my work as important.
23. I form relationships with clients/customers because it allows me to conceptualize how important my job is.
24. I network with other people at my job who share my interests.
25. If I want to gain a new skill, I seek out guidance from people at work who are experts.
26. If my relationship with my co-worker(s) is unproductive, I take the initiative to develop a more beneficial relationship.
27. I perform behaviors that are not a part of my specified work role in order to create more valuable relationships with my co-workers.
28. I make sure my coworkers know that I am available if they need help with a project.
29. If a co-worker is less experienced than I am, I take the initiative to help train him or her.
30. When a new employee is hired, I help him or her acclimate to the job even though it is not required of me.
31. To connect more with others at work, I have changed the ways I communicate (e.g., meeting face-to-face rather than emailing).
32. I find value in my work because of the people with whom I work.

## APPENDIX B: POOL OF ITEMS – PHASE 2 SME SURVEY

Rated on a 1-5 scale: 1= *Not at all relevant*, 2=*Minimally relevant*, 3=*Moderately relevant*, 4=*Substantially relevant*, 5=*Extremely relevant*

### Task Crafting:

Please read the **Task Crafting** definition below carefully. We will then ask you to read a series of items and rate the relevance of each for the task crafting dimension. **“Relevance” means that the item fits with the definition provided and captures/reflects the dimension of task crafting.** You are also provided with an opportunity below each item to make comments on item clarity, wording, or general thoughts, should you choose to do so. This step is not required, but provided for you in case you would like to make a comment about a specific item.

**Task crafting** is changing the boundaries associated with specific tasks to make them more meaningful. This typically takes the form of:

- **Adding tasks:** Employees can add whole tasks or projects that they find meaningful into their jobs.
- **Emphasizing tasks:** Employees can take advantage of any tasks that they see as meaningful that already are part of their jobs by allocating more time, energy, and attention to them.
- **Redesigning tasks:** Especially when time constraints make adding or emphasizing tasks difficult, employees can find ways to re-engineer existing tasks to make them more meaningful.

1. I seek to do challenging tasks in my job.
2. When I am able to, I purposely use new approaches to improve how I do my job.
3. I change minor work procedures that I do not think are productive.
4. I change my work tasks to make them easier to accomplish.
5. I put myself in a position to see projects through to completion.
6. I take steps to increase the freedom I have to make decisions about when to complete work tasks.
7. I take steps to increase the freedom I have to make decisions about how I complete work tasks.
8. I incorporate my personal interests into my work tasks.
9. I change certain work tasks to make them more worthwhile to me.
10. I change the way I complete certain work tasks to make them more interesting to me.
11. I add responsibilities I am passionate about into my work.
12. I look for work responsibilities that allow me to use my strengths.
13. I change my work tasks to spend more time doing the parts I enjoy most.
14. I seize opportunities to take on new tasks that will help me develop.
15. I make time to work on projects I find interesting.
16. I volunteer for activities at work because they seem interesting to me.
17. I prioritize my time so I can work on activities I find worthwhile.
18. I take on work tasks I enjoy but are not a part of my job description.
19. I incorporate work tasks into my daily routine I find enjoyable but are not required for my job.

20. In order to make my job feel more worthwhile, I take on extra projects at work.
21. To practice new skills, I take on tasks that are not required for my job.
22. I find myself allocating more time to work tasks I find interesting than those I do not.
23. When working on more than one project, I put more energy into the project(s) I find personally rewarding.
24. I tend to put off doing tasks that I find boring.
25. When working on a project that I find important, I put time into it outside of work.
26. I change my schedule to make time for the activities that I want to fit into my work load.
27. If I finish my work tasks that I don't like to do, I reward myself by working on a work task that I do enjoy.
28. I change the scope of tasks I'm responsible for at work
29. I take on new work tasks that better suit my interests.
30. I prefer to work on tasks that suit my skills.
31. I prefer to work on tasks that match my interests.

#### Cognitive Crafting:

Please read the **Cognitive Crafting** definition below carefully. We will then ask you to read a series of items and rate the relevance of each for the cognitive crafting dimension. **“Relevance” means that the item fits with the definition provided and captures/reflects the dimension of cognitive crafting.** You are also provided with an opportunity below each item to make comments on item clarity, wording, or general thoughts, should you choose to do so. This step is not required, but provided for you in case you would like to make a comment about a specific item.

**Cognitive crafting** is reframing the way a person thinks about work to make it more meaningful. This typically takes the form of:

- **Expanding perceptions:** Employees can cultivate meaningfulness by broadening their perceptions of the impact or purpose of their jobs. This often takes the form of employees thinking about their jobs as a whole, rather than a set of separate tasks and relationships.
  - **Focusing perceptions:** In contrast to expanding perceptions, employees can also foster meaningfulness by narrowing their mental scope of the purpose of their job on specific tasks and relationships that are significant or valuable to them.
  - **Linking perceptions:** In addition to focusing perceptions, employees can take advantage of existing components of their jobs by drawing mental connections between specific tasks or relationships and interests, outcomes, or aspects of their identities that are meaningful to them.
1. When faced with an obstacle, I try to think about my work in new ways.
  2. When feeling frustrated, I try to view my work from a different perspective.
  3. I actively remind myself what the purpose of my work is.
  4. I actively think about the impact that my work activities have on the organization as a whole.
  5. I actively think about the impact my work has on those who care most about the success of the organization.
  6. I spend time thinking about the parts of my job that are important to me.

7. I spend more time thinking about my work activities that are important to me than the activities that are not.
8. When reflecting on my work, I think about how it fulfills my personal values.
9. I try to focus on why my work is worthwhile rather than thinking about the parts I don't like as much.
10. I find myself thinking about why my work is important.
11. When thinking about my work, I focus on the parts that are most interesting.
12. When thinking about my work, I don't get stuck focusing on the insignificant details.
13. When at work, I reframe my thinking to be constructive.
14. I choose to pay attention to the valuable parts of my work.
15. At work, I focus my attention on tasks that use my strengths.
16. I think about ways to improve my job using my strengths.
17. Focusing on the greater purpose of my job helps me get through the everyday tasks I have to do.
18. Knowing that my work is an important piece of a larger purpose helps me stay motivated.
19. To help me stay motivated, I view the purpose of my job in terms of the work tasks I believe to be most important.
20. I reflect on the similarities between my job and personal interests.
21. I think of ways my job can relate to other interests I have outside of work.
22. I connect uninteresting work projects with my personal interests so I can stay motivated.
23. I see how my work responsibilities mirror my personal values.
24. Of all my work activities, those that are considered top priority are also worthwhile to me.
25. I pinpoint what is most rewarding about my job and focus my attention on that.
26. I think about how my job gives my life purpose.
27. I remind myself about the significance that my work has for the success of the organization.
28. I think about the ways in which my work tasks positively impact my life.

#### Relational Crafting:

Please read the **Relational Crafting** definition below carefully. We will then ask you to read a series of items and rate the relevance of each for the relational crafting dimension. **“Relevance” means that the item fits with the definition provided and captures/reflects the dimension of relational crafting.** You are also provided with an opportunity below each item to make comments on item clarity, wording, or general thoughts, should you choose to do so. This step is not required, but provided for you in case you would like to make a comment about a specific item.

**Relational crafting** is altering personal interactions at work to create meaningfulness. This typically takes the form of:

- **Building relationships:** Employees can craft their jobs to cultivate meaningfulness by forging relationships with others who enable them to feel a sense of pride, dignity, or worth.
- **Reframing relationships:** Employees can craft their work relationships by changing the nature of the relationship to be about a new, more meaningful purpose.

- **Adapting relationships:** Rather than change the purpose of relationships or adding new ones, employees can craft their existing relationships to cultivate meaningfulness by providing others with valuable help and support in carrying out their jobs, thus encouraging others to give valuable help and support in return.

1. I make a point to work closely with people I enjoy.
2. In my job, I work to establish personal connections with people.
3. I work with others so I can learn about my own strengths.
4. I work with others so I can learn about my own weaknesses.
5. I choose to work with others who can teach me new approaches to improve my work.
6. I create opportunities to meet new people at work.
7. I collaborate with people who can help me achieve my work goals.
8. The ways I choose to interact with others at work adds value to my job.
9. I share my expertise with others at work who can benefit from it.
10. At work, I actively seek roles where I can help others learn.
11. I find it personally rewarding to support others at work.
12. I make sure to return favors for those who have supported me at work.
13. I actively change the purpose of my work relationships.
14. I change the purpose of my work relationships to build connections with others.
15. When my needs are not being met, I reach out to others who can help me find ways to meet them.
16. I change how I communicate with others at work because I want them to understand me better.
17. I talk about the nature of my relationships with others to whom I feel close with.
18. I talk about my interests with others at work.
19. I reach out to coworkers to ask how they are handling work-related stress.
20. I send my coworkers resources I think they will find valuable.
21. I ask others at work to help me develop my skills.
22. I try to spend time with other employees who view my work as important.
23. I form relationships with clients/customers because it allows me to appreciate how important my job is.
24. I collaborate with other people at my workplace who share my interests.
25. If I want to gain a new skill, I seek out guidance from people at work who are experts in using that skill.
26. If my relationship with my coworker(s) is unproductive, I take the initiative to develop a more productive relationship.
27. Sometimes I take on extra work tasks to create more valuable relationships with my coworkers.
28. I like being available if my coworkers need help with a project.
29. If a coworker is less experienced than I am, I find it personally rewarding to help train him or her.
30. When a new employee is hired, I find it personally rewarding to help him or her acclimate to the job.
31. To connect more closely with others at work, I change the ways I communicate (e.g., meeting face-to-face rather than emailing).
32. I find value in my work because of my relationships with my peers/coworkers.

33. I make an effort to get to know people well at work.
34. I attend work-related social functions.
35. I choose to mentor new employees (officially or unofficially).
36. I make friends with people at work who have similar interests or skills as I have.

## APPENDIX C: DEVELOPMENT SAMPLE 1 SURVEY

Items were rated on a 1 to 5 scale where 1= *Disagree*, 2= *Somewhat Agree*, 3= *Agree*, 4= *Strongly Agree*, 5= *Very Strongly Agree*.

### Task Crafting:

1. When I am able to, I purposely use new approaches to improve how I do my job.
2. I change minor work procedures that I do not think are productive.
3. I change my work tasks to make them easier to accomplish.
4. I take steps to increase the freedom I have about how to complete work tasks.
5. I incorporate personal interests into my work tasks.
6. I change certain work tasks to make them more worthwhile to me.
7. I change the way I complete certain work tasks to make them more interesting to me.
8. I add tasks I am passionate about into my work.
9. I look for work responsibilities that allow me to use my strengths.
10. I change my work tasks to spend more time doing the parts I enjoy most.
11. I seize opportunities to take on new tasks that will help me develop.
12. I make time to work on projects I find interesting.
13. I volunteer for activities at work because they seem interesting to me.
14. I prioritize my time so I can work on activities I find worthwhile.
15. I take on work tasks I enjoy but are not a part of my job description.
16. I incorporate work tasks into my daily routine I find enjoyable but are not required for my job.
17. To make my job feel more worthwhile, I take on extra projects at work.
18. To practice new skills, I take on tasks that are not required for my job.
19. To practice new skills, I change how I do my work tasks.
20. I find myself allocating more time to work tasks I find interesting than those I do not.
21. When working on more than one project, I put more energy into the project(s) I find personally rewarding.
22. When working on a project that I find important, I put time into it outside of work.
23. I change my schedule to make time for the activities that I want to fit into my work load.
24. If I finish my work tasks that I don't like to do, I reward myself by working on a work task that I do enjoy.
25. I change the scope of tasks I'm responsible for at work
26. I take on new work tasks that better suit my interests.
27. I change my tasks to better suit my skills.
28. I change my tasks to better match my interests.

### Cognitive Crafting:

1. I try to think about my work in new ways.
2. When feeling frustrated, I try to view my work from a different perspective.
3. I actively remind myself what the purpose of my work is.
4. I actively think about the impact that my work activities have on the organization as a whole.
5. I actively think about the impact my work has on those who care most about the success of the organization.

6. Identifying important parts of my job reminds me why I do the work that I do.
7. I spend more time thinking about my work activities that are important to me than the activities that are not.
8. When reflecting on my work, I think about how it fulfills my personal values.
9. I try to focus on why my work is worthwhile rather than thinking about the parts I don't like as much.
10. I find myself thinking about why my work is important.
11. When thinking about my work, I focus on the parts that are most interesting.
12. When thinking about my work, I don't get stuck focusing on the insignificant details.
13. When at work, I reframe my thinking to be constructive.
14. I choose to pay attention to the most valuable parts of my work.
15. At work, I focus my attention on tasks that use my strengths.
16. Focusing on the greater purpose of my job helps me get through the everyday tasks I have to do.
17. Reminding myself that my work is an important piece of a larger purpose helps me stay motivated.
18. To help me stay motivated, I view the purpose of my job in terms of the work tasks I believe to be most important.
19. I reflect on the similarities between my job and personal interests.
20. I think of ways my job can relate to other interests I have outside of work.
21. I connect uninteresting work projects with my personal interests so I can stay motivated.
22. I see how my work responsibilities mirror my personal values.
23. I pinpoint what is most rewarding about my job and focus my attention on that.
24. I think about how my job gives my life purpose.
25. I remind myself about the significance that my work has for the success of the organization.
26. I think about the ways in which my work tasks positively impact my life.
27. Knowing that parts of my job are essential helps me do what I need to do.
28. I change my viewpoint to understand others better.
29. I see how different parts of my job are interconnected.
30. I see how parts of my job are interconnected with others' jobs.
31. Taking a new perspective helps me understand my work better.

#### Relational Crafting:

1. I make a point to work closely with people I enjoy.
2. In my job, I work to establish personal connections with people.
3. I work with others so I can learn about my own strengths.
4. I work with others so I can learn about my own weaknesses.
5. I choose to work with others who can teach me new approaches to improve my work.
6. I create opportunities to meet new people at work.
7. I collaborate with people who can help me achieve my work goals.
8. The ways I choose to interact with others at work adds value to my job.
9. I share my expertise with others at work who can benefit from it.
10. At work, I actively seek roles where I can help others learn.
11. I find it personally rewarding to support others at work.
12. I actively change how I interact with others at work to meet my needs.

13. I change how I approach my work relationships to build connections with others.
14. When my needs are not being met, I reach out to others who can help me find ways to meet them.
15. I change how I communicate with others at work because I want them to understand me better.
16. I reach out to coworkers to ask how they are handling work-related stress.
17. I send my coworkers resources I think they will find valuable.
18. I ask others at work to help me develop my skills.
19. I try to spend time with other employees who view my work as important.
20. I form relationships with clients/customers because it allows me to appreciate how important my job is.
21. I make an effort to collaborate with other people at my workplace who share my interests.
22. If I want to gain a new skill, I seek out guidance from people at work who are experts in using that skill.
23. If my relationship with my coworker(s) is unproductive, I take the initiative to change the relationship.
24. My efforts at work have resulted in valuable relationships with my coworkers.
25. I like being available if my coworkers need help with a project.
26. If a coworker is less experienced than I am, I find it personally rewarding to help train him or her.
27. When a new employee is hired, I find it personally rewarding to help him or her acclimate to the job.
28. To connect more closely with others at work, I change the ways I communicate (e.g., meeting face-to-face rather than emailing).
29. I find value in my work because of my relationships with my peers/coworkers.
30. I make an effort to get to know people well at work.
31. I choose to mentor new employees (officially or unofficially).
32. I purposely make friends with people at work who have similar interests or skills as I have.
33. It is important for me to help foster relationships at work.

## APPENDIX D: DEVELOPMENT SAMPLE 2 SURVEY

Measure of Job Crafting: Rated on a 1 to 5 scale where 1= *Disagree*, 2= *Somewhat Agree*, 3= *Agree*, 4= *Strongly Agree*, 5= *Very Strongly Agree*.

### Task Crafting:

1. I change certain work tasks to make them more worthwhile to me. (Task6)
2. I change the way I complete certain work tasks to make them more interesting to me. (Task7)
3. I add tasks I am passionate about into my work. (Task8)
4. I change my work tasks to spend more time doing the parts I enjoy most. (Task10)
5. I make time to work on projects I find interesting. (Task12)
6. I incorporate work tasks into my daily routine that I find enjoyable but are not required for my job. (Task16)
7. I change the scope of tasks I'm responsible for at work (Task25)
8. I take on new work tasks that better suit my interests. (Task26)
9. I change my tasks to better suit my skills. (Task27)

### Cognitive Crafting:

1. I actively remind myself what the purpose of my work is. (Cog3)
2. I actively think about the impact my work has on those who care most about the success of the organization. (Cog5)
3. When reflecting on my work, I think about how it fulfills my personal values. (Cog8)
4. Focusing on the greater purpose of my job helps me get through the everyday tasks I have to do. (Cog16)
5. Reminding myself that my work is an important piece of a larger purpose helps me stay motivated. (Cog17)
6. I think of ways my job can relate to other interests I have outside of work. (Cog20)
7. I think about how my job gives my life purpose. (Cog24)
8. I remind myself about the significance that my work has for the success of the organization. (Cog25)
9. I think about the ways in which my work tasks impact my life. (Cog26)

### Relational Crafting:

1. In my job, I work to establish personal connections with people. (Rel2)
2. I create opportunities to meet new people at work. (Rel6)
3. I collaborate with people who can help me achieve my work goals. (Rel7)
4. The ways I choose to interact with others at work adds value to my job. (Rel8)
5. I try to spend time with other employees who view my work as important. (Rel19)
6. I make an effort to collaborate with other people at my workplace who share my interests. (Rel21)
7. To connect more closely with others at work, I change the ways I communicate (e.g., meeting face-to-face rather than emailing). (Rel28)
8. I find value in my work because of my relationships with my peers/coworkers. (Rel29)
9. I make an effort to get to know people well at work. (Rel30)

Contextual performance: Rated on a 5-point scale ranging from 1 (not at all likely) to 5 (extremely likely)

While performing in your job, how likely is it that you would:

1. Comply with instructions even when supervisors are not present
2. Cooperate with others in the team
3. Persist in overcoming obstacles to complete a task
4. Display proper appearance and bearing
5. Volunteer for additional duties
6. Follow proper procedures and avoid unauthorized shortcuts
7. Look for a challenging assignment
8. Offer to help others accomplish their work
9. Pay close attention to important details
10. Defend the supervisor's decisions
11. Render proper courtesy
12. Support and encourage a coworker with a problem
13. Take the initiative to solve a work problem
14. Exercise personal discipline and self-control
15. Tackle a difficult work assignment enthusiastically
16. Voluntarily do more than the job requires to help others or contribute to team effectiveness

Creativity: Rated True or False

1. I like to solve complex problems.
2. I love to read challenging material.
3. I love to think up new ways of doing things.
4. I have a vivid imagination.
5. I know how things work.
6. I am not interested in abstract ideas. (R)
7. I am not interested in theoretical discussions. (R)
8. I avoid difficult reading material. (R)
9. I try to avoid complex people. (R)
10. I do not have a good imagination. (R)

Job Involvement: Rated on a 5-point scale ranging from 1 (Disagree) to 5 (Agree)

1. The most important things that happen to me involve my present job.
2. To me, my job is only a small part of who I am.
3. I am very much involved personally in my job.
4. I live, eat, and breathe my job.
5. Most of my interests are centered around my job.
6. I have very strong ties with my present job which would be difficult to break.
7. Usually I feel detached from my job.
8. Most of my personal life goals are job-oriented.
9. I consider my job to be very central to my existence.
10. I like to be absorbed in my job most of the time.

## APPENDIX E: FINAL MEASURE OF JOB CRAFTING SCALE

All items are rated on the following scale:

1 = Disagree, 2 = Somewhat agree, 3 = Agree, 4 = Strongly Agree, 5 = Very Strongly Agree

### Task Crafting:

1. I change the way I complete certain work tasks to make them more interesting to me.
2. I add tasks I am passionate about into my work.
3. I change my work tasks to spend more time doing the parts I enjoy most.
4. I make time to work on projects I find interesting.
5. I incorporate work tasks into my daily routine that I find enjoyable but are not required for my job.
6. I take on new work tasks that better suit my interests.
7. I change my tasks to better suit my skills.

### Cognitive Crafting:

1. I actively remind myself what the purpose of my work is.
2. I actively think about the impact my work has on those who care most about the success of the organization.
3. When reflecting on my work, I think about how it fulfills my personal values.
4. Focusing on the greater purpose of my job helps me get through the everyday tasks I have to do.
5. Reminding myself that my work is an important piece of a larger purpose helps me stay motivated.
6. I think about how my job gives my life purpose.
7. I remind myself about the significance that my work has for the success of the organization.

### Relational Crafting:

1. In my job, I work to establish personal connections with people.
2. I create opportunities to meet new people at work.
3. The ways I choose to interact with others at work adds value to my job.
4. I try to spend time with other employees who view my work as important.
5. To connect more closely with others at work, I change the ways I communicate (e.g., meeting face-to-face rather than emailing).
6. I find value in my work because of my relationships with my peers/coworkers.
7. I make an effort to get to know people well at work.