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Engaging Overqualified Employees: The Role of Job and Nonwork Crafting

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Engaging Overqualified Employees:
The Role of Job and Nonwork Crafting

by

Soner Dumani

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
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DEDICATION

I dedicate this dissertation to both my biological family (Misel, Suzi, Nadin Dumani, and Odet Okmen) and my Tampa family, for providing the best support one can truly ask in order to succeed in this rather arduous journey; to my guardian angels Mislin Dumani and Ferhat Ozbekoglu, for watching over me at all times and protecting me; and to the ultimate Zealot, for remaining as my guiding light from day one.

Then. Now. Always.

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ABSTRACT

The present study examined the relationship between perceived overqualification and work engagement through basic need satisfaction at work and further incorporated job crafting and nonwork crafting to understand the indirect role of need satisfaction. In study 1, a new measure for targeted nonwork crafting was developed and validated. The final scale provided adequate reliability and validity evidence, and predicted life satisfaction and job satisfaction above and beyond the measures of intrinsic motivation and recovery experiences. The main study included a total of 321 full-time employees who had been working in their current job for at least 3 months and represented diverse occupations and industries. Results indicated that basic need satisfaction at work explains the negative relationship between perceived overqualification and work engagement. However, job crafting and targeted nonwork crafting do not moderate the indirect effect of basic need satisfaction at work. Supplemental analyses revealed that job satisfaction emerges as a reactive response to unmet needs at work while targeted nonwork crafting serves as a buffer for the relationship between perceived overqualification and burnout. These findings underscore the importance of considering motivational implications of overqualification on work outcomes and integrating cross-domain variables to the overqualification research.

CHAPTER ONE:

INTRODUCTION

Overqualification refers to a surplus of skills, education, and/or experience that are not required and/or being utilized by the current employment situation (Maynard, Joseph, & Maynard, 2006). Overqualification is a relevant issue in today's workplace for at least for three reasons. First, the prevalence of overqualification in the labor market suggests depreciation of human capital (Erdogan, Bauer, Peiro, & Truxillo, 2011). Current employment statistics indicate that the underemployment rate (a more general term that includes underpayment and involuntary part-time work beside overqualification and calculated as the percentage of involuntary part-time and discouraged workers in this instance) consistently has been on the rise, ranging from 14% to 18% between 2009-2013 compared to below 10% in late 90s (EPI Bureau of Labor Statistics, January 2013). Second, statistics also indicate that overqualification does not apply only to recent graduates but can negatively affect a wide range of employees with different experience levels (Frei & Sousa-Poza, 2012). Moreover, both genders suffer from these sustained underemployment rates. Third, research shows that overqualification is associated with mostly negative outcomes including job dissatisfaction (e.g., Fine & Nevo, 2008; Johnson & Johnson, 2000, 2000b), poor health (e.g., Johnson & Johnson, 1999, 1997), boredom (e.g., Fine, 2007), turnover (e.g., Erdogan & Bauer, 2009; Kraimer, Shaffer, & Bolino, 2009; Maynard et al., 2006), lower levels of affective commitment (e.g., Bolino & Feldman, 2000; Lobene & Meade, 2013)

and higher levels of counterproductive work behaviors (CWBs; e.g., Luksyte, Spitzmueller, & Maynard, 2011).

To date, the majority of studies on overqualification have adopted a main effect approach by exclusively focusing on antecedents and outcomes (Maynard, 2011). Recently, researchers have started examining both boundary conditions (e.g., moderators) and underlying mechanisms (e.g., mediators) of previously identified relationships, the focus being on the former.

The current project extends this contingency approach by identifying both moderators and mediators to understand the relationship between perceived overqualification and work engagement. Work engagement has been defined as “a relatively enduring state of mind referring to the simultaneous investment of personal energies in the experience or performance of work” (Christian, Garza, & Slaughter, 2011, p. 95) and it has been shown to be a precursor of critical work outcomes such as task performance and extra-role performance (e.g., Christian et al., 2011, Rich, LePine, & Crawford, 2010). Using the theoretical framework of unanswered occupational callings (Berg, Grant, & Johnson, 2010), I aim to understand why overqualified individuals may experience lower levels of work engagement and whether there are boundary conditions that can possibly alleviate the negative work experiences of overqualified individuals. In this respect, I propose that the relationship between perceived overqualification and work engagement is explained through basic need satisfaction at work and further posits that this relationship holds to the extent that the relationship between perceived overqualification and need satisfaction at work is moderated by job crafting and nonwork crafting.

The present study contributes to the literature in four ways. First, the proposed study explains the relationship between perceived overqualification and work engagement through basic need satisfaction (Deci & Ryan, 1991). The majority of studies on overqualification are

founded on person-job fit and relative deprivation frameworks. Although these frameworks have contributed to our understanding of overqualification, they primarily have explained the relationship between overqualification and *negative* work outcomes (Erdogan et al., 2011). By exploring the mediating role of basic need satisfaction, the proposed study treats overqualification as a condition of unmet needs, and posits that as long as crafting activities address unmet needs, overqualification may not be associated with negative outcomes. Second, the current study follows the recent directions in the field of overqualification and identifies strategies to engage employees to their work (Erdogan et al., 2011). In this respect, the present study introduces additional moderators to the ongoing contingency approach of overqualification. By integrating the potential moderating roles of job and nonwork crafting, the proposed study underscores the importance of considering domain-specific strategies that can benefit work engagement of overqualified individuals. Previous research suggests that job crafting is an active strategy employees use to create meaningful work (Wrzesniewski, 2003) and therefore, the current research may shed light as to how overqualified individuals create meaning at work by engaging in job crafting and nonwork crafting. Third, the present study focuses on work engagement as an outcome variable, which has been central in the job crafting literature (e.g., Bakker, 2011) but to my knowledge, yet to be studied in overqualification research. Given that work engagement is considered to be an active form of employee well-being due to combining high work pleasure with high activation (Bakker, 2011), the current project addresses the recent call for studying well-being indicators vis a vis overqualification (Erdogan et al., 2011). Fourth, the present study is the first to integrate aspects of the nonwork domain into overqualification research as well as the first to introduce a nonwork crafting scale. This is important in that Compensation Theory (Staines, 1980) suggests that deficiency in need

fulfillment at work can be compensated for by employees' choices of nonwork activities. By treating nonwork crafting as a resilience building strategy, the current study introduces nonwork crafting as a moderator for the relationship between perceived overqualification and need satisfaction at work. Due to no availability of a nonwork crafting scale in the literature, a measure of nonwork crafting was developed and validated.

The structure of the current paper is as follows. First, I introduce the extant literatures on perceived overqualification and work engagement. Second, the theoretical framework of unanswered occupational callings is introduced. This framework is used to develop the proposed model in the current study (Figure 1) and it explains how job and nonwork crafting can address unmet expectations and misalignment at workplace. Third, I explain each relationship proposed in the model. Detailed information on participants, measures, results, and main implications of the current study is discussed in the latter sections.

Perceived overqualification

Overqualification emerges from the broader term of underemployment, which refers to a lower quality of employment situation and includes multiple dimensions: a. overqualification in terms of education (generally referred as overeducation), b. underutilization of skills, abilities and knowledge, c. underpayment (generally measured as 20% of lower income compared to the income in the previous job or to the income of individuals graduating in the same cohort), d. involuntary employment in the form of part-time, temporary job and e. involuntary employment outside one's formal education. Research on underemployment so far clearly delineates the predictors and outcomes of underemployment. Feldman's seminal work on underemployment (1996) identified predictors of underemployment such as economic conditions (e.g., the current market economy, availability of the jobs), job characteristics (e.g., the scope of responsibilities,

the extent of autonomy or job fit), career history (e.g., whether the individual is a recent graduate or has reached a career plateau in his/her life), demographics (e.g., gender, age, education) and job search strategies (e.g., intensity of job search, consideration of relocation). Outcomes include job attitudes (e.g., job satisfaction, organizational commitment), career attitudes (e.g., attitude toward career, career success), health-related outcomes (e.g., physical health, mental health) and nonwork domain outcomes (e.g., marital satisfaction, satisfaction with social life) (Feldman, 1996). Relative deprivation theory and equity theory have been the dominant frameworks to explain the negative effects of underemployment on outcomes. Both frameworks posit that individuals consistently compare their inputs and outputs to others and relative standing in case of inferiority might trigger the negative perceptions. In fact, relative deprivation is often included as a mediator to understand the effects of underemployment on its consequences (Feldman, 2011). Given that underemployment research spans different fields (e.g., economics, business, aging etc.), it is still at a nascent stage in the I-O psychology literature and the extant literature has focused primarily on overqualification.

Overqualification captures dimensions of underemployment that correspond to education, experience, knowledge, skills, and abilities, and indicates that the individual possesses a surplus of these qualifications that are not required or practiced in the current job (Maynard et al., 2006). Overqualification can be assessed from both objective and subjective perspectives. Table 1 provides examples of ways in which objective and subjective overqualification has been operationally defined in the literature. Objective overqualification entails comparison of one's qualifications with the demands/requirements of the job by a third observer such as recruiters or employers or via measurement scales (e.g., information obtained from the Occupational Information Network; O*Net) or specific pre-determined standards (e.g.,) (Erdogan et al., 2011).

Available objective overqualification measures tend to focus on overeducation and they are mainly used in economics research (e.g., Verhaest & Omey, 2009). In contrast, subjective measures of overqualification rely on employees' perceptions about whether or not they feel overqualified for their current jobs and these measures are mostly used in management and psychology research. The term *perceived overqualification* refers to this subjective assessment of overqualification and focuses on employees' own experience of overqualification.

The objective versus subjective overqualification distinction mirrors the objective vs. subjective distinction inherent in person-environment fit measures. Similar to person-environment fit literature, the discussion on objective vs. subjective overqualification does not favor one particular measure over the other; employment of a specific method depends particularly on the objective of the study and the outcomes of interest. Indeed, a few researchers argue that objective and subjective overqualification are distinct constructs rather than alternative operationalizations with different sets of predictors and outcomes although no empirical research to date has examined this proposition (e.g., Maltarich, Reilly, & Nyberg, 2011). In the current study, I focused on *perceived overqualification*. In line with the common conceptualization of the construct, perceived overqualification is defined as “the extent to which an employee feels that he or she has surplus education, experience, and/or knowledge, skills, abilities (KSAs), relative to the requirements of his/her position” (Maynard et al., 2006, p. 518). Subjective overqualification takes a holistic approach by integrating multiple qualification indicators simultaneously (unlike current objective overqualification measures that focus on one specific category of qualifications) and by allowing employees to define and evaluate these qualifications. Therefore, subjective overqualification captures the personal experience of overqualification through the perspective of the employee. Given that one's own perceptions of

the employment situation are likely to guide one's attitudes and behaviors regardless of whether these perceptions are accurate or not, subjective overqualification becomes relatively more important than objective overqualification to understand the interplay among attitudinal variables (Maynard et al., 2006). In this sense, objective measures fall short in terms of capturing the complexity of the experience of overqualification. For instance, quantitative overeducation measures compare one's years of academic studies relative to the years of education required by the job but they don't necessarily take into account other aspects of education such as area/concentration of study or the educational institution that can shape one's evaluation of overqualification (Erdogan et al., 2011). In this case, an individual might be classified as overqualified if his/her years of education are above the years of education required by the job but they might not feel overqualified if his/her major of education is not relevant to his/her occupation. Given that the current research incorporates attitudinal variables and treats overqualification status as an indicator of unmet needs, I believe the perceptual nature of overqualification is the best approach for the current study.

Two important points need further explanation with regard to the perceived overqualification construct before discussing the relevant extant literature. First, by definition, the broader construct of underemployment requires comparing one's current standing in qualifications to a specific standard such as previous job or other co-workers at the same positional level (Feldman, 1996). The idea of comparable standard and how it is measured may have plagued the underemployment literature (Maynard, 2011) but the overqualification literature seems to agree that the comparable standard is the requirements of the current job. Two available measures of perceived overqualification (i.e., Johnson, Marrow, & Johnson, 2002; Maynard et al. 2006) consist of items that ask individuals to compare their current qualifications

with the qualifications and opportunities required and utilized in the current job. Second, it is important to distinguish perceived overqualification from the related construct of person-job fit. Person-job fit refers to the match between a person's qualifications and job requirements (Kristof-Brown, Zimmerman, & Johnson, 2005) and therefore, overqualification can be considered as a specific type of person-job fit. However, current conceptualizations of perceived overqualification not only capture the overlap between one's qualifications and job requirements, but they also *assume* that individuals experience unfairness in terms of opportunity to perform adequately on the current job. By default, overqualified individuals are expected to believe that they deserve jobs that closely match their qualifications (Liu & Wang, 2012). In other terms, mismatch in the case of perceived overqualification is only evident when one has a strong belief that s/he deserves a job meeting his/her qualifications. This specific direction of mismatch in the current conceptualization of perceived overqualification is not palpable in person-job fit conceptualizations that are yet to discriminate between overfit and underfit (Erdogan et al., 2011).

The literature on perceived overqualification has focused mostly on consequences of overqualification and research shows that greater perceived overqualification is associated with negative job attitudes including less job satisfaction, less affective organizational commitment and greater intent to leave the organization (e.g., Kraimer et al., 2009), stress (Johnson et al., 2002) and psychological and physical health (e.g., Anderson & Winefield, 2011). Maynard (2011) expressed the need to broaden the outcome variables associated with overqualification and study both moderators and mediators to clarify under which conditions overqualification can result in negative outcomes. Although empirical research on moderating and mediating variables has been scant, process variables such as coping skills, attribution styles and personality

variables have been proposed. For example, Erdogan and Bauer (2009) found that the negative relationship between perceived overqualification and job satisfaction and intentions to remain in the organization was attenuated when employees reported greater empowerment. Luksyte (2011) also found that scheduling flexibility and serving as a peer mentor weakened the positive relationship between overqualification and cyberloafing (using company's internet access for nonwork and personal reasons during specified work hours) and between overqualification and absenteeism. Compared to moderators, mediating variables have been understudied. Although both the overqualification and the underemployment literatures heavily rely on person-job fit and relative deprivation frameworks to explain the negative effect of overqualification on job/career/individual outcomes, perceived relative deprivation and person-job fit have been rarely tested empirically (McKee-Ryan & Harvey, 2011). Other mediators have been mainly emotional responses in nature. For example, Luksyte (2011) found that boredom partially mediated the relationship between perceived overqualification and voluntary turnover. Similarly, Luksyte, Spitzmueller, and Maynard (2011) found that only cynicism (defined as being emotionally disengaged from the job) mediated the relationship between perceived overqualification and CWBs once considered with alternative mediators such as person-job fit (congruity between individual and job characteristics) and psychological contract breach (compromise of implicit employer-employee expectations and commitment). There is a need to further understand why overqualification leads to negative outcomes and whether there are factors that weaken the observed negative relationships. The current study explains the negative relationship between overqualification and work engagement through fulfilment of psychological needs and identifies job crafting and nonwork crafting as boundary conditions that potentially attenuate the negative impact of overqualification on work engagement.

Work engagement

“Work engagement” and “employee engagement” are often used interchangeably in the literature but “work engagement” is used throughout this paper to maintain consistency. Work engagement has been defined in several distinct ways. From an applied perspective, work engagement was first used by the Gallup organization (a research-based performance management consulting company) and in its original conception, it reflected a combination of familiar constructs such as affective and continuance organizational commitment (the former refers to commitment due to emotional attachment whereas the latter refers to commitment due to perceived costs and lack of other alternatives; Allen & Meyer, 1990) and extra-role behavior (employee discretionary behaviors that contribute to the social and psychological organizational environment such as helping others and showing extra effort; Borman & Motowidlo, 1997) and therefore, emphasizes the organization as the target of engagement. In the scientific literature, Kahn (1990) was the first to conceptualize work engagement as employees’ physical, cognitive, emotional and mental identification with their work role. This conceptualization influenced latter conceptualizations of work engagement but in terms of the foci, Kahn’s definition emphasized identification with the performance of the work role rather than specifically addressing work or task activities. Focusing on both work and family role engagement, Rothbard’s (2001) conceptualization of work engagement focuses on “psychological presence in work-related activities” (p. 656) and includes two motivational components, namely absorption (maintaining strong focus on work-related activities) and attention (actively thinking about work-related activities). Maslach, Schaufeli, and Leiter (2001) defined work engagement as polar opposite of burnout with dimensions of energy, involvement, and efficacy that directly correspond to exhaustion, cynicism, and ineffectiveness dimensions of burnout. The authors’ definition

emphasizes work engagement as a positive work-related state of well-being and fulfillment. The most commonly used conceptualization of work engagement belongs to Schaufeli and Bakker (2004) who defined work engagement as a “positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (p.295). This definition addresses the common features of work engagement as identified by Christian, Garza, and Slaughter in their review of work engagement literature (2011). First, work engagement indicates psychological connection with the performance of work tasks rather than a general attitude toward work conditions or characteristics. This emotional and fulfilling connection is regarded as relatively enduring. Second, individuals who report higher levels of work engagement are considered to be willing to invest all of their personal resources simultaneously to perform their work role and these resources have physical, emotional, and cognitive aspects. Schaufeli and Bakker (2004) identified three resources to correspond to these aspects. Vigor refers to having high levels of energy and displaying both the willingness to put effort in work and resilience when faced obstacles. Dedication refers to being highly involved in work and experiencing enthusiasm, pride, and challenge toward work activities. Absorption refers to being fully focused and intrinsically immersed in work tasks and activities. In this respect, this conceptualization suggests work engagement is a persistent and stable affective-cognitive state that indicates self-investment of multiple personal resources to the work experience such as behavioral-energetic (vigor), emotional (dedication), and cognitive resources (Schaufeli & Bakker, 2010). This conceptualization differs from Maslach et al. (2001)’s definition in the sense that it considers work engagement as a distinct construct from burnout and it emphasizes the psychological connection with the performance of work (e.g., the experience of working) rather than a general affective response to the job.

Beside these various definitions and heavy emphasis on state work engagement, Macey and Schneider (2008) suggested that work engagement should also be evaluated from trait (e.g., dispositional characteristics that enable one to view life and work positively such as proactive personality and authentic personality) and behavioral (e.g., extra-role behavior) aspects. However, empirical research on trait and behavioral engagement is currently non-existent. The current study employs the aforementioned conceptualization by Schaufeli and Bakker (2004) focusing on the psychological state of work engagement, which incorporates both trait-like and state-like components. This conceptualization is adopted not only because it is arguably the mostly used definition of work engagement (and thus reflects the vast body of research supporting its validity), but also because it emerges from the Job Demands-Resources Model of work engagement that explains the role of intrinsic motivation (in case of the current study, need satisfaction) on work engagement (Bakker, 2011; Bakker & Demerouti, 2008), which will be explained further in the paper.

The potential conceptual overlap between work engagement and other related psychological constructs has been debated in the literature. Schaufeli and Bakker (2010) provided theoretical reasoning for the incremental validity of work engagement. For example, work engagement is suggested to be theoretically different from similar psychological state constructs such as job satisfaction. Work engagement indicates high intensity affect toward work or work activities such as excitement whereas job satisfaction indicates low intensity affect such as contentment. Moreover, job satisfaction refers to evaluation of job characteristics whereas engagement is evaluation of individual experience during work. Work engagement is also theoretically distinct from job involvement. Job involvement is considered a cognitive facet of engagement that indicates identification with the overall job situation rather than work tasks

specifically. Work engagement differs from positive affect in terms of foci. Work engagement is a domain-specific psychological state whereas positive affect is context-free. In their meta-analysis, Christian et al. (2011) established discriminant validity of work engagement over job satisfaction, job involvement, and organizational commitment by showing moderate correlations between work engagement and these job attitudes.

Before discussing the importance of studying work engagement, it is critical to mention that most studies on work engagement have treated the construct as a stable affective-cognitive psychological state between individuals although recently, there are handful of studies that examine work engagement as a dynamic, within-individual variable (e.g., Sonnentag, 2003; Sonnentag, Mojza, Demerouti, & Bakker, 2012). In this study, work engagement is conceptualized as a relatively stable state of mind that may fluctuate over time, thus incorporating both trait-like and state-like aspects (Christian et al., 2011; Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2012).

Work engagement has been shown to relate to important outcomes including intent to leave the organization (e.g., Shuck, 2011), stress, and fatigue (e.g., Britt, Castro, & Andler, 2005). For instance, Harter, Schmidt, and Hayes (2002) specifically focused on business units across multiple fields in their meta-analysis and reported small to moderate significant effect sizes for the relationships between business unit level employee engagement and business unit outcomes such as profits, high customer satisfaction, low turnover, and high productivity. Christian et al. (2011)'s meta-analysis showed that work engagement served as a mediator between several job characteristics (e.g., task variety and task significance), personality (e.g., conscientiousness and positive affect) and job performance. Furthermore, work engagement explained incremental variance in both task performance and contextual performance above and

beyond job satisfaction, job involvement, and organizational commitment. In the next section, I introduce the theoretical framework of unanswered callings to explain the proposed relationships between study variables.

Theoretical framework: Linking overqualification, basic need satisfaction, and work engagement

Berg, Grant, and Johnson (2010) proposed a preliminary conceptual framework to explain how individuals experience and pursue unanswered occupational callings. Unanswered occupational calling refers to the presence of another occupation that is not currently being pursued but is more in line with one's identity and has the potential to instill more intrinsic enjoyment, fulfillment and purpose to the individual than the current work role (Bella et al., 1985; Berg et al., 2010; Hall & Chandler, 2005). According to Berg et al. (2010), the presence of unanswered occupational callings indicate unmet expectations in the current employment and therefore, these unmet expectations may propel individuals to recognize a mismatch between their work situations and personal values, needs, and preferences, resulting in feelings of misalignment. Because feelings of misalignment might negatively influence employee well-being by reducing enjoyment and meaning in both work and nonwork domains, the framework posits that employees might engage in active strategies such as job crafting or nonwork crafting to reduce misalignment and increase well-being.

Although the theoretical framework developed by Berg and his colleagues (2010) exclusively focuses on unanswered occupational callings, the interplay between the crafting techniques and psychological states in their model offers a framework for the current study. There are several reasons why this framework is of particular interest to the proposed study. First, the presence of unanswered callings creates a less optimal employment condition for

employees which can be used as a signal of unmet expectations to understand the experiences of overqualified individuals. Similar to unanswered occupational callings, overqualification status suggests that the current employment condition is not perceived to be sufficient by the target employee due to the discrepancy between what they expect and what they actually receive (Erdogan et al., 2011). In an unanswered calling context, this discrepancy results from an employee's expectation of a more intrinsically enjoyable and meaningful occupation whereas in an overqualification context, the expectation of a better deserving job that corresponds to one's qualifications renders the current employment situation less desirable (Maynard, 2011). In both cases, current employment is evaluated as inferior and/or insufficient and employees may actively seek to craft their jobs and/or leisure activities to satisfy their needs that are not met by the current employment. Second, the model developed by Berg et al. (2010) emphasizes that crafting techniques often result in pleasant psychological states such as enjoyment and meaning at work; components that are inherent in work engagement. By integrating both job crafting and nonwork crafting, the proposed study aims to understand how employees can actively alter their environment to satisfy their basic needs and as a result find a way to identify with their current jobs.

The tenets of the unanswered callings framework signal crafting techniques to address misalignment at work and improve positive psychological states. Therefore, it is expected that perceived overqualification negatively relates to work engagement. This negative relationship is due to the thwarting of basic psychological needs at work, which serves as the indicator of misalignment. Employees can proactively cope with this misalignment on the job (i.e., job crafting) or they can bring in their positive experiences and psychological resources to address this misalignment (i.e., nonwork crafting), and these strategies can further reduce the role of

perceived overqualification status on need satisfaction at work. In this respect, the current study suggests the extent that psychological need satisfaction explains the relationship between perceived overqualification and work engagement depends on whether or not individuals engage in job crafting and nonwork crafting. Figure 1 displays the proposed relationships and the rationale for each relationship is explained in the following sections.

Perceived overqualification and work engagement

The theoretical framework of unanswered callings suggests that once individuals find themselves in an optimal employment situation such as having a job that reflects their identity in case of occupational calling, they are likely to be intrinsically motivated to invest in their jobs and devote personal resources to contribute to their environment. This experience of perceiving their jobs as relevant and fitting is associated with enhanced psychological states and performance on the job. On the other hand, when individuals find themselves in current jobs that fail to provide purpose and meaning, their psychological state suffers and they refrain from investing more into their jobs. This pattern of relative deprivation is likely to hold for overqualification as well (Bernstein & Crosby, 1980). Individuals typically hold certain expectations regarding the jobs they can get and when their expectations are not met by their current jobs, they feel deprived. In case of overqualification, overqualified individuals tend to believe that they deserve jobs that match their education, experience, skills, knowledge, and abilities and because their current jobs require less level of qualifications than what they possess, their intrinsic motivation suffers and they may become reluctant to invest personal resources in their work and dedicate themselves fully to the current work role (Christian et al., 2011; Erdogan et al., 2011). Therefore, I expect a negative relationship between perceived overqualification and work engagement.

Hypothesis 1: Perceived overqualification negatively relates to work engagement.

Perceived overqualification and basic need satisfaction

Beside the direct association between perceived overqualification and work engagement, the objective of the current study is to understand the mechanism that explains the relationship between perceived overqualification and work engagement and to identify the boundary conditions between these relationships. The theoretical framework of unanswered callings posits that less than ideal work arrangements create misalignment for the individuals as they start perceiving their jobs not aligned with their needs, values, and or preferences (Berg et al., 2010).

Similarly, perceived overqualification triggers feelings of misalignment in the current job by highlighting unmet psychological needs. Self-Determination Theory (Deci, & Ryan, 1985; Deci, & Ryan, 1991) explains how lack of unmet needs may signal feelings of misalignment. The theory suggests that individuals function optimally and remain motivated to the extent that they satisfy their three universal psychological needs. The need for competence is defined as the desire to make an impact in the environment through experiencing mastery and challenges and attaining valued outcomes. The need for autonomy is defined as the desire to seek experience and engage in behavior out of one's own volition and willingness. The need for autonomy does not necessarily imply independence as individuals can still achieve a sense of volition in their actions through personal choices as well as internalization of external requests (Soenens, Vansteenkiste, Lens, Luyckx, Goossens, Beyers, & Ryan, 2007). The need for relatedness (also referred as the need for belongingness) is defined as the desire to interact with others and achieve security and inclusion by feeling connected, cared for, and loved. These three needs indicate "*innate psychological nutriments*" that are essential for ongoing psychological growth, integrity, and well-being" (Deci & Ryan, 2000, p. 229). Therefore, maintaining intrinsic motivation (active

engagement with tasks that promote self-growth and that individuals find interesting) requires satisfaction of basic psychological needs of competence, autonomy, and relatedness (Gagné & Deci, 2005).

There are three important features of basic psychological needs that are worth mentioning. First, the three needs represent innate needs rather than acquired needs and thus, they differ from other concepts of needs in organizational psychology literature such as Murray (1938)'s socially acquired needs for achievement, affiliation, and power. Second, individuals experience satisfaction or frustration of basic needs rather than them being high or low in a certain need. Acquired needs generally represent the latter in which need strength becomes critical to understand how needs relate to outcomes of interest whereas for basic psychological needs, the variation in satisfaction is important to understand well-being, adaptive functioning, and motivation (Van den Broeck, Vansteenkiste, Witte, & Lens, 2008). Extant literature supports that need satisfaction is positively related to employees' well-being (e.g., Church et al., 2013; Ryan, Bernstein, & Brown, 2010), job performance (e.g., Baard, Deci, & Ryan, 2004), job satisfaction (e.g., Ilardi, Leone, Kasser, & Ryan, 1993), and work engagement (e.g., Kovjanic, Schuh, & Jonas, 2013). Third, one's intrinsic motivation, performance, and well-being depend on satisfaction of all three needs (Deci & Ryan, 2000). In this respect, the three needs are interconnected and they are generally combined to reflect overall need satisfaction for assessment purposes (Deci, Ryan, Gagné, Leone, Usunov, & Kornazheva, 2001).

In the context of work, several factors seem to contribute to the satisfaction of basic needs. They include managerial support (e.g., Baard, Deci, & Ryan, 2004), work climate (e.g., Deci et al., 2001), and job characteristics (e.g., De Cooman, Stynen, van den Broeck, Sels, & De Witte, 2013). For example, Baard, Deci, and Ryan (2004) found that perceived managerial

support for autonomy, the extent that managers provide opportunities for their employees to display choice and engage in self-initiated behaviors, was related to their employees' basic need satisfaction above and beyond employees' own autonomy orientation (a dispositional variable indicating self-initiation). Job characteristics are more relevant for the current study to understand how overqualification might signal unmet needs. Several studies have shown that job resources (e.g., task autonomy, social support, job control, and positive feedback) positively relate to need satisfaction because they promote growth, goal achievement, and interpersonal intimacy (De Cooman et al., 2013; Fernet, Austin, Trépanier, & Dussault, 2013; Kovjanic, Schuh, & Jonas, 2013; van den Broeck et al., 2008).

As one of the major job resources that closely relates to perceived overqualification, skill utilization at work has also been positively associated with needs for competence, autonomy, and relatedness (e.g., Broeck, Vansteenkiste, de Witte, Soenens, & Lens, 2010). Because perceived overqualification signals underutilization of skills due to job mismatch and perceived lack of growth in the current job (Johnson, & Johnson, 2002), it may preclude the fulfillment of basic needs such as competency, and autonomy at workplace. Moreover, overqualified individuals are likely to perceive unfairness resulting from lack of opportunities to perform adequately on the job which may negatively influence their trust to the organization, thwarting their relatedness needs (Erdogan et al., 2011). Overall, when people don't fully use their skills and qualifications on their jobs, they will be unable to satisfy their psychological needs (Luksyte et al., 2011). Need satisfaction has been implicitly assumed as an underlying mechanism that explains the negative relationship between perceived overqualification and job satisfaction but has yet to be empirically examined. For instance, examining the relationship between overqualification and various facets of job satisfaction, Johnson and Johnson (2000) suggested that perceived

overqualification is associated with lack of fulfillment in work-related needs and expectations that may cause work-related deprivation for employees and lower their job satisfaction. However, the authors did not explicitly examine lack of need fulfillment at work. De Cooman et al. (2013) examined the relationship between job resources and need satisfaction at work. The authors operationalized job resources in terms of skill utilization (a facet of overqualification) and strategic impact and they found that job resources were positively associated with need satisfaction at work. There is also initial support that related concepts such as fit in terms of demands-abilities and person-environment is positively related to the satisfaction of competence, autonomy and relatedness needs (Greguras & Diefendorff, 2009). In light of the theoretical framework of unanswered callings, the principles of basic needs, and previous findings on job characteristics and basic need satisfaction, perceived overqualification is expected to negatively relate to need satisfaction at work.

Hypothesis 2: Perceived overqualification negatively relates to basic need satisfaction at work.

It is important to mention that basic need satisfaction at work refers to the aggregate standing on all three basic needs. In line with previous research on need satisfaction and according to the tenets of Self-Determination Theory which suggest that all three psychological needs operate simultaneously and they can be grouped under the overall construct of need satisfaction, general need satisfaction is employed in the present study. Potential unique relationships with each psychological need are examined in an exploratory supplementary fashion and are presented as part of supplementary analyses.

Basic need satisfaction at work and work engagement

The theoretical framework of unanswered callings suggests that the experience of misalignment with the current job due to less optimal employment situation precludes individuals to have a sense of fulfilment and this lack of fulfilment is likely to engender lower levels of enjoyment and meaning at work (Berg et al., 2010). Similarly the three basic needs provide a sense of fulfilment for individuals and they are necessary sources for personal growth and development. Once the current employment situation thwarts the satisfaction of these needs, individuals reduce their motivation, withdraw from dedication personal resources to their work, and experience maladaptive consequences such as low levels of psychological well-being and work engagement (Baard, Deci, & Ryan, 2004).

Extant literature on job characteristics also supports this assertion. The relationship between job characteristics and work engagement has been primarily explained by the Job Demands- Resources Model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). According to the Job Demands-Resources Model, job characteristics can be categorized as job resources and as job demands. Job demands refer to certain aspects of the work context that constrain individuals' capacities and lead to psychological and/or physical shortcomings (e.g., workload, task interruptions, and organizational changes). Job resources are defined as aspects of the work context that facilitate achievement of work-related goals and promote personal growth, learning, and development (e.g., performance feedback, supportive work environment, and career opportunities). Schaufeli and Bakker (2004) suggest that job demands deplete one's energy, which leads to work burnout whereas job resources foster motivation to increase work engagement. The Job Demands-Resources Model further posits that job resources play both an intrinsic motivational role (i.e., directly increasing growth and development) and extrinsic

motivational role (i.e., being instrumental to achieve goals) to maintain work engagement (Bakker & Demerouti, 2008). In the former process, job resources fulfill basic human needs that translate into high levels of work engagement (Bakker, 2011). This implicit role of basic need satisfaction on work engagement has been recently tested. Examining the mediating role of need satisfaction between job characteristics and burnout and work engagement, van den Broeck, Vansteenkiste, De Witte, and Lens (2008) found that satisfaction of basic psychological needs fully mediated the relationship between job resources and the vigor component of work engagement. Similarly, Kovjanic, Schuh, and Joan (2013) showed support for the mediating role of basic need satisfaction, in their case the relationship between leaders' transformational leadership style and followers' work engagement was mediated by satisfaction of the need for competence and for relatedness. In light of these findings and given that work engagement reflects high intrinsic motivation through its components of vigor, absorption, and dedication and fulfilment of basic needs of competence, autonomy, and relatedness promote intrinsic motivation and work engagement, it is hypothesized that need satisfaction is positively associated with work engagement.

Hypothesis 3: Basic need satisfaction at work positively relates to work engagement.

Moreover, basic need satisfaction is expected to explain the relationship between perceived overqualification and work engagement. Because overqualification status indicates constraint in the current job in terms of opportunities to utilize skills, education, and/or experience (Johnson & Johnson, 2002) and lack of skill utilization depletes one's energy due to thwarting of basic needs at work (Ryan & Deci, 2000), employees who perceive themselves as overqualified are less likely to display vigor, absorption, and involvement toward their jobs as their basic needs are not fulfilled by their current employment condition.

Hypothesis 4: Basic need satisfaction at work mediates the negative relationship between perceived overqualification and work engagement.

Boundary conditions of the mediated model: Crafting activities

The present study suggests that the extent to which need satisfaction at work explains the relationship between perceived overqualification and work engagement depends on involvement in job crafting and nonwork crafting. Job crafting serves as a proactive coping strategy on the job to create desirable levels of challenge, meaning, improvement, and reframing that may weaken the negative relationship between perceived overqualification and need satisfaction at work. On the other hand, nonwork crafting acts as a resilience-building strategy to address satisfaction of basic needs outside work. As a positive psychological resource, nonwork crafting may render need satisfaction at work less prone to the negative influence of perceived overqualification.

Job Crafting

The current project incorporated moderators to understand the boundary conditions of the expected negative outcomes associated with perceived overqualification. As suggested previously, the extant literature on overqualification has identified mostly emotional moderators such as personal initiative, empowerment, and emotional support. Farrell (1983) suggests that employees react in various ways when they experience dissatisfaction with work conditions such as showing withdrawal behaviors, neglecting responsibilities, reducing loyalty or voicing their concerns. As evident in the case of voicing behaviors, employees may attempt to improve their current work conditions by actively searching for new ways to accomplish work tasks or by introducing changes to their job responsibilities. Job crafting aligns with the perspective that employees may take active steps such as redesigning their job tasks to ameliorate less optimal working experiences and/or derive positive outcomes at workplace. Job crafting has been defined

as “the physical and cognitive changes individuals make in the task or relational boundaries of their work” (Wrzesniewski & Dutton, 2001, p. 179). In this earlier conceptualization, job crafting takes three forms, namely, task crafting, relational crafting, and cognitive crafting. Task crafting refers to changing the scope, nature, and/or number of current job tasks, relational crafting refers to improving the quality and effectiveness of interpersonal relationships at work, and cognitive crafting refers to reframing how one views and evaluates his/her current job (Wrzesniewski & Dutton, 2001). Two important characteristics of job crafting are relevant to the following discussions. First, job crafting is not necessarily tantamount to redesigning the job as a whole. Rather, job crafting emphasizes alteration of specific characteristics of job tasks and these changes can range from expansion of job responsibilities to small personal decisions to execute work goals such as seeking for assistance (Berg & Dutton, 2008). This distinction is consequential because it suggests that opportunities for job crafting at work may be created by every employee regardless of their rank in the organization (Berg, Wrzesniewski, & Dutton, 2010). Supporting this notion, empirical research shows that employees having low levels of autonomy over their jobs such as nurses and salespersons can still engage in some form of job crafting at work (e.g., Lyons, 2008; Wrzesniewski & Dutton, 2001). Second, job crafting is a bottom-up approach as employees initiate and seize opportunities to craft their jobs at work independent from a third party involvement (i.e., the organization). In this respect, job crafting is a specific form of proactive work behavior that results from self-initiation to actively respond to the changes or uncertainty in the work environment (Tims, Bakker, & Derks, 2012). Beside improving less desirable work conditions, job crafting can also be considered as a mindful negotiation to renew one’s love for their work (Kopelman et al., 2012) or as an adaptive strategy to increase meaningfulness of current work (Hall, Feldman, & Kim, 2013).

Recently, Tims, Bakker and Derks (2012) conceptualized job crafting on the basis of the Job Demands-Resources Model (Bakker & Demerouti, 2008). This conceptualization differs from the earlier conceptualization by Wrzesniewski and Dutton (2001) because it focuses on the content of job crafting (e.g., what employees specifically do to change job characteristics such as job resources and job demands) and it does not include arguably more passive components of job crafting such as cognitive crafting. Their conceptualization focuses on four dimensions of job crafting: Increasing structural job resources (e.g., developing additional skills), increasing social job resources (e.g., seeking performance feedback or seeking knowledge from supervisors), increasing challenging job demands (e.g., introducing difficult goals, seeking mastery opportunities), and decreasing hindering job demands (e.g., avoiding confrontational relationships at work). The first three dimensions refer to expansion of work behaviors whereas the fourth dimension refers to restriction of work behaviors. Although both conceptualizations have merit, the state of the current research is too nascent to favor one conceptualization over the other. The current study focused on the earlier conceptualization by Wrzesniewski and Dutton (2001) because previous research indicates that task, relational, and cognitive crafting directly addresses satisfaction of basic needs (Slemp & Vella-Brodrick, 2013). Employees may satisfy their need for autonomy by increasing control over their own work (task crafting), feel competent by re-assessing the potential value of their own work (cognitive crafting), and meet relatedness needs by developing positive, high-quality relationships at work (relational crafting).

In the current study, it was expected that job crafting moderates the negative relationship between perceived overqualification and basic need satisfaction at work. The theoretical framework by Berg et al. (2010) suggests that individuals craft their jobs in order to effectively deal with the misalignment stemming from their current employment status. According to the

authors, job crafting helps individuals to gain a sense of fulfilment that is previously compromised by the less optimal employment status. Indeed, research on self determination reveals that in situations where individuals feel controlled because their basic needs are thwarted (i.e., overqualification status in our case), they can be motivated to pursue additional work-related activities or change social environmental aspects to fulfill their basic needs (Deci & Vansteenkiste, 2004; Slemp & Vella-Brodrick, 2013). Overqualified individuals have surplus of skills and experience that can contribute to creative and divergent thinking and by engaging in job crafting, they can adopt problem-focused coping to improve their work conditions (Liu & Wang, 2012). Job crafting can address thwarted needs at work due to experienced overqualification and can introduce sufficient levels of competence, autonomy, and connectedness even if employees do not necessarily feel their qualifications match the current job. As employees extend their work tasks, provide input to organizational processes, and derive sense of accomplishment and/or meaning, they can satisfy their basic needs that are compromised by their overqualification status, weakening the negative relationship between perceived overqualification and basic need satisfaction at work. Given that taking the initiative to craft work tasks can result in enhanced positive self-image, increased self-efficacy, and increased identification with the job (e.g., Lyons, 2008), the role of one's own perceptions of overqualification on their autonomy, competence, and relatedness needs at work may be less relevant. Some tentative findings support the claim that active work strategies employed by individuals might negate the negative repercussions of perceived overqualification. For example, Agut, Peiro, and Grau (2009) found that perceived overqualification was negatively associated with extra-role behaviors such as job content innovation and career-enhancing strategies but the negative relationships were attenuated when employees had high personal initiative such as

accepting challenging work assignments and actively removing obstacles. Similarly, Luksyte (2011) found that the negative relationships between overqualification and withdrawal behaviors were weaker when employees engaged in idiosyncratic behaviors (personally sought and organizationally approved work conditions such as schedule flexibility and involvement in developmental opportunities). These findings suggest that by taking proactive steps to improve their work conditions, employees can reduce the negative impact of perceived overqualification. In other words, changing work components and reframing the current job may create desirable levels of challenges for overqualified individuals that currently lack such opportunities to fulfill their basic needs at work. Therefore, it is expected that job crafting moderates the relationship between perceived overqualification and need satisfaction such that higher levels of job crafting buffer the negative relationship between perceived overqualification and basic need satisfaction at work.

Given that job crafting moderates the negative relationship between perceived overqualification and basic need satisfaction at work and the notion that job crafting serves as a proactive strategy to reduce the negative implications of overqualification by fulfilling their needs at work, job crafting could also impact the strength of the indirect relationship between overqualification and work engagement through basic need satisfaction at work. In other words, for those employees engaging in higher levels of job crafting, the negative relationship between perceived overqualification and work engagement is less likely to be explained by basic need satisfaction at work compared to those employees displaying lower levels of job crafting.

Hypothesis 5: Perceived overqualification moderates the negative and indirect effect of perceived overqualification on work engagement through basic need satisfaction at work,

such that the indirect effect is weaker among employees with higher levels of job crafting compared to those with lower levels of job crafting.

Targeted Nonwork Crafting

As previously explained, the current study suggests that one's overqualification status signals misalignment at workplace by thwarting one's basic need satisfaction at work. In order to reduce this misalignment and satisfy their needs of autonomy, competence, and relatedness, employees may engage in proactive strategies. Job crafting is one of these work-domain strategies that address unmet needs at work due to perceived overqualification. However, employees might also engage in activities outside the work domain to satisfy their basic needs and thus, reduce the negative association between perceived overqualification and need satisfaction at work. Although job crafting serves as an on-the-job coping strategy to address basic needs at work, engaging in nonwork crafting to address need satisfaction outside work plays as a psychological resource and increases employees' resilience that in turn may reduce their vulnerability to unmet needs at work due to overqualification status.

The theoretical framework on unanswered callings by Berg et al. (2010) suggests that employees can pursue nonwork crafting techniques to maintain their satisfaction and enjoyment. According to the framework, not all individuals have opportunities to engage in job crafting and they may prefer to craft their leisure time in order to achieve a sense of fulfilment and alignment with their needs. The importance of nonwork activities has been acknowledged in boundary management/work-life balance (e.g., Sturges, 2008) and leisure literatures (e.g., Beard & Ragheb, 1980). A comprehensive review of both literatures is beyond the scope of the current study but relevant points will be further discussed. Research suggests that individuals engage in leisure activities both for intrinsic (e.g., stimulation accomplishment, gaining knowledge) and for

extrinsic (e.g., social development, procrastination, construction of free time) reasons (e.g., Crandall, 1980; Pelletier, Vallerand, Green-Demers, Blais, & Brière, 1996). Using both qualitative and quantitative methodology, Dillard and Bates (2011) identified four core motivations for why individuals engage in leisure and recreational activities. The core motivations included escape (e.g., relaxing, reducing tension, exploring new perspectives), enhancing relationships (e.g., socializing with friends, being a role model for children), personal mastery (e.g., building self-confidence, feeling accomplished at an activity), and winning (e.g., taking risks, competing, pushing one's personal limits). Similarly, Hills et al. (2000) cluster-analyzed nonwork activities in terms of enjoyment, social satisfaction, skill development, and challenge. Their findings revealed six general categories of leisure activities: demanding activities (activities that are high on challenge and skill development such as active sports), social activities (activities that grant enjoyment and social satisfaction such as family activities or joining leisure groups), solitary activities (e.g., hobbies), goal-directed activities (activities that are high on purpose such as evening classes, meditation, serious reading), relaxing activities (e.g., listening to music, walking), and community-focused activities (e.g., political activities, religious activities, charitable and voluntary activities). Another way to distinguish among various nonwork activities is to categorize them in terms of self-oriented activities versus other-oriented activities (e.g., volunteering) (Piliavin & Siegl, 2007). Regardless of different categories of nonwork activities, engaging in leisure activities have been shown to be positively associated with life satisfaction (e.g., Lee & Lin, 2011), and physical and psychological well-being (e.g., Pressman, Matthews, Cohen, Martire, Scheier, Baum, & Schulz, 2009). In the organizational psychology literature, the positive impact of nonwork activities has been studied as part of recovery experiences (e.g., Binnewies, Sonnentag, & Mojza, 2010). Recovery experiences refer

to common characteristics of off-job activities that ensure recovery during work breaks, after work time, and/or weekends and include psychological detachment from work (not being pre-occupied with job-related thoughts), mastery experiences (engaging in challenging activities to facilitate personal learning and growth), and relaxation (participating in muscle relaxation, meditation, or similar activities to decrease physical activation) (Sonnentag & Fritz, 2007).

Therefore, recovery experiences focus on the underlying psychological mechanisms of recovery activities rather than main activities for recovery per se. Research showed that individuals who reported higher levels of recovery experiences also indicated better well-being, life satisfaction (e.g., Sonnentag & Fritz, 2007) and less burnout and sleep problems (e.g., Siltaloppi, Kinnunen, Feldt, & Tolvanen, 2011) than those reporting lower levels of recovery experiences. The concept of mastery experiences under recovery experiences aligns with how I define targeted nonwork crafting in the current study as individuals might be motivated to create leisure space purposefully to capitalize on their strengths. I define “targeted nonwork crafting” as involvement in nonwork activities during off-work time to specifically satisfy needs for competence, autonomy, and relatedness.

In the current study, I proposed that nonwork crafting, if it is targeted to address basic needs, can serve as a positive psychological resource that builds resilience to buffer the negative implications associated with the overqualification status. The leisure literature has shown that specific leisure activities can build positive resources. Based on several focus groups, Iwasaki, Mactavish, and MacKay (2005) found that individuals intentionally created leisure space for engaging in nonwork activities in order to promote balance, renew resources, and adopt novel perspectives beside simply taking a break from work demands and relax. According to the authors, certain leisure activities serve as a survival strategy to emphasize strengths, create

meaning, and build resilience because they emotionally, physically, and/or psychologically recharge individuals and reduce the stress they might be experiencing in work domain. This potential spillover effect of nonwork crafting across domains is evident in research on work-nonwork interface. Although Berg et al. (2010) proposes that job crafting and nonwork crafting are likely to have domain specific consequences (e.g., job crafting results in enjoyment and meaning at work whereas nonwork crafting results in enjoyment and meaning outside work), the nonwork-to-work spillover framework posits that activities in one domain (e.g., engaging in nonwork activities) can influence the other domain (e.g., work outcomes or work-related feelings) because individuals have limited resources to devote to each domain. This spillover effect over another domain can be negative or positive (Edwards & Rothbard, 2000). Hecht and Boies (2009) studied four dimensions of nonwork-to-work spillover (positive emotional spillover, positive behavioral spillover, negative emotional spillover, and negative behavioral spillover) vis-à-vis leisure activities such as volunteering, memberships, and sports/fitness activities. Emotional spillover indicates transfer of feelings from one domain to another whereas behavioral spillover occurs when skills and abilities acquired in one domain influence performance in the other domain. The authors found that specific activities such as volunteering created positive emotional and behavioral spillover and resulted in increased well-being and job satisfaction. There is also support for within-individual variation in the extent to which engaging in nonwork activities positively influence work domain outcomes. Mojza, Sonnentag, and Bornemann (2011) found that time spent on volunteer work experiences was positively associated with need satisfaction in the evening which in turn was negatively associated with negative affect at work (indicator of subjective well-being) the following day. The authors discussed the positive effect of volunteer work experiences on need satisfaction in light of free

choice and positive aspects of volunteer activities such as contributing to the community. Therefore, there is initial support that engaging in nonwork crafting activities can serve as a positive resource to build resilience and it might have implications for work domain.

In the current study, I expected that involvement in targeted nonwork crafting moderates the relationship between perceived overqualification and need satisfaction at work. That is, individuals who engage in specific nonwork crafting are likely to transfer the positive experiences and resources associated with satisfaction of needs to their workplace and infuse their work with more personal meaning. Therefore, for these individuals who manage to satisfy their basic needs outside work, their perceived overqualification will have less of a negative association with unmet needs. In other words, overqualified individuals who engage in targeted nonwork crafting will experience less lack of need satisfaction at work due to increased resilience resulting from meeting basic needs outside work. Conversely, individuals who do not perceive having opportunities to satisfy their autonomy, competence, and relatedness needs through nonwork activities are likely to be susceptible to the negative influence of perceived overqualification on lack of need satisfaction at work as a result of undermined intrinsic motivation in both domains.

Therefore, targeted nonwork crafting was expected to moderate the indirect effect of perceived overqualification on work engagement through basic need satisfaction. For those employees engaging in higher levels of targeted nonwork crafting, the basic needs at work becomes less of a factor contributing to the negative effect of overqualification on work engagement because those employees creates other opportunities for themselves to fulfill their needs for competency, autonomy, and relatedness.

Hypothesis 6: Targeted nonwork crafting moderates the negative relationship between perceived overqualification and basic need satisfaction at work such that the negative relationship is attenuated when individuals report higher levels of targeted nonwork crafting compared to lower levels of targeted nonwork crafting.

In their original framework, Berg et al. (2010) have proposed that individuals engage in leisure crafting only when they are unable to do job crafting and the strength of the situational constraints determines whether or not individuals pursue job crafting or leisure crafting. I propose that involvement in targeted nonwork crafting does not necessarily depend on current involvement in job crafting and crafting activities can be independent from each other; that is individuals may independently pursue job crafting and targeted nonwork crafting. This rationale is in line with identity play versus identity work concepts in careers literature (e.g., Ibarra & Petriglieri, 2010). According to this mostly conceptual body of literature, individuals engage in work and nonwork activities to explore past, present, future, and possible selves. Especially under threat conditions (i.e., when their role identity expectations are not met and they feel controlled in their environment because of lacking opportunities to fulfill their needs such as perceived overqualification in this case), individuals try to maintain and affirm their identities by engaging in relevant work and nonwork activities. In this sense, identity work (identity expressed and explored in work activities) and identity play (identity expressed and explored in nonwork activities) are both complementary and distinct and individuals can engage in both simultaneously (Ibarra & Petriglieri, 2010; Petriglieri, 2011).

Although to my knowledge, there is no empirical research that has investigated the interplay between job crafting and nonwork crafting, a three-way interaction between perceived overqualification and both crafting behaviors warrants consideration. It is reasonable to expect

that when job crafting is low, perceived overqualification strongly relates to basic need satisfaction at work for those individuals who engage in lower levels of targeted nonwork crafting than those who engage in higher levels of targeted nonwork crafting. In this case, employees are not involved in any proactive and directed strategies at work and outside work and therefore, they are more likely to be susceptible to the feelings of misalignment at work due to perceived overqualification status. However, when employees engage in higher levels of job crafting, two potential outcomes might be observed. One potential expectation is that the negative relationship between perceived overqualification and basic need satisfaction at work might be attenuated when employees pursue higher levels of targeted nonwork crafting whereas the negative relationship remains stronger when employees involve in lower levels of targeted nonwork crafting. This additive effect of targeted nonwork crafting is possible because employees actively introduce challenges and target their needs of competence, autonomy, and relatedness in both domains that weakens the role of perceived overqualification on unmet needs at work. Another possible direction is that when employees are engaged in higher levels of job crafting, the relationship between perceived overqualification and basic needs at work might be unaffected by the levels of targeted nonwork crafting. In other words, involvement in targeted nonwork crafting may not matter in terms of the relationship between perceived overqualification and basic need satisfaction at work when individuals are involved in higher levels of job crafting. This is in line with the application of domain specificity hypothesis in the research of work-nonwork interface (e.g., Rothbard, 2001) which suggests that experiences in one domain create a stronger effect in this specific domain compared to a potential spillover effect in other domains. Given the competing nature of these two explanations under higher

levels of job crafting, the potential three-way interaction is investigated as part of a research question.

Research Question: Is there a three-way interaction among perceived overqualification, job crafting and targeted nonwork crafting on need satisfaction at work?

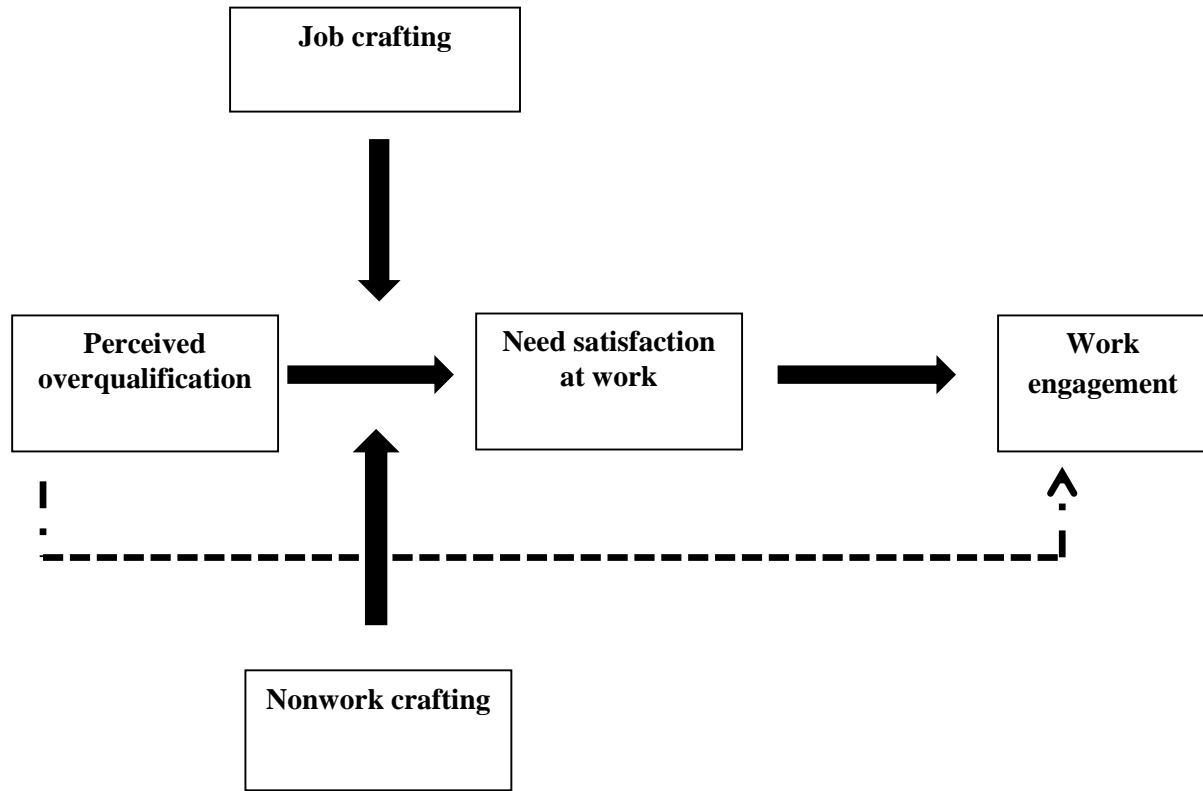


Figure 1. Proposed moderated mediation model of perceived overqualification and work Engagement.

Table 1. Operational definition examples for objective and subjective overqualification.

Objective overqualification	Subjective overqualification
<ul style="list-style-type: none"> • One's years of formal education is one standard deviation above the average years of formal education in a given occupation (e.g., Hung, 2008; McGoldrick & Robst, 1996). 	<ul style="list-style-type: none"> • One perceives surplus of education, experience, knowledge, skills, and abilities (e.g., Maynard et al, 2006).
<ul style="list-style-type: none"> • One's own educational qualification (i.e., highest degree achieved) exceeds the required educational qualification for the job as specified by a job analysis or reported by the employer (mostly dummy coded; e.g., Green & Zhu, 2010; Verhaest & Omeij, 2006). 	<ul style="list-style-type: none"> • One perceives surplus of skills, education, and experience and lack of opportunity for skill use and growth (e.g., Johnson & Johnson, 1996).
<ul style="list-style-type: none"> • One's cognitive ability score on the Armed Services Vocational Aptitude Battery is above the average level of cognitive ability to perform the job as obtained from the Occupational Information Network (yet to be empirically tested, e.g., Maltarich, Nyberg, & Reilly, 2010) 	<ul style="list-style-type: none"> • One perceives having higher levels of cognitive ability than is required to do their jobs and perceives lack of growth and learning opportunities on the job (Fine & Nevo, 2008).

CHAPTER TWO:

METHOD

The current study was conducted in two phases. In the first phase, a new measure for targeted nonwork crafting was developed and validated. In the second phase the main study hypotheses were tested with data collected from an independent sample. In this section, I first explain the participants and the procedures for the scale development study and then elaborate on the participants and the procedures for the main study.

Study 1

Given that one of the study objectives is to understand whether targeted nonwork crafting moderates the relationship between basic need satisfaction at work and work engagement and that there is no available scale in the literature to measure this construct, the purpose of this study was to develop and validate a new measure of nonwork crafting.

Participants

The final version of the targeted nonwork crafting scale alongside with the scales to establish construct and criterion-related validity of the new scale was administered through Amazon's Mechanical Turk portal (MTurk) (see Buhrmester, Kwang, & Gosling, 2011 for a detailed discussion on the comparability of Mechanical Turk samples to other traditional samples). Full-time working employees (working 30 hours or more per week) currently residing in the United States, at least 18 years of age, and working in their current job position for at least 3 months were targeted. A final sample of 221 employees participated in the study. (The results

section includes detailed information on the final scale items and both initial and final sample size) The final sample was well-balanced in terms of gender (50.2% female and 49.8% male). The majority of the sample identified themselves as White/non-Hispanic (79.2%). The remaining ethnicity breakdown for the sample included 9% African-American/Black, 5% Asian, 4.5% Hispanic/Latino-Latina, and .9% American Indian/Alaska native. On average, participants worked 41.12 hours per week ($SD=6.75$), had a job tenure of 5.03 years and organizational tenure of 5.51 years, and reported 12.68 years of formal education. The majority of the sample held a bachelor's degree (40.3%) and 33.35% of the sample indicated that they need at least bachelor's degree to perform their current job position. Almost half of the sample was single (49.8%) whereas 37.1% were married and 13.1% were in a domestic partnership or had a live-in partner. Forty-five percent of the sample had children.

Procedure

The item development process and the initial findings regarding the validation of the targeted nonwork crafting scale are explained in detail in the Results section. Participants recruited through MTurk completed the initial 24-item targeted nonwork crafting scale in addition to several other scales to establish construct and criterion-related validity of the new targeted nonwork crafting scale (i.e., intrinsic motivation, recovery experiences, job satisfaction, life satisfaction, and perceived stress). I used several strategies to ensure quality and increase participant motivation on MTurk as recommended by Paolacci and Chandler (2014) and by Mason and Suri (2012). I included six sporadically distributed bogus items with a clear correct answer to detect inattentive responses (Meade & Craig, 2012). These items included statements such as "I do not understand a word of English" and "Please choose Strongly Agree as your response to this question." I also recorded response time and asked participants to indicate their

MTurk worker IDs to check double entries. In order to increase meaning and motivation for participants, I asked them if they found the survey interesting and I provided them with the opportunity to report confusing items/instructions as well as general feedback. I also used the filtering option on MTurk and restricted the survey to those who had high approval worker ratings (95% or more). The survey was released in 4 separate batches to increase participation. The participants received \$0.40 for their participation which is in line with studies that take around 20 minutes to complete (e.g., Barger, Behrend, Sharek, & Sinar, 2011). Furthermore, research indicates no relationship between pay and quality of responses for most psychological studies as long as the participants are interested in the nature of the study (Buhrmester et al., 2011).

Measures

Through the MTurk portal, the participants were directed to an online survey hosted by Qualtrics to review the informed consent and to indicate whether they would like to proceed with the study. The online survey included 24 targeted nonwork crafting scale items (items were rated in terms of frequency from *1 = never*, to *5 = always*), one open-ended item that asked participants to report at least three nonwork activities in which they most frequently engage, and the scales mentioned below for initial validity evidence. The internal consistencies reported for each scale are based on the current MTurk sample.

Intrinsic motivation. Intrinsic motivation was assessed using the scale developed by Guay, Vallerand, and Blanchard (2000). Participants completed 5 items with regard to why they engage in nonwork activities ($\alpha = .89$). A sample item is “because I think the nonwork activities I engage in are interesting” (*1 = not corresponds at all*, to *5 = corresponds exactly*).

Recovery experiences. Recovery experiences were measured using The Recovery Experience Questionnaire developed by Sonnentag and Fritz (2007), which consists of 4 diversionary strategies to recover from stress (four items each): psychological detachment from work (sample item “I forget about work.”; $\alpha = .79$), relaxation (sample item is “I kick back and relax.”; $\alpha = .82$), mastery (sample item is “I seek out intellectual challenges.”; $\alpha = .81$), and control (sample item is “I determine for myself how I will spend my time.”; $\alpha = .70$). Responses were recorded on a 5-point Likert scale ranging from 1 = *strongly disagree*, to 5 = *strongly agree*.

Job satisfaction. Job satisfaction was measured with 3 global job satisfaction items developed by Cammann et al. (1983) ($\alpha = .93$). A sample item is “In general, I like working at my job” (1 = *strongly disagree*, to 5 = *strongly agree*).

Life satisfaction. The 5 item Satisfaction with Life scale developed by Diener et al. (1985) was used to assess life satisfaction ($\alpha = .89$). A sample item is “In most ways my life is close to my ideal” (1 = *strongly disagree*, to 5 = *strongly agree*).

Perceived stress. Perceived stress was measured using the 4-item version of the Global Perceived Stress scale (Cohen et al., 1983). Participants were asked how often they felt or thought in a certain way in the last month. ($\alpha = .80$). A sample item is “In the last month, how often have you felt that things were going your way?” Responses were recorded on a 5-point Likert scale ranging from 1 = *never*, to 5 = *very often*.

Study 2

Participants

The final sample for the main study consisted of 321 full-time employees (defined as at least 30 hours per week in paid employment) who currently reside in the United States, were at

least 18 years of age, and had been working in their current job for at least 3 months. The latter inclusion criterion ensured that participants had at least some degree of job familiarity in order to accurately assess and rate study variables such as job crafting and work engagement. Given the nature of the variables under investigation (especially perceived overqualification and job crafting), a wide range of occupations/industries were targeted. For example, research on overqualification suggests that overqualification is prevalent not only among recent college graduates but among employees with different levels of ranks (Frei & Sousa-Poza, 2012). Participants were recruited through different sources including community flyers, employee databases that are available to the public, and personal contacts. Furthermore, several companies representing diverse industries such as public relations, civil engineering, travel agencies, hotels and resorts, accounting, construction, and advertisement agencies available through *Tampa Bay Business Journal* were contacted to obtain a final diverse sample.

The final employee sample consisted of 195 females (60.7%) and 123 males (38.3%). Three participants did not indicate their gender. Seventy-nine percent ($n = 252$) of the sample identified themselves as White/non-Hispanic, 10% Hispanic/Latino-Latina, 3.7% African-American/Black, 3.7% Asian, and 4.1% either multiethnic or other categories. Average age was 36.20 ($SD = 10.57$) and 82.2% of the sample held bachelor's degree or higher. Employees worked an average of 42.85 hours per week ($SD = 9.21$), had an average tenure of 5.52 years in their current organization, and an average tenure of 3.77 years in their current position. Participants anticipated remaining in their current job for a median level of 2 more years. The participants worked in a variety of industries. For example, the most common categories were 31.2% educational services; 19.3% professional, scientific, and technical services, 7.5% information services, 7.5% health care and social assistance, 6.5% administrative and support

services, 3.4% government, 3.1% manufacturing, 2.8% accommodation and food services, and 2.2% arts, entertainment, and recreation. The participants also held diverse job roles such as postsecondary education administrators, psychologists, administrative services managers, marketing specialists, statisticians, human resources specialists, information system managers, pharmacists, secretaries and administrative assistants, instructional designers, and waiters/waitresses. Fifty-three percent of the sample ($n = 170$) was married and 39.2% ($n = 125$) had children. Among those who had children, the average number of children living at home was 1.26.

Procedure

After responding to the recruitment email and community flyers, participants were contacted by email and were provided with the study description as well as eligibility requirements. Once the participants affirmed that they met the qualifications and were motivated to participate in the study, they were sent the link to the first survey. Participants were asked to complete 3 online surveys with one week intervals to be able to test the moderated mediation model. An interval of one week was primarily chosen for practical reasons (i.e., keeping the response rate high while reducing the potential effects of mood carry over that are inherent in cross-sectional designs; e.g., Moum, 1988) and to help establish initial evidence for proposed relationships. Each survey was sent exactly one week after the completion of the previous survey and participants were given a three-day window to complete the corresponding survey. During these three days, participants were sent one reminder email per day until they completed the survey. After the third day, no more emails were sent and participants who completed the survey after the three-day window were not included. Most participants (around 60%) completed the surveys within the specified time frame (the time length between Time 1 survey-Time 2 survey

and Time 2 survey-Time 3 survey ranged between 7 to 11 days), and the mean for both time lengths was 7 days. Time 1 survey was pilot tested to take 25 minutes to complete whereas Time 2 and Time 3 surveys were expected to take 10 minutes to complete. On average, participants completed the Time 1 survey in 24.24 minutes ($SD = 10.48$), the Time 2 survey in 14.34 minutes ($SD = 8.09$), and the Time 3 survey in 13.15 minutes ($SD = 9.74$).

Participants were each paid a \$5 e-gift card for completing the Time 1 survey and the Time 2 survey, and a \$10 e-gift card for completing the Time 3 survey (a total of \$20 e-gift card for completing all surveys). Furthermore, participants were automatically considered for a raffle to win one of 10 \$50 e-gift cards after completing Time 3 survey¹.

All three surveys included the scales for the main study variables (i.e., perceived overqualification, basic need satisfaction at work, job crafting, targeted nonwork crafting, and work engagement). The initial link to the Time 1 survey provided detailed information about the study and the informed consent. Once the participants agreed with the conditions and provided their consent to pursue the study, they were directed to the eligibility criteria and three personal questions that were used to match the subsequent surveys. Although all three surveys included the main study variables, the order of the scales was different in each survey and the order was determined on the basis of their temporal precedence for data analysis purposes. The moderated mediation model incorporated perceived overqualification, job crafting, and targeted nonwork crafting at Time 1, basic need satisfaction at work at Time 2, and work engagement at Time 3. Therefore, the order of the scales in the accompanying surveys reflected this nature. In Time 1, participants first completed perceived overqualification, targeted nonwork crafting, and job

¹ The data collection for the main study was supported by the Sunshine Education and Research Center at the University of South Florida and sponsored by the National Institute of Occupational Safety and Health (NIOSH) (Pilot Grant Project No. 6402107414).

crafting scales and then the remaining scales. In the Time 2 survey, participants completed the basic need satisfaction at work scale first and then the remaining surveys whereas in the Time 3 survey, participants completed the work engagement scale first. In addition to the scales assessing the main study variables, in the Time 1 survey, participants completed demographic information (e.g., age, gender, ethnicity, marital status, number of children), job-relevant information (e.g., work hours, organizational tenure, job tenure, positional title, occupation/industry) and the scales of some of the control variables including work identity, proactive personality, neuroticism, and task autonomy. This survey also included an open-ended question asking participants to list three or more nonwork activities they frequently participate in and the amount of hours per week they dedicate to nonwork activities they mention. The Time 2 survey included the scales for the main study variables and the scale for the control variable learning goal orientation. The Time 3 survey included only the scales for the main study variables. Both Time 2 and Time 3 surveys asked participants whether they held the same job in the same organization as they indicated in the previous surveys to ensure that participants did not change their job or the organization across to surveys, which could confound interpretation of the study findings. At the conclusion of each survey, the participants were directed to a separate link to enter their email address and identifying code and then asked to return to the original survey window to submit their answers. This way their email address information was kept separate from their answers to maintain full anonymity. The email address information was then used to send the subsequent surveys and to compensate the participants for completing the corresponding survey.

Initially, 420 participants were contacted and took the Time 1 survey. Eleven participants completed the Time 1 survey but failed to follow instructions and did not provide their email

address in the separate link to receive the subsequent surveys. Twenty-one participants completed the Time 1 survey but did not complete the Time 2 survey. Thirty four participants completed both Time 1 and Time 2 surveys but did not complete the Time 3 surveys. Therefore, 354 participants (84.3%) provided complete data across three time points. After careful screening of the data, 321 participants were retained for the final analyses. The screening process is discussed in detail in Results section.

Measures

Perceived overqualification. Perceived overqualification was measured using 9 items developed by Maynard et al. (2006). This scale is preferred over the alternative perceived overqualification measure developed by Johnson and Johnson (1996) because the Johnson and Johnson scale contains subscales of mismatch (surplus of education, experience, skills) and no-growth (lack of learning opportunities on the job). The no-growth aspect is not included in current definitions of overqualification (Maynard, 1998). A sample item was “My job requires less education than I have” (1 = *strongly disagree*, to 5 = *strongly agree*). Internal consistency as assessed by coefficient alpha was $\alpha = .89$ for Time 1.

Job crafting. Job crafting was measured using a recent scale developed by Slemp and Vella-Brodrick (2013). This scale is preferred over the relatively more common job crafting scale by Tims, Bakker, and Derks (2012) because it specifically measures task, relational, and cognitive crafting independent from the Job Demands-Resources framework. The scale included 15 items. Sample items were “Make an effort to get to know people well at work” (relational crafting), “Introduce new approaches to improve your work” (task crafting), and “Remind yourself of the importance of your work for the broader community” (cognitive crafting). Responses were recorded on a 5-point Likert scale ranging from 1 = *never*, to 5 = *all of the time*.

Scores were aggregated to obtain an overall job crafting score and higher scores reflected a greater frequency of engagement in job crafting. Coefficient alpha for the overall job crafting scale at Time 1 was $\alpha = .84$ ($\alpha = .70$ for task crafting, $\alpha = .82$ for cognitive crafting, and $\alpha = .71$ for relational crafting).

Targeted nonwork crafting. The targeted nonwork crafting scale developed and validated in the first study was used to assess the extent participants engage in activities outside work to fulfill their basic needs of competence, autonomy, and relatedness. The final scale used in Study 2 included 12 items with four items per need; e.g., “I engage in nonwork activities that enable me to push my personal limits” (nonwork crafting targeting need for competence, $\alpha = .84$), “I engage in nonwork activities that reflect my personal choices and preferences (nonwork crafting targeting need for autonomy, $\alpha = .75$), and “I engage in nonwork activities that help me bond with people”, $\alpha = .91$) (1 = *never*, to 5 = *all of the time*). Based on confirmatory factor analysis results (as explained in detail in Results section), scores were aggregated to obtain an overall targeted nonwork crafting score. Internal consistency for the scale at Time 1 was $\alpha = .88$.

Basic need satisfaction at work. Satisfaction of basic needs for competence, autonomy, and relatedness at work was measured with 16 items developed by Van den Broeck, Vansteenkiste, Witte, Soenens, and Lens (2010). This scale is preferred over the commonly used scale by Deci, Ryan, Gagne, Leone, Usunov and Kornazheva (2001) in the motivation literature for several reasons. Although the Deci et al. scale was developed using the framework of Self-Determination Theory, some of the items on their scale tend to capture job characteristics and antecedents of needs rather than the fulfillment of certain needs. For example, the need for relatedness item “People at work tell me I am good at what I do” on the Deci et al. scale captures job characteristic of social support which is an antecedent to the satisfaction of relatedness need

rather than being an indicator of whether or not the need is satisfied. In this case, the scale by Van den Broeck et al. includes more clear items with higher face validity. Furthermore, this scale has specific items capturing need frustration/thwarting and it is shorter. The scale consisted of 6 items for need for autonomy (e.g., “I feel free to do my job the way I think it could best be done”, $\alpha = .77$), 4 items for need for competence (e.g., “I am good at the things I do in my job”, $\alpha = .76$), and 6 items for need for relatedness (e.g., “At work, I feel part of a group”, $\alpha = .87$). All responses were recorded on a 5-point Likert scale ranging from 1 = *strongly disagree*, to 5 = *strongly agree*. Given the high positive correlations among the three needs and the condition of their simultaneous existence (Deci & Ryan, 2000), scores were aggregated to obtain an overall basic need satisfaction score. Higher scores indicated higher levels of need satisfaction. The internal consistency as assessed by coefficient alpha for the overall scale at Time 2 was $\alpha = .86$.

Work engagement. The Utrecht Work Engagement Scale (UWES) developed by Schaufeli and Bakker (2003) was used to assess the extent that employees feel they are engaged in their work. UWES corresponds to the conceptualization of work engagement as “a persistent and pervasive affective-cognitive scale” (Schaufeli, Salanova, Gonzalez-Roma, Bakker, 2012). UWES was preferred over other available measures of work engagement because it is commonly used in the literature and therefore, there is growing evidence for its reliability and validity. UEWS also focuses on the experience of engagement and incorporates multiple dimensions. For example, Gallup Q¹² measure focuses more on antecedents of engagement rather than the experience of engagement (Schaufeli & Bakker, 2010) and Rothbard’s scale (2001) measures a single dimension of work engagement (i.e., cognitive flow). The sample items from UWES included “At my work, I feel bursting with energy” (vigor, 6 items, $\alpha = .80$), “I can continue working for very long periods at a time” (dedication, 5 items, $\alpha = .88$), and “I am immersed in my

work” (absorption, 6 items, $\alpha = .78$) (1 = *never*, to 5 = *all of the time*). In line with previous research, scores on the three subscales were aggregated to form an overall work engagement score and higher scores reflected a greater degree of engagement to the current work role. Internal consistency for the composite scale as assessed by coefficient alpha was $\alpha = .91$ at Time 3.

Demographic variables. Demographic variables were chosen according to their relationships with the study variables and they include age, gender, ethnicity, marital status, education, number of children living at home, work hours per week, organizational tenure, and positional tenure. Demographic variables were not controlled unless they revealed significant relationships with work engagement and need satisfaction given that the addition of unnecessary control variables can decrease the statistical power as well as inflate coefficient estimates (Becker, 2005).

Covariates. I measured objective overqualification, task autonomy, work identity, proactive personality, learning goal orientation, and neuroticism to rule out other potential explanations for the observed relationships as these variables have been previously identified as important drivers of perceived overqualification, job crafting, need satisfaction, and work engagement. Similar to demographic variables, these potential covariates were only controlled when they revealed significant correlations with the variables of interest.

Objective overqualification was assessed in terms of overeducation because of its common use compared to other facets of overqualification. The interplay between objective and subjective overqualification hasn't been the focus of extant literature but objective overqualification status has been speculated to contribute to the perceptions of overqualification (Erdogan et al., 2011). Although different approaches have been proposed to gauge objective

overeducation (Verhaest & Omey, 2006), I used a job analysis approach. Participants were asked the highest level of education they obtained and also choose their occupation/job title using a pre-arranged list of occupational categories obtained from The Occupational Information Network (O*Net). Both education information and occupation/job title information were translated into total years of formal education using Friedland and Price's (2003) methodology of skill-based underemployment (e.g., high school diploma corresponds to 12 years of formal education, postsecondary vocational education to 13 years of formal education, associate's degree to 14 years of formal education, bachelor's degree corresponds to 17 years of formal education). In order to translate occupational information into total years of schooling, the modal education level required within the occupation (available on O*NET) was used. The difference between one's total years of schooling and the total years of schooling required by the job determined the overeducation status (Verhaest & Omey, 2006). For example, according to O*Net, a waiter/waitress position typically requires a high school diploma or equivalent (% 50 of the waiters/waitresses responding to O*Net stated that their education level is high school or equivalent). So if a participant reports that s/he is a waiter/waitress (i.e., 12 years of formal education required by the job) and s/he holds a college degree (i.e., 17 years of formal education attained by the individual), s/he was considered as overeducated by possessing 5 years of more education for her current job. Therefore, objective overqualification was coded as a difference score to capture the continuous nature of the variable as the dichotomization of overeducation has been previously criticized (Luksyte & Spitzmueller, 2011). By assessing objective overqualification, I was able to tease apart subjective overqualification from objective overqualification and aimed to provide tentative evidence for the potential association between

subjective overqualification and other study variables independent from objective overqualification.

Task autonomy was measured as an indicator of situational constraints. Situational constraints are important to consider in relation to crafting activities. Research indicates that job crafting may be limited in strong situations as the characteristics of the organizational environment or the job itself may render involvement in job crafting impossible (Berg et al., 2010). Due to lack of autonomy over their job tasks, some employees may report low levels of job crafting and possibly high levels of nonwork crafting. Therefore, alongside with job position, I measured task autonomy. I used three interrelated aspects of task autonomy from The Work Design Questionnaire (WDQ; Morgeson & Humphrey, 2006); namely work scheduling autonomy (e.g., “my current job allows me to plan how I do my work”), decision-making autonomy (e.g., “my current job gives me a chance to use my personal initiative or judgment in carrying out the work”), and work methods autonomy (sample item: “my current job gives me considerable opportunity for independence and freedom in how I do the work”). The internal consistency for the 9-item scale was $\alpha = .95$.

Work identity was measured by 2 items developed by Kossek, Ruderman, Braddy, and Hannum (2012). A sample item was “I invest a large part of myself in my work” ($\alpha = .69$). Proactive personality was assessed using 4 items developed by Bateman and Crant (1993). A sample item was “If I believe in an idea, no obstacle will prevent me from making it happen” ($\alpha = .81$). Eight items developed by Button, Mathieu, and Zajac (1996) was used to assess learning goal orientation. A sample item was “When I fail to complete a difficult task, I plan to try harder the next time I work on it” ($\alpha = .86$). Neuroticism was assessed using 4 items from the Mini-

International Personality Item Pool (IPIP) scale developed by Donnellan, Oswald, Baird, and Lucas (2006). A sample item was “I get upset easily” ($\alpha = .74$).

Time 1 survey measures are included in Appendix C.

CHAPTER THREE:

RESULTS

Study 1. Development and validation of the targeted nonwork crafting scale

Based on a deductive approach an initial pool of items was developed for the purpose of this research. Items were generated using the definition of targeted nonwork crafting (involvement in nonwork activities during off-work time to specifically satisfy needs for competence, autonomy, and relatedness) and by adopting the general categories of nonwork activities suggested by previous research (Berg et al., 2010; Hecht & Boies, 2009; Hills et al., 2000). The content of the nonwork activities (i.e., specific activities that individuals do) were not the focus of the current scale and therefore items represent a broad range of categories (e.g., hobbies, volunteering, skill development activities, etc.). Items were written in simple language corresponding to a reading level of someone with modest educational background (e.g., high school degree). Initially, 27 items were developed (i.e., 9 items per basic need) taking into account adequate domain sampling, parsimony, and the goal of reaching acceptable internal consistencies (Hinkin, 1995) (see Appendix A).

Step 1. Content-related validity

Four subject matter experts (SMEs) who hold graduate degrees (three with Ph.D.s and one with a M.S. degree) in psychology evaluated the content validity of the initial pool of items. These SMEs conduct research on recovery experiences, psychological well-being, and the work-nonwork interface. SMEs received the working definition of targeted nonwork crafting along

with the participant instructions. The SMEs were then asked to categorize randomly ordered items to autonomy, competence, and relatedness needs as well as review both the instructions and the content of each item (i.e., in terms of deficiency, contamination, clarity, redundancy).

First, SMEs were asked to evaluate the clarity of the participant instructions. SME instructions are provided in Appendix B. Based on the feedback, the term “leisure” was replaced with “nonwork.” The term “leisure” connotes enjoyment and some of the leisure activities described in the instructions (e.g., political activities, charity) might not necessarily be leisurely or enjoyable but still represent nonwork crafting. Therefore, both “nonwork activities” and “activities outside of work” were used in the final scale.

In terms of item content, items that were assigned to the corresponding a priori category more than 75% of the time (i.e., at least 3 out of 4 SMEs assigned the item to the relevant category) were retained for the final set of items. Based on these criteria, 5 items were removed. For example, the original item “I engage in leisure activities that help me achieve my goals” was dropped because 2 SMEs suggested that the item belonged to the autonomy category while the other two assigned it to the competence category. The original item “I engage in leisure activities that allow me to mentor other people” (corresponds to relatedness need) was also dropped because mentoring other people might indicate expertise and prime competence.

In terms of deficiency and contamination, items were re-evaluated if at least one SME claimed that the item was deficient (i.e., item fails to capture the need) or contaminated (i.e., item captures more than one need at the same time). Feedback on item deficiency and contamination resulted in rephrasing 5 items in order to distinguish their uniqueness. For example, the original item “I engage in leisure activities that provide opportunities to *voice* my opinions and ideas” (which corresponds to autonomy category) was rephrased as “I engage in nonwork activities that

provide opportunities to *communicate* my opinions and ideas” to eliminate possible overlap between competence and autonomy as voicing opinions might also indicate confidence in one’s opinions.

In terms of clarity, almost all items were evaluated as clear and not redundant. Two items were rephrased to increase clarity. For example, the original item “I engage in leisure activities that help me build confidence” (corresponds to competence category) was expanded to “I engage in nonwork activities that help me build confidence in my capabilities.” Five additional items were written to increase the length of the scale due to the number of dropped items. Two of these items (“I engage in nonwork activities that I decide for myself” and “I engage in nonwork activities that allow me to plan on my own”) were written for the autonomy category and the remaining three items (“I engage in nonwork activities that allow me to spend time with people”, “I engage in nonwork activities that allow me to serve my community”, and “I engage in nonwork activities that allow me to interact with people”) were written for the relatedness category. SME feedback on contamination, deficiency, and clarify was taken into account while writing the new items.

SME ratings resulted in a final set of 24 items (see Table 2). Nonwork crafting corresponding to competence and relatedness needs included 9 items each and nonwork crafting corresponding to autonomy needs included 6 items. Targeted nonwork crafting items were next administered on Amazon MTurk along with the scales for initial validation.

As a reminder, targeted nonwork crafting has been defined as involvement in non-work activities during off-work time to specifically satisfy needs for competence, autonomy, and relatedness. The need for competence is defined as the desire to make an impact in the environment through experiencing mastery and challenges and attaining valued outcomes. The

need for autonomy is defined as the desire to seek experience and engage in behavior out of one's own volition and willingness. The need for relatedness is defined as the desire to interact with others and achieve security and inclusion by feeling connected, cared for, and loved.

Step 2. Final item selection & measurement structure

An initial sample of 254 employees took the online survey on MTurk. In order to ensure the quality of responses before proceeding with the analyses, I checked for overlapping IP addresses, examined the response times and inspected the response frequencies to the six bogus items (explained in the Method section).

I detected three sets of overlapping MTurk User IDs among the responses and deleted each pair, resulting in 248 employees. I refrained from deleting overlapping IP addresses (6 responses) because the same IP address might indicate different individuals from the same household have taken the survey. As long as the MTurk User IDs were different, same IP addresses were included in the current analyses.

In terms of response time, I took into account mean (13.28 minutes), median (12 minutes), standard deviation (6.22 minutes) and 95th percentile (6.03 minutes) to eliminate those who responded more quick than anticipated. According to these criteria, I deleted 12 responses with a response time below 6.03 minutes. Three responses were further deleted because of the extreme values on response time (i.e., response times of 17 hours, 1 day, 5 days). One participant reported working for 30 hours or more per week in the inclusion criteria but entered 24 hours per week in the survey. Another participant reported 0 years for tenure and 1 hour per week as working hours. These two responses were also deleted because of the inconsistent information. Filtering on the basis of response time and overlapping IDs reduced the sample size to 231 individuals.

I also checked frequencies for bogus items. Twenty-two individuals failed one bogus item, 5 individuals failed two bogus items, 4 individuals failed three bogus items, and 1 individual failed 5 bogus items out of 6 bogus items. Given the high number of bogus items and potential confusion about these items among participants, I decided to eliminate those participants who failed at least 2 or more of the 6 bogus items (10 participants). I conducted analyses with the final sample of 221 employees.

Item-level analysis. I conducted item-level analysis to examine the quality of the initial targeted nonwork crafting items. I examined item means, standard deviations, Cronbach alphas, inter-item and item-total correlations first for each facet and then for composite nonwork crafting. Using the screening criteria recommended by Allen and Yen (2002), I observed that all 24 items displayed desirable means (M range = 2.65-3.85), good discrimination properties (SD range = .75-1.03), and shared desirable levels of common variance (item-total correlations all larger than .34) among each other and with the overall scale.

Principal components analysis. I conducted a Principal Components Analysis (PCA) not only to assess whether the 24-item targeted nonwork crafting scale generated the factor structure that aligns with the three universal basic needs but also to potentially reduce the scale to a shorter, more user friendly and less redundant version. The initial 24 items were subjected to a PCA with oblimin rotation given that the three basic needs exist simultaneously and that they are expected to correlate. Extracted eigenvalues, the break in the scree plot, and the percentage of variance explained by the factors suggested a four-factor solution. A closer examination of the four-factor solution revealed that the three factors corresponded to the targeted nonwork activities addressing the basic needs of competence, autonomy, and relatedness whereas the fourth factor was composed of two items addressing the relatedness needs but highlighted the

word community (i.e., “I engage in nonwork activities that allow me to serve my community” and “I engage in nonwork activities that make me feel I belong to the community”). In addition, 3 competence items (“I engage in nonwork activities that contribute to my own development and personal growth”, “I engage in nonwork activities that allow me to participate what I’m good at”, and “I engage in nonwork activities that play into my strengths”) and 2 autonomy items (“I engage in nonwork activities that provide opportunities to communicate my own opinions and ideas”, “I engage in nonwork activities that allow me to express myself”) had cross-loadings. Therefore, a second PCA with oblimin rotation was run after dropping these 7 items. Extracted eigenvalues and the screeplot suggested a three-factor solution. Specifically, the eigenvalue ≥ 1 method showed that 64.19% of the variance among the 17 items was accounted by 3 factors and the factors on the screeplot leveled off after the 4th factor. The three factors were also modestly correlated to each other ($r = .28$ for targeted nonwork crafting addressing relatedness and competence needs; $r = .10$ for targeted nonwork crafting addressing relatedness and autonomy needs; $r = .41$ for targeted nonwork crafting addressing autonomy and competence needs). Factor loadings of each item on their respective factors ranged from .68 to .89. Although all of the values for the current factor loadings are considered to be good (e.g., Comrey & Lee, 2013), one objective of the analyses was to shorten the initial scale. Therefore, I retained the highest loading items for each factor that also captured all aspects of the construct definition of each basic need. Accordingly, the final targeted nonwork crafting scale included 4 competence items (factor loadings ranging from .70 to .83), 4 autonomy items (factor loadings ranging from .68 to .81), and 4 relatedness items (factor loadings ranging from .87 to .89. Table 3 displays the factor loadings for all 17 items and highlights the final 12 items.

Confirmatory factor analysis. (CFA) In the third step, I conducted CFA on the final 12 items to confirm the three-factor structure of the targeted nonwork crafting scale. First, I compared three CFA models. This included comparing the a priori three-factor model (Model A) with a one factor model in which all items loaded on a single factor (Model B) and a two factor model in which items for autonomy and competency needs loaded on one factor and items for relatedness needs loaded on the other (Model C). Results showed adequate fit for the a priori three-factor model ($\chi^2(51) = 86.64, p < .001$; CFI = .97; RMSEA = .06; SRMR = .06). As Table 4 indicates, the three-factor model also fit the data significantly better than Models B and C (Cheung & Rensvold, 2002). These findings provide construct validity evidence for the targeted nonwork crafting scale.²

Basic tenets of Self-Determination Theory (Deci & Ryan, 1991) suggest that all three universal needs are experienced simultaneously and an aggregate score of need satisfaction is viable. In order to evaluate whether an aggregate score on the scale can be used, I compared two different three-factor models. In the original a priori model (Model A), the three factors were allowed to co-vary with each other to capture the simultaneous nature of basic needs. In order to justify aggregating scores on facets of nonwork crafting to establish an overall targeted nonwork crafting score, I compared the a priori model (Model A) with a three-factor model in which three factors were not allowed to co-vary (Model D). Model A was found to fit the data better (Table 4) which suggests that the facets share significant variance with one another. I created subscales for targeted nonwork crafting to address autonomy, competency, and relatedness needs by averaging the items on each of the three factors. I used an overall score on targeted nonwork

² Although not proposed, the three-factor solution has been cross-validated with an independent sample (students working at least 30 hours per week or more who been in their current jobs for more than 6 months; $n = 211$).

crafting scale by aggregating all 12 items to test for convergent, discriminant, and criterion-related validity evidence.

Step 3. Convergent & discriminant validity

The correlations in Table 5 provide convergent and discriminant validity evidence for the targeted nonwork crafting scale. In terms of convergent validity, targeted nonwork crafting correlated significantly positively with intrinsic motivation ($r = .44$; $p < .001$), mastery ($r = .48$; $p < .001$) and control ($r = .25$; $p < .001$). With respect to discriminant validity evidence, targeted nonwork crafting was not associated with detachment ($r = .12$; $p = .07$) or with relaxation ($r = .09$; $p = .17$).

Results for the targeted nonwork crafting dimensions were comparable with two differences. Targeted nonwork crafting to address autonomy needs was significantly positively correlated with detachment ($r = .20$; $p < .001$) and relaxation ($r = .22$; $p < .001$). Targeted nonwork crafting to address relatedness needs was not significantly associated with control ($r = .03$; $p = .61$). In sum, convergent and discriminant validity evidence was established for the overall targeted nonwork crafting scale.

Step 4. Concurrent criterion-related validity

In order to establish initial concurrent criterion related validity for the current scale, I correlated the overall targeted nonwork crafting scale with job satisfaction, life satisfaction, and perceived stress. As Table 5 suggests, targeted nonwork crafting was significantly positively associated with job satisfaction ($r = .29$; $p < .001$) and with life satisfaction ($r = .23$; $p < .001$). Targeted nonwork crafting was also significantly negatively related to perceived stress ($r = -.22$; $p < .01$). Results were similar for each subscale of targeted nonwork crafting. Overall, initial criterion related validity for the scale was obtained.

I also conducted hierarchical multiple regression to demonstrate additional discriminant validity evidence. In Step 1, I entered intrinsic motivation and recovery experiences as a set. In Step 2, targeted nonwork crafting was added and the change in R^2 was examined for significance. I conducted three separate regressions for each outcome variable; job satisfaction, life satisfaction, and perceived stress. Targeted nonwork crafting explained additional variance in life satisfaction ($\Delta F(1, 217) = 8.56, \Delta R^2 = .04, p < .01$) and job satisfaction ($\Delta F(1, 217) = 18.16, \Delta R^2 = .08, p < .01$) above and beyond recovery experiences and intrinsic motivation (Table 6). The incremental prediction by targeted nonwork crafting on perceived stress was marginal ($\Delta F(1, 217) = 3.36, \Delta R^2 = .01, p = .07$). Taken together, these findings suggest that targeted nonwork crafting is a unique predictor of job satisfaction and life satisfaction.

Study 2. Testing the proposed model

Data screening

Quality check. In terms of the main study, 354 out of 420 participants (84.3%) provided complete data across three time points. Several steps were taken into consideration in order to ensure the data quality and to clean the data prior to hypothesis testing. First, I checked the information participants provided about their jobs across surveys. Two participants were dropped from the dataset because they changed their jobs during the time between the Time 1 and Time 2 surveys. Other participants held the same job positions and remained in the same organization across the three time points. Although not flagged during the pre-survey eligibility criteria questions, 3 participants later indicated that they either worked less than 3 months in their current jobs or worked less than 30 hours per week. These participants were dropped because of providing conflicting information. Second, I checked the duration between Time 1-Time 2-Time 3 surveys. Ideally, it was expected that all participants completed each survey with 7-day

intervals. However, participants were sent 2 reminder e-mails if they ended up not answering to the survey on the day it was sent. Most participants completed the survey between this 7-day to 10-day window. Although compensated if completing the surveys, those participants who answered any of the subsequent surveys after day 10 were dropped from the final analyses (n = 6).

The remaining 343 participants were further scrutinized in terms of bogus items and response time. Bogus items that were similar to those in Study 1 (i.e., combination of attention check items by Meade and Craig, 2011 and universally accepted statements with one correct answer) were used in three surveys. The Time 1 survey included 4 bogus items whereas the Time 2 and Time 3 surveys each included 3 bogus items because of their relatively shorter completion time. Following the same decision rule in Study 1, I eliminated participants who failed 2 or more bogus items in each survey. Therefore, 8 participants were dropped from the final sample resulting in 335 participants.

Response time frequencies indicated that for the Time 1 survey average completion time was 23.88 minutes (median = 21 minutes; standard deviation = 10 minutes; 95th percentile = 11 minutes) compared to the pilot tested 25 minutes. Average Time 2 survey completion time was 14.26 minutes (median = 12 minutes; standard deviation = 8.5 minutes; 95th percentile = 6.40 minutes) compared to the pilot tested 10 minutes and average Time 3 survey completion time was 12.81 minutes (median = 10 minutes; standard deviation = 9.5 minutes; 95th percentile = 5 minutes) compared to the pilot tested 10 minutes. Taking into account the response distributions, I eliminated those participants who responded quicker than anticipated (for Time 1 survey below 10 minutes; for Time 2 and Time 3 surveys below 5 minutes). Accordingly, 12 participants were

dropped because of their unusual response patterns. The quality check process resulted in retaining 323 participants.

Accuracy of input, missing data, distributions, univariate, and multivariate outliers.

For the remaining 323 questions, main study variables were examined in terms of plausible value ranges, missing values and descriptive statistics (i.e., means, standard deviations, skewness, and kurtosis) with the use of histograms in order to detect any violation of multivariate analysis assumptions. The minimum and maximum values, means, and standard deviations of each of the variables had plausible values. For example, means for all main study variables were around 3. Furthermore, skewness and kurtosis values did not exceed the commonly accepted values (i.e., being out of -1 and +1 range) indicating that none of the study variables were candidates for transformation. Similarly, none of the main study variables had missing values on more than 5% of the cases resulting in no need for missing value imputation. Histograms and bivariate scatterplots further confirmed no significant departures from linearity and homoscedasticity assumptions.

In order to detect univariate outliers that can potentially impact the results of the study, histograms and boxplots were used in conjunction. A few cases were identified as potential outliers on some of the main study variables (e.g., job crafting, need for autonomy, need for relatedness, engagement). I further examined the criticality of those outliers (i.e., whether or not to eliminate those cases) by applying the outlier labeling technique that focuses on the 25th and 75th percentile values on a given variable (Iglewicz & Banerjee, 2001). By using both lower and upper quartile values and integrating them into the formula outlined by the labeling technique (multiplier value; $g = 2.2$ for normally distributed samples with a sample size around 300; Hoaglin, Iglewicz, & Tukey, 1986), I determined the lower and upper demarcation points for a

case to be identified as an outlier. This labeling technique has been shown to be more valid than standard procedures such as 2 standard deviations above or below the mean that eliminates 5% of the sample without any clear justification. Based on the outlier labeling technique, only 2 participants were identified as having outlier values on the main study variables and were therefore eliminated from further analyses.

The remaining data were further examined for multivariate outliers and multicollinearity. For examining multivariate outliers, I ran several regression analyses by using the dependent variables in the study and treating one of them as an independent variable each time. Mahalanobis distance values were examined to identify multivariate outliers. Three potential cases were identified as having large Mahalanobis distance values (i.e., greater than $\chi^2(10) = 29.59$). However, no common pattern was observed among those cases after they were subjected to additional regression analyses to identify on which variables those three cases differed from the rest of the sample. Due to the lack of interpretability of these patterns, those three cases were retained for the final sample. Furthermore, according to the collinearity diagnostics output, no multicollinearity among the study variables was evident after examining the condition index and variance proportion values. Therefore, the final sample included 321 participants.

Confirming the factor structure of targeted nonwork crafting scale

I further confirmed the factor structure of the new targeted nonwork crafting scale with the new sample ($n = 321$). I compared the a priori three-factor model (Model A), with the same model structures reported in Study 1; a one-factor model (Model B), a two-factor model (Model C), and a three-factor model that did not allow covariation between the facets (Model D). Results showed that the model fit for the a priori three-factor model (Model A) was adequate ($\chi^2(51) = 135.96, p < .001$; CFI = .96; RMSEA = .07; SRMR = .05) (Table 7). Results of a chi-square

difference test also indicated that the a priori three-factor model fit the data better than the other models. Therefore, the three factor structure of the targeted nonwork crafting scale was confirmed with the objective of aggregating the facet scores to obtain an overall score on targeted nonwork crafting.

Testing the measurement models

I conducted a set of CFAs to establish the factorial validity of the study measures. Due to the nature of the study, it would not be possible to include all the scale items as observed indicators for the relevant latent constructs because the measurement model would exceed the recommended *parameters-to-sample-size ratio* for estimation (typically 1:5). Therefore, I followed the recommendations outlined by Landis, Beal, and Tesluk (2000) to form item parcels so that the structural relationships among the latent constructs could be estimated. I created item parcels for the main study variables targeted nonwork crafting, perceived overqualification, job crafting, basic need satisfaction at work, and work engagement as well as the covariates neuroticism, task autonomy, proactivity, and work identity using exploratory factor analysis as explained in the single-factor model (Landis et al., 2000). The item parcels were created such that, in a given latent construct (e.g., perceived overqualification), the item with the highest factor loading was assigned to the first indicator, the second was assigned to the second indicator and so on until three empirically balanced parcels are formed. Therefore, each latent construct had 3 parcels. After forming the parcels, three CFAs were run. Model 1 corresponded to the measurement model in which all indicators/parcels loaded to their corresponding latent constructs. Model 1 was then compared to Model 2 in which all indicators/parcels loaded on one single latent construct and Model 3 in which measures used in the Time 1, Time 2, and Time 3 surveys were each modeled to load on their respective latent construct defined by the time of

assessment (e.g., indicators/parcels of perceived overqualification, job crafting, and targeted nonwork crafting loaded on one factor because they were measured at the same time). The results showed that the measurement model (Model 1) provided a good fit to the data ($\chi^2(263) = 515.32, p < .001$; CFI = .95; RMSEA = .06; SRMR = .05) whereas Model 2 data ($\chi^2(299) = 3486.07, p < .001$; CFI = .39; RMSEA = .18; SRMR = .14) and Model 3 data ($\chi^2(296) = 2819.89, p < .001$; CFI = .52; RMSEA = .16; SRMR = .18) showed poor fit to the data. Thus, the measurement model treating each study variable separate from each other was retained for further testing the structural relationships.

Main findings

Table 8 presents the descriptive statistics for the main study variables, and Table 9 displays the bivariate correlations among the main study variables measured (Appendix D includes the intercorrelations among all of the variables across different time points). Several observations are worth further elaboration. In terms of demographic and control variables that are theoretically relevant to the understanding of need satisfaction and engagement, gender, education, organizational tenure, and job tenure were not correlated with any of the main study variables. Following the suggestions by Carlson and Wu (2011), I did not control for those variables in further analyses. On the other hand, age, work hours, work identity, proactive personality, neuroticism, task autonomy, and goal orientation were controlled due to their significant associations with study variables. I carried out the same analyses without controls as well and highlighted the differences whenever they apply.

Second, contrary to expectations, objective overqualification was not related to the main study variables whereas perceived overqualification was related to all of the main study variables. As reported in the correlation table, two different methods were used to capture

objective overqualification. In separate questions, participants were asked to report their formal years of education, the average education level required to do their job, and their industry and occupation information using O*Net classifications. *Objective overqualification 1* was calculated as the difference between the self-report of amount of years of schooling and the self-report of the average education level required to do one's job. *Objective overqualification 2* was calculated as the difference between the self-report of amount of years of schooling and the modal education level required for the job as stated by O*Net. Although the latter is more aligned with the objective report of overqualification, the former method was also calculated given that 86% of the jobs reported by the participants had the corresponding education information on O*Net. These two operationalizations were significantly correlated with each other ($r = .73; p < .001$) and with perceived overqualification ($r = .39; p < .001$ for objective overqualification 1; $r = .22; p < .001$ for objective overqualification 2). The modest correlations with perceived overqualification suggest that overeducation captures only a limited aspect of the perceived overqualification phenomena by not addressing the subjective evaluation/comparison process and other aspects such as skills underutilization. This was further evident when I conducted a regression analysis using both job tenure (as an indicator of "overexperience") and objective overqualification to predict perceived overqualification. Together, those two aspects explained 40% of the variance in perceived overqualification, and only objective overqualification emerged as a significant predictor of perceived overqualification. Therefore, it can be concluded that the subjective assessment of overqualification is partially based on the objective indicators of overqualification. Due to the lack of significant association with need satisfaction and work engagement, objective overqualification was not controlled.

The third important observation from the bivariate correlations is that each main study variable followed a consistent pattern across time with significant high correlations at Time 1, Time 2, and Time 3. For example, work engagement at Time 1 was highly related to work engagement at Time 2 ($r = .86, p < .001$) and work engagement at Time 3 ($r = .85, p < .001$). This was also the case for the correlations among study variables across three time points as correlation coefficients remained comparable in magnitude and significant. Therefore, the constructs of interest can be considered stable for the time frame of the current study. This is important because the current model assumed the variables of interest, especially work engagement, were stable affective-cognitive psychological states rather than dynamic constructs that show within-individual variation.

As shown by the correlations among the main study variables, perceived overqualification at Time 1 was significantly and negatively related to basic need satisfaction at Time 2 ($r = -.35, p < .001$) and work engagement at Time 3 ($r = -.35, p < .001$). Basic need satisfaction at Time 2 was significantly and positively related to work engagement at Time 3 ($r = .62, p < .001$). Targeted nonwork crafting at Time 1 was not related to perceived overqualification at Time 1 but it was positively related to both need satisfaction at work at Time 2 ($r = .18, p < .01$) and work engagement at Time 3 ($r = .18, p < .01$). Job crafting at Time 1 was also not related to perceived overqualification but it was significantly and positively related to need satisfaction at Time 2 ($r = .38, p < .001$) and work engagement at Time 3 ($r = .52, p < .001$). Job crafting was also related to targeted nonwork crafting 3 ($r = .26, p < .001$), which may suggest that certain individuals are more prone to craft their time and transfer those skills across domains (significant correlations of both crafting activities with proactive personality and learning goal orientation might further corroborate this observation). Among the facets of job crafting and

targeted nonwork crafting, targeted nonwork crafting addressing competency needs and relatedness needs were significantly related to basic need satisfaction at work and work engagement whereas all three facets of job crafting were related to basic need satisfaction at work and work engagement.

Given the analytical goal of understanding the conditional nature of the basic need satisfaction at work explaining the negative relationship between perceived overqualification and work engagement, I adopted the conditional process analysis that integrates both moderation and mediation analysis (Hayes, 2013). The Process macro (Hayes, 2012) incorporates path analytic procedures (Edwards & Lambert, 2007) and estimates both conditional and unconditional direct and indirect effects. The Process macro output provides unstandardized regression coefficients and their standard errors similar to separate OLS regression analyses. Furthermore, the Process macro relies on the bootstrapping method to test the significance of indirect effects that is shown to outweigh the disadvantages of the Sobel test, which typically assumes normality of the indirect effects distribution. The macro generates 95% biased-corrected bootstrap confidence intervals to evaluate the significance of these conditional indirect effects.

The Process macro estimates 70 different models, and the model specification is required in order to conduct the analyses. For the current study, [Model 11] was chosen. This model examines 1) the conditional indirect effect of perceived overqualification on work engagement through basic need satisfaction by including the three-way interaction, and 2) the direct effect of perceived overqualification on work engagement. For examining the significance of the indirect effects, I chose 95% bias-corrected confidence intervals derived from 5,000 bootstrapped samples as recommended by Hayes (2013). I standardized all the predictor variables. Age, work hours, work identity, proactive personality, neuroticism, task autonomy, and learning goal

orientation were entered as covariates for both basic need satisfaction at work and work engagement.

Results from the mediation model showed that perceived overqualification at Time 1 was negatively associated with basic need satisfaction at work at Time 2 ($\beta = -.13$, $SE = .03$, $p < .001$) and basic need satisfaction at work at Time 2 was positively associated with work engagement at Time 3 ($\beta = .41$, $SE = .05$, $p < .001$). Moreover, both the direct effect of perceived overqualification on work engagement ($-.13$, $p < .001$) and the indirect effect through basic need satisfaction at work based on the 95% bootstrap confidence interval $[-.08, -.03]$ were significant. Therefore, a negative relationship of perceived overqualification on work engagement through basic need satisfaction at work was supported as well as the direct negative relationship between perceived overqualification and work engagement. Hypothesis 1, 2, 3, and 4 were supported.

Findings from the moderated mediation model (Table 10) revealed that the three-way interaction between perceived overqualification, job crafting, and targeted nonwork crafting in predicting basic need satisfaction at work was not significant ($\beta = -.05$, $SE = .07$, $p = .48$). Moreover, perceived overqualification did not interact with job crafting ($\beta = .07$, $SE = .05$, $p = .14$) or with targeted nonwork crafting to predict basic need satisfaction at work ($\beta = .08$, $SE = .05$, $p = .11$). Therefore, Hypothesis 5 and 6 were not supported. Interestingly, job crafting interacted with targeted nonwork crafting to predict the conditional indirect effect of basic need satisfaction at work ($\beta = -.16$, $SE = .07$, $p < .05$). Examining the conditional indirect effect of perceived overqualification on work engagement through need satisfaction at work at different values of job crafting and targeted nonwork crafting (i.e., the mean and plus/minus 1 standard deviation from mean) (Table 11) revealed that the indirect effect of perceived overqualification on work engagement through need satisfaction is negative and strong when employees engaged in

relatively lower levels of both job crafting and targeted nonwork crafting (point estimate: $-.09$, 95% CI from $-.14$ to $-.05$) or in moderate levels of both job crafting and targeted nonwork crafting (point estimate: $-.05$, 95% CI from $-.08$ to $-.03$) but not different from zero among those engaged in higher levels of both job crafting and targeted nonwork crafting (point estimate: $-.03$, 95% CI from $-.07$ to $.01$). The combination of higher levels of one form of crafting activities and lower levels of another did not seem to make a difference in effect sizes, but the conditional indirect effects remained significant in both cases. Overall, this finding of a potential synergistic interaction between job crafting and targeted nonwork crafting independent from perceived overqualification seems to suggest that perceived overqualification tends to lead to reduced work engagement partially due to unmet needs at work. However, unmet needs only explain this relationship when employees engage in lower levels of both job crafting and targeted nonwork crafting. In the context of high involvement in crafting activities, unmet needs do not explain the negative relationship between perceived overqualification and work engagement. However, the interaction between job crafting and targeted nonwork crafting should be interpreted with caution. When the same analyses were run without the control variables, the interaction was no longer significant. This might be due to the observation that work identity, neuroticism, task autonomy, and learning goal orientation were all significantly related to basic need satisfaction at work and, once they are not controlled, crafting activities do not explain the mediating role of basic need satisfaction at work.

Supplementary analyses

Alternative models. Given that the contextual role of job crafting and targeted nonwork crafting was found to lack clear interpretable moderation patterns, I tested alternative models to understand how job crafting and targeted nonwork crafting can impact the relationship between

perceived overqualification and work engagement. I first tested a serial mediation model that explained the negative relationship between perceived overqualification and work engagement through unmet needs and crafting activities. This model was based on the assumption that individuals are more likely to change work elements and introduce novel approaches to perform their job tasks when they have freedom to do so (Ilgen & Hollenbeck, 1991). Accordingly, perceived overqualification can preclude employees from satisfying their basic needs of competence, autonomy, and relatedness and this lack of situational control can further restrict the level of crafting activities employees engage in which is later manifested in reduced work engagement.

Based on the aforementioned rationale, I tested the serial mediation model with two mediators in the form of perceived overqualification → basic need satisfaction at work → job crafting → work engagement. The model was run using PROCESS model (Model 6). This model had one direct effect (perceived overqualification → work engagement) and three specific indirect effects [(1) perceived overqualification → basic need satisfaction → engagement; (2) perceived overqualification → need satisfaction → job crafting → engagement; (3) perceived overqualification → job crafting → engagement). The indirect effects were estimated using 95% bias-corrected bootstrap confidence intervals based on 5,000 bootstrap samples. Once again, age, work hours, work identity, proactive personality, neuroticism, task autonomy, and goal orientation were controlled. I used perceived overqualification and need satisfaction at Time 1, job crafting at Time 2, and work engagement at Time 3 to test the serial mediation model. Results indicated that the direct effect from perceived overqualification to work engagement was negative and significant ($-.11, t(309) = -4.37, p < .001$). The first indirect effect (perceived overqualification → basic need satisfaction → engagement) was negative and significant ($-.04,$

95% CI [-.07,-.02). The second indirect effect (perceived overqualification → need satisfaction → job crafting → engagement) was also negative and significant (-.01, 95% CI [-.02, -.01]) whereas the third indirect effect was not significant since the bootstrap confidence interval included 0. The total indirect effect, sum of all three indirect effects, was -.06 and significant ([-.10, -.04]). Pairwise comparisons between the three specific indirect effects further revealed that the indirect effect of perceived overqualification and work engagement through need satisfaction at work was significantly different and stronger than the indirect effect of perceived overqualification and work engagement through need satisfaction at work and job crafting (difference of -.03 with 95% CI [-.06, -.01]). Overall, the serial mediation model findings showed that both need satisfaction and job crafting partially mediated the negative relationship between perceived overqualification and work engagement in a way that perceived overqualification negatively relates to need satisfaction at work which is related to the lower levels of job crafting, which in turn is associated with lower work engagement. However, this indirect effect is weaker than the indirect effect of perceived overqualification and work engagement through need satisfaction at work. Therefore, overqualified employees might not engage in job crafting activities because of their unmet needs at work. It is important to note that, although there was no theoretical justification to employ targeted nonwork crafting as a second mediator instead of job crafting, I explored the model and did not find support for it.

Given the lack of support for targeted nonwork crafting in both the moderated mediation model and the serial mediation model, I also tested the moderating role of targeted nonwork crafting between perceived overqualification and burnout, instead of work engagement. Burnout might be more relevant to understand the implications of targeted nonwork crafting because the previous research that suggests job-specific resources such as job crafting can have stronger

associations with engagement rather than burnout (Schaufeli & Bakker, 2004) and both work and nonwork stressors contribute to burnout (Aryeel, 1993), making it a construct more relevant for spillover effects than work engagement. The simple moderation analysis was conducted using PROCESS Model 2 which is based on the same SPSS syntax from moderated hierarchical regression analysis. Burnout was measured by 14 items ($\alpha = .91$) from The Shirom-Melamed Burnout measure (SMBM; Shirom & Melamed, 2006). The same control variables were entered with the addition of hours spent on nonwork activities. Perceived overqualification at Time 1, Work engagement at Time 3 and job crafting and targeted nonwork crafting at Time 2 and their interactions with perceived overqualification were entered after the control variables.³ All three predictors (perceived overqualification, job crafting, and targeted nonwork crafting) were mean centered before the analyses. As shown on Table 12, results indicated that the interaction between perceived overqualification and targeted nonwork crafting was significant ($\beta = -.17, t(304) = -2.60, p < .05$) ($\Delta R^2 = .01, p < .05$) whereas the interaction term for perceived overqualification and job crafting was not significant. Simple slopes tests (Figure 2) further suggested that the positive relationship between perceived overqualification and burnout was significant for those employees who engaged in lower levels of targeted nonwork crafting ($\beta = .13, p < .001$) whereas the relationship between perceived overqualification and burnout was not significant for those who engaged in higher levels of targeted nonwork crafting ($\beta = .05, p = .14$). Overall, the regression results suggest that targeted nonwork crafting can be a potential resource with positive spillover effects to work domain.

Facet-level analyses. Up to this point, job crafting, targeted nonwork crafting, and basic

³ In a separate analysis, a potential moderated moderation was tested given the significant interaction between job crafting and targeted nonwork crafting in the main study findings. Neither the three way interaction between perceived overqualification, job crafting, and targeted nonwork crafting nor the two way interaction between job crafting and targeted nonwork crafting were significant. I presented the simple moderation results for simplicity.

need satisfaction were examined as aggregate variables. I conducted several supplementary analyses at the facet level to further clarify the observed relationships among the study variables despite the lack of a theoretical framework to expect such differential relationships. I ran a serial mediation analyses to examine which facets of basic need satisfaction explained the negative relationship between perceived overqualification and work engagement. Results indicated that autonomy need satisfaction (.28, 95% CI [.20, .37]) and relatedness need satisfaction (.10, 95% CI [.04, .16]) partially mediated the relationship between perceived overqualification and work engagement. Surprisingly, competence need satisfaction did not mediate this relationship (-.02, 95% CI [-.12, .08]). Pairwise comparisons of the indirect effects through autonomy and relatedness need satisfaction showed that the indirect effect through autonomy need satisfaction was stronger (difference of -.04, 95% CI [-.08, -.01]).

I did not find any consistent results based on job crafting facets. However, supplementary facet-level analyses for the moderating role of targeted nonwork crafting between perceived overqualification and burnout revealed that only targeted nonwork crafting that addresses autonomy needs moderated the positive relationship between perceived overqualification and burnout. The pattern for the moderation was similar to the aggregate level findings presented above.

Table 2. The first pool of targeted nonwork crafting items after SME ratings and before the field study.

competency item 1	<i>I engage in nonwork activities that...</i>
competency item 2	enable me to push my personal limits.
competency item 3	challenge me.
competency item 4	encourage me to step beyond my comfort zone.
competency item 5	help me feel accomplished.
competency item 6	play into my strengths.
competency item 7	allow me to participate in what I'm good at.
competency item 8	help me build confidence in my capabilities.
competency item 9	contribute to my own development and personal growth.
autonomy item 1	allow me to use skills, abilities, and knowledge that I don't have the opportunity to use in my current work and/or family roles.
autonomy item 2	allow me to express myself.
autonomy item 3	reflect my personal beliefs and values.
autonomy item 4	provide opportunities to communicate my own opinions and ideas.
autonomy item 5	reflect my personal choices and preferences.
autonomy item 6	let me decide for myself.
relatedness item 1	allow me to plan on my own.
relatedness item 2	allow me to get to know other people.
relatedness item 3	make me feel I belong to the community.
relatedness item 4	help me stay connected to other people.
relatedness item 5	make me feel included in a group.
relatedness item 6	help me network.
relatedness item 7	help me bond with people.
relatedness item 8	allow me to spend time with people.
relatedness item 9	allow me to serve my community.
	allow me to interact with people.

Table 3. Factor loadings from principal component factoring with oblique rotation of 17 targeted nonwork crafting items.

Item	Competency	Autonomy	Relatedness
I engage in nonwork activities that...			
challenge me.	.82		
enable me to push my personal limits.	.81		
encourage me to step beyond my comfort zone.	.80		
help me feel accomplished.	.64		
help me build confidence in my capabilities.	.58		
allow me to use skills, abilities, and knowledge that I don't have the opportunity to use in my current work and/or family roles.	.56		
reflect my personal choices and preferences.		.80	
allow me to plan on my own.		.78	
let me decide for myself.		.71	
reflect my personal beliefs and values.		.65	
allow me to spend time with people.			.91
allow me to get to know other people.			.88
allow me to interact with people.			.88
help me bond with people.			.86
make me feel included in a group.			.86
help me stay connected to other people.			.86
help me network.			.68

Note. Items in bold were retained. Only loadings to the primary factors were displayed. $N = 221$.

Table 4. Results of confirmatory factor analysis (Study 1).

<i>Model</i>	χ^2	<i>df</i>	<i>CFI</i>	<i>RMSEA</i>	<i>SRMR</i>	<i>Loading Range (L)</i>	<i>Loading Range (H)</i>	ΔCFI	$\Delta\chi^2$	Δdf
Model A (a priori three factor model)	86.635	51	.97	.06	.06	.62	.88			
Model B (one factor model)	684.312	55	.48	.23	.32	.07	.91	0.49	597.677***	4
Model C (two factor model)	195.923	53	.89	.11	.08	.53	.89	0.08	109.288***	2
Model D (three factor model, not co-varied)	151.2	54	.92	.09	.16	.56	.89	0.03	64.565***	3

Note. CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual; *L* = loading range lower bound; *H* = loading range higher bound, ΔCFI = change in CFI between the alternative model (Model B, Model C, Model D) and the a priori model (Model A); $\Delta\chi^2$ = change in chi-square between the alternative model (Model B, Model C, Model D) and the a priori model (Model A); Δdf = change in degrees of freedom between the alternative model (Model B, Model C, Model D) and the a priori model (Model A).

*** $p < .001$.

Table 5. Intercorrelations between variables (Study 1).

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Targeted nonwork crafting (autonomy)	(.76)												
2. Targeted nonwork crafting (competence)	.47**	(.81)											
3. Targeted nonwork crafting (relatedness)	.14*	.25**	(.92)										
4. Targeted nonwork crafting (aggregate)	.69**	.78**	.70**	(.83)									
5. Intrinsic motivation	.46**	.33**	.20**	.44**	(.89)								
6. Psychological detachment from work	.20**	.07	.02	.12	.07	(.79)							
7. Relaxation	.22**	-.05	.06	.09	.26**	.48**	(.82)						
8. Mastery	.26**	.58**	.21**	.48**	.22**	.09	-.06	(.81)					
9. Control	.37**	.19**	.03	.25**	.29**	.33**	.47**	.16	(.70)				
10. Recovery experiences (aggregate)	.38**	.31**	.13	.36**	.30**	.77**	.69**	.47**	.69**	(.81)			
11. Job satisfaction	.15*	.18**	.29**	.30**	.11	-.06	.04	.16*	.05	.07	(.93)		
12. Life satisfaction	.13	.18**	.20**	.24**	.12	.00	.07	.18**	.06	.12	.45**	(.89)	
13. Perceived stress	-.14*	-.19*	-.13*	-.21**	-.15*	-.08	-.08	-.19**	-.19**	-.2**	-.36**	.54**	(.80)

Note. $N = 221$; * $p < .05$; ** $p < .01$

Table 6. Summary of hierarchical regression analysis for variables predicting life satisfaction, job satisfaction, and perceived stress.

Variable	DV		
	Life satisfaction	Job satisfaction	Perceived stress
Step 1			
Intrinsic motivation	.09	.10	-.10
Recovery experiences	.09	.04	-.18**
<i>F</i>	2.33* (<i>df</i> =2,220)	1.43 (<i>df</i> =2,220)	5.69 (<i>df</i> =2,220)
<i>R</i> ²	.02	.01	.05
Step 2			
Targeted nonwork crafting	.22**	.32***	-.14*
ΔF	8.56** (<i>df</i> =1,217)	18.16*** (<i>df</i> =1,217)	3.36**(<i>df</i> =1,217)
ΔR^2	.04	.08	.01
Total <i>R</i> ²	.06	.09	.06

Note. *N* = 221. Standardized betas are from each step of the regression sequence.

p* < .10 *p* < .05 ****p* < .01.

Table 7. Results of confirmatory factor analysis (Study 2).

<i>Model</i>	χ^2	<i>df</i>	<i>CFI</i>	<i>RMSEA</i>	<i>SRMR</i>	<i>Loading Range (L)</i>	<i>Loading Range (H)</i>	ΔCFI	$\Delta\chi^2$	Δdf
Model A (a priori three factor model)	135.964	51	0.96	0.07	0.05	0.55	0.75			
Model B (one factor model)	785.405	55	0.62	0.2	0.28	0.39	0.91	0.34	649.441***	4
Model C (two factor model)	269.146	53	0.89	0.11	0.07	0.37	0.75	0.07	133.182***	2
Model D (three factor model, not co-varied)	307.05	54	0.87	0.12	0.23	0.55	0.76	0.09	171.086***	3

Note. CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual; L = loading range lower bound; H = loading range higher bound, ΔCFI = change in CFI between the alternative model (Model B, Model C, Model D) and the a priori model (Model A); $\Delta\chi^2$ = change in chi-square between the alternative model (Model B, Model C, Model D) and the a priori model (Model A); Δdf = change in degrees of freedom between the alternative model (Model B, Model C, Model D) and the a priori model (Model A).

*** $p < .001$.

Table 8. Descriptive statistics for the main study variables (Study 2).

Variable	Number of items	Coefficient alpha	Mean	SD	Observed minimum	Observed maximum
Work identity	2	.69	4.06	.62	2.00	5.00
Proactive personality	4	.81	3.68	.69	1.25	5.00
Neuroticism	4	.74	2.48	.75	1.00	4.50
Task autonomy	9	.95	3.86	.84	1.00	5.00
Goal orientation	8	.86	4.12	.47	2.13	5.00
Targeted nonwork crafting	12	.88	3.55	.55	2.00	5.00
Perceived overqualification	9	.89	2.99	.85	1.00	5.00
Job crafting	15	.84	3.33	.53	1.53	4.87
Basic need satisfaction at work	16	.86	3.72	.50	2.31	4.94
Work engagement	17	.91	3.39	.52	1.82	4.88

Note. $N = 321$. Item responses recorded on a 5-point scale for all variables.

Table 9. Intercorrelations among the main study variables (Study 2).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1.age																						
2.gender	.08																					
3.ethnicity	-.07	-.03																				
4.marital status	.06	.09	.05																			
5.children	-.41**	-.1	.06	-.24**																		
6.education	.15**	-.03	-.03	-.22**	-.05																	
7.job tenure	.51**	.07	-.09	.05	-.24**	.09																
8.organizational tenure	.46**	.08	-.07	.01	-.24**	.10	.53**															
9.work hours	-.03	-.06	-.03	-.05	0	.10	.01	-.03														
10.nonwork hours	-.01	-.05	-.03	-.05	.13*	-.01	.02	.14*	-.11													
11.objective overqualification1	0	.13*	.11*	.02	.05	.03	-.04	-.04	-.06	.07												
12.objective overqualification2	-.02	.11	.07	.07	.09	-.13*	-.02	-.03	-.08	.05	.73**											
13.work identification	-.05	.04	-.05	.06	-.08	-.03	-.02	-.05	.13*	-.07	.03	.06										
14.proactive personality	-.11*	-.07	.02	.07	-.01	.05	-.08	-.02	.12*	-.03	0	.05	.41**									
15.neuroticism	-.08	.11	.04	-.09	.07	.06	.07	.01	.06	0	.1	.07	-.01	-.06								
16.task autonomy	.03	-.01	-.13*	.13*	-.12*	-.15**	0	-.01	.03	-.07	-.02	.05	.35**	.20**	-.07							
17.goal orientation	-.13*	-.06	.01	.08	.08	-.04	-.18**	-.1	.02	-.03	.09	.11	.36**	.39**	-.12*	.20**						
18.targeted nonwork crafting	-.01	-.01	.04	-.06	.08	.05	-.01	.06	-.13*	.04	.01	-.03	.05	.22**	-.18**	-.04	.32**					
19.perceived overqualification	-.03	.04	.09	-.09	.18**	.07	-.06	-.09	-.01	.1	.39**	.22**	-.18**	0	.08	-.28**	.07	.06				
20.job crafting	.03	.07	0.03	.16**	-.12*	.02	-.03	.02	.13*	-.1	-.02	.05	.44**	.47**	-.04	.22**	.43**	.26**	-.08			
21.need satisfaction	.03	-.04	-.16**	.13*	-.14**	-.10	-.07	0	.02	-.07	-.05	.08	.39**	.22**	-.23**	.51**	.33**	.18**	-.35**	.39**		
22.work engagement	.15**	-.04	-.06	.14*	-.16**	-.10	.01	.03	.10	-.06	-.04	.05	.48**	.33**	-.20**	.34**	.40**	.18**	-.35**	.52**	.62**	

Note. $N = 317-321$ (except correlations with perceived overqualification 2 are based on $N = 274-277$). Correlation coefficients are significant at ** $p < .01$; * $p < .05$.

Table 10. Results of simple mediation model including the moderator terms.

Variable	First stage dependent variable = Basic need satisfaction			Second stage dependent variable = Work engagement		
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>
Age	.00	.00	.25	.01	.00	4.76***
Work hours	-.00	.00	-.39	.00	.00	1.35
Proactive personality	.11	.04	2.66**	.09	.03	2.65**
Work identity	-.04	.04	-1.21	.16	.04	4.13***
Neuroticism	-.08	.03	-2.92**	-.04	.03	-1.45
Task autonomy	.21	.03	7.65***	-.03	.03	-1.20
Goal orientation	.13	.05	2.29*	.22	.05	4.37***
Perceived overqualification (PO)	-.14	.03	-5.11***	-.12	.03	-4.75***
Job crafting (JC)	.18	.05	3.59***			
Targeted nonwork crafting (NWC)	.10	.04	2.27*			
PO X JC	.07	.05	1.48			
PO X NWC	.08	.05	1.62			
JC X NWC	-.16	.07	-2.28*			
PO X JC X NWC	-.05	.07	-.70			
Basic need satisfaction				.41	.05	7.81*
<i>F</i>			19.78***			41.98***
<i>R</i> ²			.69			.74

Note. *N* = 319. Standard errors are based on unstandardized coefficients. Values in bold are relevant to tests of hypothesis. PO = Perceived overqualification, JC= Job crafting, NWC = Targeted nonwork crafting.

* *p* <.05 ***p* <.01 ****p* <.001

Table 11. Conditional indirect effects at different values of the moderators.

	Job crafting	Targeted nonwork crafting	Indirect effect	SE	95% Confidence intervals
Basic need satisfaction	-.53	-.55	-.09	.02	[-.14, -.05]
	-.53	.00	-.07	.02	[-.11, -.04]
	-.53	.55	-.05	.02	[-.10, -.01]
	.00	-.55	-.07	.02	[-.11, -.04]
	.00	.00	-.06	.01	[-.08, -.03]
	.00	.55	-.04	.02	[-.07, -.01]
	.53	-.55	-.05	.02	[-.09, -.01]
	.53	.00	-.04	.01	[-.07, -.01]
	.53	.55	-.03	.02	[-.07, .01]

Note. $N = 319$. $-.53$ and $.53$ were values to represent 1 *SD* below and above the mean to indicate low and high levels of job crafting whereas $-.55$ and $.55$ corresponded to 1 *SD* below and above the mean to indicate low and high levels of targeted nonwork crafting.

Indirect effects in bold indicate significance and the significance tests for the indirect effects were based on bias-corrected confidence intervals derived from 5,000 bootstrapped samples.

Table 12. Moderated regression results of perceived overqualification, job crafting, and targeted nonwork crafting on burnout.

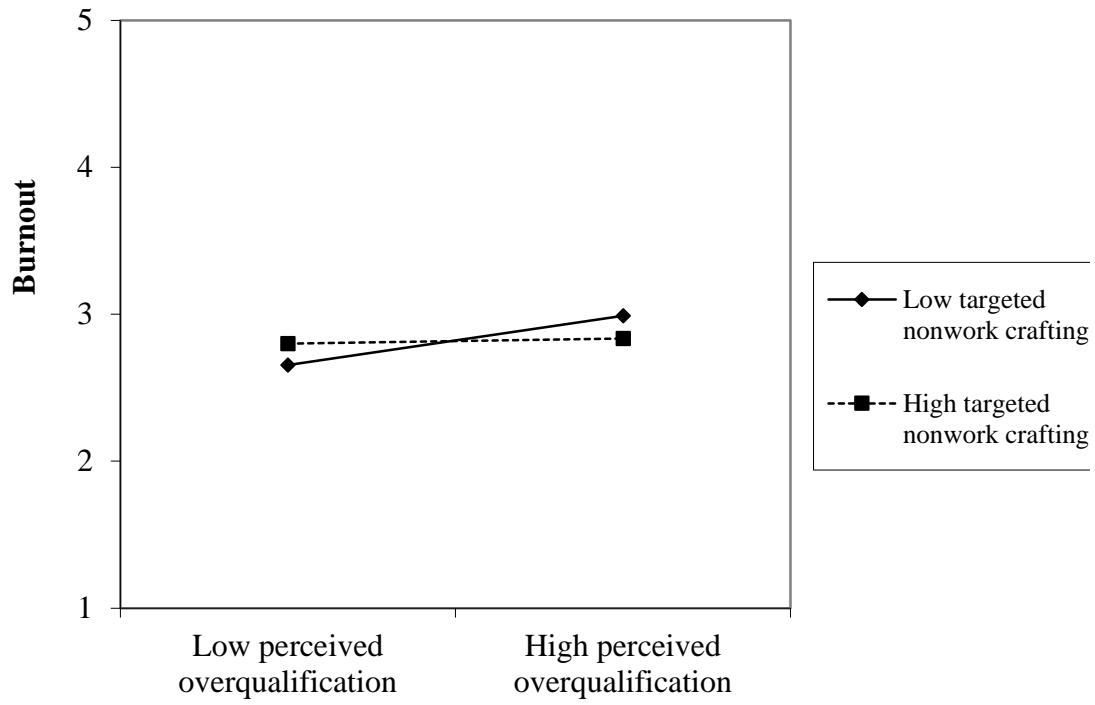
Variable	Step 1	Step 2	Step 3
<i>Control variables</i>			
Age	-.15**		
Work hours	.06		
Nonwork hours	.08		
Work identity	-.10		
Proactive personality	.01		
Neuroticism	.35***		
Task autonomy	-.19***		
Goal orientation	-.13*		
<i>Predictors</i>			
Perceived overqualification		.16**	
Job crafting		-.14*	
Targeted nonwork crafting		.01	
<i>Interaction terms</i>			
PO X JC			-.03
PO X NWC			-.13*
F	15.18***	13.23***	12.02***
df	8, 309	11, 306	13, 304
Overall R ²	.53	.57	.58
Δ in R ²		.04***	.02*

Note. $N = 318$. Standardized coefficients are shown.

PO = perceived overqualification, JC = job crafting, NWC = targeted nonwork crafting

* $p < .05$ ** $p < .01$ *** $p < .001$

Figure 2. Interaction of perceived overqualification on burnout as a function of targeted nonwork crafting.



CHAPTER FOUR:

DISCUSSION

The objective of the current study was to extend overqualification research by examining different mechanisms that explain the relationship between perceived overqualification and outcomes of interest and by incorporating boundary conditions to explain why perceived overqualification might not always result in negative outcomes. This objective was accomplished by exploring the mediating role of basic need satisfaction at work between perceived overqualification and work engagement and by introducing domain-specific crafting behaviors (i.e., job crafting and targeted nonwork crafting) to understand the mediating role of basic need satisfaction at work. The basic tenets of the unanswered occupational callings framework by Berg and his colleagues (2010) were adopted to represent these proposed relationships. In addition, a measure for targeted nonwork crafting was developed and validated in the current study. Overall, the findings reveal strong support for the mediating role of basic need satisfaction at work. Job crafting and targeted nonwork crafting also jointly determine the extent to which basic need satisfaction at work mediates the relationship between perceived overqualification and work engagement once task autonomy, learning goal orientation, work identity, and neuroticism are controlled. Supplementary analyses provide further insight as job crafting explains the relationship between basic need satisfaction at work and work engagement while

targeted nonwork crafting emerges as a moderator for the relationship between perceived overqualification and burnout. Results are discussed in more detail in the sections that follow.

The role of basic need satisfaction at work

The first four hypotheses concerned relationships among perceived overqualification, work engagement, and basic need satisfaction at work. In line with expectations, results indicate that employees who report higher perceived overqualification also report lower levels of basic need satisfaction at work and this translates into lower work engagement relative to those who report lower perceived overqualification. The direct effect of perceived overqualification on work engagement and the indirect effect through basic need satisfaction are consistent with both Self-Determination Theory (Ryan & Deci, 2000) and the tenets of unanswered occupational callings (Berg et al., 2000). The perceived underutilization of skills, education, and/or experience on the current job prompts feelings of misalignment due to unmet needs of competence, autonomy, and relatedness and results in the overqualified employee to invest less energy, focus, and involvement in their current employment situation.

The mediating role of basic need satisfaction at work offers a new perspective as to why perceived overqualification results in poor job-related outcomes. The extant literature on both overqualification and underemployment has exclusively focused on explaining these relationships through person-job fit and relative deprivation, the former being more applicable to objective overqualification and the latter being more applicable to perceived overqualification (Erdogan et al., 2011). In other words, so far we know that overqualified employees tend to report poorer of job attitudes and higher levels of withdrawal behaviors and stress because they believe that they deserve better employment situations given their qualifications. However, they are unable to attain them because of external conditions such as economic factors or job market

restrictions. Although this framework is helpful in understanding the negative outcomes associated with overqualification, it overemphasizes external limitations and overly relies on unmet expectations and a sense of entitlement to explain the negative effects of overqualification (Feldman, 2011). By acknowledging that perceived overqualification can lead to thwarted basic needs at work that are important for psychological functioning, the current study extends the implications of overqualification through the lens of intrinsic motivation and offers additional areas to focus on to address misalignments resulting from less optimal employment conditions. The mediating role of basic need satisfaction at work is also in line with previous research on person-job fit that has found that the congruence between employee skills and abilities and those required to succeed in a given job enables employees to fulfill their psychological needs at work by increasing their self-efficacy which then results in desirable work outcomes (Greguras & Diefendorff, 2009).

Facet-level post-hoc analyses also reveal surprising patterns that suggest how perceived overqualification unfolds to relate to wellbeing. The mediation findings suggest that need for autonomy and need for relatedness mediate the relationship between perceived overqualification and work engagement, whereas the need for competence does not. This might be counter-intuitive because Self-Determination Theory suggests that all three needs operate simultaneously and are equally important for psychological functioning. However, perceived overqualification may introduce a unique context here. By definition, perceived overqualification refers to the subjective self-appraisal that one possesses a *surplus* of skills, education, and/or experience relative to those required by the job (Maynard et al., 2006). Given that the direction of misfit between one's qualifications and the qualifications needed for the job is in a positive direction, it may be reasonable to expect that the overqualified individual already sees himself/herself

competent on the basis of qualifications. Whether the competency need on the job is fulfilled or not does not necessarily explain their lower levels of work engagement. Past research shows that, although overqualified individuals were more likely to develop negative attitudes such as job dissatisfaction, perceived overqualification was positively associated with both self- and supervisor-rated job and training performance (Fine & Nevo, 2008). This finding might explain why overqualified individuals already perceive themselves as competent on the job. Supporting this assertion, a recent study by Zhang, Law, and Lin (2015) revealed that overqualified employees were more likely to evaluate themselves as competent to carry out a broad range of work activities because of their surplus of knowledge, skills, and abilities. Therefore, the relationship between perceived overqualification and the need for competence might be less straightforward than previously thought and warrant future research.

The current study does show that overqualified individuals report lower levels of work engagement partially because of unmet autonomy and relatedness needs. In other words, employees who perceive themselves to be overqualified for their current position may report lower levels of work engagement because they believe their current less optimal employment situation restricts them from being fully in control of their environment. Such feelings of being trapped in the current position might thwart the need to experience volition and self-endorsement at work. The possibility of autonomy needs being unfulfilled in the context of overqualification may explain why previous researchers found that the negative effects of perceived overqualification on critical work outcomes (e.g., intentions to stay in the organization and job satisfaction) were nullified when employees felt they were empowered (Erdogan & Bauer, 2009). Similarly, the current results indicate that employees who perceive themselves to be overqualified for their current position may report lower levels of work engagement because they

feel disconnected from their work environment. Extant literature highlights that, overqualified individuals may feel higher levels of entitlement due to possessing a surplus of qualifications (Liu & Wang, 2012). Such perceptions of deserving better work conditions than their counterparts might result in injustice judgments which may further alienate them from the current work environment, thwarting their needs to connect and identify with others. This finding aligns with the extant literature on overqualification that has emphasized the sense of unfairness experienced by overqualified employees (Erdogan et al., 2011) and empirical findings that perceived overqualification positively relates to work alienation (Lee, 2005). Together, the basic need satisfaction perspective offers valuable insights to explain how perceived overqualification unfolds and relates to work outcomes. Implications for future research are discussed in later sections.

The roles of targeted nonwork crafting and job crafting

The theoretical framework on unanswered callings by Berg et al. (2010) suggests that employees pursue proactive strategies both on the job and outside of work to reduce their misalignment at work and to increase their satisfaction and enjoyment across work and nonwork domains. In this respect, I proposed job crafting and nonwork crafting as potential psychological resources to maintain wellbeing. Although job crafting has been extensively studied in the organizational literature (e.g., Tims et al., 2012), the importance of nonwork activities has received more attention in the leisure literature (e.g., Beard & Ragheb, 1980), partially because of a lack of agreement regarding conceptualization and measurement. For the current study, I reframed nonwork activity as targeted nonwork crafting and defined it as “involvement in nonwork activities during off-work time to specifically satisfy needs for competence, autonomy, and relatedness.” This definition captures the goal-directed nature of job crafting in the nonwork

domain, focuses only on certain forms of leisure activities (i.e., those that satisfy basic needs), and distinguishes itself from other forms of leisure activities serving the purpose of relaxation and pure detachment. In Study 1, I developed and validated a new measure for targeted nonwork crafting. The findings provide initial support for scale reliability and structure and show that the overall scale as well as its facets are distinct from similar constructs in the literature (i.e., intrinsic motivation and recovery experiences of detachment and relaxation) and relate to job satisfaction, life satisfaction and perceived stress. Overall, these findings contribute to the literature by introducing a nonwork crafting scale that differs in scope from previous scales that focus on the content of leisure activities (i.e., ask participants how frequently they engage in certain categories of activities such as exercise, entertainment, and hobbies) or that combine both recovery and resource perspectives of leisure (e.g., the recovery experiences scale).

In the current study, both job crafting and targeted nonwork crafting are incorporated to acknowledge cross-domain behaviors, and they are introduced as proactive strategies to potentially mitigate the negative repercussions of overqualification. The significant and moderate correlations between targeted nonwork crafting, job crafting, and proactive personality (consistent across three time points) support the positioning of job crafting and targeted nonwork crafting as proactive strategies that employees engage in in order to impact and change their environment (Grant & Ashford, 2008). Recently Vogel, Rodell, and Lynch (2015) introduced job crafting and leisure activity as proactive behaviors to mitigate the negative effects of value incongruence on employee engagement and job performance and found that both activities buffered these negative relationships. In the current study, the findings reveal that the buffering roles of job crafting and targeted nonwork crafting for the indirect effects of perceived overqualification on work engagement are not as straightforward as proposed. No support was

found for the interactive effects of job crafting or targeted nonwork crafting with perceived overqualification including the potential three-way interaction. In other words, the indirect negative effect of perceived overqualification on work engagement through basic need satisfaction at work was not found to be contingent on the level of job crafting or targeted nonwork crafting when the crafting activities were considered in isolation. However, job crafting and targeted nonwork crafting interacted with each other to predict the conditional indirect effect of basic need satisfaction at work. Further probing of this interaction suggests that unmet needs at work explain the relationship between perceived overqualification and reduced work engagement when employees engage in lower levels of both or either job crafting and targeted nonwork crafting. That is, for employees who do not engage in any form of crafting behaviors, the lack of need satisfaction at work is likely to explain the relationship between overqualification and lower work engagement because these employees are not creating a wider range of opportunities to satisfy their needs of competence, autonomy, and relatedness on the job. As Deci and Vansteenkiste (2004) suggest, when individuals find themselves in situations that thwart their basic needs (e.g., employment condition they are overqualified for) and they have no other means to fulfill their needs, their lack of intrinsic motivation becomes more apparent and their wellbeing suffers as a consequence. However, the current study findings also highlight that the interaction effect between job crafting and targeted nonwork crafting on the conditional indirect effect of basic need satisfaction is qualified and may limit generalizability because the interaction term is significant only when work identity, neuroticism, task autonomy, and learning goal orientation are controlled. These variables also have significant associations with basic need satisfaction at work.

The limited support for the moderating roles of job crafting and targeted nonwork crafting can partially be explained by the control variables of work autonomy and learning goal orientation. These control variables signify the structural aspects of work and the motivation to change the environment respectively. Thus, they might be more proximal to the fulfillment of basic needs than are crafting activities. Equally important to consider in this equation is the situation factors that may outweigh the importance of crafting behaviors. Given that overqualification status typically generates perceptions of highly restricted work conditions with feelings of injustice and inferiority, changes in structural and relational components of the work and the work environment such as task complexity, task independence and supportive leadership might be more feasible than taking personal initiatives to change the work conditions and these factors may even serve as precursors for crafting behaviors to occur later on (Ghitulescu, 2006). This explains why both forms of crafting behaviors have direct effects on basic need satisfaction at work but fail to interact with perceived overqualification as the overqualification condition introduces a strong situation for crafting to occur and may require other structural changes associated with the environment to happen first.

The limited support for the moderating role of job crafting can also be explained by the job crafting measure used in the current study. The scale developed by Slemp and Vella-Brodrick (2013) is based on the original conceptualization of job crafting that focuses on altering cognitive, task, and/or relational boundaries of the job and the work environment. Another conceptualization and operationalization of job crafting is derived from the Job Demands-Resources (JD-R) model and emphasizes expanding work behaviors (increasing structural and social job resources and challenging job demands) and restricting work behaviors (hindering job demands) (Tims et al., 2011). It might be the case that overqualified employees lack

opportunities to improve job conditions because of organizational constraints but may reduce their job demands by utilizing their skills and experience to make sure that their work is mentally and emotionally less intense and to avoid difficult decisions at work. The relationship between overqualification and this aspect of job crafting needs further investigation.

The relatively weaker results associated with targeted nonwork crafting compared to job crafting can be explained with the nature of the targeted nonwork crafting scale. The new scale focuses on the psychological mechanisms behind why individuals engage in nonwork activities and intentionally captures only the nonwork activities that address the needs of competence, autonomy, and relatedness. The lack of explicit acknowledgement and distinction between different activities such as self-oriented versus other-oriented activities and active versus passive activities and the exclusion of activities for relaxation purposes may restrict the criteria related to the targeted nonwork crafting. For example, self-oriented nonwork activities were found to result in fewer benefits compared to other-oriented nonwork activities and nonwork activities such as volunteering was found to have more positive *behavioral* spillover in comparison to recreational and fitness activities that had more positive *emotional* spillover (Hecht & Boies, 2009). Therefore, the content of the nonwork activities may further determine the specific criteria such activities are likely to impact. It is also important to note that time commitment for targeted nonwork crafting is typically less than that for work hours (as also found in this study). This visible difference in time commitment between different forms of crafting behaviors coupled with the higher average score on work identity in the current sample can further explain why the effects associated with targeted nonwork crafting were limited.

Supplementary analyses suggest that how job crafting and targeted nonwork crafting explain the process between perceived overqualification and work engagement may be different

than what was originally proposed. According to the findings, job crafting can act as a reactive response to further explain why overqualified individuals also report lower levels of work engagement. That is, overqualified employees engage in lower levels of job crafting because of their unmet basic needs at work which then translates into lower work engagement. This finding corroborates past research that has found a negative relationship between perceived overqualification and job crafting (Rokitowski, 2012) and explains why this might be the case. On the other hand, targeted nonwork crafting did a better job at explaining the relationship between overqualification and burnout than the relationship between overqualification and work engagement. It offers an alternative perspective that goal-oriented nonwork activities have positive spillover on work-related psychological costs (i.e., burnout) than on work-related psychological gains (i.e., work engagement) associated with overqualification status. Rather than a reactive response as in the case of job crafting, targeted nonwork crafting seems to serve as a psychological resource, and engaging in lower levels of targeted nonwork crafting exacerbates the positive relationship between perceived overqualification and burnout. The facet-level finding that the targeted nonwork crafting addressing autonomy needs moderated the relationship between perceived overqualification and burnout aligns with past research which has found that lack of autonomy contributes to feelings of helplessness and being stuck in unpleasant situations associated with burnout (Trepanier, Fernet, & Austin, 2013). Therefore, engaging in lower levels of nonwork activities that allow individuals to decide for their own and take control of their environment strengthens the feelings of helplessness and exhaustion resulting from being overqualified in their current employment.

Implications for research, theory, and practice

The current findings inform and expand the literature in several important ways. My primary objective in the current study was to investigate the relationship between perceived overqualification and work engagement through basic need satisfaction (Deci & Ryan, 1991). As Self-Determination Theory suggests (Deci & Ryan, 2000), satisfaction of basic needs of competence, autonomy, and relatedness provide the intrinsic motivation individuals need to actively engage in tasks that they find interesting and that enable them to grow. When these needs are not satisfied, individuals feel constrained and look for other available accommodations to fulfill their needs. In line with Self-Determination Theory, the current findings inform the literature by revealing that overqualification can be a condition of unmet needs and individuals who consider themselves to be overqualified for their current employment situations are less likely to be engaged in their work because their basic needs at work are not fulfilled. The support for the mediating role of basic need satisfaction at work in the current study has both theoretical and practical implications. From a theoretical standpoint, Self-Determination Theory and the basic tenets of unanswered occupational callings framework (Berg et al., 2010) may provide useful insights upon which overqualification research can build. The intrinsic motivation component inherent in both perspectives can help overqualification researchers identify and integrate both individual level goal-oriented variables (e.g., autonomous self-regulation, promotion goal orientation) and organizational level mechanisms (e.g., organizational politics, organizational support) to explain the work effort displayed by overqualified employees (de Cooman et al., 2013). This is particularly important because the motivational implications of overqualification are largely ignored in the extant literature. Exploring how perceptions of overqualification contribute to motivational processes such as goal commitment can further our

understanding of intervention strategies and situational determinants of overqualification. Need satisfaction at work may serve as the theoretical basis for this purpose.

Self-Determination Theory also opens new venues for overqualification research to understand the implications of volition behind the overqualification status. Research suggests that individuals may choose to be and remain overqualified due to several factors such as placing more emphasis on family during their later career stages or avoiding stressful work situations (Maynard, 2011). Examining need satisfaction at different career stages may explain why overqualification does not necessarily lead to negative outcomes under certain situations and expand our knowledge on the potential voluntary aspect of overqualification that is yet to be empirically studied.

Overall, the main implications from the current work encourage the pursuit of additional theoretical frameworks to understand the intervening processes between overqualification and its outcomes. Relative Deprivation Theory has been a guiding force in this respect. Relative deprivation is one of the few explicitly, and the most commonly, examined mediators of the effects of overqualification on outcomes (Feldman, 2012). Relative deprivation has been particularly influential in explaining the discrepancies between what employees possess and what they expect, desire, and feel they deserve. It has provided the framework to define the comparative standard (e.g., past jobs, future opportunities, co-workers) overqualified employees consider and explain the negative outcomes resulting from these comparisons. In this respect, relative deprivation is critical but also limited because it exclusively relies on situational factors that may not always be under the control of the employee. For example, relative deprivation may explain why laid-off executives who perceive themselves to be overqualified report negative job attitudes (e.g., they are accustomed to be respected and treated differently in their previous jobs

because of their qualifications and occupational positions and they believe they are entitled to better job situations; Feldman, Leana, & Bolino, 2002) but does not necessarily address what aspects of the *current* job make overqualified employees more susceptible to negative job attitudes. Perhaps for these executives, overqualification results in negative outcomes because they do not feel in control in their current job or they do not have opportunities to form high-quality relationships at work. In this respect, Self-Determination Theory provides a complementary perspective by focusing on the intrinsic components of the current job situation that contribute to basic need satisfaction at work.

The results of the current study also demonstrate the value of examining specific strategies overqualified employees engage in to alleviate the negative consequences of overqualification. As suggested by Erdogan et al. (2011), focusing only on the negative outcomes associated with overqualification can limit our understanding of processes that unfold with overqualification. Given past research that shows overqualification can be voluntary and might not always lead to negative outcomes, the findings emerging from the current work reveal that regardless of the domain they originate from, engaging in lower levels of crafting activities may exacerbate the negative relationship between perceived overqualification and work engagement through basic need satisfaction at work. This finding combined with the moderating effect of targeted nonwork crafting between perceived overqualification and burnout found in this study highlight the necessity of considering both situational factors and cross-domain variables to study overqualification. By adopting a cross-domain approach, overqualification researchers can extend the range of outcome variables examined by including family outcomes (e.g., marital satisfaction, parenting, quality of family time) into their research.

Another major contribution of the current study is the development and validation of a

new nonwork activity scale: targeted nonwork crafting. Available scales have focused more on the content of the nonwork activities (Vogel et al., 2015) or on the ability of such activities to restore depleted resources (Sonnentag & Fritz, 2007). By emphasizing the goal-oriented nature of such activities and distinguishing them from other nonwork activities solely done for relaxation and detachment purposes, the current targeted nonwork crafting scale may encourage future research that evaluates nonwork activities as psychological resources to build resilience and create meaning (Iwasaki et al., 2005). This is by no means suggesting that the role of nonwork activities should be limited to their potential goal-oriented nature. Using the current scale of targeted nonwork crafting in conjunction with available scales is more likely to enrich our understanding of nonwork activities and their positive spillover to the work domain than is adopting only one perspective.

The present study is also one of the few to have examined perceived overqualification and objective overqualification together (see Liu et al., 2015, as another example). The measurement of objective overqualification was limited to overeducation in the current study. However, the findings reveal that objective overqualification assessed via two separate approaches is a significant predictor of perceived overqualification, and objective and subjective assessments of overqualification relate differently to variables of interest such as need satisfaction at work and work engagement. In his review of underemployment research, Feldman (2011) called attention to the theoretical need to uncover how objective overqualification translates into subjective assessment of overqualification. The current findings show that objective indicators may capture only a limited aspect of the subjective assessment of overqualification and underscore the need to examine factors that contribute to both objective and perceived overqualification.

Overall, the present findings may not allay the concerns of many HR and business professionals that overqualification is associated with negative attitudes and behaviors (Kulkarni, Lengnick-Hall, & Martinez, 2015). However, the findings should encourage individuals and organizations to acknowledge that the negative relationships between perceived overqualification and critical work-related outcomes might not be observed under certain situations. Organizations that allow employees to craft their jobs and promote work-personal life balance might reduce the negative experiences of overqualified employees on the job. The finding that need satisfaction at work explains the negative repercussions of overqualification might also provide practical guidelines for organizations as they target the satisfaction of competence, autonomy, relatedness needs of their employees to lessen the negative impact of overqualification. This can be done by promoting a culture that champions personal initiative and empowerment (Erdogan et al., 2011), emphasizing and assigning more meaningful and significant job tasks (Hu, Erdogan, Bauer, Jiang, Liu, & Li, 2014), providing opportunities to build human and social capital (Feldman & Maynard, 2011), and supporting a team work environment in which employees can increase their person-group value fit (Hu et al., 2014). Given that perceived overqualification has been shown to positively relate to creative performance (Luksyte & Spitzmueller, 2015), proactive behavior on the job (Zhang, Law, & Lin, 2015), and both self-rated performance (Fine & Nevo, 2008) and performance rated by supervisors (Fine, 2007), creating developmental and growth opportunities for employees should remain a significant task for organizations.

It is important to note that not all organizational structures and cultures may enable increasing resources for overqualified individuals to reap the aforementioned benefits. In such cases, decreasing job demands such as workload and role uncertainty might also help overqualified employees to create opportunities for themselves such as seeking informal

developmental relationships (e.g., mentoring) or partaking in professional organizations or networks to meet their basic needs and preserve their wellbeing and creativity. The current findings highlighting the importance of need satisfaction coupled with the findings of past research that has identified the role of emotional support (Johnson & Johnson, 1997) and empowerment (Erdogan & Bauer, 2009) for mitigating the negative influence of perceived overqualification suggest that overqualified individuals indeed can benefit from social support and high quality relationships to benefit from their surplus of qualifications.

Study limitations and directions for future research

There are several limitations to the current study that need to be acknowledged. First, all of the main study variables were assessed through self-report. Although steps were taken to minimize the possibility for mood carry over and to establish the validity of the current scales (e.g., confirmatory factor analysis, three time points), spurious results based on the use of common methods cannot be completely ruled out. However, the data collection was consistent with the research questions of interest. Both overqualification and need satisfaction at work are most appropriately measured via self-report, because the focal individuals are most likely to be the best source to report their own assessment of qualifications and whether their inherent needs are met at work. Recent research suggests that how overqualification is defined and perceived by employers may provide additional insight regarding to mismatched qualifications and hiring decisions (Kulkarni et al., 2015). Future research should integrate both perspectives as well as the overqualification status of immediate work group and peers (Hu et al., 2014) to examine the extent to which the data source makes a difference for the nomological network of overqualification.

Another potential limitation of the current study is the representativeness of the sample and the potential restriction of only being able to generalize the results to those individuals represented in the current study. The participants for the current study were recruited primarily through personal contacts and snowball sampling, although other means such as community fliers, public employee databases and local company listings were utilized to increase diversity in the sample. The final sample was predominantly female, White and highly educated with some industries (e.g., educational services and information services) and occupations (e.g., education administrators, human resource specialists, administrative assistants) oversampled. These characteristics of the sample may introduce shared variance that is not accounted for in the analyses and restrict the generalizability of the sample. However, diversity in terms of job and organizational tenure and age in the current sample indicates that both employees in their early careers and those with greater experience were sampled and diverse overqualification experiences were captured (Liu & Wang, 2012). Future research is needed that includes understudied populations such as temporary workers (Connelly, Wilkin, & Gallagher, 2011), immigrants, expatriates, employees in low-paying jobs, and international students who graduate and find themselves in jobs that do not utilize their qualifications but grant them the opportunity to remain within the country. By studying these populations, external factors affecting overqualification are likely to be better understood.

Timing between the surveys can also be considered a potential limitation of the study. The one-week gap was primarily chosen for keeping the response rate high, reducing mood effects inherent in cross-sectional designs, and approximating the temporal precedence of variables for moderated mediation analyses. Despite the fact that the association among variables assessed at different time points remained consistent in magnitude throughout the study, the long

term implications of whether or not perceived overqualification is related to lower levels of work engagement and basic need satisfaction mediates this relationship are unknown. An effort was made to collect follow up data in 6 months but the complete data are not available at this point to address the longer term implications of perceived overqualification. The dearth of longitudinal studies in overqualification research is unfortunate because the possibility of reverse causality in some of the already-established relationships cannot be discounted. Furthermore, longitudinal designs and growth curve modeling can extend our knowledge about the implications of immediate overqualification as well as changes in overqualification over time.

In addition to the suggestions provided in previous sections, there are few other avenues for future research. First, it would be beneficial to differentiate between different types of overqualification. Research suggests that overqualification can occur after being hired for a job due to inflated expectations, lack of realistic job previews, insufficient rewards, and restricted work conditions (*emergent overqualification*) or it may occur before being hired when the individual is fully aware of overqualification status and accepts to the job regardless (*apparent overqualification*). It is possible that factors influencing overqualification and the outcomes associated with overqualification differ based on the nature of overqualification (Erdogan et al., 2011). Given that researchers so far do not acknowledge the distinction between these two types, future research can benefit by asking individuals about the timing of their overqualification experience and incorporating this information to further investigate the proposed relationships. For example, in the current study, it might be the case that job crafting and targeted nonwork crafting become more critical to mitigate the negative impact of overqualification when the individual experiences emergent overqualification rather than apparent overqualification. Future studies need to consider this full range of overqualification experiences.

Another direction that overqualification researchers may consider for future research is expanding the outcomes associated with overqualification. The extant literature has focused heavily on job attitudes and subjective well-being that are affective in nature (Maynard, 2011). Although recent research empirically studied job performance (task performance and counter-productive work behaviors) and creative performance as outcomes of overqualification, there is a need to examine proximal behavioral outcomes such as knowledge sharing, feedback seeking, and coping so that the processes associated with distal outcomes of turnover and performance can be more clearly understood.

Conclusion

The present study aimed to explore the process through which perceived overqualification impacts work engagement and examine the boundary conditions of this process by incorporating job crafting and targeted nonwork crafting. Overall, lower levels of basic need satisfaction at work explained the relationship between perceived overqualification and work engagement. Once situational factors such as task autonomy and individual differences such as proactive personality, learning goal orientation, and work identity were controlled, job crafting and targeted nonwork crafting interacted to impact the indirect conditional effect of basic need satisfaction at work in a way that for employees engaging in lower levels of either or both crafting activities, lower levels of basic need satisfaction at work explained the negative relationship between perceived overqualification and work engagement. Supplementary analyses shed light on the distinct roles of job crafting and targeted nonwork crafting. The current work highlights the importance of engaging in crafting activities both on the job and outside of work because the absence of either or both has the potential to exacerbate the negative effects of overqualification. The current study contributes to the literature by looking at the boundary and

process conditions for the relationship between overqualification and work engagement simultaneously and introducing a measure of nonwork crafting.

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APPENDICES

Appendix A: Institutional Review Board Letter of Exemption



RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX(813)974-7091

October 20, 2014

Soner Dumani
Psychology
Tampa, FL 33611

RE: **Exempt Certification**
IRB#: Pro00019607
Title: Engaging Overqualified Employees: The Role of Job and Non-work Crafting

Study Approval Period: 10/20/2014 to 10/20/2019

Dear Mr. Dumani:

On 10/20/2014, the Institutional Review Board (IRB) determined that your research meets USF requirements and Federal Exemption criteria as outlined in the federal regulations at 45CFR46.101(b):

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
(i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Approved Items:

[IRB Protocol for Engaging Overqualified Employees.docx](#)

[Engaging Overqualified Individuals Informed Consent.docx](#)

Your study qualifies for a waiver of the requirements for the documentation of informed consent as outlined in the federal regulations at 45CFR46.117(c) which states that an IRB may waive the requirement for the investigator to obtain a signed consent form for some or all subjects if it finds either: (1) That the only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality. Each subject will be asked whether the subject wants documentation linking the

(continued)

subject with the research, and the subject's wishes will govern; or (2) That the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context.

As the principal investigator for this study, it is your responsibility to ensure that this research is conducted as outlined in your application and consistent with the ethical principles outlined in the Belmont Report and with USF IRB policies and procedures. Please note that changes to this protocol may disqualify it from exempt status. Please note that you are responsible for notifying the IRB prior to implementing any changes to the currently approved protocol.

The Institutional Review Board will maintain your exemption application for a period of five years from the date of approval or for three years after a Final Progress Report is received, whichever is longer. If you wish to continue this protocol beyond five years, you will need to submit a new application at least 60 days prior to the end of your exemption approval period. Should you complete this study prior to the end of the five-year period, you must submit a request to close the study.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

A handwritten signature in cursive script that reads "John A. Schinka, Ph.D.".

John Schinka, Ph.D., Chairperson
USF Institutional Review Board

Appendix B: Informed Consent Form

Information to Consider Before Taking Part in this Research Study

IRB Study #19607

Researchers at the University of South Florida (USF) study many topics. As a graduate student working on his dissertation, I am inviting you to take part in a research study called “**Engaging Overqualified Employees: The Role of Job and Non-work Crafting**”. The purpose of this study is to understand both work and outside work experiences of full time employees.

This study involves completing **three** 10-15 minute online surveys that include mostly multiple choice items. Each survey will be sent to you one week after the completion of the previous survey and you will complete three surveys in total over the course of this study.

The person who is in charge of this research study is Soner Dumani, a current Ph.D. student working under the supervision of Dr. Tammy Allen. This person is called the Principal Investigator. However, other research staff may be involved and can act on behalf of the person in charge.

The research will be conducted online.

Purpose of the study

The purpose of this research study is to understand work engagement and work attitudes of full time employees.

Study Procedures

We are recruiting 400 full time employees (work 30 hours per week or more) to participate in this research study. You are eligible to participate if you satisfy all of the following criteria:

1. You are at least 18 years of age.
2. You currently reside in the United States.
3. You are currently working at least 30 hours per week in paid employment.
4. You have been working in your current job for at least 3 months.

If you qualify and choose to take part in this study, you will be asked to:

1. Complete three surveys in total that will be sent to you in one week intervals. You need to complete each survey in order to be eligible to take the next survey.

2. Complete surveys in a timely manner. You will be asked to complete each survey within 3 day time frame so that the next survey can be sent to you in one week. You will receive reminder e-mails only once per day.
3. Provide demographic information about yourself in each survey.
4. Respond to questions regarding your work and outside work experiences in each survey.

Each survey will be administered through Qualtrics website and they should take about 10-15 minutes to complete.

Alternatives

You have the alternative to choose not to participate in this research study.

Benefits

We are unsure if you will get any benefits by participating in this study.

Risks or Discomfort

This research is considered to be minimal risk. That means that the risks associated with this study are the same as what you face every day. There are no known additional risks to those who take part in this study.

Compensation

We will compensate you for completing the survey. You will receive \$5.00 Amazon Gift Card for survey 1, \$5.00 Amazon Gift Card for survey 2, \$10.00 Amazon Gift Card for survey 3. Gift cards will be sent to you upon the completion of the study. Upon completion of three surveys, you will also be automatically considered for a drawing of one of ten \$50 Amazon gift cards. Because of the importance of obtaining complete data to answer our research questions, we encourage you to take the surveys only if you are interested in the study and have time to take three surveys in total over 3 weeks period.

Privacy and Confidentiality

We will keep your study records private and confidential. Your participation is anonymous as we will not ask you to provide your name or any identifying information. You will only be asked to enter your e-mail address upon completion of each survey. However, you will enter your e-mail address in a separate page and your answers will not be linked to your e-mail address. We will use your e-mail address in order to send you the gift cards.

Certain people may need to see your study records. By law, anyone who looks at your records must keep them completely confidential. The only people who will be allowed to see these records are:

- The research team, including the Principal Investigator, Advising Professor, and all other research staff.
- Certain government and university people who need to know more about the study. For example, individuals who provide oversight on this study may need to look at your records. This is done to make sure that we are doing the study in the right way. They also need to make sure that we are protecting your rights and your safety.) These include:
 - The University of South Florida Institutional Review Board (IRB) and the staff that work for the IRB. Other individuals who work for USF that provide other kinds of oversight may also need to look at your records.
 - The Department of Health and Human Services (DHHS).

We may publish what we learn from this study. If we do, we will not include your name. We will not publish anything that would let people know who you are.

Voluntary Participation / Withdrawal

You should only take part in this study if you want to volunteer. You should not feel that there is any pressure to take part in the study. You are free to participate in this research or withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive if you stop taking part in this study.

Questions, concerns, or complaints

If you have any questions, concerns or complaints about this study, or experience an unanticipated problem, please email the principal investigator Soner Dumani at sdumani@mail.usf.edu.

If you have questions about your rights as a participant in this study, general questions, or have complaints, concerns or issues you want to discuss with someone outside the research, call the Division of Research Integrity and Compliance of the University of South Florida at (813) 974-5638.

Consent to Take Part in this Research Study

By clicking on the button labeled “Next” below, you agree that:

- You have read and understood this information about the research study
- For any questions that you have had, you have had the opportunity to contact the Principal Investigator, and have received a satisfactory response
- You understand that you are being asked to participate in research. You understand the risks and benefits, and you freely give your consent to participate in the research project outlined in this form, under the conditions indicated in it
- It is possible, although unlikely, that unauthorized individuals could gain access to your responses because you are responding online. Your confidentiality will be maintained to the degree permitted by the technology used. Specifically, no guarantees can be made

regarding the interception of data sent via the Internet to or by any third parties.

- You have been given a copy of this information sheet (since this is a web-based survey, clicking on the “Next:” button constitutes your consent and signature. You may copy and paste the preceding information to a file and save it as your copy)

I freely give my consent to take part in this study. I understand that by proceeding with this survey that I am agreeing to take part in research and I meet all four eligibility criteria mentioned above.

Do you wish to participate in this survey?

Read a

- Yes
- No

Appendix C: Initial Pool of Items for Targeted Nonwork Crafting Scale *

Definition of targeted non-work crafting: Pursuit of non-work activities during off-work time to specifically address and satisfy needs for competence, autonomy, and relatedness. Rather than focusing on the content of non-work activities, this construct centers on whether individuals engage in non-work activities that aim to enhance relationships, gain personal mastery, and/or provide personal challenges.

Instructions for the participants: The following questions are about your leisure time activities. In order to answer the following items, please first consider a wide range of leisure time activities. Leisure time activities may include active/dangerous sports, performing, social activities with family/friends, hobbies, craft work, evening classes, exercise, meditation, serious or light reading, relaxing, political activities, charity and voluntary work, and/or religious activities. Please indicate the degree that you engage in such activities for the following questions.

1	2	3	4	5
Strongly disagree	Disagree	Neither agree not disagree	Agree	Strongly agree

I engage in leisure activities that...

1. enable me to push my personal limits. (C)
2. challenge me. (C)
3. allow me to express myself. (A)
4. allow me to use my skills, abilities, and knowledge. (A)
5. reflect my personal beliefs and values. (A)
6. allow me to get to know new people. (R)
7. make me feel I belong to the community. (R)
8. help me stay connected to other people. (R)
9. encourage me to step beyond my comfort zone. (C)
10. help me build confidence. (C)
11. contribute to my self-development and personal growth. (C)
12. broaden my life experiences. (C)
13. provide opportunities to voice my opinions and ideas. (A)
14. help me achieve my personal goals. (A)
15. help me demonstrate skills, abilities, and knowledge that I don't normally have the opportunity to display. (A)
16. help me give back to the community. (R)

17. make me feel included in a group. **(R)**
18. enable me to take leadership roles. **(A)**
19. allow me to plan, organize, and influence. **(A)**
20. give me alone time **(R)**
21. help me network. **(R)**
22. help me feel accomplished. **(C)**
23. help me bond with people. **(R)**
24. play into my strengths. **(C)**
25. allow me to practice what I'm good at. **(C)**
26. allow me to mentor other people. **(R)**
27. provide me opportunities to share my opinions. **(A)**

**The letter "C" denotes that the item is written to address to need for competency, "A" for need for autonomy, and "R" for need for relatedness.*

Appendix D. SME Instructions

- SMEs were first provided the definition of targeted nonwork crafting:
Definition of targeted non-work crafting: Pursuit of non-work activities during off-work time to specifically address and satisfy needs for competence, autonomy, and relatedness. Rather than focusing on the content of non-work activities, this construct centers on whether individuals engage in non-work activities that aim to enhance relationships, gain personal mastery, and/or provide personal challenges. The need for competence is defined as the desire to make an impact in the environment through experiencing mastery and challenges and attaining valued outcomes. The need for autonomy is defined as the desire to seek experience and engage in behavior out of one's own volition and willingness. The need for relatedness is defined as the desire to interact with others and achieve security and inclusion by feeling connected, cared for, and loved.
- After reading the above definition, SMEs were also asked to read the instructions for participants (Appendix A).
- SMEs were then asked to provide answers to 6 separate questions. The first 3 questions required the SMEs to answer without looking at the spreadsheet 2 (this spreadsheet had the information on which items were originally developed for which need category). The remaining 3 questions were asked to be completed after reviewing the spreadsheet 2. The questions were as follows:
 - **Question 1:** Are the instructions clear? Please provide any suggestions if not.
 - **Question 2** (PLEASE ANSWER BEFORE READING SHEET 2- THE ITEM CATEGORIES): Please indicate for each item the need category they belong to. Please use A for autonomy, C for competence and R for relatedness.

- **Question 3** (PLEASE ANSWER AFTER READING SHEET 2- THE ITEM CATEGORIES) Do you think the item captures the content domain of my construct (i.e., captures non-work crafting for addressing that specific need)? Please answer Y (Yes) or N (No)
- **Question 4:** Does the item contaminate the domain (e.g., captures both needs at the same time)? Please answer Y (Yes) or N (No)
- **Question 5:** Is the item deficient (e.g., fails to capture the need)? Please answer Y (Yes) or N (No)
- **Question 6:** Is the wording of the item clear (i.e., not confusing, not redundant)? Please answer Y (Yes) or N (No)
- As the last step, the SMEs were asked to provide any suggestions, comments, and feedback if they had any.

Appendix E: Survey Time 1

Q1 Are you at least 18 years of age?

- Yes
- No

Q2 Do you currently reside in the United States?

- Yes
- No

Q3 Are you currently working at least 30 hours per week in paid employment?

- Yes
- No

Q4 Have you been working in your current job for at least 3 months?

- Yes
- No

Q5 Please select the industry that is most relevant to your current job. Then you will be able to select an occupation that is closest to your current job. Please make sure to search through the choices carefully. If you cannot find the appropriate occupation, select "None of these occupations resemble my current job" (the last option).

Q6 What is your current job title?

Q7 Please respond to the following questions about yourself.

Q8 What is the highest level of education you completed?

- Doctoral or professional degree (e.g., Ph.D., M.D., J.D)
- Master's degree
- Bachelor's degree
- Associate's degree
- Some college but no degree (includes post secondary vocational training)
- High school diploma or G.E.D.
- Less than high school diploma or G.E.D.

Q9 How many years of formal education do you have in total? (To give you some benchmarks, high school diploma corresponds to 12 years of formal education. Please add another year for each year of education you have above high school diploma)

Q10 How long have you been working in your current position? (Please answer in months)

Q11 How long have you been working in your current organization? (Please answer in months)

Q12 How many hours do you work per week?

Q13 How many more months do you anticipate being in your current job?

Q14 What is the average education level required to do your job?

- Doctoral or professional degree (e.g., Ph.D., M.D., J.D)
- Master's degree
- Bachelor's degree
- Associate's degree
- Some college but no degree (includes post secondary vocational training)
- High school diploma or G.E.D.
- Less than high school diploma or G.E.D.

Q15 The targeted nonwork crafting scale as shown in Appendix A was presented here with the follow up question “Approximately how many hours per week do you engage in the nonwork activities?”

Q16 Please indicate the degree that you agree with each of the following statements regarding your job.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
My job requires less education than I have.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The work experience that I have is not necessary to be successful on this job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have job skills that are not required for this job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Someone with less education than myself could perform well on my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My previous training is not being fully utilized on this job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a lot of knowledge that I do not need in order to do my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My education level is above the education level required by my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Someone with less work experience than myself could do my job just as well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have more abilities than I need in order to do my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q17 Please indicate how frequently you engage in each type of behavior or thinking at work.

	Never	Rarely	Sometimes	Often	All of the time
Introduce new approaches to improve your work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Change the scope or types of tasks that you complete at work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Introduce new work tasks that you think better suit your skills or interests.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Choose to take on additional tasks at work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Give preference to work tasks that suit your skills or interests.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Think about how your job gives your life purpose.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Remind yourself about the significance your work has for the success of the organization.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Remind yourself of the importance of your work for the broader community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Think about the ways in which your work positively impacts your life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reflect on the role your job has for your overall well-being.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Make an effort to get to know people well at work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organize or attend work-related social functions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organize special events in the workplace (e.g., celebrating a co-worker's birthday).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Choose to mentor new employees (officially or unofficially).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Make friends with people at work who have similar skills or interests.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been to every country in the world.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18 Please indicate the extent that you agree or disagree with each of the following statements based on your experiences on the job.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I feel like I can be myself at my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At work, I often feel like I have to follow other people's commands.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I could choose, I would do things at work differently.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The tasks I have to do at work are in line with what I really want to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel free to do my job the way I think it could best be done.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In my job, I feel forced to do things I do not want to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I really master my tasks at my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel competent at my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am good at the things I do in my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have the feeling that I can even accomplish the most difficult tasks at work .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't really feel connected with other people at my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At work, I feel part of a group.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't really mix with other people at my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At work, I can talk with people about things that really matter to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often feel alone when I am with my colleagues.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Some people I work with are close friends of mine.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q19 The following statements are about how you feel at work. Please read each statement carefully and indicate how frequently you feel this way at work.

	Never	Rarely	Sometimes	Often	All of the Time
At my work, I feel bursting with energy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find the work that I do full of meaning and purpose.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time flies when I am working.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At my job, I feel strong and vigorous.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am enthusiastic about my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I am working, I forget everything else around me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My job inspires me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I get up in the morning, I feel like going to work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel happy when I am working intensely.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am proud of the work that I do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am immersed in my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can continue working for very long periods at a time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To me, my job is challenging.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get carried away when I am working.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At my job, I am very resilient, mentally.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is difficult to detach myself from my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At my work, I always persevere, even when things do not go well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Please choose "Never" as your answer to this question.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q20 Please indicate how much you agree or disagree with each of the following statements about yourself.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
People see me as highly focused on my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I invest a large part of myself in my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No matter what the odds, if I believe in something I will make it happen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I love being a champion for my ideas, even against others' opposition.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I excel at identifying opportunities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I believe in an idea, no obstacle will prevent me from making it happen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have frequent mood swings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am relaxed most of the time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get upset easily.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I seldom feel blue.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q21 Please indicate how much you agree or disagree with each of the following statements about your current job.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
My current job allows me to make my own decisions about how to schedule my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My current job allows me to decide on the order in which things are done on the job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My current job allows me to plan how I do my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My current job gives me a chance to use my personal initiative or judgment in carrying out the work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My current job allows me to make a lot of decisions on my own.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My current job provides me with significant autonomy in making decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My current job allows me to make decisions about what methods I use to complete my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My current job gives me considerable opportunity for independence and freedom in how I do the work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My current jobs allows me to decide on my own how to go about doing my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't understand a word of English.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q22 The following statements are about how you feel at work. Please read each statement carefully and indicate how frequently you feel this way at work.

	Never	Rarely	Sometimes	Often	Always
During work, I feel tired.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have no energy for going to work in the morning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During work, I feel physically drained.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel fed up at work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At work, I feel like my batteries are dead.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel burned out at work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During work, my thinking process is slow.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During work, I have difficulty concentrating.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During work, I feel I am not thinking clearly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During work, I feel I am not focused on my thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During work, I have difficulty thinking about complex things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I am unable to be sensitive to the needs of people I work with.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I am not capable of investing emotionally in people at work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I am not capable of being sympathetic to people I work with.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q23 Please answer the following questions about yourself.

Q24 Age:

Q25 Gender:

- Male
- Female
- Other

Q26 Ethnicity:

- White/non-hispanic
- Hispanic/Latino-Latina
- African American/Black
- Asian
- American Indian/Alaska Native
- Native Hawaiian/Pacific Islander
- Multiethnic
- Other

Q27 Marital status:

- Single
- Married
- Domestic partnership/ live-in partner

Q28 Do you have any children?

- Yes
- No

Q29 How many children do you have living at home?

Appendix F: Correlations among study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.age															
2.gender	.08														
3.ethnicity	-.07	-.02													
4.marital status	.06	.09	.05												
5.children	-.41	-.10	.06	-.24											
6.education	.15	-.03	-.03	-.22	-.05										
7.job tenure	.51	.07	-.09	.05	-.24	.09									
8.organizational tenure	.46	.08	-.07	.01	-.23	.10	.53								
9.work hours	-.03	-.06	-.03	-.05	.00	.10	.01	-.03							
10.nonwork hours	-.01	-.05	-.03	-.05	.13	-.01	.02	.14	-.11						
11.objective overqualification 1	.00	.13	.11	.02	.05	.03	-.04	-.04	-.06	.07					
12.objective overqualification 2	-.02	.11	.07	.07	.09	-.12	-.02	-.03	-.07	.05	.73				
13.work identification	-.05	.03	-.05	.06	-.08	-.03	-.02	-.05	.13	-.07	.03	.06			
14.proactive personality	-.11	-.07	.02	.07	-.01	.05	-.08	-.02	.12	-.03	.00	.05	.41		
15.neuroticism	-.08	.11	.03	-.09	.07	.06	.07	.01	.06	.00	.10	.07	-.01	-.06	
16.task autonomy	.03	-.01	-.13	.13	-.12	.15	.00	-.01	.03	-.07	-.02	.05	.35	.20	-.07
17.goal orientation	-.13	-.06	.01	.08	.08	-.04	-.18	-.10	.02	-.03	.09	.11	.36	.39	-.12
18.targeted nonwork crafting (competence) (1)	.01	-.10	.05	-.04	.09	-.06	.03	.05	-.13	.03	.06	.00	.10	.23	-.18
19.targeted nonwork crafting (autonomy) (1)	-.06	.04	.07	.00	.07	.04	-.02	-.01	-.14	.13	-.02	-.04	.01	.12	-.08
20.targeted nonwork crafting (relatedness) (1)	.03	.03	-.02	-.10	.03	.13	-.04	.09	-.04	-.06	-.02	-.04	.01	.16	-.17
21.targeted nonwork crafting (aggregate) (1)	-.01	-.01	.04	-.06	.08	.05	-.01	.06	-.13	.04	.01	-.03	.05	.22	-.18
22.perceived overqualification (1)	-.03	.04	.09	-.09	.18	.07	-.06	-.09	-.01	.10	.39	.22	-.18	.00	.08
23.task crafting (1)	-.02	-.01	.07	.11	-.08	.02	-.07	.02	.14	-.05	-.03	.02	.31	.43	-.04
24.cognitive crafting (1)	.04	.07	-.01	.17	-.14	-.06	.02	-.02	.09	-.12	-.07	.01	.45	.34	.02
25.relationship crafting (1)	.03	.10	.03	.08	-.05	.09	-.03	.05	.08	-.05	.05	.07	.28	.36	-.09
26.job crafting (1)	.03	.07	.03	.16	-.12	.02	-.03	.02	.13	-.10	-.02	.05	.44	.47	-.04
27.need for autonomy (1)	.00	-.04	-.07	.13	-.09	-.12	-.07	-.05	-.07	-.06	-.06	.01	.35	.14	-.19
28.need for competence (1)	.09	.02	-.09	.12	-.05	-.06	.05	.07	-.01	-.02	.07	.09	.42	.40	-.18
29.need for relatedness (1)	-.08	-.03	-.13	.07	-.08	.00	-.11	.01	.10	-.10	-.12	.03	.28	.18	-.17
30.need satisfaction (1)	-.02	-.03	-.13	.13	-.10	-.08	-.08	.00	.02	-.09	-.08	.04	.44	.27	-.24
31.work engagement (1)	.10	.02	-.07	.18	-.16	-.11	-.02	.00	.10	-.05	-.06	.00	.60	.37	-.14
32.burnout (1)	-.11	.03	-.05	-.17	.15	.10	.10	.05	.07	.09	.07	.01	-.21	-.11	0.44

Note. $N = 317-321$ (except correlations with perceived overqualification 2 are based on $N = 274-277$). Correlation coefficients marked in bold are significant at $p < .01$, correlation coefficients marked in bold and in italics are significant at $p < .05$. Variables highlighted in bold refer to the main study variables tested in the models.

(continued)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
33.need for autonomy (2)	.03	-.05	-.08	.13	-.14	-.17	-.06	-.02	-.04	-.03	-.07	.05	.33	.14	-.18
34.need for competence (2)	.08	.01	-.09	.12	-.05	-.05	.12	.05	-.01	-.02	.09	.11	.42	.34	-.17
35.need for relatedness (2)	-.02	-.03	-.17	.07	-.11	-.01	-.11	.00	.08	-.08	-.07	.06	.25	.12	-.17
36.need satisfaction (2)	.03	-.04	-.16	.13	-.14	-.10	-.07	.00	.02	-.07	-.05	.08	.39	.22	-.23
37.targeted nonwork crafting (competence) (2)	.01	.00	-.01	-.06	.05	-.05	.00	.04	-.04	.05	.04	-.03	.17	.32	-.18
38.targeted nonwork crafting (autonomy) (2)	-.01	.07	-.07	-.08	.08	-.02	.00	.04	-.08	.08	.02	-.05	.08	.18	-.09
39.targeted nonwork crafting (relatedness) (2)	-.02	.02	-.03	-.10	-.03	.10	-.02	.10	.01	-.06	.00	-.03	.06	.15	-.15
40.targeted nonwork crafting (aggregate) (2)	-.01	.02	-.05	-.10	.04	.02	-.01	.08	-.04	.02	.03	-.05	.13	.27	-.18
41.perceived overqualification (2)	.00	.06	.05	-.03	.16	.07	.02	-.02	-.08	.13	.41	.23	-.18	-.01	.09
42.task crafting (2)	-.08	.00	.03	.13	-.09	.05	-.06	.00	.13	-.07	-.01	.04	.38	.43	-.07
43.cognitive crafting (2)	.01	.14	-.02	.17	-.10	-.08	.05	.01	.09	-.08	-.02	.03	.44	.33	.03
44.relationship crafting (2)	-.01	.11	-.01	.02	-.01	.08	-.03	.05	.09	-.04	.02	.06	.28	.29	-.12
45.job crafting (2)	-.03	.12	.00	.14	-.08	.01	-.01	.02	.13	-.08	-.01	.05	.47	.44	-.06
46.work engagement (2)	.11	-.04	-.04	.14	-.16	-.08	.01	.03	.15	-.03	-.04	.02	.54	.36	-.14
47.burnout (2)	-.15	-.01	-.02	-.10	.13	.07	.10	.00	.09	.10	.02	-.06	-.15	-.09	.40
48.work engagement (3)	.15	-.04	-.06	.14	-.16	-.10	.01	.03	.10	-.06	-.04	.05	.48	.33	-.20
49.burnout (3)	-.17	-.01	.09	-.14	.15	.13	.07	.02	.05	.10	.05	-.03	-.21	-.13	.40
50.perceived overqualification (3)	-.01	.05	.04	-.02	.14	.05	-.02	-.04	-.02	.12	.42	.27	-.16	-.01	.05
51.need for autonomy (3)	.05	-.05	-.11	.15	-.11	-.17	-.03	-.01	-.06	-.04	-.05	.04	.35	.18	-.23
52.need for competence (3)	.10	.00	-.09	.14	-.07	-.09	.08	.12	-.02	.04	.12	.10	.37	.32	-.20
53.need for relatedness (3)	.01	-.04	-.15	.08	-.10	-.02	-.09	.03	.04	-.08	-.06	.06	.24	.14	-.22
54.need satisfaction (3)	.05	-.04	-.16	.15	-.13	-.11	-.05	.04	-.01	-.05	-.03	.07	.38	.24	-.28
55.targeted nonwork crafting (competence) (3)	.04	-.07	.05	-.04	.05	.00	.07	.05	-.05	.00	.09	.04	.09	.25	-.19
56.targeted nonwork crafting (autonomy) (3)	.04	.00	.01	-.07	.05	.04	.06	.06	-.09	.12	.04	.01	.03	.20	-.11
57.targeted nonwork crafting (relatedness) (3)	.01	-.04	-.05	-.10	-.04	.12	-.04	.06	-.01	-.12	.04	.04	.01	.14	-.12
58.targeted nonwork crafting (aggregate) (3)	.04	-.05	.00	-.09	.02	.07	.03	.07	-.06	-.01	.07	.04	.05	.24	-.17
59.task crafting (3)	.00	-.06	.01	.14	-.05	.02	-.05	.04	.09	-.02	-.01	-.02	.39	.42	-.08
60.cognitive crafting (3)	.07	.00	.00	.15	-.10	-.10	.04	-.03	.08	-.06	-.10	-.05	.40	.29	-.06
61.relationship crafting (3)	.07	.07	-.04	.00	-.08	.09	-.01	.08	.08	-.08	.05	.08	.29	.28	-.12
62.job crafting (3)	.07	.01	-.01	.13	-.10	.00	.00	.03	.11	-.07	-.03	.01	.46	.41	-.11

Note. $N = 317-321$ (except correlations with perceived overqualification 2 are based on $N = 274-277$). Correlation coefficients marked in bold are significant at $p < .01$, correlation coefficients marked in bold and in italics are significant at $p < .05$. Variables highlighted in bold refer to the main study variables tested in the models.

(continued)

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
17.goal orientation	.20														
18.targeted nonwork crafting (competence) (1)	.03	.35													
19.targeted nonwork crafting (autonomy) (1)	.02	.22	.49												
20.targeted nonwork crafting (relatedness) (1)	-.13	.19	.47	.37											
21.targeted nonwork crafting (aggregate) (1)	-.04	.32	.82	.75	.80										
22.perceived overqualification (1)	-.28	.07	.03	.08	.03	.06									
23.task crafting (1)	.33	.39	.17	.12	.08	.15	-.05								
24.cognitive crafting (1)	.17	.31	.14	.07	.09	.13	-.11	.43							
25.relationship crafting (1)	.06	.33	.27	.10	.40	.34	-.02	.45	.44						
26.job crafting (1)	.22	.43	.24	.12	.24	.26	-.08	.75	.82	.80					
27.need for autonomy (1)	.63	.16	.09	-.01	.00	.04	-.42	.24	.24	.13	.26				
28.need for competence (1)	.30	.38	.14	.12	.14	.17	.01	.37	.26	.27	.37	.25			
29.need for relatedness (1)	.22	.25	.13	.12	.29	.23	-.30	.24	.30	.52	.45	.42	.22		
30.need satisfaction (1)	.52	.31	.15	.09	.19	.19	-.38	.35	.35	.42	.47	.81	.50	.82	
31.work engagement (1)	.44	.37	.20	.06	.10	.15	-.35	.38	.57	.36	.56	.57	.36	.43	.62
32.burnout (1)	-.31	-.20	-.20	-.12	-.19	-.22	.28	-.12	-.17	-.25	-.23	-.60	-.19	-.47	-.62
33.need for autonomy (2)	.62	.22	.09	.01	.00	.04	-.42	.19	.23	.12	.23	.85	.19	.40	.71
34.need for competence (2)	.31	.44	.22	.13	.12	.20	-.01	.22	.23	.22	.28	.31	.71	.23	.47
35.need for relatedness (2)	.25	.22	.10	.11	.26	.20	-.25	.17	.26	.45	.38	.46	.19	.85	.76
36.need satisfaction (2)	.51	.33	.15	.10	.17	.18	-.35	.24	.31	.36	.39	.74	.36	.72	.87
37.targeted nonwork crafting (competence) (2)	.02	.31	.70	.35	.38	.60	.03	.21	.14	.23	.24	.02	.18	.09	.11
38.targeted nonwork crafting (autonomy) (2)	.06	.25	.39	.56	.28	.50	.15	.04	.06	.12	.09	-.07	.19	.05	.04
39.targeted nonwork crafting (relatedness) (2)	-.09	.16	.35	.18	.76	.57	-.06	.11	.12	.39	.26	-.03	.14	.28	.18
40.targeted nonwork crafting (aggregate) (2)	-.01	.30	.61	.44	.63	.72	.04	.16	.14	.33	.26	-.03	.22	.19	.14
41.perceived overqualification (2)	-.23	.05	.08	.09	.05	.09	.88	-.07	-.14	-.01	-.10	-.39	.03	-.30	-.36

Note. $N = 317-321$ (except correlations with perceived overqualification 2 are based on $N = 274-277$). Correlation coefficients marked in bold are significant at $p < .01$, correlation coefficients marked in bold and in italics are significant at $p < .05$. Variables highlighted in bold refer to the main study variables tested in the models.

(continued)

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
42.task crafting (2)	.36	.47	.21	.15	.13	.20	-.18	.66	.34	.42	.58	.29	.32	.36	.43
43.cognitive crafting (2)	.23	.38	.17	.11	.12	.17	-.17	.35	.78	.38	.65	.22	.27	.23	.30
44.relationship crafting (2)	.09	.34	.30	.17	.45	.40	-.07	.35	.37	.81	.65	.17	.23	.53	.44
45.job crafting (2)	.28	.50	.29	.18	.30	.33	-.18	.56	.66	.69	.81	.28	.35	.47	.49
46.work engagement (2)	.37	.40	.19	.05	.12	.16	-.38	.34	.55	.36	.53	.52	.28	.42	.57
47.burnout (2)	-.26	-.22	-.16	-.05	-.20	-.18	.27	-.11	-.16	-.22	-.21	-.55	-.20	-.41	-.56
48.work engagement (3)	.34	.40	.21	.05	.16	.18	-.35	.33	.52	.37	.52	.53	.27	.43	.58
49.burnout (3)	-.29	-.23	-.17	-.07	-.17	-.17	.26	-.11	-.21	-.22	-.23	-.53	-.24	-.42	-.56
50.perceived overqualification (3)	-.24	.08	.02	.07	.03	.05	.88	-.03	-.15	.00	-.08	-.39	.03	-.29	-.35
51.need for autonomy (3)	.61	.22	.13	.01	.01	.06	-.44	.21	.25	.14	.26	.83	.24	.42	.72
52.need for competence (3)	.27	.43	.26	.16	.18	.25	-.03	.21	.25	.26	.31	.28	.62	.28	.45
53.need for relatedness (3)	.22	.25	.16	.12	.27	.24	-.27	.15	.27	.48	.39	.43	.18	.82	.72
54.need satisfaction (3)	.48	.34	.21	.11	.19	.21	-.37	.24	.32	.38	.40	.70	.36	.70	.84
55.targeted nonwork crafting (competence) (3)	.00	.32	.72	.39	.41	.64	.02	.15	.13	.26	.23	.02	.14	.11	.10
56.targeted nonwork crafting (autonomy) (3)	.07	.26	.47	.57	.34	.57	.06	.06	.07	.17	.12	.01	.13	.13	.11
57.targeted nonwork crafting (relatedness) (3)	-.09	.17	.35	.20	.75	.57	.01	.12	.12	.40	.27	.01	.14	.29	.20
58.targeted nonwork crafting (aggregate) (3)	-.01	.31	.63	.46	.64	.73	.03	.13	.13	.36	.26	.01	.17	.23	.17
59.task crafting (3)	.37	.50	.31	.13	.10	.22	-.14	.60	.37	.41	.56	.33	.39	.33	.45
60.cognitive crafting (3)	.20	.30	.17	.07	.12	.15	-.23	.24	.73	.31	.57	.29	.19	.27	.35
61.relationship crafting (3)	.10	.28	.24	.08	.34	.29	-.09	.29	.37	.78	.61	.18	.25	.52	.45
62.job crafting (3)	.26	.45	.30	.11	.24	.28	-.21	.45	.65	.64	.75	.34	.34	.48	.53

Note. $N = 317-321$ (except correlations with perceived overqualification 2 are based on $N = 274-277$). Correlation coefficients marked in bold are significant at $p < .01$, correlation coefficients marked in bold and in italics are significant at $p < .05$. Variables highlighted in bold refer to the main study variables tested in the models.

(continued)

	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
32.burnout (1)	-.51														
33.need for autonomy (2)	.57	-.58													
34.need for competence (2)	.39	-.23	.32												
35.need for relatedness (2)	.44	-.47	.49	.25											
36.need satisfaction (2)	.61	-.60	.84	.53	.85										
37.targeted nonwork crafting (competence) (2)	.19	-.11	.05	.21	.03	.09									
38.targeted nonwork crafting (autonomy) (2)	.04	.02	.02	.28	.05	.11	.52								
39.targeted nonwork crafting (relatedness) (2)	.10	-.13	-.01	.14	.24	.16	.41	.31							
40.targeted nonwork crafting (aggregate) (2)	.15	-.10	.03	.26	.15	.16	.82	.74	.77						
41.perceived overqualification (2)	-.36	-.29	-.42	.01	-.28	-.36	.09	.15	-.03	.08					
42.task crafting (2)	.40	-.18	.29	.34	.28	.37	.28	.20	.20	.29	-.18				
43.cognitive crafting (2)	.58	-.19	.27	.26	.19	.30	.20	.14	.15	.21	-.21	.39			
44.relationship crafting (2)	.37	-.24	.16	.23	.53	.42	.26	.17	.46	.40	-.06	.45	.39		
45.job crafting (2)	.59	-.26	.30	.35	.42	.46	.31	.21	.35	.38	-.19	.74	.80	.79	
46.work engagement (2)	.86	-.50	.56	.37	.42	.60	.20	.08	.18	.20	-.39	.44	.61	.41	.64
47.burnout (2)	-.48	.87	-.57	-.24	-.45	-.58	-.10	.04	-.16	-.11	.29	-.15	-.20	-.24	-.26
48.work engagement (3)	.85	-.55	.58	.36	.45	.62	.19	.04	.16	.17	-.38	.38	.54	.40	.58
49.burnout (3)	-.52	.82	-.56	-.31	-.45	-.60	-.13	-.04	-.13	-.13	.28	-.20	-.23	-.23	-.28
50.perceived overqualification (3)	-.36	.28	-.38	.01	-.26	-.33	.06	.17	-.02	.08	.92	-.15	-.20	-.06	-.18
51.need for autonomy (3)	.58	-.57	.87	.30	.46	.75	.10	.00	.00	.04	-.42	.32	.28	.18	.33
52.need for competence (3)	.41	-.28	.32	.74	.28	.48	.23	.26	.17	.28	-.01	.36	.27	.25	.37
53.need for relatedness (3)	.43	-.49	.45	.24	.86	.75	.12	.07	.29	.21	-.31	.30	.22	.56	.46
54.need satisfaction (3)	.61	-.60	.74	.44	.75	.88	.17	.10	.19	.20	-.38	.40	.32	.44	.49
55.targeted nonwork crafting (competence) (3)	.14	-.13	.04	.22	.05	.10	.79	.45	.40	.70	.08	.23	.19	.31	.31
56.targeted nonwork crafting (autonomy) (3)	.07	-.07	.06	.24	.10	.14	.50	.70	.31	.62	.09	.19	.11	.23	.22
57.targeted nonwork crafting (relatedness) (3)	.09	-.15	.02	.14	.24	.17	.35	.29	.83	.66	.02	.22	.14	.46	.35
58.targeted nonwork crafting (aggregate) (3)	.13	-.15	.05	.24	.17	.17	.67	.57	.66	.82	.07	.26	.18	.42	.37
59.task crafting (3)	.47	-.25	.31	.38	.28	.40	.27	.09	.14	.21	-.15	.75	.36	.40	.62
60.cognitive crafting (3)	.62	-.28	.31	.25	.24	.34	.14	.04	.16	.16	-.28	.26	.78	.34	.62
61.relationship crafting (3)	.38	-.25	.18	.25	.50	.42	.20	.11	.38	.31	-.09	.38	.32	.84	.66
62.job crafting (3)	.64	-.34	.34	.36	.44	.49	.25	.10	.30	.29	-.23	.56	.66	.68	.82

Note. $N = 317-321$ (except correlations with perceived overqualification 2 are based on $N = 274-277$). Correlation coefficients marked in bold are significant at $p < .01$, correlation coefficients marked in bold and in italics are significant at $p < .05$. Variables highlighted in bold refer to the main study variables tested in the

(continued)

	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
47.burnout (2)	-.50															
48.work engagement (3)	.88	-.58														
49.burnout (3)	-.51	.88	-.61													
50.perceived overqualification (3)	-.38	.27	-.39	.27												
51.need for autonomy (3)	.57	-.54	.60	-.57	-.41											
52.need for competence (3)	.39	-.25	.41	-.35	-.03	.37										
53.need for relatedness (3)	.45	-.47	.48	-.52	-.28	.51	.32									
54.need satisfaction (3)	.61	-.57	.65	-.64	-.36	.84	.58	.85								
55.targeted nonwork crafting (competence) (3)	.18	-.11	.20	-.12	.04	.09	.25	.16	.19							
56.targeted nonwork crafting (autonomy) (3)	.11	-.03	.12	-.07	.06	.07	.28	.14	.17	.63						
57.targeted nonwork crafting (relatedness) (3)	.14	-.18	.19	-.18	.01	.04	.19	.33	.24	.43	.38					
58.targeted nonwork crafting (aggregate) (3)	.18	-.14	.21	-.16	.04	.08	.29	.27	.25	.84	.80	.78				
59.task crafting (3)	.47	-.23	.46	-.26	-.12	.39	.41	.34	.46	.26	.22	.16	.26			
60.cognitive crafting (3)	.65	-.28	.64	-.34	-.27	.36	.25	.30	.39	.18	.13	.16	.20	.39		
61.relationship crafting (3)	.40	-.26	.44	-.29	-.08	.25	.27	.58	.49	.26	.21	.43	.38	.45	.37	
62.job crafting (3)	.66	-.34	.68	-.38	-.21	.42	.38	.53	.57	.29	.23	.33	.36	.74	.80	.78

Note. $N = 317-321$ (except correlations with perceived overqualification 2 are based on $N = 274-277$). Correlation coefficients marked in bold are significant at $p < .01$, correlation coefficients marked in bold and in italics are significant at $p < .05$. Variables highlighted in bold refer to the main study variables tested in the models.