What's the point? Finding meaning at work

A study examining the relationships between HEXACO personality factors, cognitive job crafting and work outcomes

Master's thesis

Ornagh O'Reilly (5112532)

Social, Health and Organisational Psychology

Universiteit Utrecht

First reviewer: Dr. Veerle Brenninkmeijer

Second assessor: Dr. Wieby Altink

Date: 22/08/2022

Word count: 8530

Publicly accessible.

Abstract

The goal of this research was to examine cognitive job crafting in relation to its associated antecedents and outcomes. More specifically, this cross-sectional study examined whether HEXACO personality traits, specifically *extraversion*, *conscientiousness* and *openness to experience*, may lead to work engagement and creative performance, through the process of cognitive job crafting. A sample of 121 employed individuals in the Netherlands were recruited using the snowball sampling method. While controlling for age and gender, multiple regression analyses and mediation analyses using PROCESS macro with bootstrapping (5000 samples) were conducted to test the hypotheses. The traits *extraversion* and *conscientiousness* were found to predict cognitive job crafting, while *openness to experience* showed no predictive role in this relationship. As expected, cognitive job crafting had strong associations with both work engagement and creative performance. By investigating these relationships, this study sheds light on the relevance of cognitive job crafting and personality factors in facilitating positive organisational outcomes.

Introduction

Origins of Job Crafting

For more than 40 years, work design theories have helped scholars and practitioners to describe, explain, and change the experiences and behaviours of employees (Hackman, 1980). With widespread advances in technology, communication and information processing, a global shift from manufacturing economies to knowledge and service-based economies has taken place (Grant & Parker, 2009). Today, the complex, competitive environment created by this knowledge-driven economy has forced business owners to rethink work organisation and employment practices (Brunelle & Fortin, 2021). Consequently, there has been growing recognition of the importance of flexible job design, in which employees can proactively change their own tasks and roles.

Traditionally, job-redesign has taken a management-led, top-down approach, with a focus on improving employee performance and establishing organisational success in the long-run (Dobre, 2013). However, these top-down organizational interventions have been found to be less effective than researchers and practitioners had hoped (Biron, Karanika-Murray, & Cooper, 2012; Kompier, Cooper, & Geurts, 2000; Nielsen, Taris, & Cox, 2010), partly because they fail to acknowledge the role of the employee in making meaningful changes to their work. Instead, to meet their own individual needs, employees may be required to redesign their jobs under their own initiative, either by changing the task itself, the way they think about their job, or the relational boundaries in their job (Wrzesniewski & Dutton, 2001). Scholars suggest that facilitating bottom-up job redesign through job crafting may create conditions that stimulate employees to voluntarily do more than is required (Hornung & Rousseau, 2007). As a result, job crafting has emerged as an individual-level, bottom-up approach that emphasizes employees' autonomy and proactive behaviours (Grant & Parker, 2009).

Job crafting occurs across jobs and industries (Nielsen & Abildgaard, 2012) and can promote important outcomes, such as work engagement (Bakker, Tims, & Derks, 2012) and meaningfulness (Wrzesniewski, LoBuglio, Dutton, & Berg, 2013). Moreover, a focus on employee characteristics such as behaviour or cognitions is promising not only because it can yield important individual outcomes related to wellbeing, but also because such characteristics benefit organisations (Slemp & Broderick, 2013). For example, research shows that job crafting serves as an important mechanism for career advancement (Bakker, Tims & Derks, 2012) and that individuals may craft their jobs to create healthy and

motivating working conditions (Petrou et al, 2012). Thus, if job crafting can indeed positively influence work outcomes, it is valuable for organizations and managers to understand why some people perform these behaviours, while others do not (Wrzesniewski & Dutton, 2001).

Two Opposing Perspectives

Broadly speaking, two main conceptualizations of job crafting exist. The first perspective, introduced by Wrzesnieski & Dutton, considers job crafting as a way of improving meaning and work identity. Through this lens, job crafting is defined as "the physical and cognitive changes individuals make in the task or relational boundaries of their work" (Wrzesnieski & Dutton, 2001, p.179). On the contrary, Tim & Bakker define job crafting in terms of the Job Demands-Resources (JD-R) perspective, as "the changes that employees can make to balance their job demands and job resources with their personal abilities and needs" (Tims et al, 2012, p. 174). In this way, job crafting can be seen as a specific form of proactive behaviour in which the employee initiates changes in the level of job demands and job resources (Tims & Bakker, 2010) and increases person-job fit (Zhang & Parker, 2019).

While Wrzesnieski & Dutton argue that the cognitive component of crafting is crucial because it aligns most closely to meaning in work and work identity, scholars in support of the JD-R perspective argue that changing the way we see our job is simply a form of passive adaptation to work, which does not actually lead to real change in job content (Tim & Bakker, 2012). Because of these contrasting interpretations, there continues to be unresolved debate over the true nature of job crafting, leading to calls from contemporary scholars for further research into this important and highly relevant area of job design research. Nonetheless, the basic premise of both theories is that employees may alter their jobs in ways that suit them.

Cognitive Job Crafting

Work is arguably a primary domain in which people seek meaning (Frankl, 1992). Therefore, understanding the ways in which people find meaning and purpose in their working lives is of great importance. While much of the existing job crafting literature focuses on the task, structural and relational changes employees can make to their jobs (i.e., behavioural crafting as outlined by Tims & Bakker), there is a need for further research on how employees can alter the way in which they see their jobs, or prescribe meaning to them, through the process of cognitive job crafting.

Although there is emerging research on the factors that contribute to a sense of meaning at work, the question of *how* individuals experience their work as meaningful still remains (Harrison, 2008). Meaningful work relates to an individual's understanding of the purpose of their work, or what they believe is achieved in their work (Brief & Nord, 1990). Work is perceived as meaningful when workers feel dignified, useful, worthwhile and/or valuable in their job (Smith & DeNunzio, 2020). Employees have consistently ranked a sense of accomplishment from work, and feeling like their work is important, as being the most preferred over promotions, income, security and hours worked (National Research Council, 1999).

Cognitive job crafting can be a powerful process for cultivating meaningful experiences (Pratt & Ashforth, 2003). Further, it has been recognized as a highly relevant and promising approach that employees can use to heighten their job satisfaction and overall wellbeing (Wrzesniewski & Dutton, 2001). Research suggests that employees engage in cognitive crafting when they view their jobs in a different way, by undergoing a set of internal, rather than behavioural, changes (Wrzesniewski & Dutton, 2001). For example, a hospital cleaner may cognitively craft his or her job by viewing it as helping people rather than simply cleaning rooms (Berg, Dutton, & Wrzesniewski, 2008). Experienced meaningfulness can yield many benefits for organisations and lead to positive work outcomes including individual and organisational fulfilment, productivity, retention, and loyalty (Slemp & Broderick, 2013). Thus, given the myriad benefits that increased meaning appears to have in the workplace, it is relevant to understand the specific factors that help cultivate meaningful work environments and facilitate cognitive job crafting, which shows great promise for the future of organisations.

HEXACO personality as an antecedent of cognitive job crafting

The literature suggests that personality plays an important role in determining people's experiences and behaviours at work (e.g., Barrick, Parks & Mount, 2005; Hurtz & Donovan, 2000). Knowing how personality affects work outcomes can help managers better understand how to maximise the benefits of various personalities within teams (Bradley et al, 2013). To our knowledge, little is known about the predictive value of personality traits for job crafting (Roczniewska & Bakker, 2016).

Recent personality research has led to the development of a six-dimensional model of personality, namely the HEXACO, which encompasses the traits *honesty-humility*, *emotionality*, *extraversion*, *agreeableness*, *conscientiousness* and *openness to experience* (De

Vries, 2013). Research suggests that this model may capture human personality more accurately than the Big Five and is therefore a viable alternative when examining personality traits (Ashton & Lee, 2019). For the purpose of this study, we will focus on three of the six HEXACO traits, namely *extraversion, agreeableness* and *openness to experience*, with a focus on their relationship with cognitive job crafting.

Extraversion, Conscientiousness & Openness to Experience

Following the emergence of the HEXACO model, researchers have identified parallels between extraversion, conscientiousness and openness to experience that were not originally apparent in the traditional Big Five (De Vries, 2013). A recent empirical study of well-being in organizations found that individuals high on extraversion, conscientiousness and openness were not only more able to craft their job, but also have greater insight skills, which, in turn, increased their job crafting abilities (Gori et al, 2021). Further, research suggests that persons high on extraversion, conscientiousness and openness tend to craft their job due to their corresponding tendency to bend to others' mental states, be careful about their performance, and seek novelty (Rudolph et al, 2017).

Compared with other forms of job crafting, the relationship between extraversion and cognitive job crafting is significantly understudied. However, several studies provide evidence for the association between extraversion and behavioural job crafting. For example, meta-analysis of the Big Five as an antecedent of job crafting found that extraverted workers, who are friendly and comfortable in social interactions, seem to enhance proactive behaviour in relational contexts (Gori et al, 2021). In the context of the JD-R perspective, extraversion is positively related to seeking structural and social job resources, and seeking challenging job demands (Roczniewska & Bakker, 2016). Further, extraversion positively predicts change-oriented behaviours, understood as employees' efforts to constructively change their work situation with the intention of benefiting the organisation (Marinova et al, 2015). Thus, given its long-established associations with proactivity and initiative, we expect that extraversion will be associated with cognitive job crafting, as extraverted employees, who seek change and stimulation, are likely to look for opportunities in the work environment to purposefully alter the nature of their job in ways that benefit them.

Conscientiousness has positive associations with performance indicators across many job performance criteria and occupational groups (Barrick & Mount, 1991). Typically associated with self-discipline, achievement striving, dutifulness and competence, conscientiousness is considered the most potent non-cognitive predictor of organisational

performance (Wilmot & Ones, 2019). Conscientious workers, who are task-oriented and persistent, seem to be more inclined to challenge job demands and diminish the impact of workloads (Bakker, Demerouti & Lieke, 2012). They are scrupulous and responsible, and so perhaps have a deeper interest in reflecting better fit with their incoming demands (Gori et al, 2021). Based on this, we expect that conscientious workers possess the necessary skills to craft their own jobs, as they strive to increase their person-environment fit and become more effective and competent in their work.

In contrast, openness to experience is typically associated with being inquisitive in novel situations, adaptable to change, and creative when solving complex problems. Rudolph et al (2017) found a meaningful relationship between openness to experience and job crafting, as well as extraversion, conscientiousness and agreeableness. Similar to job crafting, openness has positive associations with personal initiative (Tornau & Frese, 2013) and is also positively associated with increasing structural job resources and challenging job demands (Rudolph et al, 2017). While its relationship with cognitive job crafting is significantly understudied, openness has been described as a "dimension of personality reflecting cognitive exploration" (De Young, 2015, p. 369), suggesting a possible link to the cognitive form of job crafting. Based on these findings, we expect that high scorers on the openness to experience domain, who generally display a willingness to learn, curiosity, flexibility and open-mindedness (Mussel et al, 2011) are likely to engage in cognitive job crafting as they attempt to seek out new, novel ways of working. Taken together, these findings led to the following hypothesis:

H1: Extraversion, Conscientiousness and Openness to Experience will have a positive association with cognitive job crafting.

Cognitive Job Crafting and Work Outcomes

To our knowledge, research on the predictive role of cognitive job crafting and work outcomes is in its infancy. While job crafting in general has a positive effect on work engagement and performance, this has mostly been examined for behavioural forms of job crafting (Bakker, Tims & Derks, 2012). Although somewhat limited, research on cognitive job crafting so far has shown that it can lead to enhanced meaning of work and a positive work identity (Wrzesnieski & Dutton, 2001). If cognitive job crafting can indeed bring about

as much positive change as its behavioural counterparts, increased knowledge of this topic is a very worthy avenue for researchers and organisational leaders to explore.

Work engagement

Studies have shown that employees show the best job performance in challenging, resourceful work environments, because such environments facilitate their work engagement (Demerouti, Cropanzano, Bakker & Leiter, 2010). Work engagement is defined as "a positive, fulfilling, work-related state of mind that is characterized by vigour, dedication and absorption (Schaufeli et al, 2006, p. 702). A substantial body of research has shown that engaged employees are more satisfied with their jobs, enjoy good health, positive work affect, and experience higher well-being at work (Radstaak and Hennes, 2017). Clearly, understanding the specific factors that facilitate work engagement is necessary to optimise employee performance and improve organisational success.

Emerging research suggests that cognitive job crafting has direct associations with work engagement. For example, cognitive job crafting increases work engagement through fulfilment of psychological needs (Neuteboom, 2020), and appears to be more impactful than behavioural crafting in contributing to higher levels of work engagement (Eijkemans, 2020). In the context of the JD-R, research has found that crafting structural and social job resources leads to higher work engagement (Tims et al, 2013). As it relates to cognitive job crafting, experienced meaningfulness is considered a critical determinant of work engagement. This is exemplified throughout the literature, with several empirical studies supporting the assumption that perception of work meaningfulness significantly enhances work engagement (e.g., Salanova & Schaufeli, 2008; May, Gilson & Harter, 2004). Furthermore, the link between work engagement and meaning is encapsulated in a recent definition of work meaningfulness as a "positive psychological condition that confers meaningfulness, safety and availability in the workplace and thus significantly predicts work engagement" (Lin, Cai & Yin, 2021, p. 183). Taken together, these findings provide clear empirical and theoretical support for the link between meaningfulness and work engagement, leading to one of the main hypotheses of the current study:

H2 (a): Cognitive job crafting is positively associated with work engagement.

Creative performance

Studying the relationship between job crafting and creative performance is an interesting and crucial line of inquiry that has the potential to advance both theory and practice (Wang & Lau, 2021). Creativity has been increasingly recognized as a core element that drives the success of employees and maintains the competitive advantage of organisations in rapidly changing and challenging business environments (Anderson, Potocnik & Zhou, 2014). Creativity not only enables employees to respond to unforeseen challenges, but also to proactively develop new capabilities (Zhou & Hoever, 2014). Because a supportive environment for creativity is an important determinant of organizational performance, organizations have to attach importance to creativity (King et al, 2007).

Research has shown that creativity is an outcome of job design interventions, and has established a positive linear relationship between job crafting and creative performance (Demorouti, Bakker & Gevers, 2015). It is believed that those who job craft have different and unconventional angles from which they view their work, which facilitates their idea generation (Lin, Law & Zhou, 2017). Theoretically, job crafting and creative performance share some similarities, as both involve making changes and exploring new ideas (Wang, Demerouti, & Le Blanc, 2017). Taken together, these findings provide substantial evidence for the link between job crafting behaviours and creative performance.

To the best of our knowledge, very few studies in the existing literature have focused on the (cognitive) job crafting-creativity relationship. However, research has established links between creativity and meaningfulness, with workplace creativity having been described as a 'meaningfulness-making activity' that influences employees' positive affect at work (Tavares, 2016). It is thought that employees who find their job meaningful and important, and who believe they are capable, feel more creative. Moreover, people with the ability to create good meaning can use knowledge management processes effectively and improve their creativity (Yeh & Lin, 2015). Because the predominant focus of the existing creativity literature has been on its consequences, rather than its antecedents, it seems necessary to explore cognitive job crafting as a potential predictor of creative performance Accordingly, we hypothesise that:

H2 (b): Cognitive job crafting is positively associated with creative performance.

Mediation

Job crafting may be a mechanism that explains why individuals with certain personality traits are more likely to be highly engaged and creative at work (Eijkemans, 2020). Past research has identified job crafting as a mediator between work engagement and well-being outcomes, e.g., job performance and flourishing (Robledo, Zappalà & Topa, 2019) and regulatory focus, work engagement and perceived employability (Brenninikmeijer & Hekkert-Koning, 2015). This research seeks to explore which HEXACO traits directly influence work outcomes, and whether these relationships can be further explained by cognitive job crafting. In sum, a positive association between the traits *extraversion, conscientiousness* and *openness to experience* with cognitive job crafting is expected, as well as a positive association between cognitive job crafting and work outcomes (i.e., work engagement and creative performance). This led to the formulation of the final hypotheses of the current study:

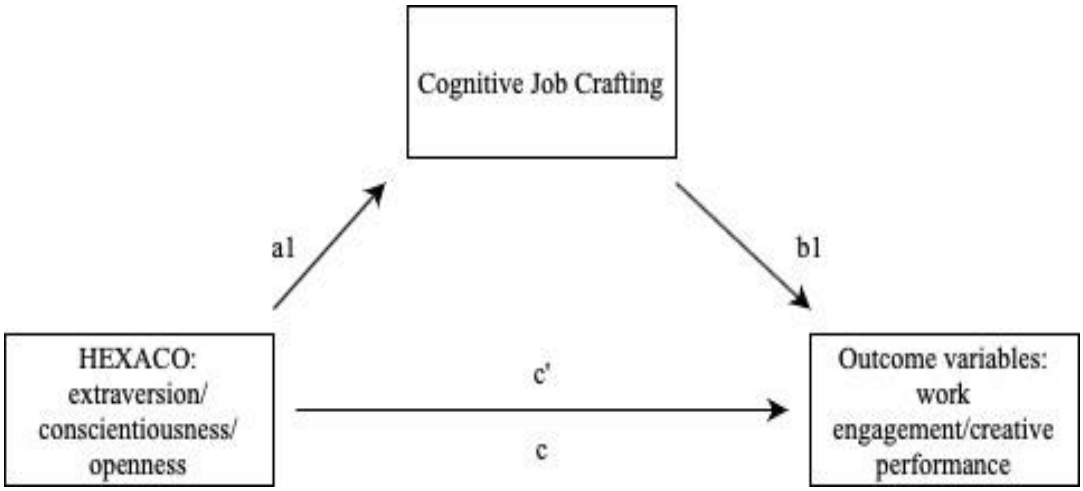
> *H3 (a): Cognitive job crafting mediates the relationship between extraversion, conscientiousness* and *openness to experience* & *work engagement.*
>
> *H3 (b): Cognitive job crafting mediates the relationship between extraversion, conscientiousness* and *openness to experience* & *creative performance.*

Research Questions

In seeking to explore the possible antecedents and outcomes of cognitive job crafting, the current study poses specific questions relating to personality, cognitive job crafting, work engagement and creative performance. Most importantly, will individuals high on extraversion, conscientiousness and openness to experience be more likely to alter the perceptions of their work in order to create more meaning? Further, does cognitively crafting one's job lead to higher work engagement and creative performance? And to what extent does cognitive job crafting explain the relationships (if any) between personality traits and positive work outcomes? (See Figure 1).

Figure 1.

Process model depicting paths between the predictor, mediator, and outcome variables (work engagement and creative performance)



Method

Design and Procedure

This study adopted a cross-sectional design, as all data were collected at one moment in time. Participants were recruited through social media platforms, such as Facebook, Instagram and LinkedIn. In addition, friends, family, and work colleagues were approached through email and WhatsApp. Qualtrics was used to collect information through a series of online questionnaires. Once the inclusion criteria were met, participants were given a brief description of the study and asked to provide their informed consent (Appendix D). They were then asked to answer a series of questions on a particular topic. As this research did not distinguish between different professions, individuals from any field of work were able to participate. Upon completion of the questionnaire, participants were debriefed and explained about the aim of the study in greater detail.

Participants

An a priori analysis was conducted using G*Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007), using a small-medium effect size (d = 0.1), 8 predictors and an alpha of .05. Results showed that a total sample of 151 participants was required to achieve a power of .80. In total, 151 participants started the survey. Of these, 30 were unfinished (n = 30) and therefore excluded. The final total sample size comprised 121 participants, which did not meet the power requirement, however it was decided that this number was sufficiently large enough to continue with the data analysis.

Respondents could only be included if they met the inclusion criteria of being currently employed at an organisation for at least 24 hours per week. Respondents ranged in age from 18 to 58 (M = 24.2; SD = 1.68). Of the included participants, 26.4% were male and 71.9% were female. 1.7% of the participants identified as non-binary. On average, most participants (40.5%) worked between 31- 40 hours per week. 47.1% reported bachelor's as their highest level of education.

Table 1.

Educational level of the sample.

	Frequency	Percent
Secondary school	8	6.6
Undergraduate	57	47.1
Postgraduate	53	43.8
Doctorate	3	2.5

Ethical approval

Utrecht University works according to the Code of Ethics for Psychologists (NIP). This research project was registered at the UU Student Ethics Review & Registration Site (UU-SER). The Faculty Ethics Review Board (FERB) has given approval for this study.

Measures

Four variables were measured using items from four different existing scales (Appendix E). All items were in English.

HEXACO Personality

To measure HEXACO personality factors, the 24-Item Brief HEXACO Inventory (De Vries, 2013) was used. Participants were asked to rate how they felt about a series of 24 statements on a 6-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Example items included “I can look at a painting for a long time” and “I am seldom cheerful”. Cronbach’s alpha tests of reliability showed that this version of the HEXACO had only moderate reliability for each subscale: *honesty-humility* (*a* = .450), *emotionality* (*a* = .402), *extraversion* (*a* = .390), *agreeableness* (a = .252), *conscientiousness* (*a* = .544) and *openness to experience* (*a* = .434). Further factor analysis of the variables revealed that 9 items had an

eigenvalue greater than 1, providing further evidence that the scale was not very reliable in this study (see Appendix A).

Cognitive Job Crafting

Cognitive job crafting was measured using the newly developed Cognitive Job Crafting Questionnaire (Ybema & Brenninkmeijer, submitted). Respondents were asked to rate how strongly they felt about a series of statements, on a scale ranging from 1 (never) to 5 (very often). Example items included "I think about the goals I want to achieve with my work" and "I am aware of the meaning of my work." Cronbach's test of reliability showed that this scale was reliable (a = .827). Exploratory factor analysis (see Appendix B) supported a two-factor structure that reflected the cognitive job crafting scale proposed by Ybema & Brenninkmeijer, (2020).

Work Engagement

Work engagement was measured using the Utrecht Work Engagement Scale (UWES), originally consisting of 24 items. For the purpose of this study, an abbreviated, 9-item version of this scale (UWES-9) was used (Schaufeli & Bakker, 2004). Items were rated on a 7-point Likert scale ranging from 'never' to 'always'. Higher values in this scale indicated high work engagement. Example items from this scale include "at my job, I feel bursting with energy" and "my job inspires me". Tests of reliability showed high reliabilities for two of the subscales, vigour (*a* = .742) and dedication (*a* = .763) and a moderate reliability for absorption (*a* = .558).

Creative Performance

To measure creativity at work, a scale consisting of 20 items called the Creativity at Work Personal Scale (Musek, 2020) was used. Items were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher values on this scale indicated high levels of creativity. Example items from this scale include "I like to solve complex problems" and "I can easily link facts together". In the current study, the scale was reliable (*a* = .820).

Statistical Analysis

The statistical analysis was conducted using *IBM Statistics SPSS v28.* The models for mediation (model 4) were tested using the PROCESS Macro - SPSS package (Hayes, 2018). An alpha level of .05 was used as a significance level for all the statistical analyses. To

assess the significance of the indirect effects, we performed bootstrapping over 5000 samples and computed 95% confidence intervals for the estimates (Shrout and Bolger, 2002).

First, the data were prepared for analysis, with missing values excluded from the study. Missing values were defined as cases that did not reach the end of the whole survey. Of those participants who completed the full questionnaire, (N = 121), a number of participants skipped some questions. Hence, pairwise deletion of missing values was applied for the relevant scales. A new variable was computed for each HEXACO sub-scale, and the negatively-worded items reverse coded. The reliability of the scales was tested with Cronbach's alpha (α) and further exploratory factor analysis in the case of the BHI and the CJC (see Appendix). Preliminary analyses were performed to ensure there was no violation of the assumptions of normality, multicollinearity and linearity. No violations of these assumptions were found.

Results

Correlational analyses

A preliminary analysis was conducted to examine the descriptive statistics and the Pearson's correlations for the main variables (see Table 1 below). Results yielded significant positive correlations with cognitive job crafting for four of the six HEXACO traits, namely *honesty-humility* (r = .22, p = <.05), *extraversion* (r = .21, p = <.05), *conscientiousness* (r = .33 p = <.001) *and openness to experience* (r = .19, p = < .05). *Emotionality* (r = -.11, p = .215) and *agreeableness* (r = .05, p = .596) showed no significant correlations with cognitive job crafting. Further correlation analysis for the outcome variables found strong, highly significant correlations for cognitive job crafting and work engagement (r = .25, p = <.01) and cognitive job crafting and creative performance (r = .34, p = <.001), suggesting that cognitive job crafting is a good predictor of positive work outcomes.

Table 1.

Means, SDs, and correlations between the main variables

Variable	*M*	*SD*	1.	2.	3.	4.	5.	6.	7.	8
H	4.04	0.59	-							
E	3.01	0.67	-.02	-						
X	4.05	0.51	0.15	0.09	-					
A	3.07	0.58	0.22*	-.03	0.11	-				
C	3.39	0.67	0.24**	-.06	-.03	-.14	-			
O	3.62	0.61	-.09	-.02	0.20*	-.09	0.06	-		
CJC	3.80	0.68	0.22*	-.11	0.21*	0.05	0.33**	0.19*	-	
WE	6.83	2.20	0.29**	-.056	0.14	0.08	0.20*	0.08	0.25**	-
CP	3.58	0.45	-.04	-.087	0.07	0.20*	0.20*	0.70**	0.34**	0.18

Note. *p<.05, **p<.01.

Note: the traits H, E & A were included in the preliminary analyses to provide an integrative view of all six traits. For the purpose of this study and the hypotheses being tested, the traits Ex, C & O will be the focus of our discussion hereafter.

HEXACO & Cognitive Job Crafting

Next, a multiple linear regression was performed to test the relationship between HEXACO personality traits and cognitive job crafting (Hypothesis 1). Model 1 was not significant. Based on the R^2 change tests, the results of Model 2 will be discussed (R^2 = .175, F (3, 114) = 7.838, p < .001). This indicates that Model 2 accounts for 17.5% of the variance in cognitive job crafting.

Hypothesis 1: when controlling for age and gender, *extraversion* (β = .195, p < .05) and *conscientiousness* (β = .329, p <.001) showed significant positive relationships with cognitive job crafting, while o*penness to experience* revealed a non-significant relationship (β = .134, p = .132). Thus, hypothesis 1 was partially confirmed for *extraversion* and *conscientiousness* and rejected for *openness to experience.*

Table 2.

Results of multiple regression for cognitive job crafting (standardised beta's)

	Model 1	**Model 2**
	Block 1	Block 1+2
Age	.054	.004
Gender	.047	-.008
Extraversion		.195*
Conscientiousness		.329***
Openness		.134
R^2	.005	.175***
R^2 Change	.005	.170***

*p<0.05, **p<0.01, ***p<0.001

Hypothesis 2 (a): Cognitive Job Crafting & Work Engagement

A second multiple regression analysis found that hypotheses 2 (a) was supported. Model 1, including the covariates, and Model 2, which included both the covariates and the predictor variable (cognitive job crafting) predicted a significant additional part of the variance in work engagement. The results will focus on Model 2 as these findings address our hypotheses. Model 2 explained 13.2% of the variance, indicating that the model was a significant predictor of work engagement (R^2 = .132, F(1, 117) = 7.423, p = < .01). When controlling for

age and gender, cognitive job crafting had a significant positive effect on work engagement (β = .235, p < .01). Thus, we confirm hypothesis 2 (a), i.e., that cognitive job crafting predicts work engagement.

Hypothesis 2 (b): Cognitive Job Crafting & Creative Performance

A third multiple regression analysis was conducted to test whether cognitive job crafting significantly predicted creative performance. Although Model 1 was not significant, Model 2 was found to significantly predict creative performance (R^2 = .124, F(1,117) = 14.868, p = < .001), suggesting that cognitive job crafting accounts for a significant 12.4% of the variance in creative performance (see Table 3). When controlling for age and gender, cognitive job crafting had a significant positive effect on creative performance (β = .335, p < .001). Thus, we also confirm hypothesis 2 (b), i.e., that cognitive job crafting predicts creative performance. The results are displayed in Table 3.

Table 3.

Results of multiple regression for work engagement and creative performance (standardised beta's)

	Work engagement		Creative performance	
	Model 1	Model 2	Model 1	Model 2
Age	.205*	.192*	.102	.084
Gender	.182*	.171	-.048	-.064
CJC		.235**		.335***
R^2	.077**	.132**	.012	.124***
R^2 Change	.077**	.055**	.012	.111***

*p<0.05, **p<0.01, ***p<0.001

Mediation Analysis

To test the indirect effects of HEXACO personality factors on work outcomes, two separate mediational models were run for work engagement and creative performance respectively. Bootstrapping procedures (5000 samples) were conducted by computing the 95% confidence

interval. Tables 4 and 5 depict the direct and indirect paths in the mediation analyses for each outcome variable.

H3 (a) Work Engagement

Hypothesis 3 (a) predicted that the relationship between the three HEXACO traits and work engagement would be mediated by cognitive job crafting. The indirect effect of cognitive job crafting on the relationship between *extraversion* (*b* = 0.21, SE = 0.169, 95% CI [-.03, .61]) *conscientiousness* (*b* = 0.21 SE = .144, 95% CI [-.010, .55]) and *openness to experience* (*b* = 0.22, SE = .140, 95% CI [-.042, .514]) and work engagement was found to be non-significant. Thus, we reject hypothesis 3 (a), and conclude that cognitive job crafting does not mediate the relationship between these HEXACO factors and work engagement.

Table 4.

Total, direct and indirect effects of extraversion, conscientiousness, and openness to experience on work engagement through cognitive job crafting

Trait	Total		Direct		Indirect		
	B	*p*	B	*p*	B	LCI	UCI
X	0.44	0.27	0.23	0.56	0.21	-.03	0.61
C	0.55	0.06	0.34	0.26	0.22	-.010	0.55
O	0.27	0.40	.045	0.88	0.22	-.042	.514

H3 (b) Creative Performance

Hypothesis 3 (b) predicted that the relationship between the three HEXACO traits and creative performance would be mediated by cognitive job crafting. The index of mediation indicated a significant total effect for *conscientiousness*, (*b* = .13, SE = .061, 95% CI [.010, .251]) but a non-significant direct effect (*b* = .064, SE = .062, 95% CI [-.059, .186]). The indirect effect (*b* = .067, SE = .026, 95% CI [.024, .126]) was significant, indicating complete mediation for this trait. For *openness to experience*, a significant total effect (*b* = .493, SE = .052, CI [.391, .595]) and a significant direct effect (*b* = .46, SE = .051, CI [.362, .563]) was found. However, the indirect effect (*b* = .031, SE = .019, CI [-.009, .067]) indicated that cognitive job crafting did not mediate this relationship. For *extraversion*, no mediation effects were present (*b* = .063, SE = .0389, CI [-.006, .147]).

These results suggest that higher scores on *conscientiousness* are associated with increased likelihood of cognitive job crafting, which is subsequently associated with higher levels of creative performance. Further, higher scores on *openness to experience* are directly associated with increased creative performance, however cognitive job crafting plays no part in explaining this relationship. Thus, we partially accept hypothesis 3 (b) for *conscientiousness*, and reject it for *extraversion* and *openness to experience.*

Table 5.

Total, direct and indirect effects of extraversion, conscientiousness, and openness to experience on creative performance through cognitive job crafting

Trait	Total		Direct		Indirect		
	B	*p*	B	*p*	B	LCI	UCI
X	.079	.356	.016	.847	.063	-.006	0.147
C	.131	.034	.064	0.30	.067	0.024	0.126
O	.493	<.001	.463	.<.001	.031	-.009	.067

Discussion

The main objective of this study was to examine the antecedents and outcomes of cognitive job crafting. So far, a significant body of research has established links between various types of behavioural job crafting and positive work outcomes (e.g., Bakker, Tims & Derks, 2012; Tims, Bakker & Derks, 2013). This study sought to investigate whether cognitive job crafting is also effective in facilitating positive work outcomes. In addition, we examined the mediating role of cognitive job crafting in the relationship between personality factors and work outcomes (i.e., work engagement and creative performance) with the aim of understanding the underlying mechanisms at play in these relationships. The associations were tested among 121 participants mostly based in the Netherlands, recruited using the snowball sampling method.

Personality and cognitive job crafting

Partial support was found for the first hypothesis of the study, for the traits *extraversion* and *conscientiousness*. This means that highly extraverted and conscientious individuals are most likely to engage in cognitive job crafting. Our findings are in line with previous research, which has found that extraversion is positively associated with change-oriented behaviours (Marinova et al, 2015) and proactively seeking structural and social job resources, and challenging job demands (Roczniewska & Bakker, 2016). The positive association between conscientiousness and cognitive job crafting also aligns with past research, which suggests that conscientious individuals are likely to engage in job crafting as they seek out opportunities to increase their person-environment fit (Gori et al, 2021). It is likely that conscientious workers are inclined to cognitively craft their job in their quest to feel more competent, purposeful and efficient in their work.

Most surprising were our findings for the *openness to experience* trait. Contrary to our predictions, no association was found between openness and cognitive job crafting, despite a significant correlation in the preliminary analysis (r = 0.19). However, as Costa & McCrae (1994) observe, *openness to experience* is actually the most controversial, least understood, and least researched of the major personality factors. The fact that it has been referred to by the founders of the Big Five as “one of the broadest constructs in personality psychology” (McCrae and Costa, 1997, p. 828) may explain why there continues to be ambiguity surrounding this particular trait. Thus, future research would benefit from examining *openness to experience* in greater depth.

Cognitive job crafting and work outcomes

Our findings confirm the expectation that cognitive job crafting significantly predicts both work engagement and creativity. This means that individuals who view their work as meaningful are more likely to experience increased work engagement and creative performance. Our findings draw parallels with previous research, which has established links between job crafting and work engagement (e.g., Bakker, Tims & Derks, 2012; Demerouti, Bakker & Gevers, 2015), and job crafting and creativity (e.g., Tian, Wang & Rispens, 2021). Its relationship with work engagement is further supported by recent research which found that cognitive job crafting predicts high levels of work engagement, over and above behavioural job crafting (Eijkemans, 2020), and research that found cognitive job crafting to be an important predictor of work engagement through fulfilment of psychological needs (Neuteboom, 2020). While a significant portion of the job crafting literature has established links between behavioural job crafting and creativity (e.g., Demerouti, Bakker & Gevers, 2015; Li et al, 2020; Lin et al, 2017; Sun et al, 2020; Tian, Wang & Rispens, 2021), to our knowledge this is the first study to examine the cognitive job crafting-creative performance relationship. Therefore, our study makes a meaningful contribution to this gap in the cognitive job crafting literature, and adds to calls for future research to further investigate this relationship.

The mediating role of cognitive job crafting

None of the personality traits had a significant relationship with work engagement, which is required to infer mediation. Because past research has identified other forms of job crafting as an explanatory mechanism between, for example, work engagement, job performance and flourishing (Robledo, Zapaala & Topa, 2019) and regulatory focus, work engagement and perceived employability (Brenninikmeijer & Hekkert-Koning 2015), we also expected cognitive job crafting to be a possible explanatory variable in the current study. However, examination of the indirect paths in our mediation model meant our expectation for work engagement was not confirmed.

Cognitive job crafting did appear to play some role in the relationship between personality and creative performance. More specifically, it mediated the relationship between *conscientiousness* and creative performance. This means that those high on conscientiousness are more likely to alter the perceptions of their jobs through cognitive job crafting, which in turn will lead to improved creative performance. Empirical studies investigating the relationship between conscientiousness and creativity have had mixed results, with some

showing a positive relationship (e.g., McCrae, 1987), some showing a negative relationship (e.g., Wolfradt & Pretz, 2001), and some showing no relationship (e.g., Fumham & Bachtiar, 2008). While our findings reveal a positive relationship between conscientiousness and creative performance that is mediated by cognitive job crafting, the contradictory findings across the literature suggest that further research is required to gain better understanding of this seemingly complex relationship. Furthermore, while our findings showed that *openness to experience* is a very strong predictor of creative performance, a non-significant indirect effect indicated that cognitive job crafting played no part in explaining this relationship. The direct link between openness to experience and creativity is long-established, e.g., people who are curious and imaginative (i.e., high on openness) tend to engage in more creative activities (Tan et al, 2016).

Lastly, because our study is among the first to examine the mediating role of cognitive job crafting, it must be acknowledged that further research is required to determine whether these findings are plausible in other important relationships. It is possible that because cognitive job crafting relates to the way in which an individual ascribes meaning to their work, rather than their actual behaviours, it plays less of an explanatory role compared with other forms of crafting. Therefore, the JD-R perspective (Tims & Bakker, 2010), i.e., that cognitive job crafting is a means of passive adaptation rather than a proactive behaviour, may be supported. Once again, this reiterates the need for further research into the true nature of cognitive job crafting.

Practical implications

Although employees are typically not able to redesign their jobs, there will be opportunities in the context of almost any job where employees can alter the perceptions of their work to make it more personally meaningful or enjoyable to them (Rudolph, 2017). Despite cognitive job crafting being a promising basis for workplace interventions, it has received surprisingly little research attention. While work meaning is clearly an important research topic, there remain critical gaps in the measurement and understanding of meaning (Harrison, 2008). This gap in the literature might stem from the fact that, until recently, few measures of the construct were available. However, our reliability and factor analyses showed that the newly developed cognitive job crafting questionnaire shows promise as a reliable measure of the construct. Taken together, these findings are among the first to suggest that cognitive job crafting may be a propitious means of optimizing organizational success.

Our findings were mostly consistent with previous research, which indicates that increased meaning at work contributes to more positive work experiences. Although further research is needed, this study provides clear evidence in support of the positive implications of cultivating meaning at work. Therefore, organisations could benefit from facilitating work environments that enable employees to understand the meaning of their daily tasks, and see their work as more than just a 'job'. One way of doing this is to provide meaningful work environments in which employees develop meaningful relationships (Harrison, 2008). Moreover, reminding employees of the positive impact their work has on other people and society at large can further enhance the meaning of daily tasks. In doing this, companies will reap the rewards both at the individual and organisational level as their employees will inevitably be more engaged, creative and satisfied overall in their work.

Our findings on the role of personality factors at work also have important practical implications for organisations. For example, HR professionals may benefit from employing assessment and promotion systems that aim to create a match between employees' personality and job characteristics (Barrick, Mount & Li, 2013). It is crucial that during the recruitment and hiring process and allocation of work tasks and responsibilities, that decision-makers are aware of the impact of certain personality factors on employees' behaviours, and use this knowledge to maximise employee potential. Lastly, it is important that managers and decision-makers do not only focus on the extraverted and conscientious employees who are most likely to craft their jobs, but to also pay attention to those who are not so likely, and find ways of increasing these individuals' work meaning in alternative ways, as they too could greatly benefit from doing so.

Limitations, strengths & future research

The present study had several limitations which may have impacted the findings. Because 30 participants had to be excluded due to failure to complete every questionnaire, the full power requirement, although close, was not met. This 18.9% dropout rate may have compromised the representativeness of the sample. Furthermore, the educational background of the sample comprised mostly students at university, meaning the findings may not be relevant to other age groups, for example, people in later stages of their careers. Because this was a convenience sample and randomization was not possible, most participants were based in the Netherlands, which may have further skewed the results, as the findings may not be applicable to other nationalities or cultures. In addition, the self-report nature of the questionnaires may have led to biased responses. Thus, employing an acquaintance-rated

assessment measure in future research might be more reflective of an individual's genuine personality traits.

Lastly, the limitation of most concern for this study was the reliability of the measures used. In particular, the reliability of the 24-Item HEXACO is questionable. Factor analysis (see Appendix) revealed that this scale may not be a reliable measure of the six personality traits. While the main advantage of short personality scales is the minimal time investment needed, this is often at the expense of its reliability. However, the author acknowledges that although characterized by relatively low alpha reliability, its test-retest stability, self-other agreement, and convergent correlations with full-length scales are relatively high and its validity loss is only modest (De Vries, 2013).

Despite the weaknesses of the current study, it is important to also acknowledge its strengths. While the BHI-24 showed inconsistent reliability, the other three scales proved very reliable instruments, as reflected in the alpha levels of their respective sub-scales. In addition, the survey instrument proved a quick and efficient method of measuring multiple constructs at once. In total, it took approximately seven minutes to complete, which reduced the likelihood of response fatigue.

Conclusion

Job crafting is being increasingly recognized as a more effective approach to job design than traditional top-down processes. As the world of work continues to evolve, there is a need for further research examining specific types of job crafting and the implications this has for employees. Understanding the antecedents, outcomes and underlying mechanisms of these work-related behaviors is necessary to understand who is most likely to job craft, and who is not.

The present study makes two central contributions. First, it extends the existing job crafting literature by reiterating its positive implications for employees and organisations. Second, it sheds light on the relationship between personality factors and cognitive job crafting, and proves that experienced meaningfulness can be effective in bringing about positive outcomes in the workplace. From our results, we conclude that certain personality traits, specifically *extraversion* and *conscientiousness*, are strong predictors of cognitive job crafting, and that cognitive job crafting facilitates increased work engagement and creative performance. Therefore, organizations who wish to cultivate healthy, productive work environments with highly engaged and creative employees should aim to make the experience of meaningful work a top priority.

References

Abu Elanain, H. M. (2007). Relationship between personality and organizational citizenship behavior: Does personality influence employee citizenship.

Anderson, N., Potočnik, K., & Zhou, J. (2014). Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and guiding framework. *Journal of management*, *40*(5), 1297-1333.

Ashton, M. C., Lee, K., & De Vries, R. E. (2014). The HEXACO Honesty-Humility, Agreeableness, and Emotionality factors: A review of research and theory. *Personality and Social Psychology Review*, *18*(2), 139-152.

Bakker, A. B., Demerouti, E., & Lieke, L. T. (2012). Work engagement, performance, and active learning: The role of conscientiousness. *Journal of vocational behavior*, *80*(2), 555-564.

Bakker, A. B., Schaufeli, W. B., Leiter, M. P., & Taris, T. W. (2008). Work engagement: An emerging concept in occupational health psychology. *Work & stress*, *22*(3), 187-200.

Bakker, A. B., Tims, M., & Derks, D. (2012). Proactive personality and job performance: The role of job crafting and work engagement. *Human relations*, *65*(10), 1359-1378.

Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: a meta-analysis. *Personnel psychology*, *44*(1), 1-26.

Barrick, M. R., Parks, L., & Mount, M. K. (2005). Self-monitoring as a moderator of the relationships between personality traits and performance. *Personnel psychology*, *58*(3), 745-767.

Berg, J. M., Dutton, J. E., & Wrzesniewski, A. (2008). What is job crafting and why does it matter. *Retrieved form the website of Positive Organizational Scholarship on April*, *15*, 2011.

Biron, C., Karanika-Murray, M., & Cooper, C. (2012). *Improving organizational interventions for stress and well-being*. London, UK:: Routledge.

Bradley, B. H., Klotz, A. C., Postlethwaite, B. E., & Brown, K. G. (2013). Ready to rumble: How team personality composition and task conflict interact to improve performance. *Journal of Applied Psychology*, *98*(2), 385.

Brenninkmeijer, V., & Hekkert-Koning, M. (2015). To craft or not to craft: The relationships between regulatory focus, job crafting and work outcomes. *Career Development International*.

Brief, A. P., & Nord, W. R. (1990). Work and meaning: Definitions and interpretations.

Brunelle, E., & Fortin, J. A. (2021). Distance makes the heart grow fonder: An examination of teleworkers' and office workers' job satisfaction through the lens of self-determination theory. *Sage open*, *11*(1), 2158244020985516.

Demerouti, E., Bakker, A. B., & Gevers, J. M. (2015). Job crafting and extra-role behavior: The role of work engagement and flourishing. *Journal of Vocational Behavior*, *91*, 87-96.

Demerouti, E., Cropanzano, R., Bakker, A., & Leiter, M. (2010). From thought to action: Employee work engagement and job performance. *Work engagement: A handbook of essential theory and research*, *65*(1), 147-163.

De Vries, R. E. (2013). The 24-item brief HEXACO inventory (BHI). *Journal of Research in Personality*, *47*(6), 871-880.

Dobre, O. I. (2013). Employee motivation and organizational performance. *Review of applied socio-economic research*, *5*(1).

Eijkemans, L. S. (2020). *Cognitive job crafting: A new and promising method to redesign your job A study examining the relationship between cognitive job crafting, authenticity, and employee well-being* (Master's thesis).

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods*, *39*(2), 175-191.

Frankl, V. E. (1992). Meaning in industrial society. In *International forum for logotherapy*. Viktor Frankl Inst of Logotherapy.

Furnham, A., & Bachtiar, V. (2008). Personality and intelligence as predictors of creativity. *Personality and individual differences*, *45*(7), 613-617.

Geldenhuys, M., Taba, K., & Venter, C. M. (2014). Meaningful work, work engagement and organisational commitment. *SA Journal of Industrial Psychology*, *40*(1), 1-10.

Gori, A., Arcioni, A., Topino, E., Palazzeschi, L., & Di Fabio, A. (2021). Constructing well-being in organizations: First empirical results on job crafting, personality traits, and insight. *International Journal of Environmental Research and Public Health*, *18*(12), 6661.

Grant, A. M., & Parker, S. K. (2009). 7 redesigning work design theories: the rise of relational and proactive perspectives. *Academy of Management annals*, *3*(1), 317-375.

Hackman, J. R. (1980). Work redesign and motivation. *Professional psychology*, *11*(3), 445.

Harrison, M. M. (2008). *Finding meaning in the everyday: An in-depth investigation of meaningful work experiences*. The Pennsylvania State University.

Hayes, A. F. (2018). Partial, conditional, and moderated mediation: Quantification, inference, and interpretation. *Communication monographs*, *85*(1), 4-40.

Hornung, S., & Rousseau, D. M. (2007). Active on the job—proactive in change: How autonomy at work contributes to employee support for organizational change. *The Journal of Applied Behavioral Science*, *43*(4), 401-426.

Hurtz, G. M., & Donovan, J. J. (2000). Personality and job performance: the Big Five revisited. *Journal of applied psychology*, *85*(6), 869.

Kompier, M. A., Cooper, C. L., & Geurts, S. A. (2000). A multiple case study approach to work stress prevention in Europe. *European Journal of Work and Organizational Psychology*, *9*(3), 371-400.

King, E. B., De Chermont, K., West, M., Dawson, J. F., & Hebl, M. R. (2007). How innovation can alleviate negative consequences of demanding work contexts: The influence of climate for innovation on organizational outcomes. *Journal of occupational and Organizational Psychology*, *80*(4), 631-645.

Lee, K., & Ashton, M. C. (2019). Not much H in the Big Five Aspect Scales: Relations between BFAS and HEXACO-PI-R scales. *Personality and Individual Differences*, *144*, 164-167.

Lin, B., Law, K. S., & Zhou, J. 2017. Why is underemployment related to creative performance and OCB? A task-crafting explanation of the curvilinear moderated relations. *Academy of Management Journal*, 60(1): 156–177.

Lin, L., Cai, X., & Yin, J. (2021). Effects of mentoring on work engagement: Work meaningfulness as a mediator. *International Journal of Training and Development*, *25*(2), 183-199.

Marinova, S. V., Peng, C., Lorinkova, N., Van Dyne, L., & Chiaburu, D. (2015). Change-oriented behavior: A meta-analysis of individual and job design predictors. *Journal of Vocational Behavior*, *88*, 104-120.

May, D. R., Gilson, R. L., & Harter, L. M. (2004). The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work. *Journal of occupational and organizational psychology*, *77*(1), 11-37.

McCrae, R. R., & Costa Jr, P. T. (1997). Conceptions and correlates of openness to experience. In *Handbook of personality psychology* (pp. 825-847). Academic Press.

McCrae, R. R., & Costa Jr, P. T. (1989). More reasons to adopt the five-factor model.

Mussel, P., Winter, C., Gelleri, P., & Schuler, H. (2011). Explicating the openness to experience construct and its subdimensions and facets in a work setting. *International Journal of Selection and Assessment*, *19*(2), 145-156.

National Research Council. (1999). *The changing nature of work: Implications for occupational analysis*. National Academies Press.

Neuteboom, S. E. (2020). *Proactively shaping your ideal work space A study examining the relationships between cognitive job crafting, work engagement, performance and the mediating role of the fulfilment of ne* (Master's thesis).

Nielsen, K., Taris, T. W., & Cox, T. (2010). The future of organizational interventions: Addressing the challenges of today's organizations. *Work & Stress*, *24*(3), 219-233.

Nielsen, K., & Abildgaard, J. S. (2012). The development and validation of a job crafting measure for use with blue-collar workers. *Work & Stress*, *26*(4), 365-384.

Petrou, P., Demerouti, E., Peeters, M. C., Schaufeli, W. B., & Hetland, J. (2012). Crafting a job on a daily basis: Contextual correlates and the link to work engagement. *Journal of Organizational Behavior*, *33*(8), 1120-1141.

Pratt, M. G., & Ashforth, B. E. (2003). Fostering meaningfulness in working and at work. In K. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 308–327). San Francisco: Berrett-Koehler.

Radstaak, M., & Hennes, A. (2017). Leader-member exchange fosters work engagement: The mediating role of job crafting. *SA journal of industrial psychology*, *43*(1), 1-11.

Robledo, E., Zappalà, S., & Topa, G. (2019). Job crafting as a mediator between work engagement and wellbeing outcomes: A time-lagged study. *International journal of environmental research and public health*, *16*(8), 1376.

Roczniewska, M., & Bakker, A. B. (2016). Who seeks job resources, and who avoids job demands? The link between dark personality traits and job crafting. *The Journal of psychology*, *150*(8), 1026-1045.

Rudolph, C. W., Katz, I. M., Lavigne, K. N., & Zacher, H. (2017). Job crafting: A meta-analysis of relationships with individual differences, job characteristics, and work outcomes. *Journal of Vocational Behavior*, *102*, 112-138.

Salanova, M., & Schaufeli, W. B. (2008). A cross-national study of work engagement as a mediator between job resources and proactive behaviour. *The international journal of human resource management*, *19*(1), 116-131.

Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: new procedures and recommendations. *Psychological methods*, *7*(4), 422.

Slemp, G. R., & Vella-Brodrick, D. A. (2013). The Job Crafting Questionnaire: A new scale to measure the extent to which employees engage in job crafting. *International Journal of wellbeing*, *3*(2).

Smith, R. W., & DeNunzio, M. M. (2020). Examining personality—Job characteristic interactions in explaining work outcomes. *Journal of Research in Personality*, *84*, 103884.

Sun, S., Wang, N., Zhu, J., & Song, Z. 2020. Crafting job demands and employee creativity: A diary study. *Human Resource Management*, 59(6): 569-583.

Tavares, S. M. (2016). How does creativity at work influence employee's positive affect at work?. *European Journal of Work and Organizational Psychology*, *25*(4), 525-539.

Tian, W., Wang, H., & Rispens, S. (2021). How and when job crafting relates to employee creativity: the important roles of work engagement and perceived work group status diversity. *International journal of environmental research and public health*, *18*(1), 291.

Tims, M., & Bakker, A. B. (2010). Job crafting: Towards a new model of individual job redesign. *SA Journal of Industrial Psychology*, *36*(2), 1-9.

Tims, M., Bakker, A. B., & Derks, D. (2013). The impact of job crafting on job demands, job resources, and well-being. *Journal of occupational health psychology*, *18*(2), 230.

Tornau, K., & Frese, M. (2013). Construct clean-up in proactivity research: A meta-analysis on the nomological net of work-related proactivity concepts and their incremental validities. *Applied Psychology*, *62*(1), 44-96.

Wang, Y., & Lau, D. C. (2021). How and why job crafting influences creative performance? A resource allocation explanation of the curvilinear moderated relations. *Asia Pacific Journal of Management*, 1-27.

Wang, H. J., Demerouti, E., & Le Blanc, P. (2017). Transformational leadership, adaptability, and job crafting: The moderating role of organizational identification. *Journal of Vocational Behavior*, *100*, 185-195.

Wang, Y., & Lau, D. C. (2021). How and why job crafting influences creative performance? A resource allocation explanation of the curvilinear moderated relations. *Asia Pacific Journal of Management*, 1-27.

Wilmot, M. P., Wanberg, C. R., Kammeyer-Mueller, J. D., & Ones, D. S. (2019). Extraversion advantages at work: A quantitative review and synthesis of the meta-analytic evidence. *Journal of Applied Psychology*, *104*(12), 1447–1470

Wolfradt, U., & Pretz, J. E. (2001). Individual differences in creativity: Personality, story writing, and hobbies. *European journal of personality*, *15*(4), 297-310.

Wrzesniewski, A., LoBuglio, N., Dutton, J. E., & Berg, J. M. (2013). Job crafting and cultivating positive meaning and identity in work. In *Advances in positive organizational psychology* (Vol. 1, pp. 281-302). Emerald Group Publishing Limited.

Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of management review*, *26*(2), 179-201.

Yeh, Y. C., & Lin, C. F. (2015). Aptitude-treatment interactions during creativity training in e-learning: How meaning-making, self-regulation, and knowledge management influence creativity. *Journal of Educational Technology & Society*, *18*(1), 119-131.

Zhang, F., & Parker, S. K. (2019). Reorienting job crafting research: A hierarchical structure of job crafting concepts and integrative review. *Journal of organizational behavior*, *40*(2), 126-146.

Zhou, J., & Hoever, I. J. (2014). Research on workplace creativity: A review and redirection. *Annu. Rev. Organ. Psychol. Organ. Behav.*, *1*(1), 333-359.

Appendices

Appendix A: Factor Analysis BHI Scale (Table 1)

Appendix B: Factor Analysis Cognitive Job Crafting (Table 2)

Appendix C: Information Sheet

Appendix D: Research Consent Form

Appendix E: Questionnaires

Appendix A

Table 1.

Loadings of 24 BHI Items on six Principle Components (N = 121).

Item	Factor								
H	1	2	3	4	5	6	7	8	9
Sincerity	.165	.299	**.321**	-.288	**.333**	**.496**	-.023	-.025	.123
Fairness	**.487**	**.404**	**.362**	-.103	-.008	.118	.038	-.013	-.322
Greed Avoidance	**.517**	.057	.116	.156	.142	.028	.081	-.314	-.260
Modesty	**.523**	.069	-.221	-.099	**.322**	-.247	.278	-.103	-.043
E									
Fearfulness	-.307	.252	.183	-.178	.194	.138	.285	-.479	**.392**
Anxiety	-.121	.108	.269	.007	-.517	-.441	.068	-.093	.072
Dependence	-.249	-.150	**.487**	-.128	-.269	.117	**.545**	-.058	-.003
Sentimentality	-.112	**.581**	**.436**	.036	-.312	-.063	-.136	-.012	-.120
X									
Social Self-esteem	**.365**	.137	.238	**.478**	-.159	-.184	.079	.232	-.132
Social Boldness	-.198	.229	-.115	**.620**	.139	.086	.012	-.329	.146
Sociability	-.001	**.590**	.185	**.462**	.226	-.262	-.185	-.114	.033
Liveliness	**.370**	.058	**.372**	.077	.050	.087	-.413	.138	.261
A									
Forgiveness	.240	-.256	**.355**	**.397**	.163	-.224	.068	-.093	**.362**
Gentleness	**.345**	-.196	**.434**	-.011	.182	.213	.129	**.394**	.071
Flexibility	-.346	.253	**.308**	-.228	**.330**	-.054	.196	.279	-.004
Patience	.164	.055	-.192	-.014	**.614**	-.253	.242	.203	-.075
C									
Organisation	.091	**.455**	-.368	-.332	.096	-.417	.070	.045	.068
Diligence	**.495**	.000	-.358	.017	-.130	.235	-.198	-.045	**.393**
Perfectionism	.077	**.571**	-.158	-.421	-.277	-.072	-.027	.297	.268
Prudence	**.587**	.250	-.203	-.129	-.348	.157	.214	-.139	.161
O									
Aesthetic Appreciation	-.006	**.377**	-.338	.208	-.122	**.377**	.256	-.119	-.339
Inquisitiveness	.257	-.112	-.154	**.417**	-.292	.025	**.498**	.294	.206
Creativity	-.321	.273	-.254	**.425**	.011	**.332**	-.083	**.358**	-.063

Unconventionality	-.398	**.312**	-.097	.253	.149	.053	.194	.209	.256

Note: all loadings > .30 are in bold.

Appendix B

Table 2.

Factor loadings of the cognitive job crafting scale depicting two-factor structure.

Item	Factor	
	1	2
1. I think about the goals I want to achieve with my work.	**.717**	.222
2. I am aware of the meaning of my work.	**.915**	-.085
3. I see the usefulness of my work tasks.	**.921**	-.212
4. I think about how my work tasks can also contribute to my personal long-term goals.	**.433**	**.491**
5. I think about how my work contributes to the organization as a whole.	**.642**	**.324**
6. I've tried to change how I view my work.	-.183	**.858**
7. I have tried to set new goals in my work.	.233	**.742**

Note. Rotation method: Oblimin with Kaiser normalization.

Appendix C

Information letter UU research 'Cognitive Job Crafting'

March 2022

Dear participant,

Thank you for participating in this scientific research into the antecedents and outcomes of cognitive job crafting.

Background & Purpose of the Research
The aim of the current research is to gain insight into the relationship between cognitive job crafting, personality traits, and positive work outcomes. Cognitive job crafting relates to the perceptions you have of your work, and how you can 'craft' your job to make it more meaningful to you. With this research, we want to gain more insight into the factors and underlying processes that ensure that people can benefit from this type of job crafting at work.

What is expected of you?
To participate in this study, you must be between 16 and 75 years old and be in either full or part-time employment. At the beginning of the online questionnaire, you will be asked for written consent (via an 'informed consent'). After that, some background information will be requested, followed by some questions about your own experiences and behavior at work. The questionnaire will take approximately 20 minutes to complete. You do not have to think long about your answers. Please note, there are no 'right' or 'wrong' answers. Furthermore, please be aware that once you have answered a question, you will be unable to go back to the previous page.

If you no longer wish to participate:
Participation in the study is voluntary. If you participate in the study, you can always change your mind and stop, without further explanation and without consequences. If you terminate your participation, your research data from the relevant questionnaire will still be used until the moment of termination, unless you request removal within 2 weeks by contacting o.m.oreilly@students.uu.nl.

Ethical approval
This research has been approved by the Ethical Review Committee of the Faculty of Social Sciences, Utrecht University.

Confidentiality of data collection
For this research, we collect the following (general) personal demographic data: age, gender and highest education received. If you are willing to participate in follow-up research or want to receive a report of the results of this research, you can enter your email address at the end of the questionnaire. The information you provide will be treated completely anonymously and strictly confidentially. This means that the results are only processed by Utrecht University and are not linked to your personal or work email. The data file will be stored in a password-protected online environment during the research. The anonymized research data will be stored for at least 10 years after publication of the research. This is in accordance with the guidelines of the VSNU Association of Universities in the Netherlands.

More information about privacy can be found on https://autoriteitpersoonsgegevens.nl/nl/onderwerpen/avg-europese-privacywetgeving. For questions or complaints about the processing of your personal data, please contact v.brenninkmeijer@uu.nl. You can also contact the Data Protection Officer of the educational institution (privacy@uu.nl) or the Dutch Data Protection Authority.

Contact
If, following the questionnaire, you feel the need to talk about your (work) situation, you can contact Ornagh O'Reilly via +353 877818096. Any comments or questions regarding the research can also be emailed to the thesis supervisor, Dr Veerle Brenninkmeijer (v.brenninkmeijer@uu.nl). If you want to submit an official complaint about the research, you can do so via the complaints officer of the Faculty of Social Sciences of Utrecht University, via klachtenfunctionaris-fetcsocwet@uu.nl.

With kind regards and thanks in advance for your cooperation,

Ornagh O'Reilly (Master's student of Social, Health and Organizational Psychology at Utrecht University.)

In collaboration with: dr. Veerle Brenninkmeijer (Research supervisor Utrecht University).

Appendix D

Consent form for research 'Cognitive Job crafting'

March 2022

- ✓ I have read the above introduction and am fully informed about the purpose of the research and the way in which my data is handled.
- ✓ I know that participation is entirely voluntary. I know that I can withdraw my consent at any time during the investigation, without giving reasons and without consequences.
- ✓ If you wish to participate in the study and agree to the above, please click on 'I agree to participate in the study' below.
- ✓ If you consent to the processing of your data, please click on 'I agree to the processing of my data' below.

'I agree to participate in the study' (1)
'I agree to the processing of my data' (2)

If you do not agree with the above, you will unfortunately not be able to participate in this study. In that case, you can now close the questionnaire.

Appendix E

Questionnaires

24 Item Brief HEXACO Inventory (BHI)

(De Vries, 2013)

Instructions: Please indicate to what extent you agree with the following statements, using the following answering categories:1 = strongly disagree, 2 = disagree, 3 = neutral (neither agree, nor disagree), 4 = agree, and 5 = strongly agree.

1. I can look at a painting for a long time.

2. I make sure that things are in the right spot.

3. I remain unfriendly to someone who was mean to me.

4. Nobody likes talking with me.

5. I am afraid of feeling pain.

6. I find it difficult to lie.

7. I think science is boring.

8. I postpone complicated tasks as long as possible.

9. I often express criticism.

10. I easily approach strangers.

11. I worry less than others.

12. I would like to know how to make lots of money in a dishonest manner.

13. I have a lot of imagination.

14. I work very precisely.

15. I tend to quickly agree with others.

16. I like to talk with others.

17. I can easily overcome difficulties on my own.

18. I want to be famous.

19. I like people with strange ideas.

20. I often do things without really thinking.

21. Even when I'm treated badly, I remain calm.

22. I am seldom cheerful.

23. I have to cry during sad or romantic movies.

24. I am entitled to special treatment.

Reference:

De Vries, R. E. (2013). The 24-item brief HEXACO inventory (BHI). *Journal of Research in Personality*, *47*(6), 871-880.

Cognitive Job Crafting Questionnaire

Ybema & Brenninkmeijer (submitted)

The following statements are about your behavior at work. For each statement, choose the answer that applies to you. Answer scales: 1 = never 2 = sometimes 3 = regular 4 = often 5 = very often.

1. I think about the goals I want to achieve with my work.
2. I am aware of the meaning of my work.
3. I see the usefulness of my work tasks.
4. I think about how my work tasks can also contribute to my personal long-term goals.
5. I think about how my work contributes to the organization as a whole.
6. I've tried to change how I view my work.
7. I have tried to set new goals in my work.

Utrecht Work Engagement Scale (UWES-9)

(Schaufeli, Bakker & Salonova, 2006)

The following 9 statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, cross the "0" (zero) in the space after the statement. If you have had this feeling, indicate how often you felt it by crossing the number (from 1 to 6) that best describes how frequently you feel that way.

Never	Almost Never	Rarely	Sometimes	Often	Very Often	Always
0	1	2	3	4	5	6
Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

(1) At my work, I feel bursting with energy. (V)

(2) I feel energetic and capable when I'm working. (V)

(3) I am enthusiastic about my job. (D)

(4) My job inspires me. (D)

(5) When I get up in the morning, I feel like going to work. (V)

(6) I feel happy when I am working intensely. (A)

(7) I am proud of the work that I do. (D)

(8) I am immersed in my work. (A)

(9) I get carried away when I am working. (A)

Vigor = 1 + 2 + 5

Absorption = 6 + 8 + 9

Dedication = 3 + 4 + 7

Reference:

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and psychological measurement*, *66*(4), 701-716.

Creativity at Work (Personal Scale)

(Musek, 2020)

The following 20 questions measure the extent to which you see yourself as a creative person at work. Please indicate how you feel about each of these statements by choosing between 1 (strongly disagree) and 5 (strongly agree).

I am a person who:	*Strongly disagree*				*Strongly agree*
1. Likes to solve complex problems.	1	2	3	4	5
2. Asks questions that nobody else does.	1	2	3	4	5
3. Knows the answers to many questions.	1	2	3	4	5
4. Challenges others' points of view.	1	2	3	4	5
5. Can easily link facts together.	1	2	3	4	5
6. Easily understand abstract ideas.	1	2	3	4	5
7. Likes scientific or philosophical discussion.	1	2	3	4	5
8. Is interested in theoretical debate.	1	2	3	4	5
9. Considers myself not an average person.	1	2	3	4	5
10. Has a vivid imagination.	1	2	3	4	5
11. Prefers variety to routine.	1	2	3	4	5
12. Believes in the importance of fantasy.	1	2	3	4	5
13. Likes art and culture.	1	2	3	4	5
14. Needs a creative outlet.	1	2	3	4	5

15. Likes to get lost in thought.	1	2	3	4	5
16. Likes to challenge things.	1	2	3	4	5
17. Is recognized as a creative person.	1	2	3	4	5
18. Has proven creative achievements in the workplace.	1	2	3	4	5
19. Thinks deeply about things.	1	2	3	4	5
20. Is full of ideas.	1	2	3	4	5

Source: DOI:

- 10.13140/RG.2.2.29863.37288