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## The influence of future time perspective on work engagement and job performance: the role of job crafting

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### ABSTRACT

This two-wave study aimed to examine future time perspective (FTP) as an antecedent of job crafting, and in turn job crafting as a mediator in associations between FTP and work outcomes. Based on the lifespan socio-emotional selectivity theory, we expected that open-ended and limited FTP would evoke different forms of job crafting, which in turn would be associated with changes in work engagement and job performance. In line with our expectations, we found that employees whose open-ended FTP increased over a 1-year time period also crafted more job resources and challenging job demands such that their job provided them with more opportunities for knowledge acquisition, which in turn resulted in increased levels of work engagement and job performance. However, contrary to our expectations, employees whose limited FTP increased over the 1-year time period did not proactively reduce their hindering job demands. Hence, although crafting fewer hindering job demands was directly related to decreased levels of work outcomes as expected, we found no indirect effect of changes in limited FTP on changes in work engagement and performance via changes in this job crafting behaviour. These findings have important implications for the literature on job crafting and FTP.

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Job crafting; future time perspective; job performance; work engagement

Globalization, increased competition, and the transition to a service-based economy have resulted in uncertainty in organizations (Gagné & Bhawe, 2011). Furthermore, since temporary work is increasing and job security is declining (Frese & Fay, 2001), individual employees are increasingly expected to take responsibility for managing their own careers (e.g., Akkermans, Schaufeli, Brenninkmeijer, & Blonk, 2013). These developments require employees to anticipate and engage in proactive behaviours at work in order to experience high levels of well-being and performance. One particularly important form of proactive work behaviour that workers engage in is job crafting. Wrzesniewski and Dutton (2001, p. 179) define job crafting as “the physical and cognitive changes individuals make in the task or relational boundaries of their work”. These changes are aimed at aligning the job with the individual’s own preferences, goals, and motives (Tims, Bakker, & Derks, 2012).

Because of its importance in contemporary society, research on job crafting is expanding. Until now, studies on job crafting have particularly focused on the outcomes of job crafting, demonstrating that job crafting is positively associated with person-job fit (Chen, Yen, & Tsai, 2014; Lu, Wang, Lu, Du, & Bakker, 2014), employability, work engagement, and performance (Petrou, Demerouti, Peeters, Schaufeli, & Hetland, 2012; Tims et al., 2012). The antecedents of job crafting have received far less attention. Wrzesniewski and Dutton (2001) proposed several important antecedents of job crafting, including job discretion and task interdependence. Building on their seminal work, Tims and Bakker (2010) identified

additional antecedents, including proactive personality, self-efficacy, and self-regulation. In addition to these conceptual papers, empirical studies have demonstrated that work pressure, autonomy, task interdependence, proactive personality, and self-efficacy influence general and daily job crafting behaviours (Kroon, Kooij, & Van Veldhoven, 2013; Petrou et al., 2012; Tims et al., 2012; Tims, Bakker, & Derks, 2014). Although these few studies focus on the role of (1) the work environment and (2) personality in eliciting job crafting behaviour, to the best of our knowledge, no empirical studies to date have focused on individual *motivational constructs* as antecedents of job crafting. This is surprising because motivation is seen as a strong predictor of proactive behaviours (e.g., Devloo, Anseel, De Beuckelaer, & Salanova, 2015) and motivational orientations play an important role in eliciting job crafting behaviour to align the job to these motivational orientations (Wrzesniewski & Dutton, 2001). In addition, whereas personality is a stable individual characteristic, motivational individual characteristics are more malleable, providing opportunities for organizations to influence their employees’ job crafting behaviours. Thus, both from a theoretical and practical perspective we aim to make a significant contribution to existing knowledge by examining such a motivational construct as an antecedent of job crafting behaviour.

Specifically, in this study, we focus on future time perspective (FTP) as a motivational antecedent of job crafting. We focus particularly on FTP for two reasons. First, FTP is an important concept in contemporary society. Workforces are ageing (Bal, Kooij, & Rousseau, 2015), careers are becoming

longer and more complex (Vuori, Toppinen-Tanner, & Mutanen, 2011), and there is an increased emphasis on *continuous* learning and self-management (e.g., Akkermans et al., 2013). Hence, researchers are starting to acknowledge that time, and particularly perceptions of that time that also change with age, plays an important role in work and organizational psychology (Sonnentag, 2012). Second, FTP is an important antecedent of motivation and (proactive) behaviour (e.g., Carstensen, 2006; Joireman, Shaffer, Balliet, & Strathman, 2012; Steel & König, 2006; Strauss, Griffin, & Parker, 2012), and thus likely to influence job crafting behaviour. Although there are many different conceptualizations of FTP (Seijts, 1998), we build on Lang and Carstensen's (2002) work and define FTP as an individual's perception of his or her remaining time to live and the opportunities and goals available within that time.

We argue that FTP is an important motivational antecedent of job crafting because the perception of time influences work motives (Kooij & Van de Voorde, 2011) and employees will craft their job in order to make sure it fits with these motives (Wrzesniewski & Dutton, 2001). Earlier studies distinguished open-ended FTP, referring to individuals' beliefs that they have an open-ended future time full of new goals, plans, and possibilities, and limited FTP, referring to individuals' beliefs that they have a limited future time characterized by constraints, restrictions, and limited possibilities (e.g., Cate & John, 2007; Kooij & Van de Voorde, 2011; Zacher & de Lange, 2011). Therefore, we also distinguish open-ended and limited FTP and we argue that, because of their differential effect on work motives (Carstensen, 1995; Kooij & Van de Voorde, 2011), open-ended and limited FTP are likely to evoke different forms of job crafting, which in turn will influence work engagement and job performance (Tims et al., 2012). More specifically, based on socio-emotional selectivity theory (SST) (Carstensen, 1995, 2006), we argue that employees with an open-ended FTP focus on expanding their long-term breadth of knowledge and thus craft their job by increasing structural and social job resources and challenging job demands that are rewarding to them, whereas employees with a limited FTP focus on experiencing short-term positive emotions, and thus craft their job by decreasing hindering job demands that produce distress. In turn, these job crafting behaviours will influence work engagement and job performance. Finally, since FTP is an age-related flexible construct that changes over time (Seijts, 1998; Zacher & Frese, 2009), we take an *intraindividual change perspective* and use a two-wave study design to examine whether changes in open-ended and limited FTP relate to changes in job crafting behaviour, and in turn to changes in work engagement and job performance over a 1-year time period. It is important to examine these associations between *changes* because we aim to capture work-related and behavioural consequences of intraindividual changes in open-ended and limited FTP.

This study contributes to existing knowledge in two ways. First, we contribute to the literature on job crafting. Although we know that motivational orientation plays an important role in job crafting behaviour (Wrzesniewski & Dutton, 2001), and that perceptions of time influence proactive behaviour (Strauss et al., 2012), existing job crafting research has primarily examined stable personality characteristics as antecedents

of job crafting behaviour. In addition, existing job crafting research has predominantly focused on individual factors related to the ability to engage in job crafting (i.e., proactive personality and self-efficacy) rather than individual factors related to the *motivation* to job craft. To get additional insight into why employees craft their job, we examine the motivational and malleable construct of FTP as antecedent of job crafting behaviour. In line with Kooij and Van de Voorde (2011), among others, we examine both open-ended and limited FTP as two distinct dimensions of FTP to capture their differential behavioural consequences in terms of job crafting, and their subsequent associations with work engagement and performance. This is extremely important because job crafting is supposedly aimed at increasing person-job fit (Tims et al., 2012; Wrzesniewski & Dutton, 2001). Hence, changes in open-ended and limited FTP, which evoke changes in goal focus and work motives (Kooij & Van de Voorde, 2011), should in turn trigger different types of job crafting behaviour. However, we know of no study that has looked at motivational antecedents of job crafting behaviour. Second, we contribute to SST (Carstensen, 1995) by examining the potential behavioural consequences of FTP in the work context. Particularly in the literature on ageing at work, many studies focus on the role of FTP in retaining or motivating (older) workers (e.g., Kooij, Bal, & Kanfer, 2014). Although these studies demonstrate the important role of FTP in explaining age-related changes in motivation and performance (Kooij, De Lange, Jansen, & Dikkers, 2013; Zacher, Heusner, Schmitz, Zwierzanska, & Frese, 2010), and in eliciting work engagement (Schmitt, Zacher, & de Lange, 2013), they do not focus on the potential behavioural consequences of FTP. Therefore, we examine the influence of FTP on job crafting behaviour and in turn job crafting as a mediator in associations between FTP and work outcomes.

### *Future time perspective*

The lifespan SST (Carstensen, 1995, 2006) proposes that FTP has important implications for motivation. Similarly, Seijts (1998) and Zacher et al. (2010) argue that FTP is an important factor in the work setting that influences work motivation and performance. Although Carstensen (1995, Lang & Carstensen, 2002) treats FTP as a unidimensional construct, multiple researchers (e.g., Kooij et al., 2014; Marko & Savickas, 1998; Seijts, 1998) acknowledge that FTP is a multidimensional construct, consisting of open-ended and limited FTP. For example, Cate and John (2007) proposed and found a difference between a focus on opportunities, which is similar to open-ended FTP, and a focus on limitations, which is similar to limited FTP. Focus on opportunities refers to individuals' beliefs that they have a long future time full of new goals and possibilities. Focus on limitations refers to individuals' beliefs that they have limited future time characterized by constraints and limited possibilities (Cate & John, 2007; Zacher & de Lange, 2011). Consistently, we distinguish open-ended and limited FTP in this study.

The main proposition of SST is that FTP influences the prioritization of two broad goals in life: knowledge acquisition and emotion regulation. Knowledge acquisition is a long-term

instrumental preparatory goal, focused on gathering information, on experiencing novelty, and on expanding breadth of knowledge. Emotion regulation, on the other hand, is an affective goal, focused on regulating emotional states to optimize psychological well-being. Emotion regulation is therefore a short-term goal, sometimes realizable in its very pursuit, such as meaningful experiences, emotional intimacy, and feelings of social embeddedness (Carstensen, 2006). According to SST, the prioritization of these goals depends on the perception of time; individuals with an open-ended FTP focus on knowledge acquisition and thus aim at gathering information and experiencing new situations, whereas individuals with a limited FTP focus on emotion regulation, and thus aim at having meaningful positive experiences or feelings of social embeddedness. This idea has also been applied to the work context. Kooij and Van de Voorde (2011), for example, found that open-ended FTP was positively associated with an increase in work-related growth motives (e.g., career advancement) and that limited FTP was positively associated with an increase in generativity motives (related to teaching, training, and sharing skills with younger generations; Mor-Barak, 1995).

### **The associations between FTP and job crafting**

We argue that FTP is also related to employee job crafting behaviours. Individuals with a different perception of time have different goals and work motives, and are therefore likely to enhance their person-job fit in different ways. Job crafting refers to the self-initiated changes in the job aimed to align the job to personal preferences and goals, and to increase feelings of purpose and the meaning of work (Tims et al., 2012; Wrzesniewski & Dutton, 2001). Job crafting is a specific form of proactive work behaviour as it involves self-initiation of change, anticipatory action, and taking control over one's work environment (Parker & Collins, 2010). It specifically focuses on changing one's job characteristics, which distinguishes it from proactive behaviours directed towards, for example, better functioning of the organization (e.g., taking charge; Morrison & Phelps, 1999). Tims et al. (2012) defined job crafting as the changes that employees may make to balance their job demands (i.e., all aspects of the job that require sustained physical and/or psychological effort or skills; LePine, Podsakoff, & LePine, 2005) and job resources (i.e., those aspects of the job that are functional in achieving work goals, or stimulate personal growth, learning, and development; Bakker & Demerouti, 2007). They distinguished four dimensions of job crafting: (1) *increasing the level of structural job resources*, such as task variety, opportunities for development, and autonomy; (2) *increasing the level of social job resources*, such as social support, supervisory coaching, and feedback; (3) *increasing the level of challenging job demands* which refer to "work-related demands or circumstances that, although potentially stressful, have associated potential gains" (Cavanaugh, Boswell, Roehling, & Boudreau, 2000, p. 68), such as new projects and higher levels of responsibility that are rewarding and lead to feelings of fulfilment; and (4) *decreasing the level of hindering emotional and cognitive job demands* that interfere with the ability to achieve work goals, such as role conflict and emotional interactions (Cavanaugh et al., 2000;

Tims et al., 2012). As such, a parallel can be made with SST in which increasing structural and social job resources and challenging job demands serve the goal of knowledge acquisition, whereas decreasing hindering job demands serves the goal of emotion regulation.

Based on SST, we argue that open-ended and limited FTP are differentially associated with the dimensions of job crafting distinguished by Tims et al. (2012). Because employees with an open-ended FTP focus on long-term knowledge acquisition and attach high importance to growth and challenge at work (Kooij & Van de Voorde, 2011), they are likely to craft their jobs in ways that provide them with opportunities to develop themselves and to expand their breadth of knowledge. Similarly, open-ended FTP has been associated with a promotion focus (Zacher & de Lange, 2011; Kooij et al., 2014). Higgins (1997) distinguished promotion and prevention focus as two distinct types of self-regulation that people use to reach their goals. Promotion focus refers to a focus on gains and approach as a strategic means. As such, a promotion focus induces growth-related approach behaviour, such as increasing learning experiences (Kooij et al., 2014). Thus, open-ended FTP, which is positively associated with promotion focus, should go hand in hand with proactive behaviours that expand one's knowledge and abilities. Indeed, Armstrong-Stassen and Schlosser (2007) found that employees who are oriented towards learning and development will be more proactive in ensuring that their job provides them with development opportunities. Hence, employees whose open-ended FTP increases over time are likely to also increase their levels of crafting in terms of increasing the variety of their job tasks and their opportunities for development (i.e., increasing structural job resources), the coaching and feedback they receive from others (i.e., increasing social job resources), and the number of new and challenging tasks of their job (i.e., increasing challenging job demands). By increasing their social and structural job resources and their challenging job demands, employees with increased levels of open-ended FTP increasingly expand their breath of knowledge and experience novelty, thereby increasing the fit between their goals and motives and their job. Taken together, this results in the following hypothesis:

**Hypothesis 1:** *Changes in open-ended FTP will be positively associated with changes in increasing structural job resources, increasing social job resources, and increasing challenging job demands.*

Employees with a limited FTP, on the other hand, focus on short-term goals to regulate their emotions (Carstensen, 1995, 2006). These employees face depleting resources (e.g., in perceived time; Pennington & Roese, 2003). As such, limited FTP has been associated with a prevention focus (Zacher & de Lange, 2011), which refers to a focus on losses and avoidance as a strategic means to preserve as many resources as possible. Employees with a limited FTP thus prefer activities that minimize losses by supporting positive affect and a positive self-concept (Kanfer & Ackerman, 2004). In line with this reasoning, multiple studies have demonstrated that individuals who have a more limited FTP regulate emotions by avoiding

negative events through engaging in thoughts and actions that decrease exposure to negative situations (see Carstensen, Fung, & Charles, 2003; Charles & Carstensen, 2010). These individuals aim to optimize their psychological well-being by focusing on positive events and emotions and so they navigate their environment to make sure that negative experiences occur less frequently (Charles & Carstensen, 2010). In sum, employees whose limited FTP increases over time are likely to increase their levels of crafting in terms of decreasing hindering job demands to avoid negative events and the experience of negative emotions.

**Hypothesis 2:** *Changes in limited FTP will be positively associated with changes in decreasing hindering job demands.*

### **The mediating role of job crafting in the association between FTP and work outcomes**

Job crafting increases person-job fit and the experienced purposefulness of work, and it is therefore likely to result in higher levels of work engagement (Wrzesniewski & Dutton, 2001). Work engagement is defined as a positive work-related state of mind that is characterized by vigour, dedication, and absorption (Bakker & Schaufeli, 2008). Vigour is characterized by high levels of energy, the willingness to put effort in the job, and to persist when confronted with difficulties. Dedication is characterized by a sense of significance, pride, and enthusiasm, and absorption is characterized by being fully concentrated and focused on the job (Schaufeli & Bakker, 2004). Because increasing job resources and challenging job demands give employees the opportunity to grow and develop, their work engagement will subsequently increase (Schaufeli & Bakker, 2004). Indeed, Bakker and colleagues (2012) found that employees who increased their structural and social job resources and their challenging job demands reported higher levels of work engagement. Similarly, Tims, Bakker, and Derks (2013a) found that increasing job resources and challenging job demands led to higher levels of work engagement over time, and Petrou et al. (2012) found that day-level job crafting by increasing challenging job demands was positively associated with day-level work engagement.

In addition to its association with work engagement, recent research has also demonstrated that job crafting is positively associated with job performance (Bakker et al., 2012). Workers who craft their job are more committed to the decisions they make, the problems they solve, and the goals they set in their work, and are thus more motivated to perform (Ghitulescu, 2006). In addition, job crafters have a better understanding of their job, the tasks it involves and how they relate to each other, are able to make higher-quality decisions in their work (Ghitulescu, 2006), and may work more efficiently and be more productive (Leana, Appelbaum, & Shevchuk, 2010). In line with this reasoning, Petrou, Demerouti, and Schaufeli (2015) found that seeking job resources positively predicted task performance.

We expect that job crafting mediates the associations between FTP and worker outcomes. Specifically, we expect only an indirect path from FTP to work engagement and

performance via job crafting behaviour (and not a direct path following MacKinnon, Fairchild, & Fritz, 2007; Rucker, Preacher, Tormala, & Petty, 2011; Zhao, Lynch, & Chen, 2010). Although previous studies (e.g., Schmitt et al., 2013; Zacher et al., 2010) found that FTP is related to work engagement and performance, we argue that actual behaviour in the form of job crafting is necessary to turn FTP into work-related outcomes, and thus that FTP will not be directly related to work engagement and performance when controlled for job crafting behaviours. Particularly, we expect that employees with increased open-ended FTP will focus more on learning and development, and will therefore increasingly craft their job in such a way that it provides them with opportunities to learn and develop by increasing their structural and social job resources (e.g., task variety and supervisory coaching) and challenging job demands (e.g., a new project). Because the crafted job provides new opportunities to grow and develop, and also an improved person-job fit, job crafting is expected to subsequently lead to higher levels of work engagement. In addition, since these crafting activities increase employees' understanding about the job and their ability to make higher-quality decisions and provide additional resources to reach work goals, job crafting is expected to lead to enhanced job performance. This results in the following hypothesis:

**Hypothesis 3:** *Changes in open-ended FTP will be positively associated with changes in work engagement and job performance via changes in crafting structural job resources, crafting social job resources, and crafting challenging job demands.*

Employees with an increased limited FTP, on the other hand, are more focused on gaining positive affect and avoiding negative events, and will therefore increasingly craft their job in such a way that it decreases exposure to negative situations by decreasing hindering job demands (e.g., emotional demands). Although the crafted job should be better aligned to the needs of employees with a limited FTP, which is expected to lead to higher levels of work engagement and better job performance, earlier studies on job crafting found that decreasing hindering job demands is not or even negatively associated with work engagement and job performance (Tims et al., 2013a; Tims, Bakker, & Derks, 2015; Tims, Bakker, Derks, & Van Rhenen, 2013b). For example, decreasing hindering job demands was negatively related to vigour, the energy aspect of work engagement (Tims et al., 2013b), implying that decreasing hindering job demands costs energy and will therefore have a negative influence on work engagement and job performance. In addition, the crafted job might be less psychologically stimulating, subsequently leading to boredom and thus decreased levels of work engagement (Petrou et al., 2012). Finally, since hindering job demands are also "part of the job", employees who decrease their hindering demands may feel that they do not fulfil the requirements of their job as well as they did before, thereby diminishing their perceptions of good performance. In line with this reasoning, Demerouti (2014) performed a review of the job crafting literature and concluded that decreasing hindering job demands generally has a negative impact on employee

engagement and performance. This results in the following hypothesis:

**Hypothesis 4:** *Changes in limited FTP will be negatively associated with changes in work engagement and job performance via changes in crafting hindering job demands.*

## Method

### Procedure and participants

To study associations between changes in FTP, behaviours, and outcomes, we collected data using two measurement waves with one year in-between the measurements, which is in line with earlier studies on work engagement (e.g., Schaufeli, Bakker, & Van Rhenen, 2009). However, we lack knowledge on the appropriate time lag to examine changes in FTP and job crafting behaviour. To date, longitudinal studies on FTP and job crafting used time lags as short as 2 and 3 months (Lu et al., 2014; Tims et al., 2013a; Zacher & de Lange, 2011). We used a longer time lag because substantial changes in FTP are more likely to occur across a longer time frame. Data were collected among Dutch university employees (see also Kooij & Van De Voorde, 2011; Kooij et al., 2013, 2014). We assessed FTP, job crafting, work engagement and job performance at both measurement occasions. At the first measurement time, 489 employees filled out the online questionnaire, and at the second measurement time, 345 employees filled out the survey. Non-response analyses revealed that those who dropped out and those who completed both surveys did not differ significantly on gender, educational level, working part time, limited FTP, increasing job resources and challenging job demands, work engagement, and performance, but that dropouts tended to be younger, with lower organization tenure, higher levels of open-ended FTP, and higher levels of decreasing hindering job demands. Since respondents and dropouts did not differ on most of the central constructs (i.e., limited FTP, increasing structural job resources, increasing social job resources, increasing challenging job demands, work engagement, and job performance), non-response is not considered a serious issue in this study.

Several respondents failed to complete all sections of the questionnaires. We decided to delete respondents from the sample if they had missing values on all items of one of the core study variables. After list-wise deletion of these missing values, the sample consisted of 287 employees who completed both surveys. The final sample consisted of 155 females (53.4%), with an average age of 45.38 years ( $SD = 10.47$ ). Most employees worked full time (53.8%). On average, employees worked for 12.68 years for the organization ( $SD = 10.39$ ). Of the respondents, most were scientific staff (53.4%), administrative staff members (18.3%), and university library employees (7.9%).

### Measurement instruments

FTP was measured using 10 items from the FTP scale of Carstensen and Lang (1996). Seven items refer to open-

ended FTP and three items refer to limited FTP. An example item measuring open-ended FTP is "Many opportunities await me in the future", and an example item measuring limited FTP is "I have the sense that time is running out". Items were answered on a five-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Earlier studies supported this two-factor structure (e.g., Zacher & de Lange, 2011). Cronbach's  $\alpha$  of open-ended FTP at both time points were .89 and Cronbach's  $\alpha$  of limited FTP was .71 at T1 and .74 at T2.

*Job crafting* was measured with the job crafting scale developed by Tims et al. (2012). The scale consists of four subscales, measuring increasing structural job resources (five items, e.g., "I try to develop my capabilities"; T1:  $\alpha = .77$ ; T2:  $\alpha = .77$ ), increasing social job resources (five items, e.g., "I ask colleagues for advice"; T1:  $\alpha = .72$ ; T2:  $\alpha = .77$ ), increasing challenging job demands (five items, e.g., "When there is not much to do at work, I see it as a chance to start new projects"; T1:  $\alpha = .74$ ; T2:  $\alpha = .74$ ), and decreasing hindering job demands (six items, e.g., "I try to make sure that my work is emotionally less intense"; T1:  $\alpha = .72$ ; T2:  $\alpha = .74$ ). Answering categories ranged from 1 (*never*) to 5 (*very often*).

*Work engagement* was measured with the Utrecht Work Engagement Scale (UWES, Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). The UWES measures three dimensions of work engagement, each with three items: vigour (e.g., "I am bursting with energy in my work"; T1:  $\alpha = .88$ ; T2:  $\alpha = .84$ ), dedication (e.g., "My job inspires me"; T1:  $\alpha = .88$ ; T2:  $\alpha = .90$ ), and absorption (e.g., "I feel happy when I am engrossed in my work"; T1:  $\alpha = .80$ ; T2:  $\alpha = .79$ ). All items were answered on a seven-point scale ranging from 0 (*never*) to 6 (*always*).

*Job performance* was measured with the job performance scale of Petit, Gorris, and Vaught (1997). The scale consists of three items (e.g., "Compared to other colleagues with a similar job position, how would you rate your current overall performance?"). Answering categories ranged from 1 (*below average*) to 5 (*right at the very top*). Cronbach's  $\alpha$  was .87 at T1 and .91 at T2.

### Analysis strategy

The scales measuring FTP, job crafting, work engagement, and job performance were filled out twice by our participants during the study. In these cases, it is recommended to examine the longitudinal invariance of these measures across the measurement times (Horn & McArdle, 1992). The invariance test is performed by testing the factor structure of both waves simultaneously. For example, longitudinal invariance of FTP is assessed by modelling the two factors of FTP with the items as indicators using both T1 and T2 data in one analysis. Correlations are estimated among all pairs of uniqueness between T1 and T2 because the same items are used across the two measurement waves (Pitts, West, & Tein, 1996). Next, two models are estimated: an unconstrained model in which all parameters are freely estimated across the two measurement times, and a model in which the factor loadings are constrained to be equal across measurement times. When the  $\chi^2$  difference between the models is significant, the equality constraints

are not consistent with the data, thus invariance is not supported.

The results showed that all four measures are longitudinally invariant because none of the models resulted in a significant  $\chi^2$  change. For FTP, the difference between the models was  $\Delta\chi^2/\Delta df = 11.43/8$ ,  $p = .179$ ; for job crafting, the difference between the models was  $\Delta\chi^2/\Delta df = 14.85/17$ ,  $p = .606$ ; for work engagement, the difference between the models was  $\Delta\chi^2/\Delta df = 9.16/8$ ,  $p = .329$ ; and for job performance, the difference between the models was  $\Delta\chi^2/\Delta df = .73/2$ ,  $p = .694$ . Hence, we can infer that the measures assessed the same constructs across time. Autoregressive correlations between the T1 and T2 study variables were all significant (all  $ps < .01$ ) and ranged between .56 (decreasing hindering job demands) and .74 (work engagement) with an average of .67.

To test our hypotheses, we used structural equation modelling with maximum likelihood estimation as implemented by AMOS (Arbuckle, 2006). To assess model fit, we inspected the  $\chi^2$  statistic, the root mean square error of approximation (RMSEA), the comparative fit index (CFI), the Tucker–Lewis index (TLI), and the incremental fit index (IFI). The conventional cut-off values of these fit indices were used to assess model fit (i.e., CFI, TLI, IFI  $> .90$ , and RMSEA  $< .08$  to indicate acceptable fit, and CFI, TLI, IFI  $> .95$ , and RMSEA  $< .05$  to indicate good fit; Hu & Bentler, 1999; Marsh, Hau, & Wen, 2004).

To examine change over time, we calculated difference scores between both measurement times by regressing the T2 scores on the respective T1 scores and saving the standardized residual score (Williams, Zimmerman, & Mazzagatti, 1987). The standardized residual scores were then included in the structural equation model. A positive residual score indicates an increase in FTP, job crafting, work engagement, or job performance over the 1-year study period that could not be predicted from the baseline scores. Residual change scores are typical for two-occasion longitudinal studies (Kisbu-Sakarya, MacKinnon, & Aiken, 2013; Lipshits-Braziler, Gati, & Tatar, 2015) and are preferred when one is interested in statistically partialling the influence of the score on the first assessment from the score on the second assessment (Salthouse & Tucker-Drob, 2008). The residual change score is widely considered superior to raw change scores (i.e., T2 minus T1). It assesses the change independent of the initial score which is necessary because due to regression to the mean, high scores tend to change downwards over time, and low scores tend to change upwards, which means that change scores are typically negatively correlated with baseline score (Robinson, Nofle, Guo, Asadi, & Zhang, 2015).

Latent variables were used, in which the residual change score for items (i.e., FTP, decreasing hindering job demands, and performance) or for mean scores of dimensions (i.e., increasing structural job resources, increasing social job resources, and increasing challenging job demands, and vigour, dedication, and absorption) were used as indicators. To simplify our model and consistent with our hypotheses, we followed the approaches of Bakker et al. (2012) and Tims et al. (2015) and we modelled job crafting using two latent factors. The first factor contained the residual mean scores of increasing structural job resources, increasing social job resources,

and increasing challenging job demands (“crafting more job resources and challenging job demands”). The second latent factor consisted of the residual change scores of the six items assessing decreasing hindering job demands (“crafting fewer hindering job demands”). A confirmatory factor analyses suggested that this model fitted the data well ( $\chi^2 = 382.47$ ,  $df = 260$ , CFI = .93, TLI = .92, IFI = .93, RMSEA = .04) and was superior compared to a model in which job crafting is modelled as one latent factor with the four residual change scores of the dimensions as indicators of the latent factor ( $\chi^2 = 11.14$ ,  $df = 2$ , CFI = .92, TLI = .76, IFI = .92, RMSEA = .12;  $\Delta\chi^2/\Delta df = 371.33/258$ ,  $p < .001$ ) and a model in which job crafting was modelled as four separate latent factors with the residual change scores of the items as indicators ( $\chi^2 = 304.12$ ,  $df = 183$ , CFI = .86, TLI = .84, IFI = .86, RMSEA = .05;  $\Delta\chi^2/\Delta df = 78.35/77$ ,  $p = .436$ —although the difference in  $\chi^2$  is not significant, model fit indices indicate that the first model is to be preferred over the latter model). Further support for this way of modelling is provided by the correlations between FTP and job crafting dimensions that were very similar for the three job crafting dimensions increasing structural job resources, increasing social job resources, and increasing challenging job demands and different for the correlation between FTP and decreasing hindering job demands across both measurements.<sup>1</sup>

Correlations between the two FTP factors, the two job crafting factors, and the two outcomes were allowed (Pitts et al., 1996). Measurement model for the whole model indicated adequate fit:  $\chi^2 = 382.47$ ,  $df = 260$ , CFI = .93, TLI = .92, IFI = .93, RMSEA = .04.

Finally, several variables were included as control variables while testing the hypotheses: age, gender, tenure, educational level, and supervisory position. However, only age related to both types of FTP (open-ended FTP:  $\beta = -.32$ ; limited FTP:  $\beta = .28$ , both  $ps < .001$ ), whereas educational level showed a relationship with open-ended FTP ( $\beta = .14$ ,  $p = .03$ ), work engagement ( $\beta = -.15$ ,  $p = .02$ ) and decreasing hindering job demands ( $\beta = -.26$ ,  $p < .001$ ). The results presented later include these controlled relationships.

## Results

Table 1 reports the descriptive statistics and correlations among the study variables. As shown in the table, the correlation between changes in open-ended FTP and limited FTP was modest ( $r = -.29$ ,  $p < .01$ ), and the correlations between changes in open-ended FTP and changes in job crafting were significant, whereas the correlations between changes in limited FTP and changes in job crafting were not significant. Finally, crafting more job resources and challenging job demands was significantly positively related to changes in work engagement and job performance, whereas crafting fewer hindering job demands was not related to changes in the outcome variables.

## Hypothesis testing

Confirming Hypothesis 1, we found that change in open-ended FTP was positively related to crafting more job

**Table 1.** Means, standard deviations, and correlations among study variables ( $N = 287$ ).

	Mean T1	Mean T2	1	2	3	4	5	6	7	8	9	10
1. Age	45.43	—	—	—	—	—	—	—	—	—	—	—
2. Tenure	12.67	—	.43**	—	—	—	—	—	—	—	—	—
3. Education	4.41	—	-.11	-.15**	—	—	—	—	—	—	—	—
4. Gender	1.53	—	-.18**	-.21**	-.04	—	—	—	—	—	—	—
5. $\Delta$ Open-ended FTP	3.08	3.13	-.34**	-.22**	.12*	.05	—	—	—	—	—	—
6. $\Delta$ Limited FTP	2.72	2.76	.26**	.07	.03	-.08	-.29**	—	—	—	—	—
7. $\Delta$ Increasing JR and JD	2.81	2.83	-.13*	-.07	.11	-.08	.20**	-.09	—	—	—	—
8. $\Delta$ Decreasing hind. JD	1.74	1.81	-.05	-.07	-.14*	-.04	.12*	.04	.23**	—	—	—
9. $\Delta$ Work engagement	5.30	5.17	.01	.02	-.06	-.02	.10	.01	.24**	-.01	—	—
10. $\Delta$ Performance	2.86	2.76	-.04	.01	.05	.00	.15**	-.07	.24**	-.02	.28**	—

$\Delta$ : residual change between T1 and T2; FTP: future time perspective; JR: job resources; JD: job demands; hind.: hindering.  
 \*\* $p < .01$ , \* $p < .05$ .

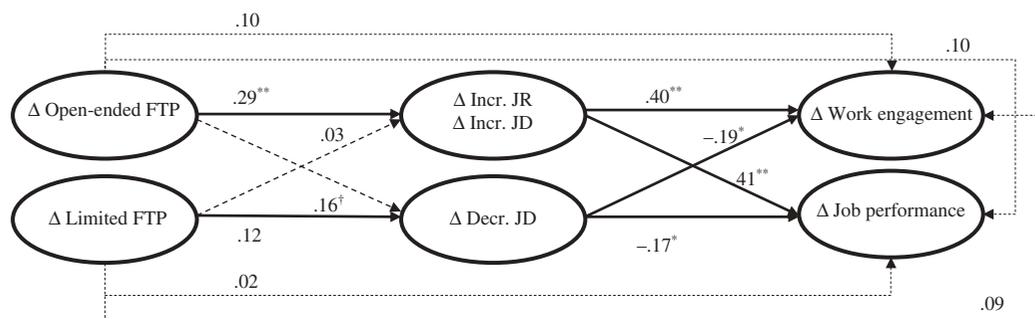
resources and challenging job demands ( $\beta = .29$ ,  $p = .003$ ). Interestingly, a change in open-ended FTP was marginally significantly and positively related to crafting fewer hindering job demands ( $\beta = .16$ ,  $p = .071$ ). No support was found for Hypothesis 2; the relationship between change in limited FTP and crafting fewer hindering job demands did not reach significance ( $\beta = .12$ ,  $p = .176$ ). These results imply that when open-ended FTP increased, employees also crafted more job resources and challenging job demands. However, when limited FTP changed over time, no change was found in job crafting within that time frame.

In Hypothesis 3, we expected that a change in open-ended FTP is indirectly associated with a change in work engagement and job performance over the 1-year time period through crafting more job resources and challenging job demands. The relationships between crafting more job resources and challenging job demands and changes in work engagement and job performance were significant ( $\beta = .40$  and  $\beta = .41$ , respectively, both  $ps < .001$ ). Based on these results, we could test the indirect effect from a change in open-ended FTP to a change in work engagement and job performance via crafting more job resources and challenging job demands. The tests of the indirect effects were indeed significant: with regard to a change in work engagement, the bootstrap estimate of the indirect effect was  $.09$ ,  $p = .043$ , and the bias corrected confidence (BCC; MacKinnon, Lockwood, & Williams, 2004) interval did not include zero (.013–.193). In addition, the bootstrap estimate for the relationship between change in open-ended FTP and change in job performance via crafting more job resources and challenging job demands was  $.09$ ,  $p = .055$ , and the BCC interval did not include zero (.010–.183). These results support Hypothesis 3.

Hypothesis 4 predicted that a change in limited FTP is indirectly related to a change in work engagement and job performance over the 1-year time period via crafting fewer hindering job demands. Because a change in limited FTP was not related to a change in the use of this job crafting strategy (Hypothesis 2), this hypothesis cannot be supported. However, we found that the direct relationships between crafting fewer hindering job demands and changes in work engagement and job performance were significant and negative (respectively,  $\beta = -.19$ ,  $p = .032$  and  $\beta = -.17$ ,  $p = .052$ ). Model fit of the final model (see Figure 1) was adequate:  $\chi^2 = 452.94$ ,  $df = 309$ , CFI = .92, TLI = .91, IFI = .92, RMSEA = .04 and the direct paths from change in open-ended FTP to change in work engagement and performance (respectively,  $\beta = .10$ ,  $p = .217$  and  $\beta = .10$ ,  $p = .216$ ) and from change in limited FTP to change in work engagement and performance (respectively,  $\beta = .09$ ,  $p = .263$  and  $\beta = .02$ ,  $p = .773$ ) were not significant. In order to further support our hypothesized indirect effects over possible direct effects, we compared the fit of the model without the direct relationships between FTP and the work outcomes with the fit of a model including these direct relationships. The comparison showed that model fit did not improve when the direct relationships between FTP and work outcomes were taken into account ( $\Delta\chi^2/\Delta df = 3.21/4$ ,  $p = .480$ ). This finding provides further support for the hypothesized indirect effects.

## Discussion

This two-wave study aimed to test the role of FTP as an antecedent of job crafting, and the mediating role of job crafting in the relation between FTP and work outcomes. Based on SST (Carstensen, 1995, 2006), we expected that

**Figure 1.** Results of structural equation modelling (controlling for age and educational level).

Standardized estimates are reported. FTP: future time perspective;  $\Delta$ : 1-year residual change between time 1 and time 2; Incr.: increasing; JR: job resources; Decr.: decreasing; JD: job demands. Solid lines represent hypothesized relationships, dotted lines represent controlled relationships.

\*\* $p < .01$ , \* $p < .05$ , † $p < .10$ .

open-ended FTP would have a positive, whereas limited FTP would have a negative influence on work engagement and job performance through job crafting behaviours. More specifically, employees with an open-ended FTP are focused on long-term goals such as gathering information and expanding their breadth of knowledge. To increase the fit with their job, we expected that employees whose open-ended FTP increased over the 1-year time period would also craft more structural and social job resources and challenging job demands, which would subsequently lead to increased engagement and performance. Employees with a limited FTP are focused on short-term goals such as emotion regulation by avoiding negative events and emotions, and thus employees whose limited FTP increased over the 1-year time period were expected to craft fewer hindering job demands. Because decreasing hindering job demands costs a lot of energy and might lead to feelings of ineffectiveness, we expected that the work outcomes of these employees would also decrease.

In line with our hypotheses, our results showed that changes in open-ended FTP were positively associated with changes in job crafting behaviour, thereby demonstrating that individual motivational factors can enhance job crafting. More specifically, employees with increased levels of open-ended FTP crafted more job resources and challenging job demands. These results indicate that, as expected, employees with an open-ended FTP seek additional resources and challenges at work in order to attain their long-term developmental goals. In addition, we found that changes in open-ended FTP had an indirect positive relationship with changes in work engagement and job performance via changes in this type of job crafting. More specifically, employees with increased open-ended FTP crafted more job resources and challenging job demands, which in turn was related to increases in work engagement and job performance. Our results demonstrated that open-ended FTP, which is an individual perception of time, only has an impact on work outcomes (i.e., work engagement and performance) when it is mediated by a behavioural factor, in our case job crafting. This suggests that simply having an expansive time perspective that focuses on development and growth is not sufficient by itself to cause changes in work outcomes. Rather, actual behaviour in the form of job crafting is necessary to turn the open-ended time perspective into positive work-related outcomes (i.e., enhanced work engagement and better performance).

Contrary to our expectations, the results indicated that employees with increased levels of open-ended FTP also crafted their job by decreasing their hindering job demands. A possible explanation is that employees with increased open-ended FTP decrease hindering job demands to make sure they have sufficient time and resources to invest in their long-term instrumental goals related to knowledge acquisition. Also contrary to our expectations, changes in limited FTP were not associated with crafting fewer hindering job demands. It might be that employees who perceive that they have a limited future time and restricted possibilities no longer allocate any resources, such as their time and energy, to work, not even to make their work less demanding. Engaging in proactive behaviour requires additional resources, such as time and energy (Bolino & Turnley, 2005). However, employees with a

limited FTP face depleting resources (e.g., in perceived time). Although we proposed that this depletion in resources would evoke crafting fewer hindering job demands, it might be that employees with a limited FTP have too few resources available to invest in job crafting behaviour in the first place. This line of reasoning is supported by the Conservation of Resources theory (Hobfoll, 2002) which proposes that loss of resources tends to lead to loss cycles; people facing depleting resources are less likely to have the appropriate resources to deal with these losses, resulting in additional resource losses. Another explanation might be that employees with limited FTP craft in another way than decreasing hindering job demands. SST (Carstensen, 1995, 2006) proposes that people with a limited FTP focus on having meaningful experiences or feelings of social embeddedness. Similarly, Kooij and Van de Voorde (2011) found that limited FTP was positively associated with an increase in generativity motives at work. Thus, employees with a limited FTP may craft their job differently by mentoring colleagues and transferring knowledge to them. A final explanation could be that employees with a limited FTP seek social embeddedness and meaningful experiences outside of work, by spending time with family, and thus no longer put time and energy in crafting their work. Similarly, Petrou and Bakker (2016) found that employees with high strain at work engage in leisure crafting (i.e., the proactive pursuit and enactment of leisure activities).

Finally, we found that crafting fewer hindering job demands was related to decreased levels of work engagement and job performance, suggesting that crafting fewer hindering job demands, as expected, costs energy, and will lead to a less psychologically stimulating job and feelings of ineffectiveness because hindering job demands are also part of the job. This finding brings further clarification to the mixed findings regarding the effects of decreasing hindering job demands and supports recent findings of Demerouti (2014) and Tims et al. (2015) in showing that this job crafting dimension is negatively related to employee well-being and performance. However, since changes in limited FTP were not related to changes in crafting fewer hindering job demands, we found no indirect effect of changes in limited FTP on changes in work engagement and performance via changes in this job crafting behaviour.

### **Strengths and limitations**

Important strengths of this study are the two-wave study design to test our hypotheses, our use of two outcome measures relevant for both employees and organizations, and our addition of a motivational antecedent of proactive job crafting behaviour. However, our study also has some limitations. First, we used a time lag of 1 year—which is in line with previous studies (e.g., Schaufeli et al., 2009)—but theory on appropriate time lags is lacking. Because substantial changes in FTP are more likely to occur across multiple years (Cate & John, 2007), it might be that 1 year is too short to capture changes in FTP. Nevertheless, we did find clear associations between changes in open-ended FTP, job crafting behaviour, work engagement, and job performance over the 1-year time period, suggesting that the 1-year time lag was appropriate for our study.

A second limitation involves the measure for job performance that we used in this study. We assessed a general perception of employees' job performance, whereas job performance has different dimensions (Ng & Feldman, 2008), which might be differentially associated with the dimensions of job crafting. Similarly, we only measured a positive indicator of well-being (i.e., work engagement), whereas decreasing hindering job demands could prevent an increase in levels of burnout (a negative indicator of well-being; Tims et al., 2012). Future studies examining the effects of FTP on job crafting and work outcomes could include other dimensions of performance (e.g., extra-role behaviour) and negative indicators of well-being (e.g., exhaustion). Third, the data were collected from a single source (i.e., employees) using self-reports, which might have led to common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, in line with the suggestions of Podsakoff et al. (2003), we only used carefully constructed and validated measures and we also tested a one-factor model to reduce the risk of common method bias influencing our results. In addition, the distribution of measurements over time and the use of change scores may have diminished the risks for common method bias (Doty & Glick, 1998). Besides, employees' perceptions of time, their job crafting behaviours, and their work engagement cannot easily and accurately be obtained from alternative sources (Mäkikangas, Kinnunen, & Feldt, 2004). To improve our design even further, future studies could include objective measures and/or multi-source data on job performance.

### **Theoretical implications**

The present findings have two important theoretical implications for the literature on job crafting and FTP. First of all, to the best of our knowledge, this is the first study examining FTP as a predictor of job crafting (Tims et al., 2012; Wrzesniewski & Dutton, 2001). Building on existing knowledge of antecedents of job crafting (Tims et al., 2012, 2014), which have focused on individual factors that enhance the *ability* to job craft (i.e., self-efficacy and proactive personality), we found that the individual *motivational* concept of FTP is an antecedent of specific job crafting behaviours. Particularly, changes in open-ended FTP were positively related to changes in job crafting in terms of increasing structural and social job resources and challenging job demands; employees with increased open-ended FTP increasingly focus on learning new things and experiencing novelty, and thus engaged more in job crafting behaviour, such as asking for feedback and taking on new projects, to accomplish this. In line with Wrzesniewski and Dutton (2001), who proposed that individual needs motivate employees to craft their job, we found that (the motivational construct of) open-ended FTP increases specific job crafting behaviours to improve the fit of the job with long-term individual growth goal focus and work-related motives. Another psychological mechanism that might explain the influence of open-ended FTP on job crafting behaviour, besides improving person-job fit, is future goal attainment. Social cognitive theory (Bandura, 2006) proposes that envisioning the future (i.e., an open-ended FTP) is one of the core properties of human agency. Envisioning and anticipating the

future allows people to motivate themselves and guide their actions to achieve their future goals. Similarly, FTP theory (Nuttin, 1964) proposes that individuals with an open-ended FTP envision future outcomes which increases the instrumentality of current behaviour. In addition, individuals with an open-ended FTP have a more optimistic outlook on the future and the possibilities in that future (Nuttin, 1964). They are therefore more confident in the attainment of future goals, which triggers current behaviours such as setting up a new challenging project. Our study results show that open-ended FTP indeed triggers current behaviours, in this case the proactive work behaviour of job crafting, to achieve future goals. This line of reasoning might also explain why changes in limited FTP were not associated with changes in job crafting behaviour.

Second, this study extends SST (Carstensen, 1995) by revealing the importance of the behavioural consequences of open-ended FTP in the work context. In line with SST, we found that employees with an increased open-ended FTP try to acquire knowledge by increasing their job resources and challenging job demands, which in turn results in higher levels of work engagement and job performance. Moreover, our study demonstrates that the perception of time in itself may not be sufficient to influence worker outcomes but that a behavioural mediator is necessary to improve these outcomes. These findings suggest that an open-ended time perspective can mobilize employees to proactively craft their job in terms of increasing job resources and challenging job demands, which is subsequently associated with an increase in well-being and performance.

### **Practical implications**

In line with previous studies on job crafting, we argue that organizations should pay considerable attention to this phenomenon because employees who craft their jobs such that they enrich their work can become more engaged and perform better at work, whereas the crafting of fewer job demands seems to have negative relationships with these outcomes. Although job crafting is initiated by employees and may sometimes be invisible to the organization and their managers, this study reveals that organizations can still influence job crafting behaviours. We found that an open-ended FTP can stimulate job crafting behaviours in terms of increasing job resources and challenging job demands. In addition, research has shown that FTP is a flexible construct (Zacher & Frese, 2009). Therefore, organizations could aim to lengthen employees' time perspective, for example, by specifically outlining their future within the company in a career plan (see also Carstensen, Isaacowitz, & Charles, 1999) or by implementing interventions that stimulate employees to actively think about their long-term career goals (e.g., see Akkermans, Brenninkmeijer, Schaufeli, & Blonk, 2015). In this way, organizations could shift the focus towards promoting open-ended time perspectives among their employees, which could subsequently lead to more proactive job crafting behaviours at work aimed at goal attainment and knowledge acquisition. This increase in proactive job crafting behaviour would then lead to enhanced levels of work engagement and

performance. This is also a very important implication in light of the ageing workforce (Bal et al., 2015) because open-ended FTP tends to decrease with age (Lang & Carstensen, 2002).

## Conclusion

The present study contributes to the literature on FTP, job crafting, work engagement, and job performance. We found that employees whose open-ended FTP increased over a 1-year time period also increased their levels of crafting their job such that it provided them with more opportunities for long-term knowledge acquisition by increasing their job resources and challenging job demands, which in turn resulted in higher levels of work engagement and job performance. Therefore, FTP seems to be an important individual motivational construct that could explain how and why employees craft their job and thereby their subsequent work outcomes.

## Note

1. To illustrate, correlations between T1 open-ended FTP and T1 increasing structural and social job resources, and increasing challenging job demands were respectively .37, .36, and .27,  $ps < .01$  whereas the correlation between open-ended FTP and decreasing hindering job demands was  $-.08$ ,  $p = .16$ . Correlations between T1 limited FTP and T1 increasing structural and social job resources, and increasing challenging job demands were respectively  $-.16$ ,  $-.15$ , both  $ps < .01$ , and  $-.08$ ,  $p = .16$  whereas the correlation between limited FTP and decreasing hindering job demands was  $.13$ ,  $p < .05$ .

## Disclosure statement

No potential conflict of interest was reported by the authors.

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