Towards a Better Understanding of Job Crafting in the Job Demands-Resources Model: A Three-Wave Study

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TOWARDS A BETTER UNDERSTANDING OF JOB CRAFTING IN THE JOB DEMANDS-RESOURCES MODEL: A THREE-WAVE STUDY

A Thesis
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Master of Science
Applied Psychology

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Gwendolyn Paige Watson
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Accepted by:
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ABSTRACT

Job crafting is becoming an increasingly more popular topic in the Industrial-Organizational psychology literature. Job crafting is a proactive behavior in which employees redesign their job using a bottom-up approach so that their perceived job characteristics better align with how they want to perceive the work they do and who they are at work (Tims, Bakker, & Derks, 2012; Wrzesniewski & Dutton, 2001). This study examined the role of job crafting in the Job Demands-Resources model (JD-R model; Bakker & Demerouti, 2001). Job crafting behaviors were included as an outcome of the JD-R model as well as part of a feedback loop in which job crafting initiated more job resources. A reciprocal relationship between work engagement and job crafting was also predicted. A three-wave longitudinal study was conducted among Amazon Mechanical Turkers (MTurkers), and structural equation modeling was used to analyze the data. The results did not show the cyclical effects of job crafting in the JD-R model or the reciprocal relationship between work engagement and job crafting. Rather, only the autoregressive paths among the latent variables were significant over time. Additional analyses were conducted testing the same model but only included the seeking resources subscale of job crafting. The findings for the second set of analyses mimicked that of the first and were overall insignificant. The findings of this study provide several theoretical implications, specifically concerning future considerations to improve the study design, as well as practical implications. Future research is needed to provide clarity on the relationships between work-related support resources, work engagement, and job crafting in the JD-R model.
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CHAPTER ONE
INTRODUCTION

Two decades of research have focused on developing and improving the Job Demands-Resources model (JD-R model; Bakker & Demerouti, 2001). The JD-R model seeks to explain work outcomes through the balance of an employee’s job demands and job resources. In 2017, JD-R model developers Bakker and Demerouti published a review of the research to date on their model. They suggested that future research continue to expand the model; specifically, Bakker and Demerouti (2017) proposed that job crafting should be included as part of the JD-R model. Job crafting occurs when employees engage in behaviors that redesign their experiences at work (Wrzesniewski & Dutton, 2001). This thesis seeks to expand the understanding of the role of job crafting in the JD-R model by include job crafting behaviors as part of a feedback loop in the job resources path of the model.

The review of the literature for my study will be broken into three main sections: the JD-R model, work engagement, and job crafting. First, I will explain the JD-R model, including its development, proposed pathways, and other components. To ensure a comprehensive understanding of the JD-R model, I will expand on both pathways (job demands and job resources) even though this study will primarily focus on the job resources path of the JD-R model. However, I will go into more detail on the definitions and literature reviews for the specific job resources that will be used for this study. This includes three types of work-related support resources: perceived organizational support, perceived supervisor support, and perceived coworker support.
Next, I will discuss work engagement as an integral part of the job resources path of the JD-R model. I will briefly summarize the history of the construct as well as define how the construct, and its subdimensions, will be used in this study. Additionally, I will reiterate work engagement’s role in the JD-R model and provide evidence from the literature to support that work engagement is an outcome of work-related support resources.

The last section of the literature review will focus on job crafting. I will detail the evolution of job crafting’s definition to clarify the definition of job crafting and the subdimensions based on the JD-R model that will be used for this study. Then, I will describe how job crafting behaviors may manifest in the workplace and touch on theories of motivation for job crafting. Lastly, I will discuss relevant empirical studies on job crafting’s relationship with work engagement and work-related support resources through the lens of the JD-R model as well as emphasize gaps in this research that need to be addressed.

Following the review of the literature, I will provide a summary of my hypotheses. Then, I will discuss the methods used for this study, including information about the participants, procedures, measures, and data analyses. Finally, I will include a brief discussion about the anticipated results of the study.

My study intended to offer several contributions to the literature. The current study sought to clarify job crafting’s role in the JD-R model. Job crafting is important to study as it is a way that employees can proactively influence their experiences at work using a bottom-up approach. Thus, the current study attempted to provide a better
understanding of how the JD-R model can be used to identify what types of job resources may initiate motivational processes that lead to an employee to engage in job crafting. Additionally, the current study intended to address a gap in the literature concerning the relationship between work engagement and job crafting. Mixed findings about this relationship in past literature generate questions about the directionality of the work engagement-job crafting relationship. The literature does not clearly reflect whether one construct leads to the other or if there is a bidirectional relationship between work engagement and job crafting. The current study contributed to the literature by testing a reverse causal relationship between work engagement and job crafting in a three-wave dataset to provide clarity on the nature of the relationship. Third, the current study responded to call for research to continue to test extensions of the JD-R model, specifically by looking at job crafting in longitudinal designs. Ultimately, the results of this study were intended to progress the literature towards a better understanding the role of job crafting in the JD-R model.
CHAPTER TWO

JOB DEMANDS-RESOURCES MODEL

Development of the JD-R model

The Job Demands-Resources model (JD-R model) is a conceptual framework constructed to better understand the implications of two broad categories of job characteristics: job demands and job resources (Bakker & Demerouti, 2017; Demerouti et al., 2001). Many organizational outcomes can be explained using the JD-R model such as burnout (Bakker, Demerouti, & Euwema, 2005), engagement (Schaufeli & Bakker, 2004), and job performance (Hopstaken, van der Linden, Bakker, & Kompier, 2015). The JD-R model was built upon prior work that examined how outcomes may result due to situational demands and availability of resources. The Conservation of Resources theory (COR theory; Hobfoll, 1989), the Job Demand-Control model (JD-C model; Karasek, 1979), and the Effort Reward Imbalance model (ERI model; Siegrist, 1996) are foundational models of the JD-R model.

Conservation of Resources theory. Hobfoll’s (1989) COR theory suggested that in order for individuals to cope with stress, they must strive to obtain, conserve, and prevent the loss of resources. When stressful stimuli, or demands, threaten an individual’s resources then he or she must actively work to replenish them or withdraw from the situation to maintain the resources they still have. According to COR theory, any stressful stimuli that depletes resources may be considered a demand; however, demands result in only negative outcomes when they exceed the threshold in which an individual is able or willing to cope with the demand.
Hobfoll (1989) categorized resources into four groups. Resources are any objects (e.g., food, housing), personal characteristics (e.g., self-efficacy, optimism), conditions (e.g., social support, job security), or energies (e.g., time, knowledge, money) valued by an individual that can mediate stress. When confronted with stress, COR theory poses that individuals will try to minimize the net loss of resources. When individuals are not presently confronted with stress, the model predicts that they will attempt to accumulate resources in preparation for coping with future demands (Hobfoll, 1989).

Job Demand-Control model. The JD-C model focuses on job strain as an outcome based on an employee’s balance of job demands and job control (Karasek, 1979). This model defines job demands as psychological stressors present in the work environment (e.g., heavy workload, time pressure). Job control, also referred to as decision latitude, consists of an individual’s decision authority and skill discretion at work; in other words, job control is how much control an employee has in making decisions and performing tasks at work. Job control is expected to mitigate the negative symptoms of job strain.

Karasek (1979) predicted four types of job strain outcomes depending on the balance of job demands and job control. High job demands and low job control are expected to produce a “high strain” job. Low job demands with high job control predicts a “low strain” job. When the relative amount of available job demands and decision latitude is congruent, an “active” job or “passive” job is expected. “Active” jobs have simultaneously high job demands and job control that encourage the development of new coping skills and behaviors which allow these employees to better cope with the job
strain. “Passive” jobs have both low job demands and job control, the combination of which is expected to decrease overall employee activity, prevent the development of problem-solving skills, and potentially produce a “learned helplessness” among employees (Maier & Seligman, 1976). In summary, the JD-C model suggests that individuals can reduce job strain and increase psychological wellbeing by buffering job demands with job control (Karasek, 1979).

**Effort Reward Imbalance model.** The last foundational model of the JD-R framework discussed is the ERI model (Seigrist, 1996). Siegrist’s (1996) ERI model highlighted how expectations of reciprocity between effort and rewards can explain stress at work. When employees have an imbalance in which they are investing high efforts but receiving low rewards at work, they are likely to experience psychological stress. Siegrist (1996) also examined physiological outcomes, such as cardiovascular health, in addition to work-related outcomes due to an imbalance in work efforts-rewards. According to the ERI model, work rewards include money, esteem, and status control. Effort is derived from two sources: the demands on the job (extrinsic source) and the employee’s motivations in a demanding situation (intrinsic source). The model suggests that adequate rewards may buffer the negative effects of stress that result from high effort.

**Job Demands-Resources model.** The current study uses the JD-R model which builds on the aforementioned job stress models and addresses some of their potential shortcomings. In line with the JD-C and ERI models, the JD-R model includes a buffer effect in which job resources reduce the effects of job demands (Demerouti et al., 2001; Schaufeli and Bakker, 2004. Similar to the COR theory, the JD-R model emphasizes the
importance of obtaining and protecting available resources. Updated versions of the JD-R model better align with the COR theory’s definition of resources in that the new model incorporates personal resources as well as job resources (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007).

Further, the JD-R model proposes that job demands and job resources initiate two conflicting underlying psychological processes that explain the development of the demands-strain and resources-motivation relationships. The dual processes are referred to as the health-impairment process and the motivational process. The health-impairment process stems from job demands. Chronic job demands expend the physical and psychological resources of employees; consequently, employees may experience exhaustion due to a depletion of energy and an increase in health problems (Bakker, Demerouti, & Schaufeli, 2003; Demerouti et al., 2001; Leiter, 1993).

The revised JD-R model by Schaufeli and Bakker (2004) added the motivational process as the second underlying psychological process proposed by the JD-R model. This version of the model includes work engagement, in addition to burnout, as mediators in the model such that job resources increase work engagement that then increases positive work outcomes and reduces negative work outcomes. Access to job resources and personal resources is expected to stimulate employee motivation through both intrinsic and extrinsic motivation (Hackman & Oldham, 1980; Schaufeli & Taris, 2014; Xanthopoulou et al., 2007).

Thus, the JD-R model provides incremental value to the literature and understanding of work outcomes compared to previous models. The JD-R helamodel
offers a more comprehensive explanation of the relationship between job demands and job resources with psychological and physiological outcomes than the previous job stress models (Schaufeli & Taris, 2014). The JD-R model also has a broader scope that is inclusive of all potential job demands and job resources and can be applied to a wider variety of organizational contexts (Schaufeli & Taris, 2014). Although the current study focused on the job resources path of the JD-R model, it is important to have a complete understanding of the functions of both paths in predicting work outcomes.

**Job demands**

According to the JD-R model, job demands are aspects of work that require continuous physical, mental, or emotional effort and can exist in the physical, social, or organizational realms of work (Demerouti et al., 2001). Examples of job demands include high work pressure, job insecurity, and irregular working hours. Chronic job demands are associated with psychological and/or physiological costs that often induce work strain and stress for the employee. Hockey’s (1997) compensatory control model helped explain this relationship by suggesting that employees exert extra effort to compensate for job demands in order to maintain their goals and performance. When the compensatory efforts must be sustained over extended periods of time, workers may be unable to recuperate and are likely to experience chronic physical and mental exhaustion (Hockey, 1997). The original JD-R model posits that the job demands-strain relationship has been found to lead exclusively to negative outcomes such as burnout and depression (Demerouti et al., 2001; Hakanen, Schaufeli, & Ahola, 2008).
However, job demands may not be homogenously negative as some demand characteristics may produce both positive and negative outcomes (van den Broeck, de Cuyper, de Witte, & Vansteenkiste, 2010). Cavanaugh, Boswell, Roehling, and Boudreau (2000) found that work stressors related to work outcomes differently depending on how employees evaluate their job stressors and situation. Previous research on stress appraisal supports Cavanaugh and colleagues’ findings. In 1956, Selye published his most popular book on stress in which he distinguished that stressful stimuli can elicit positive (“eustress”) and negative (“distress”) emotions. Eustress occurs when stressors are appraised to be an attainable challenge that is associated with feelings of fulfillment and motivation (Selye, 1982). Contrarily, distress prompts negative emotions and is experienced when people perceive stressors as threatening and interfering with their pursuit of a goal.

Lazarus and Folkman (1984) developed the transactional model of stress building on Selye’s work. The transactional model of stress suggests that stressful stimuli are first cognitively evaluated based on their relevance to the individual’s wellbeing (primary appraisal). Then, once the stimuli are appraised to be a threat or challenge stressor, individuals assess the coping resources they have available to manage the threat or challenge (secondary appraisal). The psychological and physiological outcomes due to the stressor depend on the effectiveness of individuals’ primary and secondary appraisals (Lazarus & Folkman, 1984). These theories support that employees may experience job demands differently depending on how they appraise the stressors. Based on the two-factor structure determined by Cavanaugh et al. (2000), Podsakoff, LePine, and LePine
(2007) suggested that job demands may be appraised and divided into two categories: job hindrances and job challenges.

Job hindrances are demands that create obstacles with potential harm for gains for employees and depletes their energy (Cavanaugh et al., 2000). These demands are aptly named as they hinder employees from personal development and achieving their goals at work. As identified in a meta-analysis by Crawford, LePine, and Rich (2010), role conflict or ambiguity, interpersonal conflict, and organizational politics are examples of job hindrances. The primary appraisal of job hindrances identifies them as threats which typically involves passive or emotional coping behaviors (Lazarus & Folkman, 1984). For example, employees may withdraw from the situation at work to cope with job hindrances.

Job demands that may be stressful but also offer potential gains for the employee are considered job challenges (Cavanaugh et al., 2000). Examples of job challenges may include workload, cognitive demands, and time pressure (Muhammad, 2016). Job challenges align with Selye’s (1956) idea of eustress in that these work stressors are expected to produce positive emotions such as excitement and eagerness (Crawford et al., 2010). Employees tend to appraise job challenges as demands that can be overcome which increases employee motivation to confront these challenges (Cavanaugh et al., 2000).

According to Lazarus and Folkman (1984), employees will recognize in their secondary appraisal of a stressor that they are confident in their coping resources available to successfully meet the demands of the stressor. This often leads to an active,
problem-solving approach of coping (LePine, LePine, & Jackson, 2004). LePine et al. (2004) found that employees often address job challenges by strategizing, increasing their effort towards the demand, and increasing their motivation to learn. In addition to providing a better understanding of work stressors, job demands highlight the importance of job resources, specifically for coping with job challenges, in the JD-R model.

**Job resources**

Job resources are physical, psychological, social, or organizational aspects of the job that promote attainability of job-related goals, mitigate the demands-strain relationship, and/or enhance personal learning, development, and growth (Demerouti et al., 2001). Examples of job resources include social support, job control, and performance feedback (Xanthopoulou et al., 2007). Job resources have been found to increase employee motivation and are associated with reduced work strain and increased positive outcomes (e.g., work engagement, Schaufeli & Bakker, 2004; organizational commitment, Hakanen et al., 2008; job performance, Bakker, van Emmerik, & van Riet, 2008).

Multiple types of social support have been considered resources in the workplace that produce positive outcomes and help employees cope with stress (de Jonge et al., 2001; Karasek, Triantis, & Chaudhry, 1980; Kossek, Pichler, Bodner, & Hammer, 2017; Nahum-Shai & Bamberger, 2011a; Nahum-Shani & Bamberger, 2011b; Seers, McGee, Serey, & Graen, 1983). For example, social support at work contributes to improved job performance (Bakker et al., 2008), organizational commitment (Hakanen et al., 2008; Eisenberger, Huntington, Hutchison, & Sowa, 1986), and retention (Pomaki, DeLongis,
Frey, Short, & Woehrle, 2010). A meta-analysis by Nielson et al. (2017) confirmed that work-related supports at the organizational, leader, and group level are important job resources that improve employee well-being and performance. Thus, this study looks at three types of workplace support as resources: (1) perceived organizational support, (2) perceived supervisor support, and (3) perceived coworkers support. Although these three types of support tend to be correlated (Kurtessis et al., 2017), research suggests that the constructs are distinct from one another and provide incremental validity when predicting organizational and employee outcomes (Eisenberger et al., 2002; Kottke & Sharafinski, 1988).

**Perceived organizational support.** Perceived organizational support is the extent to which employees feel that their organization cares about their well-being and values their contributions to the organization (Eisenberger et al., 1986; Rhoades & Eisenberger, 2002). For example, employees may perceive greater organizational support when it is apparent that the organization recognizes and values the employees’ dedication and loyalty to their work. Perceived organizational support is explained by Levinson’s (1965) personification of the organization, Organizational Support Theory (Eisenberger et al., 1986), and self-enhancement processes (Rhoades & Eisenberger, 2002).

Levinson (1965) recognized that employees often personify their organization by perceiving actions of agents in the organization to be actions of the organization itself. This likely occurs due to the influence of organizations’ structure and constancy on individual employees through its legal, financial, and moral responsibilities to employees as well as the policies and cultural norms of the organization. The constancy provided by
the organization through a consistent, dependable relationship with its employees resembles that of a relationship an employee might have with an actual person (Levinson, 1965). Therefore, employees view their treatment at work as indicative of the organization’s intentional favor or disfavor of them and not just the personal motives of the organization’s agents. The human-like characteristics assigned to the organization prompt employees to experience emotions towards their organization, rather than just its agents, such as trust and commitment.

Organizational support theory (OST), rooted in social exchange theory, suggests that employees evaluate how much their organization values them by examining the socio-emotional and tangible benefits provided by the organization (Eisenberger et al., 1986). Socio-emotional benefits may include respect or affiliation, and tangible benefits include wages and benefits. This evaluation, similar to social exchange theory, obliges reciprocity such that employees who perceive greater organizational support feel obligated to help the organization reach its goals and expect that this will lead to greater rewards for the employees (Kurtessis et al., 2017). Thus, employees seek to balance their attitudes and behaviors to be consistent with their perceived organizational support and are likely to increase or decrease their job-related efforts to match their evaluation of their exchange relationship with the organization.

Kurtessis et al. (2017) suggested that OST and perceived organizational support are not solely motivated by social exchange processes; they also reflect self-enhancement processes. Perceived organizational support helps employees meet their needs for approval, esteem, and affiliation (Baran, Shanock, & Miller, 2012; Rhoades &
Eisenberger, 2002). The fulfillment of socio-emotional needs influences employees to identify more with the organization, consequently increasing employees’ affective organizational commitment through shared values and stronger relationships between employees and agents of the organization (Kim, Eisenberger, & Baik, 2016; Marique, Stinghamber, Desmette, Caesens, & De Zanet, 2013; Meyer, Becker, & van Dick, 2006).

According to OST, and similar to Levinson’s (1965) idea, perceived organizational support is strengthened when employees develop more favorable impressions of their relationship with the organization based on (a) the actions of agents in the organization, (b) the organization’s policies, procedures, and culture, and (c) the resources received from the organization. Other factors also influence the extent to which employees have greater perceptions of organizational support. For example, discretionary treatment has been found to have a stronger influence on perceived organizational support than obligatory actions (Eisenberger, Fasolo, & Davis-LaMastro, 1990; Eisenberger et al., 1986; Shore & Shore, 1995). Discretionary practices such as offering promotional opportunities and including employees in decision making imply investment in the employee by the organization (Gavino, Wayne, & Erdogan, 2012). Therefore, when employees perceive the organization to be treating them favorably even though it does not have to, employees feel more valued and consequently experience greater perceived organizational support. Perceived fairness and job conditions also contribute to the extent in which employees feel that they are supported by their organization (Liden, Wayne, Kraimer, & Sparrowe, 2003; Rhoades & Eisenberger, 2002).
Perceived organizational support is related to several positive workplace outcomes. When employees perceive that their organization values them and invests in their well-being, they are likely to experience greater affective attachment to the organization (Eisenberger, 1986; Rhoades & Eisenberger, 2002). Perceived organizational support has also been found to be associated with decreased negative outcomes such as burnout (Jawahar, Stone, & Kisamore, 2007). A recent meta-analysis found that perceived organizational support was positively related to performance-reward expectancy, organizational citizenship behaviors, performance, and job satisfaction (Kurtessis et al., 2017); this study also found that perceived organizational support was negatively related to job stress, burnout, and turnover intentions. Other studies and meta-analyses have supported Kurtessis et al.’s (2017) findings (e.g., Ahmed, Nawaz, Ali, & Islam, 2014; Baran et al., 2012; Riggle, Edmondson, & Hansen, 2009; Rhoades & Eisenburger, 2002).

**Perceived supervisor support.** Perceived supervisor support is the extent to which employees perceive their supervisors to care about their well-being, value their contributions, and are willing to invest in their career development (Eisenberger et al., 2002). This is different from perceived organizational support as it is based on employees’ impressions specifically of their supervisors’ support and appreciation of them as employees; employees differentiate their supervisors to be distinct of the organization and view them as agents of the organization. Some researchers suggest that perceived supervisor support may be the most salient type of workplace social support to employees “as it originates from day-today contact with lower-level supervisors and is
most likely to be rooted in relationships as well as internal and external events” (Campbell, Perry, Maertz Jr., Allen, & Griffeth, 2013, p. 764; Eberly, Holley, Johnson, & Mitchell, 2011).

The rationale for perceived supervisor support follows that of perceived organizational support and OST (e.g., Eisenberger, 1986). Employees often view their relationship with their supervisor as a social exchange relationship that fulfills socio-emotional needs. Thus, employees feel a sense of obligatory reciprocity towards their supervisors to work hard and demonstrate loyalty in return for their supervisor’s concern for their feelings and needs (Eisenberger & Stinglhamber, 2011).

Perceived supervisor support is related to perceived organizational support such that perceived supervisor support has been found to lead to perceived organizational support (Eisenberger et al., 1986; Eisenberger et al., 2002). Although a few researchers argue that the perceived supervisor support-perceived organizational support relationship may be bidirectional (e.g., Yoon & Thye, 2000), the literature overall supports that this relationship is unidirectional with perceived supervisor support predicting perceived organizational support (Baran et al., 2012; Eisenberger et al., 2002; Rhoades & Eisenberger, 2002). Eisenberger et al. (2002) found that the relationship between perceived supervisor support and perceived organizational support was stronger specifically when supervisors were perceived to have greater informal status in the organization. These findings help explain why perceived supervisor support may be a foundation of perceived organizational support due to employees recognizing that (1) supervisors are active agents of the organization, (2) supervisors reflect the character of
the organization, (3) supervisors often have influence on organization decisions, and (4) maintaining a positive relationship with supervisors may fulfill employees’ socio-emotional needs and lead to favorable treatment from the organization. Thus, perceived supervisor support may impact perceived organizational support.

Although research supports that perceived supervisor support predicts perceived organizational support, perceived supervisor support has also been found to predict outcomes above and beyond that of perceived organizational support (Maertz, Griffeth, Campbell, & Allen, 2007; Stinglhamber & Vandenberghe, 2003). For example, Maertz et al. (2007) examined the relationships between perceived supervisor support, perceived organizational support, and turnover cognitions by testing two models that predicted turnover cognitions by perceived supervisor support, perceived organizational support, and types of organizational commitment. The authors first tested a fully mediated model with causal paths from perceived supervisor support to perceived organizational support to turnover, through affective commitment; this had been the longstanding model supported by the perceived organizational support literature. Then, they tested additional models based on literature suggesting broader impacts of perceived supervisor support and perceived organizational support on turnover. In addition to finding perceived organizational support predicted turnover cognitions through both affective and normative commitment, Maertz et al. (2007) found significant independent effects of perceived supervisor support on turnover cognitions that were not mediated by perceived organizational support. This suggests that employees’ perceptions of their supervisors can have a separate impact from their perceptions of the organization on outcomes.
Perceived supervisor support predicts several other job attitudes and workplace outcomes. Campbell, Perry, Maertz, Allen, and Griffeth (2013) found that perceived supervisor support predicted decreased emotional exhaustion, suggesting that perceived supervisor support may mitigate burnout. Research suggests that employees who perceived high levels of support from their supervisor experienced increased job satisfaction as well as decreased role conflict and role ambiguity (Babin & Boles, 1996; Beehr, King, & King, 1990). Perceived supervisor support predicts job performance such that greater perceived supervisor support improves employees’ performance (DeConinck & Johnson, 2009). Kossek et al. (2011) also showed that perceived supervisor support positively predicted perceived work-family organizational support, indirectly reducing work-to-family conflict for employees.

**Perceived coworker support.** Perceived coworker support is the extent to which employees perceive the availability of quality work-related and emotional assistance from their coworkers (Kim, Hur, Moon, & Jun, 2017; Ng & Sorensen, 2008). Coworkers may show support by listening to work-relevant problems, helping with tasks for a project, or coworker mentoring. Perceived coworker support stems from similar mechanisms as the other types of workplace social support and is often generated from social exchange relationships. As with perceived supervisor and organizational support, employees invest in relationships with their coworkers based on anticipated reciprocation in which they will fulfill each other’s socio-emotional needs. However, employees generally have the same status as their coworkers and interact with their coworkers more frequently than other sources of support; therefore, support from these interactions may be less restricted.
and more accessible to employees than supervisor support or general organizational support (Chiaburu & Harrison, 2008).

Chiaburu and Harrison (2008) conducted a meta-analysis in which one of their primary goals was “to develop such a framework for examining how coworkers influence the focal employees’ work experiences, separately from other elements in the employee’s social environment” (p. 1083). They found that perceived coworker support reduced discrepancies in role perceptions (i.e., role conflict, role ambiguity, and role overload), improved work attitudes (i.e., job satisfaction, job involvement, and organizational commitment), influenced individual effectiveness (i.e., counterproductive work behaviors and organizational citizenship behaviors), and positively impacted performance via direct and indirect effects. Perceived coworker support was negatively associated with both types of counterproductive work behaviors, with a stronger, negative effect on interpersonal counterproductive work behaviors (CWB-I) than organizational counterproductive work behaviors (CWB-O). Similarly, for organizational citizenship behaviors, perceived coworker support had a stronger, positive effect on interpersonal organizational citizenship behaviors (OCB-I) than organization-focused organizational citizenship behaviors (OCB-O). Thus, the meta-analysis indicates that perceived coworker support is an important predictor of work-relevant outcomes above and beyond other types of work-related support.

Chiaburu and Harrison (2008) also found that the content of coworker support may have differing impacts on the outcomes. The authors suggest that coworker support behaviors can be categorized into two types: affective support and instrumental support.
Affective support begins with recurring positive interactions that may include relatively small actions like receiving compliments or empathy from coworkers that over time forms a social exchange relationship that generates positive, stable attitudes of satisfaction and involvement in the relationship (Weiss & Cropanzano, 1996).

Instrumental support focuses on information and behavioral assistance provided by coworkers. This may take form as sharing knowledge to make task completion more efficient, taking on extra work in order to relieve someone who is overworked, or other supportive behaviors that intentionally assists coworkers and results in improved performance. Chiaburu and Harrison’s (2008) meta-analysis indicated that affective coworker support had a stronger link with job satisfaction, job involvement, and organizational commitment; contrarily, instrumental coworker support had a stronger link with OCB-I and task performance. Therefore, the nature of the coworker support may be an important consideration when measuring relevant outcomes.

Compared to the other types of workplace social support, perceived coworker support seems to have the most conflicting findings in the literature regarding its role as a buffer in the stressor and strain relationship. Some studies have found mixed results or results challenging the buffer hypothesis. For example, neither main effects nor interactive effects of perceived coworker support were found in a study examining the mitigation of burnout among school teachers (e.g., Russell, Altmaier, & Velzon, 1987). Ducharme and Martin (2000) did not find that perceived coworker support buffered the effects of negative job characteristics (e.g., low income, low autonomy, demanding work) on job satisfaction, but they reported a main effect of perceived coworker support on job
satisfaction. Other studies have shown that perceived coworker support can have both a buffering and exacerbating effect such that perceived coworker support sometimes increases the impact of job conditions on negative outcomes (Chamberlain & Hodson, 2010). The authors suggested that coworker support may intensify toxic work conditions when coworker interactions lead to excessive complaining or realizing one’s lack of self-efficacy in the workplace (Chamberlain & Hodson, 2010). Researchers have explained that the confusion in the literature about the buffering effect of perceived coworker support may be due to the type of stressor experienced or outcome measured (Sloan, 2012).

Despite mixed results in the literature, several studies (e.g., Ducharme, Knudsen, & Roman, 2007; van Emmerik, Euwema, & Bakker, 2007) have found perceived coworker support to be an effective buffer. For example, van Emmerik et al. (2007) reported that support from peers at work buffered the effects of unsafe job climate (i.e., experienced through threats of workplace violence and aggression) by increasing employees’ affective organizational commitment and dedication to their job at both the individual and aggregate level. Ducharme et al. (2007) found that coworker support alone reduced turnover intentions of substance abuse treatment counselors directly and indirectly through reducing emotional exhaustion. These findings suggest that employees who perceive themselves to have coworker support are able to use this support as a resource to mitigate the impact of stressors and strains.

Perceived coworker support has also been found to influence perceived organizational support; however, this relationship tends to be weaker than the perceived
supervisor support-perceived organizational support relationship (Kurtessis et al., 2017; Ng & Sorenson, 2008). This may be the case due to supervisors holding a level of authority in a ranked position within the organization, influencing employees to perceive supervisors to be closer to the organization’s values. Thus, employees may be biased to assume that their supervisors have a greater impact on the extent of the organization’s support compared to their peers at work.

Although perceived coworker support and perceived supervisor support are often correlated, perceived coworker support is a distinct construct that tends to be a weaker predictor of most other job attitudes and workplace outcomes compared to perceived supervisor support (Fenlason & Beehr, 1994; Ng & Sorenson, 2008). For example, Marcelissen, Winnubst, Buunk, and de Wolff (1988) found that their Dutch sample reported receiving more support from their coworkers than their supervisors; however, the results indicated that perceived supervisor support was a significantly greater predictor of decreased role ambiguity, role overload, and role conflict than perceived coworker support. Researchers suggested that the relatively weaker effect of perceived coworker support is likely due to the extent to which their job, formally and/or informally, requires supervisors to provide support to their subordinates (Ng & Sorenson, 2008). Contrarily, coworker relationships tend to be informally developed as the members of these relationships are typically of the same status level at work; therefore, supervisor support may be perceived as more valuable than coworker support (Ng & Sorenson, 2008).
There are a few examples in the literature of when perceived coworker support is a stronger predictor than perceived supervisor support and perceived organizational support of job attitudes and workplace outcomes. In a sample of full-time frontline hospitality employees, Karatepe (2012) showed that perceived coworker support and perceived organizational support had differing effects on turnover intentions and service recovery performance. The results indicated that perceived coworker support had a significantly stronger negative relationship with turnover intentions than perceived organizational support. A meta-analysis also found that perceived coworker support was a greater predictor of job involvement than leader support (e.g., supervisor support; Chiaburu & Harrison, 2008). Thus, following the findings of other studies (e.g., Sloan, 2012), the impact of perceived coworker support relative to other types of workplace social support may depend on the specific sample or the of outcomes of interest.

**Current study.** This study uses the three types of workplace social support - perceived organizational support, perceived supervisor support, and perceived coworker support - as job resources in the JD-R model. These three types of support were combined to measure a latent variable of work-related support resources. To my knowledge, no other studies have pooled these three specific constructs together as a latent variable; however, other studies have found it suitable to model job resources as a latent variable that reflects multiple observed resource variables (Heath, Hall, Russ, Canetti, & Hobfoll, 2012). Specifically, studies have combined multiple resources from the same resource category (e.g., organizational justice, Boudrias et al., 2011; personal resources, Boudrias et al., 2011). As framed by the JD-R model, work-related support
resources should prompt motivational processes such that employees who receive higher levels of resources will be more likely to be engaged in their work (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007). Although work engagement as part of the JD-R model has been well-researched with various outcomes, less attention has been given to the model’s relationship with work engagement and job crafting. The following sections will detail how the current study models work-related support resources, work engagement, and job crafting in the JD-R framework.
CHAPTER THREE
WORK ENGAGEMENT

Work engagement is one of the most important positive organizational constructs and is an increasingly relevant topic in Occupational Health Psychology literature (Bakker & Demerouti, 2008; Lesener, Gusy, Jochmann, & Wolter, 2019). Although there are numerous definitions of work engagement in the literature, I expand on the most influential and relevant definitions. I will discuss Kahn’s (1990) needs-satisfying approach, Maslach’s and Leiter’s (1997) burnout-antithesis approach, and the definition developed by Schaufeli, Taris, González-Romá, and Bakker (2002).

Kahn’s (1990) needs-satisfying approach was one of the first to apply engagement theory to the workplace. Kahn (1990) defined engagement as the “harnessing of organization members’ selves to their work roles: in engagement, people employ and express themselves physically, cognitively, emotionally, and mentally during role performances” (p. 694). This definition suggests that employees are engaged when they are able to satisfy needs for self-employment and self-expression in their work which may occur through physical, cognitive, emotional, or mental labors. According to Kahn (1990), self-employment captures constructs such as involvement (Lawler & Hall, 1970), effort (Hackman & Oldham, 1980), and intrinsic motivation (Deci, 1975); self-expression captures constructs such as personal voice (Hirshcman, 1970), creativity (Perkins, 1981), authenticity (Baxter, 1982), and emotional expression (Rafaeli & Sutton, 1987).

Additionally, Kahn (1990) proposed that employee engagement is significantly affected by three psychological domains: meaningfulness, safety, and availability.
Psychological meaningfulness occurs when employees feel valued for their efforts, see the significance of their work, and perceive themselves to be receiving an adequate return on investment for their efforts at work. Psychology safety involves “feeling able to show and employee one’s self without fear of negative consequences to self-image, status, or career” as well as having consistency and clarity in work expectations (Kahn, 1990, p. 708). For the last domain, psychological availability is the extent to which employees have the physical, emotional, or psychological resources they need to engage at work. Thus, Kahn (1990) suggested that employees are more engaged when they find meaningfulness in their work, feel like they are working in a psychologically safe environment, and possess the necessary resources to be psychologically available at work.

Maslach and Leiter (1997) developed the burnout-antithesis approach to understanding work engagement. In this approach, engagement and burnout are on a single continuum; engagement is on the positive end of the spectrum, and burnout is on the negative end. Engagement is demonstrated through employees’ energy, involvement, and efficacy in their work. Burnout is considered the antithesis of engagement, and the aspects of engagement are considered opposites of the three dimensions of burnout (exhaustion, depersonalization, and lack of personal accomplishment; Maslach, Jackson, & Leiter, 1996; Maslach & Leiter, 1997). Consequently, the lack of work engagement leads to employee burnout. Thus, the burnout-antithesis approach implies that employees who are engaged in their work experience solely characteristics of engagement and cannot simultaneously experience burnout.
Contrary to the Maslach’s and Leiter’s (1997) approach, Schaufeli et al. (2002) consider work engagement to be a distinct construct that is negatively related to burnout rather than on the opposite end of a continuum. Schaufeli et al. (2002) defined work engagement to be “a positive, fulfilling, work-related state of mind characterized by vigor, dedication, and absorption” (p. 74). An employee is considered to have vigor when he or she persists during difficult work situations while exhibiting high levels of energy and mental resilience. Dedication is presented when an employee is heavily involved in his or her work and their work invokes positive emotions such as significance, pride, enthusiasm, and challenge. Employees are absorbed in their work when they enjoy their work and are concentrated on it to the point that they struggle to detach themselves from their work. Schaufeli et al.’s (2002) definition of work engagement was used to create the Utrecht Work Engagement Scale, the most commonly used measure of work engagement in the current literature (Schaufeli, 2012; Schaufeli, Bakker, & Salanova, 2006). This measure was used to measure work engagement as the extent to which employees exhibit vigor, dedication, and absorption in their work.

The literature has shown that work engagement overlaps with other constructs (e.g., workaholism, organizational commitment, organizational citizenship behaviors, and job involvement); however, work engagement is considered a distinct concept (Christian, Garza, & Slaughter, 2011). Although the three characteristics of work engagement may seem similar to workaholism, employees that are engaged at a healthy level with their work can be distinguished from workaholics (Caesens, Stinglhamber, & Luypaert, 2014). Schaufeli, Taris, and Bakker (2006) clarified that workaholics have the compulsive
tendency to work excessively as they are not driven by intrinsic motivation but are externally motivated such that their self-esteem often depends on it. (van Beek, Hu, Schaufeli, Taris, & Schreurs, 2012). Organizational commitment and work engagement differ because organizational commitment refers to employee attitudes and attachment towards the organization. Saks (2006) suggested that work engagement is different because “it is the degree to which an individual is attentive and absorbed in the performance of their roles”, not an attitude (p. 602). Saks (2006) also explained that organizational citizenship behaviors consist of informal and voluntary behaviors to help the organization or agents within the organization, whereas work engagement is specific to an employee’s formal role performance. Lastly, the literature supports that work engagement is not the same as job involvement. Job involvement contributes to an employee’s self-image and focuses on cognitive evaluations of the extent to which a job satisfies an employee’s needs (May, Gilson, & Harter, 2004). Contrarily, work engagement includes behavior and emotion, as well as cognitive judgments, in how employees involve themselves to perform well at their job (Saks, 2006). Thus, work engagement should be considered a unique construct.

**Work engagement and the JD-R model**

In terms of the JD-R model, work engagement has been well-established as an outcome of job resources (Bakker & Demerouti, 2017). Even in the presence of job demands, job-related resources continue to have a positive effect on work engagement (Hakanen & Roodt, 2010; Bakker & Demerouti, 2007). In addition to job-related resources, researchers suggest that personal resources such as optimism, self-efficacy,
and organizational-based self-esteem are important aspects of the motivational process within the JD-R model (Xanthopoulou et al., 2007). Resources initiate the motivational process by energizing employees, encouraging persistence, and focusing efforts such that “resources foster engagement in terms of vigor (energy), dedication (persistence), and absorption (focus)” (Schaufeli, 2013, p. 16). Several studies have produced empirical evidence of the JD-R model successfully being used to examine the relationships between various job resources and work engagement. Job resources such as feedback, opportunities for development, autonomy, coaching, and social support have been found to positively predict work engagement (Bakker, 2011; Hakanen, Perhoniemi, & Toppinen-Tanner, 2008; Schaufeli, Bakker, and van Rhenen, 2009). The current study focuses on work-related support resources including perceived organizational support, perceived supervisor support, and perceived coworker support as antecedents of work engagement.

**Work engagement and job-related support resources.** Many of the early studies on the JD-R model used cross-sectional designs to test the validity of the proposed relationships between work-related support resources, work engagement, and job outcomes (Schaufeli & Taris, 2014). For example, Schaufeli and Bakker (2004) found in a multi-sample study that job resources (performance feedback, social support from colleagues, and supervisory coaching) predicted work engagement, and work engagement fully mediated the relationship between job resources and turnover intentions. These results were found in Dutch employees from four occupation groups: an insurance company, a large occupational health and safety service organization, a pension
fund company, and a home-care institution. In 2009, Korunka, Kubicek, Schaufeli, and Hoonakker used an Austrian sample from a variety of occupations (both blue- and white-collar jobs) to test the JD-R model using supervisor support, coworker support, and decision latitude as job resources and turnover intentions as the outcome. Their findings supported the model such that work engagement was a mediator in the job resources-turnover intentions relationship. Korunka et al. (2009) further demonstrated the robustness of the JD-R model by conducting multi-group analyses that indicated the effects did not change across age, gender, or occupational level.

A more recent study by Caesens et al. (2014) used a cross-sectional design to examine how work engagement and workaholism mediated the relationship between all three types of work-related social support (perceived organizational support, perceived supervisor support, and perceived coworker support) and employee well-being outcomes (job satisfaction, perceived stress, and sleep problems). The study found that work engagement mediated the relationship only for perceived organizational support and perceived supervisor support; the relationship between perceived coworker support and work engagement was insignificant. Contrarily, workaholism was a stronger mediator of the perceived coworker support-employee well-being relationship. The authors highlighted that the results about perceived coworker support and work engagement conflict with previous studies in the literature and acknowledge that aspects of their study design (e.g., homogenous sample of Ph.D. students, cross-sectional survey) may have contributed to the divergence of results.
Longitudinal designs have been implemented to test the motivational process of work engagement in the JD-R model using work-related support as job resources; however, there are substantially less compared to cross-sectional studies. The longitudinal research available on this topic supports that work-related support reflects resources in JD-R framework. For example, Schaufeli et al. (2009) employed a two-wave longitudinal design with a one-year time interval that found increases in job resources predicted work engagement and increases in work engagement decreased frequency of absences. The authors measured four job resources: social support, performance feedback, autonomy, and opportunities to learn and to develop; the social support scale specifically captured perceived supervisor support and perceived coworker support. A meta-analysis of longitudinal studies that examined the antecedents of work engagement concluded that work-related support resources at the organizational level (perceived organizational support), leader level (perceived supervisor support), and group level (perceived coworker support) positively predicted work engagement (Lesener et al., 2019).

Other meta-analytic evidence also verifies the relationship between work engagement and work-related support resources. Crawford et al. (2010) conducted a meta-analysis that tested work engagement and social support, specifically defined to include perceived organizational support, perceived supervisor support, and perceived coworker support. Results from 33 studies indicated that $\rho = .27, p < .05$, suggesting that work-related social support and work engagement are consistently found to be related. Christian et al.’s (2011) meta-analysis supported Crawford et al.’s (2010) findings by
looking at the same relationship across 38 studies and found that social support accounted for 32% of the variance in work engagement.

Based on cross-sectional, longitudinal, and meta-analytic results, work-related support is a job resource that predicts work engagement. Thus, I predict that work-related support resources reflected by perceived organizational support, perceived supervisor support, and perceived coworker support will lead to increased work engagement over time.

**H1a: Higher reports of work-related support resources at T1 will predict increased work engagement at T2.**

**H1b: Higher reports of work-related support resources at T2 will predict increased work engagement at T3.**

An important role of work engagement in the JD-R model is its function as a mediator between job resources and positive work experiences (Schaufeli & Bakker, 2004). Although work engagement predicts several positive work experiences (e.g., improved task performance, Christian et al., 2011; job satisfaction, Caesens et al., 2014; organization commitment, Andrew & Sofian, 2012; organizational citizenship behaviors, Andrew & Sofian, 2012), the current study focuses on the literature that has examined the relationship between work engagement and employees’ proactive behaviors at work. Researchers have consistently found that increased work engagement led to employees taking personal initiative and engaging in proactive behaviors (Hakanen et al., 2008; Sonnentag, 2003; Weigl et al., 2010). More recent studies have focused specifically on job crafting behaviors and work engagement and found a positive association (Rudolph,
Katz, Lavigne, & Zacher, 2017; Tims, Bakker, & Derks, 2012); however, majority of this research uses cross-sectional studies to assert claims about the relationship between these variables. The current study seeks to further develop this literature by using a longitudinal design to distinguish causal links and directionality between work engagement and job crafting.
CHAPTER FOUR

JOB CRAFTING

Evolution of the definition

Job crafting is a type of proactive behavior in which employees “shape, mold, and redefine their jobs” (Wrzesniewski & Dutton, 2001, p. 180). Within the context of their defined jobs, employees actively redesign their job using a bottom-up approach so that their perceived job characteristics better align with how they want to perceive the work they do and who they are at work (Tims et al., 2012; Wrzesniewski & Dutton, 2001). Job crafting is an important area of research as it has been found to occur across jobs, industries, and hierarchical ranks and has been related to various positive outcomes for employees and organizations (Bindl, Unsworth, Gibson, & Stride, 2019). My study seeks to examine potential antecedents of job crafting behaviors and how these behaviors may play a part in a feedback loop of job resources and work engagement.

While Wrzesniewski and Dutton (2001) created a foundation for job crafting research, they originally only included behaviors that focused on employees modifying their work tasks, relationships at work, and cognitions at work in their definition of job crafting. However, Tims et al. (2012) argued that this definition ignored other ways that employees may change their work environment such as acquiring new skills (e.g., Lyons, 2008) and avoiding unpleasant work experiences to reduce stress at work (e.g., Grant, Fried, Parker, & Frese, 2010). Thus, Tims et al. (2012) developed a definition of job crafting through the lens of the JD-R model and defined job crafting as “the changes that
employees may make to balance their job demands and job resources with their personal abilities and needs” (p. 174).

Based on the framework of the JD-R model, Tims et al. (2012) identified four subdimensions of job crafting. They found that job crafting may occur through employees increasing structural job resources (e.g., autonomy, skill variety), increasing social job resources (e.g., social support, performance feedback), increasing challenge job demands (e.g., work pressure, job complexity), and decreasing hindrance job demands (e.g., role conflict, role ambiguity). Using the four subdimensions, Tims et al. (2012) constructed the 21-item Job Crafting Scale. However, Petrou, Demerouti, Peeters, Schaufeli, and Hetland (2012) found support for a three-factor model of job crafting and developed a shortened version of the Job Crafting Scale with only 13 items. The three-factor model of job crafting collapses increasing structural job resources and increasing social job resources into one factor. Therefore, Petrou et al.’s (2012) measure reflects three subscales of seeking resources, seeking challenges, and reducing demands. The shortened version of the Job Crafting Scale has also been used in several studies (Demerouti, Bakker, & Gevers, 2015; Gordon et al., 2018; Petrou, Demerouti, & Schaufeli, 2015; Petrou, Demerouti, & Schaufeli, 2018; van den Heuval, Demerouti, & Peeters, 2015) and was used in the current study as global measure for job crafting.

Other research on job crafting has used definitions and examples of job crafting behaviors that combine the approaches of Wrzesniewski’s and Dutton (2001), Tim et al. (2012), and Petrou et al. (2012). For example, Bindl et al. (2019) categorized job crafting behaviors into four categories based on the past research: task crafting, relationship
crafting, skill crafting, and cognitive crafting. Task crafting occurs when an employee changes the task itself to differ from the formal job description. Wrzesniewski and Dutton (2001) suggested that task crafting focuses on “the number, scope, or type of job tasks done at work” (p. 185); for example, employees may increase or decrease the quantity of job tasks when possible to either challenge themselves or reduce the demands of the tasks. Task crafting behaviors fit into Petrou et al.’s (2012) model of job crafting as seeking challenges (increasing tasks) or reducing demands (decreasing tasks).

Relationship crafting involves how employees modify relational boundaries at work by actively changing how they interact with others at work. These behaviors may alter either the quantity or quality of relationships at work and can target various groups (coworkers, supervisors, customers/clients, etc.). Relationship crafting is most often considered to be seeking resources according to Petrou et al. (2012). Skill crafting may occur when employees enhance their success by changing the skills they use to complete their work. Employees may also skill craft by engaging in learning and skill-development opportunities so that they have more skills to leverage at work. Skill crafting also best aligns with the seeking resources subdimension of job crafting (Petrou et al., 2012).

Cognitive crafting differs from the other three types of job crafting outlined by Bindl et al. (2019) because it takes form as an internal change for employees rather than behavioral changes. Additionally, cognitive crafting is not related to a specific work domain. Employees engage in cognitive job crafting when they actively alter the way they think about their job; these changes in thoughts may target relationships, tasks, or skills. Employees may craft how they think about their relationship with coworkers or
may rethink how they perceive the greater impact of their job tasks. For example, nursing assistants working for the Veterans Affairs hospital may change how they think about their work so that they perceive greater task significance for helping and supporting veterans. In addition to recognizing the different types of job crafting, it is important to understand the underlying motivators of these behaviors.

**Motivation for job crafting**

Bindl et al. (2019) recently reviewed the literature to date on job crafting and suggested that self-determination theory (SDT) provides an explanation for employees’ motivation to job craft. SDT (Deci & Ryan, 1985) is a needs-based motivational theory that suggests all people inherently need autonomy (e.g., control over actions, thoughts, and decisions), relatedness (e.g., relationships and connections with other people), and competence (e.g., feeling of success when personal strengths and skills are used to accomplish goals). Bindl et al. (2019) proposed that employees may be motivated to engage in a certain category of job crafting behavior to fulfill their most salient need at a given point in time. The researchers suggested that the strength of the type of need (autonomy vs. relatedness vs. competency) will result in different job crafting behaviors.

The need for autonomy can be addressed with task crafting behaviors. Therefore, if an employee’s need for autonomy is the most salient need at the given time, he or she may exert control by increasing or decreasing the quantity of job tasks or changing the type of tasks they are working on at that time. To fulfill the need of relatedness, employees may be more likely to engage in relationship crafting behaviors. Thus, employees feel more connected with their work relationships when they job craft to
increase the number of positive relations they have at work or reduce any negative or harmful relationships at work. When competence is the most salient need, employees are likely to engage in skill crafting in which they are motivated to initiate job-related skill development opportunities. This may be to learn new skills or master core skills so that they feel more competent in their role at work. Because cognitive job crafting is not related to a specific work domain, employees may be motivated to engage in cognitive crafting in order to address any of the three SDT needs.

Job crafting and work engagement

The literature reveals conflicting findings about the relationship between job crafting and work engagement. Several studies have found significant correlations between work engagement and job crafting in which causation cannot be applied, but the relationship is evident (e.g., Bakker Rodríguez-Muñoz, & Sanz Vergal, 2016; Bakker, Tims, & Derks, 2012). In a meta-analysis examining more than 60 studies, Rudolph et al. (2017) found significant relationships between work engagement and job crafting (overall job crafting and its dimensions). Other studies have employed longitudinal designs to test causal pathways from work engagement to job crafting (e.g., Dubbelt, Demerouti, & Rispens, 2019; Hakanen, Peeters. & Schaufeli, 2017; Lu, Wang, Lu, Du, & Bakker, 2014), job crafting to work engagement (Petrou et al., 2012), and a reciprocal pathway (e.g., Harju, Hakanen, & Schaufeli, 2016; Vogt, Hakanen, Braucheli, Jenny, & Bauer, 2016). Further, results for the work engagement-job crafting relationship have differed depending on occupational group, nationality of the sample, and whether job crafting and
work engagement were assessed with their comprehensive measures or with specific subscales of the measures.

When testing work engagement as a predictor of job crafting in a two-wave study on Finnish dentists, Hakanen et al. (2017) found that work engagement significantly predicted all three dimensions of job crafting. Dentists who scored high on work engagement were more likely to job craft through increasing resources (specifically broken down into structural resources and social resources in the study), increasing challenge demands, and decreasing hindering demands. Lu et al. (2014) supported these findings in a Chinese sample of technology employees using a two-wave longitudinal design. However, this study only measured physical job crafting and relational job crafting. In a prospective study using a Dutch sample from a healthcare organization, Zeijen, Peeters, and Hakanen (2018) found that work engagement predicted seeking resources and seeking challenges but did not test of reducing demands. Thus, the unidirectional causal pathway from work engagement to job crafting is generally supported in the literature, but more studies are needed that use more comprehensive measures of job crafting.

There are fewer studies that have tested the opposite causal relationship from job crafting to work engagement as most studies that hypothesize job crafting leading to engagement use cross-sectional designs. This opposite pathway is supported by Petrou et al.’s (2012) daily diary study in which Dutch participants from various organizations completed diary booklet entry for five consecutive days as well as general questionnaires. Participants had to respond to work engagement and job crafting (using subdimensions of
seeking resources, seeking challenges, and reducing demands) measures at the day-level and the general-level. Results indicated that the all three day-level subdimensions of job crafting significantly predicted day-level work engagement over time. Specifically, seeking resources and seeking challenges had a positive relationship with work engagement, and reducing demands had a negative relationship such that as employees reported greater engagement as they reduced more job demands at work (Petrou et al., 2012). However, Bakker et al. (2012) reported mixed results for the job crafting subdimensions predicting work engagement. They found that seeking social and structural job resources as well as seeking challenge job demands predicted work engagement, but reducing hindrance demands was not related to work engagement. The authors acknowledged that their cross-sectional design prevents causal inferences; however, they suggest that the “idea of this study implies a causal chain” (Bakker et al., 2012, p. 84). Despite limitations of their design, Bakker et al.’s (2012) study highlights conflicts in the literature about the relationship between job crafting and work engagement.

Even fewer studies have specifically tested for a reciprocal causal relationship between work engagement and job crafting. Vogt et al. (2016) claimed that they were the first to systematically test reverse causal relationships between these variables. They conducted a three-wave, three-month panel design to examine the relationships between job crafting, work engagement, and psychological capital over time. The sample consisted of participants from Germany, Austria, and Switzerland from a broad range of occupations (i.e., education, healthcare, production of goods). Although Vogt et al.
(2016) found that job crafting predicted work engagement over time, they did not find a reverse causation effect of work engagement predicting job crafting. These results are especially interesting given that there is substantially more evidence in the literature supporting that work engagement predicts job crafting (e.g., Hakanen et al., 2017; Lu et al., 2014) than the reverse effect.

Harju et al. (2016) also tested reverse causation effects of work engagement and job crafting, albeit not longer after Vogt et al.’s (2016) study. Harju et al. (2016) used a two-wave, three-year cross-lagged panel design to study the effects of job boredom and work engagement on job crafting in Finnish participants from various organizations. The authors specifically looked at the subdimensions of job crafting (increasing structural resources, increasing social resources, and increasing challenges) but did not include reducing challenges. The study found mixed results that overall did not support reverse causation effects. Work engagement at time 1 predicted increasing structural resources and increasing social resources at time 2; however, increasing structural resources and increasing social resources at time 1 did not predict work engagement at time 2. Contrarily, work engagement at time 1 did not predict increasing challenges at time 2, but increasing challenges at time 1 predicted work engagement at time 2. Harju et al. (2016) suggested that their inconsistent results may be due to the three-year time lag being too long and highlighted the need for similar models to be tested using shorter time lags.

Examining the results of cross-sectional, meta-analytic, and longitudinal studies emphasizes the inconsistencies in the literature about the nature of the relationship between work engagement and job crafting. One goal of my study is to address this gap
in the literature by providing clarity on the job crafting-work engagement relationship. Given the support for unidirectional causal pathways from both work engagement to job crafting and job crafting to engagement and need for testing the bidirectional relationship using a shorter time lag (e.g., Harju et al., 2016), I tested for reverse causation effects of work engagement and job crafting. I also used a comprehensive measure of job crafting that includes Petrou’s (2012) three subdimensions (seeking resources, seeking challenges, and reducing demands) in order to capture a more holistic view of the construct.

Hypothesis 2a and Hypothesis 2b predict that work engagement will increase job crafting over time. Hypothesis 3a and Hypothesis 3b predict that job crafting will increase work engagement over time.

*H2a:* Higher reports of work engagement at T1 will predict increased job crafting at T2.

*H2b:* Higher reports of work engagement at T2 will predict increased job crafting at T3.

*H3a:* Higher reports of job crafting at T1 will predict increased work engagement at T2.

*H3b:* Higher reports of job crafting at T2 will predict increased work engagement at T3.

**Job crafting and other outcomes**

Job crafting has been found to relate to various other positive outcomes in the workplace. A meta-analysis by Rudolph et al. (2017) examined how job crafting related to individual differences, job characteristics, and work outcomes. Regarding work outcomes, they found that job crafting is positively related to job satisfaction, self- and other-rated work performance, and contextual performance. The authors also suggested that job crafting increases employees’ perceptions of person-job fit which improves overall wellbeing. Kim, Im, Qu, and NamKoong (2017) supported these findings. They
also found that person-organization fit had a significantly positive association with job crafting which was also positively related to employee job satisfaction.

Job crafting also predicts positive outcomes outside of the work context (Akkermans & Tims, 2017; Rastogi & Chardhary, 2018). Akkermans and Tims (2017) found that job crafting mediated the relationship between career competencies and work-family enrichment. Rastogi and Chardhary (2018) also found that job crafting was associated with improved family outcomes such as work-family enrichment both directly for increasing structural job resources and indirectly through work engagement for all four subdimensions of job crafting (increasing structural job resources, increasing social job resources, increasing challenging job demands, and decreasing hindering job demands).

**Job crafting and job resources.** Based on Tims et al.’s (2012) description of job crafting, job crafting is a way for employees to increase their structural and social job resources. Three-factor models of job crafting also support this proposition by combining structural and social job resources into the “seeking resources” factor (Petrou et al., 2012). Even though, by definition, job crafting should lead to more job resources, limited research has specifically tested models that confirm this assertion. Tims, Bakker, and Derks (2013) found support that job crafting through seeking structural and social job resources increased actual structural job resources (i.e., autonomy, variety, and opportunities for development) and social job resources (i.e., social support, feedback, and coaching) over a two month time period. Thus, I tested for job crafting to complete the feedback loop based on the JD-R framework such that job crafting will predict work-
related support resources. Hypothesis 4a and Hypothesis 4b predicted that job crafting will increase work-related support resources over time.

**H4a:** Higher reports of job crafting at T1 will predict increased work-related support resources at T2.

**H4b:** Higher reports of job crafting at T2 will predict increased work-related support resources at T3.

Additionally, I hypothesized that the autoregression paths for each variable will be statistically significant. Thus, Hypothesis 5a, 5b, and 5c predicted that the variables will predict themselves over time.

**H5a:** Work-related support resources at T1 will predict increased work-related support resources at T2, and work-related support resources at T2 will predict increased work-related support resources at T3.

**H5b:** Work engagement at T1 will predict increased work engagement at T2, and work engagement at T2 will predict increased work engagement at T3.

**H5c:** Job crafting at T1 will predict increased job crafting at T2, and work engagement at T2 will predict increased work engagement at T3.
CHAPTER FIVE

HYPOTHESES

Hypotheses

Based on the review of the literature, I proposed the following hypotheses to be found across a three-wave data collection:

$H1a$: Higher reports of work-related support resources at T1 will predict increased work engagement at T2.

$H1b$: Higher reports of work-related support resources at T2 will predict increased work engagement at T3.

$H2a$: Higher reports of work engagement at T1 will predict increased job crafting at T2.

$H2b$: Higher reports of work engagement at T2 will predict increased job crafting at T3.

$H3a$: Higher reports of job crafting at T1 will predict increased work engagement at T2.

$H3b$: Higher reports of job crafting at T2 will predict increased work engagement at T3.

$H4a$: Higher reports of job crafting at T1 will predict increased work-related support resources at T2.

$H4b$: Higher reports of job crafting at T2 will predict increased work-related support resources at T3.

$H5a$: Work-related support resources at T1 will predict increased work-related support resources at T2, and work-related support resources at T2 will predict increased work-related support resources at T3.

$H5b$: Work engagement at T1 will predict increased work engagement at T2, and work engagement at T2 will predict increased work engagement at T3.
$H5c$: Job crafting at T1 will predict increased job crafting at T2, and work engagement at T2 will predict increased work engagement at T3.
CHAPTER SIX

METHOD

Participants and procedure

The data for this study were collected in three waves, each six weeks apart, from a larger survey administered through Amazon’s Mechanical Turk (MTurk). MTurk has increasingly been used as a data collection tool to recruit participants that are more diverse and representative than the undergraduate populations typically used for research in the social sciences (Buhrmester, Talaifer, & Gosling, 2018; Casler, Bickel, & Hackett, 2013). Research supports that MTurk workers generally reflect labor characteristics that are representative of the labor market (Michel, O’Neill, Hartman, & Lorys, 2017). Additionally, recent reviews of research using MTurk find that the data is valid and reliable (Kees, Berry, Burton, & Sheehan, 2017; Sheehan, 2018).

The survey for this study was posted to MTurk and available to all US MTurk members. Participants were rewarded $4 for the completion of each survey. If the MTurk members completed the survey and passed all attention checks, they were sent a follow up survey six weeks later. An example of an attention check item was “Please respond ‘neutral’ to this question.” If participants did not respond to the attention check correctly, they were excluded from analyses due to being careless responders. To be included in the final sample for analyses, participants had to complete the surveys at all three timepoints and pass all attention checks. A total of 353 participants completed all three waves of the study and passed the required attention checks. The participants were on average 37.88 years of age ($SD = 11.34$) with 53.3.% males, 46.5% females, and .2% prefer not to say. Most of the participants were employed full-time (87.3%) and represented all of the
occupations from the O*Net standard occupational job classification categories. The highest frequencies were in the fields of computer and mathematical occupations (13.9%), sales and related occupations (13.6%), business and financial operations (9.7%), management (8.9%), office and administrative support (8.4%), and education, training and library (7.2%). The sample was relatively educated as 9.7% had an Associate’s degree, 42.3% had a Bachelor’s degree, 6.7% had a Master’s degree, and 2.5% had a doctoral degree.

**Measures**

This section describes the measures used in this study (see Appendices A to E for the full list of items). The same measures were used at Time 1, Time 2, and Time 3.

**Resources.** Work-related support resources were measured by three types of work-related social support: perceived organizational support, manager support, and coworker support. *Perceived organization support* was measured with a 4-item shortened version of a scale by Eisenberger et al., (1986). The Cronbach’s alpha for this measure was .84 at time 1, .88 at time 2, and .89 at time 3. An example item included, “My organization really cares about my well-being.” Respondents rated the items on a 7-point scale ranging from (1) “strongly disagree” to (7) “strongly agree”. Participants with higher scores were considered to perceive greater organizational support.

*Manager support* was measured with a 4-item shortened version of a scale adapted from Eisenberger et al., (1986). The Cronbach’s alpha for this measure was .87 at time 1, .89 at time 2, and .90 at time 3. An example item included, “My manager strongly considers my goals and values.” Respondents rated the items on a 7-point scale ranging
from (1) “strongly disagree” to (7) “strongly agree”. Participants with higher scores were considered to perceive greater manager support.

Coworker support was measured with a 4-item shortened version of a scale adapted from Eisenberger et al., (1986). The Cronbach’s alpha for this measure was .82 at time 1, .83 at time 2, and .88 at time 3. An example item included, “My coworkers care about my opinion.” Respondents rated the items on a 7-point scale ranging from (1) “strongly disagree” to (7) “strongly agree”. Participants with higher scores were considered to perceive greater manager support.

Work Engagement. Work engagement was measured with the 9-item Utrecht Work Engagement Scale (Schaufeli, Bakker, & Salanoya, 2006). The Cronbach’s alpha for this measure was .95 at time 1, .95 at time 2, and .95 at time 3. This measure includes three subscales: vigor, dedication, and absorption. An example item for vigor included, “When I get up in the morning, I feel like going to work.” A sample item for dedication was “I am proud of the work that I do.” A sample item for absorption was “I am immersed in my work.” Participants responded on a 7-point scale from (1) “strongly disagree” to (7) “strongly agree”. Respondents with higher scores were considered to be more engaged in their work.

Job Crafting. Job crafting was measured with the 13-item shortened-Job Crafting Scale by Petrou et al. (2012). The Cronbach’s alpha for this measure was .83 at time 1, .85 at time 2, and .85 at time 3. This job crafting measure includes three subscales of seeking resources, seeking challenges, and reducing demands. An example item for seeking resources is “I try to learn new things at work”. An example item for seeking
challenges is “I ask for more tasks if I finish my work’, and an example item for reducing demands is “I try to ensure that my work is emotionally less intense.” Respondents rated the items on a 7-point scale ranging from (1) “strongly disagree” to (7) “strongly agree”. Higher scores reflected more involvement in job crafting behaviors.

Petrou et al. (2012) found the three-factor structure of the shortened job crafting scale fit better than a two-factor structure that collapsed seeking resources and seeking challenges into one factor or a one-factor structure. They also found reasonable Cronbach’s alphas for the subscales (seeking resources, $\alpha = .70$; seeking challenges, $\alpha = .76$; reducing demands, $\alpha = .69$), albeit marginal for the reducing demands subscale. Despite the just below satisfactory Cronbach’s alpha found in the development of the shortened job crafting measure (Petrou et al., 2012), other studies have found satisfactory levels of internal consistency for all three subscales. For example, van den Heuvel et al. (2015) conducted a two-wave study using the shortened job crafting scale by Petrou et al. (2012). They found that the seeking resources subscale had a Cronbach’s alpha of .75 at T1 and .78 at T2, the seeking challenges subscale had a Cronbach’s alpha of .76 at T1 and .78 at T2, and the reducing demands subscale had a Cronbach’s alpha of .82 at T1 and .79 at T2.

**Data analysis**

Any participant who did not complete the survey at all three timepoints or did not pass all attention checks was removed prior to analyzing the data. Additionally, I checked for any obvious cases of careless responding or outliers and removed them from the dataset as necessary. Then, I reverse coded negatively worded items when applicable and
calculated the Cronbach’s alpha values for each scale. Means, standard deviations, and correlations between the variables are reported in Table 1. The internal consistencies are also included in the table. As a preliminary step, I performed confirmatory factor analyses (CFAs) to ensure each measure maintained their proposed factor structure and that the measurement model can distinguish work-related support resources, work engagement, and job crafting.
CHAPTER SEVEN

RESULTS

Confirmatory Factor Analyses

A series of CFAs were conducted using the lavaan package in R to examine the extent to which the measures used in this study fit structures established in the literature. Perceived organizational support is expected to obtain a one-factor structure at all three timepoints. Perceived supervisor support is expected to obtain a one-factor structure at all three timepoints. Perceived coworker support is expected obtain support a one-factor structure at all three timepoints. Work engagement is obtain to support a three-factor structure for the subscales of vigor, dedication, and absorption at all three timepoints. Lastly, job crafting is expected to obtain a three-factor structure for subscales of seeking resources, seeking challenges, and reducing demands at all three timepoints. In addition to CFAs for the individual measures at each time point, the CFA results for all three latent variables at each time point are reported below.

Perceived Organizational Support Time 1. The one-factor structure for perceived organizational support at Time 1 was supported by the data. Fit indices for the one-factor model revealed a statistically significantly chi square test, $\chi^2(2) = 8.65, p = .014$ as well as $\text{CFI} = .99$, $\text{RMSEA} = .010$, $\text{SRMR} = .02$, and $\text{BIC} = 4558.20$. Despite the RMSEA value being slightly higher than the recommended .08 cutoff (e.g., Hu & Bentler, 1999), the values taken together suggest the model is of adequate to good fit.

Perceived Organizational Support Time 2. The one-factor structure for perceived organizational support at Time 2 was supported by the data. Fit indices for the
one-factor model revealed a statistically significantly chi square test, $\chi^2(2) = 8.50, p = .014$ as well as CFI = .99, RMSEA = .10, SRMR = .02, and BIC = 4519.75. Despite the RMSEA value being slightly higher than the recommended .08 cutoff (e.g., Hu & Bentler, 1999), the values taken together suggest the model is of adequate to good fit.

**Perceived Organizational Support Time 3.** The one-factor structure for perceived organizational support at Time 3 was supported by the data. Fit indices for the one-factor model revealed a statistically significantly chi square test, $\chi^2(2) = 21.22, p < .001$ as well as CFI = .98, RMSEA = .17, SRMR = .03, and BIC = 4585.15. Despite the RMSEA value being slightly higher than the recommended .08 cutoff (e.g., Hu & Bentler, 1999), the values taken together suggest the model is of adequate to good fit.

**Perceived Supervisor Support Time 1.** The one-factor structure for perceived supervisor support at Time 1 was overall supported by the data. Fit indices for the one-factor model revealed an insignificant chi square test, $\chi^2(2) = 4.02, p = .134$. However, other fit indices suggested good fit, CFI = .99, RMSEA = .05, SRMR = .01, BIC = 4245.95. Thus, the perceived supervisor support measure at Time 1 was deemed to have adequate fit.

**Perceived Supervisor Support Time 2.** The one-factor structure for perceived supervisor support at Time 2 was supported by the data. Fit indices for the one-factor model revealed a statistically significantly chi square test, $\chi^2(2) = 14.25, p = .001$ as well as CFI = .99, RMSEA = .13, SRMR = .02, and BIC = 4321.15. Despite the RMSEA value being slightly higher than the recommended .08 cutoff (e.g., Hu & Bentler, 1999), the values taken together suggest the model is of adequate to good fit.
**Perceived Supervisor Support Time 3.** The one-factor structure for perceived supervisor support at Time 3 was supported by the data. Fit indices for the one-factor model revealed a statistically significantly chi square test, $\chi^2(2) = 8.39, p = .015$ as well as CFI = .99, RMSEA = .1, SRMR = .01, and BIC = 4315.73. Despite the RMSEA value being slightly higher than the recommended .08 cutoff (e.g., Hu & Bentler, 1999), the values taken together suggest the model is of adequate to good fit.

**Perceived Coworker Support Time 1.** The one-factor structure for perceived coworker support at Time 1 was supported by the data. Fit indices for the one-factor model revealed a statistically significantly chi square test, $\chi^2(2) = 18.03, p < .001$ as well as CFI = .98, RMSEA = .15, SRMR = .03, and BIC = 4415.57. Despite the RMSEA value being higher than the recommended .08 cutoff (e.g., Hu & Bentler, 1999), the values taken together suggest the model is of adequate to good fit.

**Perceived Coworker Support Time 2.** The one-factor structure for perceived coworker support at Time 2 was supported by the data. Fit indices for the one-factor model revealed a statistically significantly chi square test, $\chi^2(2) = 9.60, p = .008$ as well as CFI = .99, RMSEA = .10, SRMR = .02, and BIC = 4374.28. Despite the RMSEA value being slightly higher than the recommended .08 cutoff (e.g., Hu & Bentler, 1999), the values taken together suggest the model is of adequate to good fit.

**Perceived Coworker Support Time 3.** The one-factor structure for perceived coworker support at Time 3 was supported by the data. Fit indices for the one-factor model revealed a statistically significantly chi square test, $\chi^2(2) = 7.78, p = .02$ as well as CFI = .99, RMSEA = .09, SRMR = .02, and BIC = 4338.00. Despite the RMSEA value
being slightly higher than the recommended .08 cutoff (e.g., Hu & Bentler, 1999), the values taken together suggest the model is of adequate to good fit.

**Work Engagement Time 1.** The three-factor structure for work engagement at Time 1 was supported by the data. Fit indices for the three-factor model revealed a statistically significantly chi square test, $\chi^2(24) = 184.03, p < .001$ as well as CFI = .95, RMSEA = .14, SRMR = .04, and BIC = 9569.10. Despite the RMSEA value being slightly higher than the recommended .08 cutoff (e.g., Hu & Bentler, 1999), the values taken together suggest the model is of adequate to good fit.

**Work Engagement Time 2.** The three-factor structure for work engagement at Time 2 was supported by the data. Fit indices for the three-factor model revealed a statistically significantly chi square test, $\chi^2(24) = 149.40, p < .001$ as well as CFI = .96, RMSEA = .12, SRMR = .04, and BIC = 9996.75. Despite the RMSEA value being slightly higher than the recommended .08 cutoff (e.g., Hu & Bentler, 1999), the values taken together suggest the model is of adequate to good fit.

**Work Engagement Time 3.** The three-factor structure for work engagement at Time 3 was supported by the data. Fit indices for the three-factor model revealed a statistically significantly chi square test, $\chi^2(24) = 142.88, p < .001$ as well as CFI = .96, RMSEA = .12, SRMR = .04, and BIC = 9829.89. Despite the RMSEA value being higher than the recommended .08 cutoff (e.g., Hu & Bentler, 1999), the values taken together suggest the model is of adequate to good fit.

**Job Crafting Time 1.** The three-factor structure for job crafting at Time 1 was supported by the data. Fit indices for the three-factor model revealed a statistically
significantly chi square test, $\chi^2(62) = 187.27$, $p < .001$ as well as $\text{CFI} = .95$, $\text{RMSEA} = .08$, $\text{SRMR} = .05$, and $\text{BIC} = 15007.89$. The fit indices suggest the three-factor model for job crafting at Time 1 is a good fit for the data.

**Job Crafting Time 2.** The three-factor structure for job crafting at Time 2 was supported by the data. Fit indices for the three-factor model revealed a statistically significantly chi square test, $\chi^2(62) = 177.49$, $p < .001$ as well as $\text{CFI} = .96$, $\text{RMSEA} = .07$, $\text{SRMR} = .05$, and $\text{BIC} = 15121.31$. The fit indices suggest the three-factor model for job crafting at Time 2 is a good fit for the data.

**Job Crafting Time 3.** The three-factor structure for job crafting at Time 3 was supported by the data. Fit indices for the three-factor model revealed a statistically significantly chi square test, $\chi^2(62) = 189.29$, $p < .001$ as well as $\text{CFI} = .96$, $\text{RMSEA} = .08$, $\text{SRMR} = .05$, and $\text{BIC} = 14936.03$. The fit indices suggest the three-factor model for job crafting at Time 3 is a good fit for the data.

**Measurement Model Time 1.** The structure for all three latent variables at Time 1 was supported by the data. Fit indices for the model revealed a statistically significantly chi square test, $\chi^2(24) = 82.85$, $p < .001$ as well as $\text{CFI} = .97$, $\text{RMSEA} = .08$, $\text{SRMR} = .05$, and $\text{BIC} = 9339.32$. Despite the RMSEA value being slightly higher than the recommended .08 cutoff (e.g., Hu & Bentler, 1999), the values taken together suggest the model is of adequate to good fit.

**Measurement Model Time 2.** The structure for all three latent variables at Time 2 was supported by the data. Fit indices for the model revealed a statistically significantly chi square test, $\chi^2(24) = 89.67$, $p < .001$ as well as $\text{CFI} = .97$, $\text{RMSEA} = .09$, $\text{SRMR} = ...
.05, and BIC = 9501.03. Despite the RMSEA value being slightly higher than the recommended .08 cutoff (e.g., Hu & Bentler, 1999), the values taken together suggest the model is of adequate to good fit.

**Measurement Model Time 3.** The structure for all three latent variables at Time 3 was supported by the data. Fit indices for the model revealed a statistically significantly chi square test, $\chi^2(24) = 123.84, p < .001$ as well as CFI = .95, RMSEA = .11, SRMR = .05, and BIC = 9701.47. Despite the RMSEA value being slightly higher than the recommended .08 cutoff (e.g., Hu & Bentler, 1999), the values taken together suggest the model is of adequate to good fit.

**Correlations**

Prior to testing the structural equation models, I examined the correlations among the variables. The work-related support resource variable was calculated by the average of the three mean scale scores for the perceived organizational support, perceived supervisor support, and perceived coworker support measures. As expected, the work-related support resource variable and its submeasures (perceived organizational support, perceived supervisor support, and perceived coworker support) were strongly correlated with one another at all three timepoints ($r = .62 - .95, p < .01$). The work-related support resource variable at all three timepoints, as well as its submeasures, had significant positive correlations with work engagement at all three timepoints ($r = .50 - .73, p < .01$), the work engagement subscales at all three timepoints (vigor [$r = .48 - .68, p < .01$], dedication [$r = .49 - .74, p < .01$], and absorption [$r = .44 - .65, p < .01$]), the overall job crafting measure at all three timepoints ($r = .29 - .47, p < .01$) and two of its subscales
(seeking resources \[r = .38 - .55, p < .01\] and seeking challenges \[r = .17 - .35, p < .01\])
at all three timepoints. Overall, the work-related support resource variable and its
submeasures did not have significant correlations with the reducing demands subscale of
the job crafting measure. The only two significant relationships were between the work-
related support resources variable at T2 and the reducing demands subscale at T1 \(r = -
.12, p < .05\) and the perceived supervisor support submeasure at T2 and the reducing
demands subscale at T1 \(r = -.12, p < .05\).

Work engagement and its subscales (vigor, dedication, and absorption) were also
strongly correlated with one another at all three timepoints as expected \(r = .62 - .96, p <
.01\). The work engagement measure at all three timepoints as well as its subscales had
significant positive correlations with the work-related support resources variable at all
three timepoints \(r = .50 - .73, p < .01\), its submeasures (perceived organizational support
\[r = .50 - .72, p < .01\], perceived supervisor support \[r = .46 - .70, p < .01\], and perceived
coworker support \[r = .43 - .64, p < .01\]) at all three timepoints, the overall job crafting
measure at all three timepoints \(r = .29 - .44, p < .01\), and two of the job crafting
subscales (seeking resources \[r = .36 - .47, p < .01\] and seeking challenges \[r = .31 - .42,
p < .01\]) at all three timepoints. There were mixed results for the correlations with the
reducing demands subscale of job crafting; however, most of the relationships were not
significant. It is important to note that the significant relationships with the reducing
demands subscale were negative and small correlations and only found with the reducing
demands subscale at T1. Significant correlations were found with the reducing demands
subscales at T1 with the work engagement scale at all three timepoints \(r = -.12 - -.14, p <
.05), the vigor subscale at all three timepoints ($r = -.11 - -.13, p < .05$), the absorption subscale at all three timepoints ($r = -.12 - -.17, p < .05$), and the dedication subscale at T2 ($r = -.11, p < .05$) and T3 ($r = -.13, p < .05$). All of the correlations with the reducing demands subscale at T2 and T3 were insignificant.

Contrary to the other two variables and their submeasures/subscales, the overall job crafting measure had relatively weaker relationship with its subscales as well as some not significant correlations with the reducing demands subscale. Given the wide range of correlation coefficient values (e.g., $r = -.11 - .84$) with some significant and others not, I will specifically address the correlations for the overall measure and the subscales. The overall job crafting measure had significant positive correlations with the seeking resources subscale at all three timepoints ($r = .58 - .86, p < .01$), the seeking challenges subscale at all three timepoints ($r = .50 - .72, p < .01$), and the reducing demands subscale at all three timepoints ($r = .29 - .54, p < .01$). The correlation coefficients between the overall job crafting measure and the reducing demands subscale were notably weaker than the relationships with the other two subscales. The seeking resources subscale at all three timepoints was significantly related to the seeking challenges subscale at all three timepoints ($r = .41 - .55, p < .01$) but not to the reducing demands subscale at all three timepoints.

As previously noted, the overall job crafting measure at all three timepoints and its seeking resources and seeking challenges subscales at all three timepoints have significant, positive relationships with the work-related support resource variable at all three timepoints ($r = .29 - .47, p < .01$), work-related support submeasures at all three
timepoints (perceived organizational support \( r = .29 - .48, p < .01 \), perceived supervisor support \( r = .22 - .52, p < .01 \), perceived coworker support \( r = .22 - .55, p < .01 \), work engagement at all three timepoints \( r = .29 - .44, p < .01 \), and the work engagement subscales at all three timepoints (vigor \( r = .31 - .44, p < .01 \), dedication \( r = .32 - .51, p < .01 \), and absorption \( r = .34 - .48, p < .01 \)). For the reducing demands subscale, there were only significant (yet negative and small) correlations at T1 with the work engagement scale at all three timepoints \( r = -.12 - -.14, p < .05 \), the vigor subscale at all three timepoints \( r = -.11 - -.13, p < .05 \), the absorption subscale at all three timepoints \( r = -.12 - -.17, p < .05 \), and the dedication subscale at T2 \( r = -.11, p < .05 \) and T3 \( r = -.13, p < .05 \). All of the correlations with the work-related support resources variable, its submeasures, the work engagement measure, and its subscales with the reducing demands subscale at T2 and T3 were insignificant.

Overall, the correlations among the variables were consistent with the hypotheses. Work-related support resources were positively correlated with work engagement over time. Work engagement was positively correlated with job crafting over time. Lastly, job crafting was positively correlated with work-related support resources and work engagement over time. However, due to the interrelationships between the variables, I tested the full system of hypothesized relationships using structural equation modeling.

**Structural Equation Modeling**

Structural equation modeling (SEM) was used to test the hypothesized effects via cross-lagged path analysis as well as several alternative models to determine that best fit model for the data. The mean scores of each scale or subscale were used as indicators to
create latent variables for job resources, work engagement, and job crafting at all three
time points. Thus, job resources were indicated by three work-related social support
scales (perceived organizational support, perceived supervisor support, and perceived
coworker support). Work engagement was indicated by its three sub-dimensions (vigor,
dedication, and absorption), and job crafting was indicated by its three sub-dimensions
(seeking resources, seeking challenges, and reducing demands). The paths from the
predictor to the mediators and from the mediator to the outcome variable would be
multiplied to calculate indirect effects.

The lavaan package in R was used to analyze the data. Global fit testing (e.g.,
examining approximate fit indices) and local fit testing (e.g., examining residual
covariance matrices) were conducted to evaluate model fit. According to the cut-off
criteria for fit indices posited by Hu and Bentler (1999), I considered the model to be of
good fit if the Comparative Fit Index (CFI) was close to .95, the standardized root mean
square residual (SRMR) was less than .08, and the root mean square error of
approximation (RMSEA) was less than .06.

**Model Testing.** The measurement model indicated good fit, $\chi^2(261) = 490.68, p <
.001$, CFI = .98, RMSEA = .05, SRMR = .07, and BIC = 25171.10. Thus, I first tested the
hypothesized model shown in Figure 1. The model fit was good, $\chi^2(274) = 604.85, p <
.001$, CFI = .97, RMSEA = .06, SRMR = .07, and BIC = 25029.23. Despite the SRMR
value being slightly higher than the recommended .06 cutoff (e.g., Hu & Bentler, 1999),
the values taken together suggest the model is of adequate to good fit. However, the
autoregressive paths were the only significant paths except for the path from work
engagement at T1 to job crafting at T2 \( (b = .19, SE = .10, p = .049) \); none of the other hypothesized paths were significant at \( p < .05 \). The autoregressive paths from work-related support resources at T1 to T2 and from work-related support resources at T2 to T3 were significant \( (b = 1.90, SE = .15, p < .001; b = .95, SE = .08, p < .001, \) respectively). The autoregressive paths from work engagement at T1 to T2 and from work engagement at T2 to T3 were significant \( (b = 2.00, SE = .17, p < .001; b = .88, SE = .07, p < .001, \) respectively). The autoregressive paths from job crafting at T1 to T2 and job crafting at T2 to T3 were significant \( (b = 1.45, SE = .19, p < .001; b = 1.03, SE = .15, p < .001, \) respectively). Because the direct effect paths from the predictors to the mediators and the mediators to the outcomes across time were not significant, it was not necessary to calculate indirect effects as they would have also been insignificant. The SEM results with the path estimates and standard errors are summarized in Figure 2.

Second, per best practices for structural equation modeling, the hypothesized model was compared to plausible nested alternative models that are either more or less constrained and proposed \textit{a priori} (Anderson & Gerbing, 1988). The alternative models are outlined below. As shown in Table 2, all of the alternative models fit the data well; however, tests of the chi square difference indicated that none of the alternative models fit the data significantly better than the hypothesized model.

The first alternative model tested the null model (Figure 3). The null model suggested that all three latent variables remained stable over time and only included the autoregressive paths for each variable. Alternative model 2 (Figure 4) represented the basic JD-R model. This model tested the longitudinal mediation effects of work
engagement on the work-related support sources and job crafting relationship. Thus, paths were added to the null model from work-related support resources at T1 to work engagement at T2 and from work engagement at T2 to job crafting at T3. The third alternative model (Figure 5) extended the predictive nature of the relationships in the basic JD-R model). Therefore, paths were added to alternative model 2 from work engagement at T1 to job crafting at T2 and from work-related support resources at T2 to work engagement at T3.

Alternative model 4 tested for the complete feedback loop of job crafting in the JD-R model (Figure 6). Paths were added from job crafting at T1 to work-related support resources at T2 and job crafting at T2 to work-related support resources at T3. It is also important to note the only difference in the hypothesized model and alternative model 4 is that alternative model 4 does not include the reverse causal paths between work engagement and job crafting. Given the conflict in the literature about the directionality relationship between work engagement and job crafting, it was logical to test the non-reciprocal model as an alternative. This model was compared to the hypothesized model to test if the data better fit a bidirectional relationship between work engagement and job crafting or a unidirectional relationship in which work engagement predicts job crafting only.

Alternative model 5 (Figure 7) challenged the basic framework of the JD-R model that proposes the relationship between job resources and work outcomes (i.e., job crafting in this study) is mediated by work engagement (Schaufeli & Bakker, 2004). However, it was reasonable to consider an alternative model in which there are both direct and
indirect paths from job resources to job crafting (e.g., Schaufeli & Taris, 2014). Thus, alternative model 5 added direct paths from job resources at T1 and T2 to job crafting at T2 and T3, respectively.

Additionally, the traditional JD-R model framework only includes a unidirectional relationship going from job resources to work engagement (Schaufeli & Bakker, 2004; Schaufeli & Taris, 2014). A few studies have suggested though that the job resources-work engagement relationship may also be reciprocal (Xanthopolou et al., 2009). Alternative model 6 (Figure 8) tested for a reciprocal relationship between job resources and work engagement by adding paths from work engagement at T1 and T2 to job resources at T2 and T3, respectively. This model was the saturated model.

In addition to the original hypothesized model and six alternative models that included the full job crafting scale by using the three job crafting subscales (seeking resources, seeking challenges, and reducing demands), I conducted another set of analyses to test the models only including the seeking resources subscale of job crafting. Although one goal of this study was to provide a comprehensive understanding of job crafting, previous research supports that the seeking resources subscale may be the most relevant subscale when examined with job resources and work engagement (e.g., Bakker at al., 2012). Similar to the original models, job resources were indicated by three work-related social support scales (perceived organizational support, perceived supervisor support, and perceived coworker support), and work engagement was indicated by its three sub-dimensions (vigor, dedication, and absorption). However, job crafting was indicated by the items of the seeking resources subscale. The models for the seeking
resources subscale followed the same patterns as the original hypothesized model and original six alternative models. Thus, going forward, the hypothesized model for the full job crafting scale will be referred as the original hypothesized model, and the equivalent model with only the seeking resources subscale items for job crafting will be referred to as the seeking resources hypothesized model. The alternative models for the seeking resources analyses will continue in numerical ascension.

Similar to the steps taken for the original set of models, I tested the measurement model and found the model to be of good fit, $\chi^2(522) = 1155.72, p < .001$, CFI = .95, RMSEA = .06, SRMR = .06, and BIC = 35056.81. Then, I tested the seeking resources hypothesized model shown in Figure 9. The model was an overall good fit, $\chi^2(543) = 1291.49, p < .001$, CFI = .94, RMSEA = .06, SRMR = .07, and BIC = 35069.74. Despite the CFI value being slightly lower than the recommended .95 cutoff and the SRMR value being slightly higher than the recommended .06 cutoff (e.g., Hu & Bentler, 1999), the values taken together suggest the model is of adequate to good fit. The SEM results with the path estimates and standard errors for the seeking resources only hypothesized model are summarized in Figure 10.

For the seeking resources hypothesized model, the autoregressive paths were statistically significant as well as three of the other hypothesized paths. The autoregressive paths from work-related support resources at T1 to T2 and from work-related support resources at T2 to T3 were significant ($b = 1.92, SE = .15, p < .001$; $b = .96, SE = .08, p < .001$, respectively). The autoregressive paths from work engagement at T1 to T2 and from work engagement at T2 to T3 were significant ($b = 2.01, SE = .17, p <
The autoregressive paths from job crafting (seeking resources subscale only) at T1 to T2 and job crafting (seeking resources subscale only) at T2 to T3 were significant \((b = 1.28, SE = .12, p < .001; b = .90, SE = .08, p < .001, \text{respectively})\). Additionally, the paths from work engagement at T1 to job crafting (seeking resource subscale only) at T2 \((b = .23, SE = .08, p = .003)\), job crafting (seeking resources subscale only) at T2 to work engagement at T3 \((b = -.10, SE = .05, p = .037)\), and work-related support resources at T2 to work engagement at T3 \((b = .10, SE = .05, p = .041)\).

Second, as with the original set of models, six alternative models that included only the seeking resources subscale of the job crafting measure were compared to the seeking resources hypothesized model. The seeking resources alternative models followed the same progression of added paths as the original set of alternative models. Thus, alternative model 7 (Figure 11) was the seeking resources null model that only includes the autoregressive paths for all three latent variables. Alternative model 8 (Figure 12) tested the basic JD-R model with added paths from work-related support resources at T1 to work engagement at T2 and from work engagement at T2 to job crafting (seeking resources only) at T3. The full JD-R model was tested with alternative model 9 (Figure 13) by adding paths from work engagement at T1 to job crafting (seeking resources only) at T2 and from work-related support resources at T2 to work engagement at T3. Alternative model 10 (Figure 14) included the completed feedback loop with paths added from job crafting (seeking resources only) at T1 and T2 to work-related support resources at T2 and T3, respectively; this model also tested the non-
reciprocal relationship between work engagement and job crafting (seeking resources only). Alternative model 11 (Figure 15) tested for the direct effects of work-related support resources on job crafting (seeking resources only) by adding paths from work-related support resources at T1 and T2 to job crafting (seeking resources only) at T2 and T3, respectively. Lastly, the saturated model with all possible paths was tested in alternative model 12 (Figure 16); paths were added from work engagement at T1 and T2 to work-related support resources at T2 and T3, respectively.

Table 3 shows that each of the seeking resources alternative models also fit the data well. The chi square difference test indicated that alternative model 9, $\chi^2(4) = 8.72$, $p = .004$, was the best fitting model as the data was a better fit for this model than the seeking resources hypothesized model and all other seeking resources alternative models. Thus, including the additional the four paths for the seeking resources hypothesized model did not significantly improve model fit. The SEM results with the path estimates and standard errors for the best fitting model, alternative model 9, are summarized in Figure 17. In alternative model 9, only the autoregressive paths and the path from work engagement at T1 to job crafting (seeking resources only) at T2 ($b = .23$, $SE = .07$, $p = .002$) were significant at $p < .05$. The autoregressive paths from work-related support resources at T1 to T2 and from work-related support resources at T2 to T3 were significant ($b = 1.87$, $SE = .14$, $p < .001$; $b = .98$, $SE = .08$, $p < .001$, respectively). The autoregressive paths from work engagement at T1 to T2 and from work engagement at T2 to T3 were significant ($b = 2.01$, $SE = .17$, $p < .001$; $b = .85$, $SE = .07$, $p < .001$, respectively). The autoregressive paths from job crafting (seeking resources only) at T1
to T2 and job crafting (seeking resources only) at T2 to T3 were significant ($b = 1.29$, $SE = .11$, $p < .001$; $b = .90$, $SE = .08$, $p < .001$, respectively).
CHAPTER SEVEN

DISCUSSION

Bakker and Demerouti (2017) called for research to continue to extend and improve the JD-R model. The JD-R model provides a broad framework to explain how the interaction of job demands and job resources influence organizational outcomes (Demerouti et al., 2001). Specifically focusing on the job resources path of the model, the JD-R model proposes that job resources initiate a motivation pathway in which work engagement mediates the relationship between job resources and work outcomes. Although the JD-R model has been extensively tested, Bakker and Demerouti (2017) emphasized the importance of researchers continuing to improve and expand the model. This thesis responded to their request by examining a relatively new outcome variable (e.g., job crafting) in the JD-R model. Additionally, this study employed a 3-wave longitudinal design to explore a potential feedback loop in the JD-R model and reverse causal relationships between work engagement and job crafting. To my knowledge, no research to date has explored these effects.

Discussion of findings

In the original hypothesized model, I expected to establish causal links for work engagement mediating the relationship between work-related support resources and job crafting behaviors. In addition, I expected the model with reverse causal effects between work engagement and job crafting to be a better fit model than one with a unidirectional relationship from work engagement to job crafting as well the cyclical effects of job crafting in the JD-R model. In other words, work-related support resources should have
predicted work engagement; work engagement should have predicted job crafting, and in

Although the data fit the original hypothesized model well, the hypothesized paths in the model were overall not supported. The six alternative models did not have a significantly better fit than the original hypothesized model per the chi square difference test. For the hypothesized model, only the autoregressive paths (Hypotheses 5a-5c) and one additional path were found to be significant (Hypothesis 2a). The paths predicted in Hypotheses 1a, 1b, 2b, 3a, 3b, 4a, and 4b were insignificant.

The first set of hypotheses predicted that higher reports of work-related support resources at T1 and T2 would increase work engagement at T2 and T3, respectively. Insignificant relationships were found for both T1 to T2 and T2 to T3. Thus, Hypotheses 1a and 1b were not supported in this study. The second set of hypotheses predicted that higher reports of work engagement at T1 and T2 will predict increased job crafting at T2 and T3, respectively. For these hypotheses, a significant positive relationship was found for the relationship between work engagement at T1 and job crafting at T2; however, the relationship between work engagement at T2 and job crafting at T3 was insignificant. Therefore, Hypotheses 2a was supported, but Hypothesis 2b was not supported. Because the direct paths for both work-related support resources to work engagement and work engagement to job crafting were not significant for either timepoint, it was unnecessary to calculate the indirect effects as they would have indicated that work engagement was not
a significant mediator in the work-related support resources and job crafting relationship. Thus, the hypothesized model did not support the basic premises of the JD-R model.

The third set of hypotheses examined job crafting as a predictor of work-related support resources, ultimately completing a feedback loop in the JD-R. The relationships between job crafting at T1 and T2 and work-related support resources at T2 and T3 were significant. The insignificant paths indicated that Hypotheses 3a and 3b were not supported. The fourth set of hypotheses focused on the reciprocal nature of work engagement and job crafting by adding reverse causal paths from job crafting at T1 and T2 to work engagement at T2 and T3. The results showed that both paths were insignificant. Thus, Hypothesis 4a and 4b were not supported.

Lastly, the fifth set of hypotheses examined in the autoregressive relations among the latent variables over time. All of these paths were statistically significant. Work-related support resources at T1 positively predicted increased work-related support resources at T2, and work-related support resources at T2 positively predicted increased work-related support resources at T3. Work engagement at T1 positively predicted increased work engagement at T2, and work engagement at T2 positively predicted increased work engagement at T3. Job crafting at T1 positively predicted increased job crafting at T2, and job crafting at T2 positively predicted increased job crafting at T3. The results indicated that Hypotheses 5a, 5b, and 5c were supported in the data.

Although most of the hypothesized paths were not significant, the correlations generally were significant and in the expected directions. As reported in the results section, the work-related support resource variable was strongly related to the work
engagement measure, the work engagement measure was moderately related to the job crafting measure, and the job crafting measure was moderately related to the work-related support resource variable. Directionality between the measures could not be determined, but the expected relationships existed.

Ultimately, the predicted paths in the original hypothesized model were not significant and did not support the overall hypothesized effects of the model as only the autoregressive paths and one additional path were significant. The mediating effects of work engagement for work-related support resources and job crafting, the feedback loops effects of job crafting, and the reverse causal effects between work engagement and job crafting were not supported in these data. As previously mentioned, one potential factor that may have contributed to the lack of insignificant findings was the job crafting measure. For example, the reducing demands subscale of the job crafting measure had several not significant correlations or unexpected negative correlations with the other variables. Thus, a second set of models were tested that only included the seeking resources subscale of the job crafting measure. These models followed the same rationale and structure as the original set of hypotheses, and the findings will be discussed below.

For the seeking resources only analyses, the data fit the hypothesized model well. However, the best fit model was determined to be alternative model 9 per the chi square difference test. Thus, the additional paths added to the hypothesized seeking resources only model did not significantly improve the model although some of the paths were significant. Alternative model 9 represented the full JD-R model with hypothesized paths
from work-related support resources to work engagement and work engagement to job crafting.

Despite alternative model 9 being the best fit model, once again only the autoregressive paths over time for all three latent variables and the path from work engagement at T1 to job crafting (seeking resources only) at T2 were significant. Thus, work-related support resources at T1 positively predicted increased work-related support resources at T2, and work-related support resources at T2 positively predicted increased work-related support resources at T3. Work engagement at T1 positively predicted increased work engagement at T2, and work engagement at T2 positively predicted increased work engagement at T3. Job crafting (seeking resources only) at T1 positively predicted increased job crafting (seeking resources only) at T2, and job crafting (seeking resources only) at T2 positively predicted increased job crafting (seeking resources only) at T3. Additionally, a significant positive path was found from work engagement at T1 to job crafting (seeking resources only) at T2.

**Implications for findings**

Although the results overall did not support the hypothesized original model or the seeking resources only hypothesized model, the findings of this study shed light on important considerations when testing job crafting in the JD-R model. The three-wave longitudinal study was a strong research design that should be respected and learned from despite the insignificant results. Thus, several theoretical and practical implications can be derived from this study.
One goal of this study was to provide a better understanding of the JD-R model by clarifying the role of job crafting in the model. The JD-R model has been extensively studied with certain outcome variables (e.g., job performance, Hopstaken et al., 2015; employee well-being, Lesener et al., 2019); however, job crafting as a work outcome in the JD-R model has received relatively less attention. The literature does support though that job crafting reasonably fits in the JD-R model (Tims et al., 2012; Tims et al., 2013). Thus, the findings of this study were interesting for a number of reasons, namely that the findings contradict the basic premises of the resources path as proposed by the JD-R model; the results did not support that work engagement mediated the relationship between job resources (work-related support resources) and work outcomes (job crafting) in either hypothesized model. Given the research supporting this relationship, these findings were surprising. It is important to note, however, that many of the existing studies use cross-sectional designs to test this model; thus, Bakker and Demerouti (2017) called for more researchers to test the JD-R model using longitudinal designs. This study responded to that call by implementing a three-wave longitudinal design. I examined the mediation relationship proposed in the JD-R model across time with job resources at T1, work engagement at T2, and work outcome at T3. While I had a full longitudinal design with the three latent variables at all three time points, the cross-sectional mediation paths were not included in the SEM models per best practices for cross-lagged path analysis (Cole & Maxwell, 2003; Maxwell & Cole, 2007; Liu, Mo, Song, & Wang, 2016). Therefore, the more rigorous design used for this study may help explain the lack of significant results found for the hypothesized models despite the large body of cross-
sectional studies supporting the JD-R model. Thus, future researchers should continue to implement longitudinal designs to test the JD-R model, including models with job crafting as the work outcome to further the clarify the nature of these variables’ relationships over time.

Additionally, this study sought to extend the JD-R model by proposing that job crafting would initiate a feedback loop. Job crafting was expected to increase work-related support resources at the subsequent time point based on the limited research available supporting that job crafting leads to an increase in actual resources (i.e., Tims et al., 2013). First, the proposed feedback loop was tested using a comprehensive examination of job crafting that included all three subscales of the Job Crafting Scale (seeking resources, seeking challenges, and reducing demands) created by Petrou et al. (2012). To my knowledge, no other studies have used all three job crafting subscales to predict an increase in actual resources as they have only used the seeking resources subscale (Tims et al., 2013). The following rationale was used to justify the original inclusion of the other two job crafting subscales: (1) employees who seek challenges may also increase their resources (specifically work-related support resources as used in this study) to help them succeed in the sought challenge demands, and (2) employees who reduce demands may ultimately have more resources at their disposal to seek out more resources. The results indicated that the comprehensive job crafting measure did not lead to an increase in resources. Given previous research found evidence for job crafting predicting resources, the insignificant results may have been influenced by the inclusion of the seeking challenges and reducing demands subscale. Perhaps seeking challenges
and reducing demands had no impact on employees experiencing an actual increase in
work-related support resources, and their inclusion as indicators of the job crafting latent
variable confounded the results. Thus, a second set of models were analyzed that
followed the structure of previous research (i.e., Tims et al., 2013) in which job crafting
was only measured by the seeking resources subscale.

However, the model that included the seeking resources subscale only also found
that job crafting (seeking resources only) did not predict increased job resources over
time. This surprising result may have occurred for a couple of reasons. One explanation is
that the six-week time lag between each wave may not have been long enough for the
seeking resources job crafting behaviors at one time point to develop into increased
actual resources at the next time point. Thus, future researchers should conduct similar
studies with longer time lags to determine if they better capture if and when seeking
resources job crafting behaviors predict increases in actual resources. Another
explanation for the lack of significant results in the seeking resources only model may be
due to job crafting measure used. Petrou et al. (2012) developed the three-factor,
shortened Job Crafting Scale used in this study based on the full-length measure by Tims
et al. (2012). Tims et al.’s (2012) full-length job crafting measure consists of a four-factor
model in which the seeking resources subscale is separated into two factors: seeking
social resources (i.e., social support, feedback) and seeking structural resources (i.e.,
autonomy, variety), whereas the Petrou et al. (2012) measure collapses these two factors
into one. Following the idea of the matching hypothesis (Cohen & McKay, 1984; Cohen
& Willis, 1985; Frese, 1999), the feedback loop in the resources path of the JD-R model
may be more likely to occur when the work outcome matches the job resource(s). Thus, in this study, the job resources focused on were work-related support resources (i.e., perceived organizational support, perceiver supervisor support, and perceived coworker support), so it would be reasonable to suggest that the feedback loop path may be significant when focusing specifically on the seeking social resources job crafting behaviors as these “match” the job resources measured. Future researchers testing this model may want to measure job crafting with the full-length job crafting scale by Tims et al. (2012) so that they are able to empirically distinguish between seeking social versus structural resources job crafting behaviors.

Lastly, it is important to consider the theoretical implications of this study’s findings in regard to the relationship between job crafting and work engagement in the JD-R model. The literature clearly suggests that these constructs are positively correlated with each other in both primary studies (e.g., Bakker Rodríguez-Muñoz, & Sanz Vergal, 2016; Bakker, Tims, & Derks, 2012) and meta-analyses (e.g, Rudolph et al., 2017); however, this study intended to provide clarity on the directionality of the job crafting-work engagement relationship in the longitudinal design. The hypothesized model for both the original set of analyses and the seeking resources only analyses proposed a reverse causal relationship between job crafting and work engagement, but alternative models in both sets of analyses tested the unidirectional paths. Unfortunately, the cross-lagged path analysis results in this study did not clarify the relationship as a majority of the paths between these variables in both the unidirectional and bidirectional models were insignificant. The only significant path between these variables in the hypothesized
original model and best fit seeking resources only model was from work engagement at T1 to job crafting at T2. Thus, the unidirectional hypothesis from work engagement to job crafting was still only partially supported in this study.

Despite the lack of support for the relationship between work engagement and job crafting across time, this study does support that the variables are positively correlated to each other (see Table 1). The correlation table shows that the work engagement scale and job crafting scale at each time point have significant positive correlations. This is also true for the work engagement scale and the seeking resources subscale for job crafting. Therefore, this study is consistent with the literature in finding a basic relationship between work engagement and job crafting but is unable to provide additional implications about the nature of this relationship. As previously mentioned, future researchers may consider using longer time lags between waves to test if the directionality of the job crafting and work engagement relationship manifests differently over time.

**Practical Implications.** This study offers some practical implications as well. Although the cross-lagged paths were not significant over time and causal conclusions cannot be determined, the correlations among the variables are overwhelmingly positive and significant. Thus, even if directionality cannot be determined, this study suggests to practitioners that employees who have greater work-related support resources are also more likely to be engaged at work and demonstrate job crafting behaviors and vice versa.

The main exception to this implication is for the reducing demands subscale of the job crafting measure. As shown in Table 1, the reducing demands subscale at all time
points is not significantly correlated with the work-related support resources, work engagement, or either scales’ subscales. Based on the previously mentioned matching hypothesis (Cohen & McKay, 1984; Cohen & Willis, 1985; Frese, 1999), the lack of significant correlations between the reducing demands subscale and the other two JD-R model components may be because the reducing demands subscale not “matching” the rest of the proposed resource pathway with its demands focus. Therefore, practitioners should not expect that increasing availability of work-related support resources or improving employees’ engagement to be related to an increase in employees engaging in job crafting behaviors that reduce their job demands.

The longitudinal results of this study also indicated the proposed variables (work-related support resources, work engagement, and job crafting) are relatively stable over time and may pose issues of multicollinearity. In other words, employees who reported themselves to be high in work-related support resources/work engagement/job crafting at T1 were likely to report themselves high in work-related support resources/work engagement/job crafting at T2 and again at T3. Additionally, the results showed that the levels of these variables were not easily influenced by an increase in the other variables. For example, increases in work-related support resources from T1 to T2 did not predict a significant increase in work engagement at T2 when accounting for the level of work engagement reported at T1. Thus, practitioners should note that it is unlikely for the constructs in this study to naturally increase one another especially within six-week time frames. Therefore, if practitioners would like to initiate significant increases over time (i.e., work-related support resources increasing due to job crafting), they should consider
implementing established interventions (i.e., job crafting interventions, Dubbelt et al., 2019).

**Limitations**

Although the study utilized a strong research design with a three-wave full longitudinal design, there are several important limitations that should be noted and considered to help explain the surprising insignificant results. First, this study’s results may have been influenced by multicollinearity. The latent variables in this study were highly correlated over time with little variability between measurements which likely resulted in suppression effects. For example, in the seeking resources only hypothesized model, the path from work engagement at T1 to job crafting at T2 was positive and significant; contrarily, the path from job crafting at T2 to work engagement at T3 was significant but unexpectedly negative even though the significant correlation between these two variables was positive (note this was not the best fit model for the seeking resources only analyses). Thus, the multicollinearity in the data limited the likelihood of finding significant effects in this study.

Second, this study used solely self-report measures for all of the variables. Even though this was the most feasible method of data collection, there are still potential issues of social desirability, faking, and common method bias that may influence the response accuracy (Paulhus, 2017). Additionally, only using self-report, attitudinal-focused measures likely contributed to the multicollinearity issues in the data. Future research should include non-self-report and/or more behavioral-focused measures of these variables (i.e., supervisor or coworker reports job crafting behaviors or employee self-
reports job crafting on a behavior-focused scale that requires them to quantify the frequency in which engage in specific type of job crafting behaviors) as well to increase the likelihood of accurately detecting significant effects.

Third, as previously mentioned, the six-week time lag used in this study is a potential limitation that may also contribute to the multicollinearity effects. Although previous research has found that variables used in this study may show significant changes over two months (i.e., job crafting and job resources, Tims et al., 2013), other research suggests that more time is needed for these variables to adequately manifest (Taris & Kompier, 2014). It should be noted that Harju et al. (2016) tested job crafting in the JD-R model using a two-wave, three-year longitudinal study and suggested that their inconsistent results may have been due to the time lag of three years being too long. Thus, future researchers should test similar models with different time lags to gain a better understanding of if and when the hypothesized results are found.

Finally, research has found MTurkers to be a reasonable representation of the US population (Michel et al., 2017), but a potential limitation to this study could be that the MTurkers in this sample may not generalizable to other populations of workers. Future researchers may test the proposed model via other data collection methods. Additionally, job crafting may be more relevant for some jobs than others. Therefore, future researchers may also consider examining specific populations (i.e., white collar versus blue collar) to test for differences in results based on occupation groups.
Directions for future research

In addition to the aforementioned future directions, future research may want to explore how different types of job resources impact the feedback loop. Perhaps certain types of job resources are more likely to be an antecedent and/or outcome of job crafting. This study focused on the job resources path of the JD-R model; however, future research should consider how the job demands side of the model may affect the feedback loop and potentially prevent job crafting behaviors. Particularly, researchers could look at work demands such as high work pressure/temporal demands and economic stressors (i.e. job insecurity and underemployment). Additionally, future research could compare how the types of job crafting behaviors employees engage in differ depending on the type of job resources or job demands. Finally, future researchers may examine job crafting behaviors through a different lens than the currently used Tims et al. (2012) and Petrou et al. (2012) measures by creating a measures that captures Bind et al.’s (2019) four categories of job crafting: relational crafting, skills crafting, task crafting, and cognitive crafting. Based on the matching hypothesis, relational crafting may be the most relevant Bind et al. (2019) category for the current, but the other types of job crafting behaviors may be a better fit for models that include different types of job resources (i.e., autonomy as a resource to be matched with task crafting).

Conclusion

This is the first study, to my knowledge, that examines the cyclical effects of job crafting in a feedback loop with work-related support resources and work engagement as well as a reverse causal relationship between work engagement and job crafting in the
JD-R model. By examining these relationships, this study responded to a call for research by Bakker and Demerouti (2017) to continue improving the JD-R model by expanding the model to include less studied variables and using more intricate research designs. Although the results of this study were overall insignificant, this study offered several theoretical implications and considerations that can be used to develop and improve future research studies.
REFERENCES


APPENDICES
### Appendix A

#### Tables

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

<table>
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N = 347; Internal consistencies (Cronbach’s Alpha) shown on diagonal for multi-item variables; * p < 0.05, ** p < 0.01
Table 1, continued. Means, Standard Deviations, Reliabilities and Correlations of Study Variables.

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N = 347; Internal consistencies (Cronbach’s Alpha) shown on diagonal for multi-item variables; * p < 0.05, ** p < .01

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### Table 2. SEM Model Testing Results (Original Models)

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<th>df</th>
<th>CFI</th>
<th>RMSEA</th>
<th>SRMR</th>
<th>BIC</th>
<th>$\Delta df$</th>
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N = 347. $\Delta \chi^2$ were tested in comparison to the hypothesized model. CFI = comparative fit index; RMSEA = root-mean-square-error of approximation; BIC = Bayesian information criteria.

* $p < .05$. ** $p < .01$. 
Table 3. SEM Model Testing Results (Seeking Resources Subscale Only Models)

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<th>Model</th>
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<th>df</th>
<th>CFI</th>
<th>RMSEA</th>
<th>SRMR</th>
<th>BIC</th>
<th>$\Delta df$</th>
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N = 347. $\Delta \chi^2$ were tested in comparison to the hypothesized model. CFI = comparative fit index; RMSEA = root-mean-square-error of approximation; BIC = Bayesian information criteria.

* $p < .05$, ** $p < .01$. 
Appendix B

The Hypothesized Model (Original)

Figure 1. This is the hypothesized model with the expected significant paths.
Figure 2. SEM results for the hypothesized model. Values shown are the unstandardized estimates with standard errors in the parentheses. Solid lines are significant at $p < .05$. Dashed lines are not significant.
Appendix C

Alternative Models (Original)

Figure 3. This is alternative model 1 which reflects the null hypothesis in which the variables remain stable over time.
Figure 4. This is alternative model 2 which tests the basic JD-R model by adding the paths from R1 to E2 and E2 to JC3.
Figure 5. This is alternative model 3 which tests the full JD-R model in this dataset by adding paths from E1 to JC2 and R2 to E3.
Figure 6. This is alternative model 4 which tests for the feedback loop of job crafting by adding paths from JC1 to R2 and JC2 to R3.
Figure 7. This is alternative model 5 which tests for the direct effects of job resources on job crafting by adding a direct path from R1 to JC2 and R2 to JC3.
Figure 8. This is alternative model 6 which tests the saturated model with added paths from E1 to R2 and E2 to R3.
Appendix D

The Hypothesized Model (Seeking Resources Only)

Figure 9. This is the hypothesized model for the seeking resources only subscale of job crafting.
Figure 10. SEM results for the hypothesized model for the seeking resources only subscale. Values shown are the unstandardized estimates with standard errors in the parentheses. Solid lines are significant at $p < .05$. Dashed lines are not significant.
Appendix E

Alternative Models (Seeking Resources Only)

Figure 11. This is alternative model 7 which reflects the null hypothesis in which the variables remain stable over time.
Figure 12. This is alternative model 8 which tests the basic JD-R model by adding the paths from R1 to E2 and E2 to JC3.
Figure 13. This is alternative model 9 which tests the full JD-R model in this dataset by adding paths from E1 to JC2 and R2 to E3.
Figure 14. This is alternative model 10 which tests for the feedback loop of job crafting by adding paths from JC1 to R2 and JC2 to R3.
Figure 15. This is alternative model 11 which tests for the direct effect of job resources on job crafting by adding paths from R1 to JC2 and R2 and JC3.
Figure 16. This is alternative model 12 which tests the saturated model with added paths from E1 to R2 and E2 to R3.
Figure 17. SEM results for alternative model 9, the best fitting model for the seeking resources only analyses. Values shown are the unstandardized estimates with standard errors in the parentheses. Solid lines are significant at $p < .05$. Dashed lines are not significant.
 Appendix F

Measure of Perceived Organizational Support

Please indicate the extent to which you agree or disagree with the following statements about your primary job.

1= Strongly Disagree
2= Disagree
3= Slightly Disagree
4= Neither Agree nor Disagree
5= Slightly Agree
6= Agree
7= Strongly Agree

1. My organization strongly considers my goals and values.
2. My organization really cares about my well-being.
3. My organization cares about my opinion.
4. My organization would ignore any complaint from me.*

Note: * indicates the item should be reverse-scored.
Appendix G

Measure of Perceived Supervisor Support

Please indicate the extent to which you agree or disagree with the following statements about your primary job.

1= Strongly Disagree
2= Disagree
3= Slightly Disagree
4= Neither Agree nor Disagree
5= Slightly Agree
6= Agree
7= Strongly Agree

1. My manager strongly considers my goals and values.
2. My manager really cares about my well-being.
3. My manager cares about my opinion.
4. My manager would ignore any complaint from me.*

Note: * indicates the item should be reverse-scored.
Appendix H

Measure of Perceived Coworker Support

Please indicate the extent to which you agree or disagree with the following statements about your primary job.

1= Strongly Disagree
2= Disagree
3= Slightly Disagree
4= Neither Agree nor Disagree
5= Slightly Agree
6= Agree
7= Strongly Agree

1. My coworkers strongly consider my goals and values.
2. My coworkers really care about my well-being.
3. My coworkers care about my opinion.
4. My coworkers would ignore any complaint from me.*

Note: * indicates the item should be reverse-scored.
Appendix I

Measure of Work Engagement

Please indicate the extent to which you agree or disagree with the following statements concerning how you have felt about your job in the past month.

1= Strongly Disagree
2= Disagree
3= Slightly Disagree
4= Neither Agree nor Disagree
5= Slightly Agree
6= Agree
7= Strongly Agree

1. I felt bursting with energy at my work.
2. I felt strong and vigorous at my job.
3. I felt like going to work when I got up in the morning.
4. I was enthusiastic about my job.
5. My job inspired me.
6. I was proud of the work that I do.
7. I felt happy when I was working intensely.
8. I was immersed in my work.
9. I got carried away when I was working.
Appendix J

Measure of Job Crafting

Please indicate the extent to which you agree or disagree with the following statements about your behaviors on your primary job.

1= Strongly Disagree

2= Disagree

3= Slightly Disagree

4= Neither Agree nor Disagree

5= Slightly Agree

6= Agree

7= Strongly Agree

1. I ask others for feedback on my job performance.

2. I ask my colleagues for advice.

3. I ask my supervisor for advice.

4. I try to learn new things.

5. I contact other people from work (e.g., colleagues, supervisors) to get the necessary information for completing my tasks.

6. When I have difficulties or problems at my work, I discuss them with people from my work environment.

7. I ask for more tasks if I finish my work.

8. I ask for more responsibilities.

9. I ask for more odd jobs.
10. I try to ensure my work is emotionally less intense.

11. I make sure that my work is mentally less intense.

12. I try to ensure that my work is physically less intense.

13. I try to simplify the complexity of my tasks at work.