



**The Influence of Living a Calling on Work Engagement for Knowledge Workers
in Chongqing: Mediating Effects of Job Crafting and Moderating Effects of
Regulatory Focus**

**By
Hongxia Li**

**A Dissertation Submitted in Partial Fulfillment of the Requirements for the
Degree of Doctor of Philosophy in Business Administration,
China-ASEAN International College,
Dhurakij Pundit University**

2018



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Knowledge workers in Chongqing: Mediating Effects of
Job Crafting and Moderating Effects of Regulatory Focus
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Program Doctor of Philosophy
Major Business Administration
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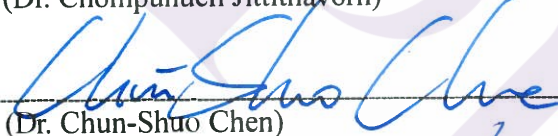
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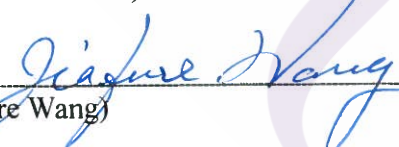
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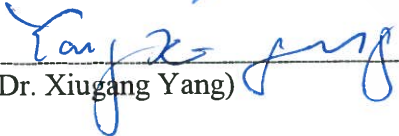
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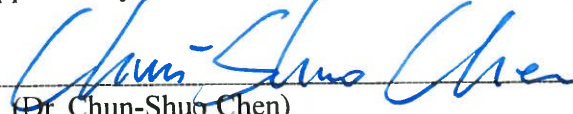


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Dissertation Title: The Influence of Living a Calling on Work Engagement for Knowledge Workers in Chongqing: Mediating Effects of Job Crafting and Moderating Effects of Regulatory Focus

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Degree: Doctor of Philosophy in Business Administration

Academic year: 2018

ABSTRACT

The influence of calling on work engagement has attracted practitioners and researchers in recent years. However, there are few studies on the influence factor between living a calling and work engagement. Based on self-discrepancy theory and Job Demands-Resources model, this study explored the relationship between living a calling, job crafting, regulatory focus and work engagement for knowledge workers.

To obtain samples of knowledge workers engaged in various job types, the ideal target population was centered on part-time Master of Business Administration (MBA) students in Chongqing area with a wide range of occupations. Overall, Chongqing had about 2,750 part-time MBA students, with a sampling rate of 24% and a sample size of 660. About 495 questionnaires were recovered, and the recovery rate was approximately 75% of the questionnaires issued. Excluding the invalid questionnaires, 390 valid samples were obtained, with a validity rate of 59%. The data were analyzed by SPSS software, AMOS software, Process plug-in program and Bootstrap method.

The findings in this study are as follows. First, living a calling enables knowledge workers to experience more work significance and real self, which has a profound and important positive impact on their work and life. When they live a calling, they will do their best to craft their own jobs with strong work enthusiasm and psychological strength. Second, crafting challenging job demands can bring job stimulation and work

fun to knowledged workers, thereby it can improve their work engagement. While crafting hindering job demands has a more complex impact on work engagement, rather than a simple linear relationship. Organizations and managers can enhance their challenging work needs of knowledged workers without paying too much attention to their hindering job needs. Third, the mediating role of the three groups of job crafting for knowledged workers between living a calling and work engagement is in turn crafting structural job resources, crafting challenging job demands and crafting social job resources. However, their crafting hindering job demands cannot mediate the relationship between living a calling and work engagement. Fourth, stimulating prevention focus of knowledged workers and reducing their promotion focus can help ease the relationship between living a calling and crafting hindering job demands. Last, promotion focus of knowledged workers can help to enhance the relationship between living a calling and work engagement.

In conclusion, this study not only provided insight into the possible mediating effect of job crafting but it also demonstrated the moderating effect of regulatory focus on the relationship of them for knowledged workers. These insights might help Chinese managers support living a calling, job crafting and regulatory focus for knowledged workers to achieve the goal of work engagement. Due to the one-sided shortcomings of sampling survey data, the research method of big data enabled will also be applied to the future research on the relationship between living a calling and work engagement.

Keywords: knowledged worker, living a calling, job crafting, regulatory focus, work engagement

Acknowledgments

I had been working hard to become a qualified Ph.D. in Business Administration, since I was admitted to the Ph.D. program at Dhurakij Pundit University on June 26 in 2013. I feel grateful for the help from my teachers, classmates, family and friends over the last 6 years.

First, I need to thank the people in the Business Administration doctoral program. I majored in Computer Software and Theory for my master's degree at Chongqing University of China. Since finishing the master's degree, I had been teaching in Information Management and Information Systems in Chongqing Technology and Business University. From July 2013 to June 2014, the course instructors of Dhurakij Pundit University helped me gain a deeper understanding of business administration expertise. I thank Dhurakij Pundit University for helping me cultivate these sentiments.

Second, I would like to thank Dr. Kelvin and Dr. Shuming Ma who instructed my topic approval for this doctoral dissertation. From June 2014 to October 2015, I had been working hard to find an appropriate doctoral dissertation topic and proposal under their guidance. During this period, my dissertation topics switched many times ranging from E-commerce to management engineering, and I completed my proposal in October 2015.

Third, I would like to express my sincere gratitude to my principal supervisor Dr. Xiugang Yang who came to Dhurakij Pundit University and first chose me as his doctoral student in November 2015. He asked that I should work hard by myself. He emphasized finding a novel research topic, issues and methodology. This helped me to shape myself rather than rely on others.

Fourth, I must thank Dr. Ching-chou Chen who came to Dhurakij Pundit University to ask me to discard the original topic in December 2015, and pursue a subject of management psychology. From December 2015 to November 2016, I pushed aside my job and family, plunged into the endless mist of re-selecting the topic for my doctoral dissertation again, painfully choosing and working around the direction of management psychology. As a result, I chose to study the topic on the relationship of living a calling, job crafting, regulatory focus and work engagement.

Fifth, I want to thank Dr. Chiang-Kuo Tu and Dr. Yiquan Liao who instructed my proposal defense. From December 2016 to February 2017, I buried myself in proposal. Dr. Chiang-Kuo Tu and Dr. Yiquan Liao taught me the skills of reading professional documents in business administration. I would also like to thank Dr. Jiafure Wang who communicate the submission procedure of my doctoral dissertation.

Sixth, I must thank the part-time MBA students in Chongqing for their collaborative research. I need to thank that Fangyan Cui and Qingmei Tao who helped me translate the scales of the questionnaire. I also want to thank Chongqing Technology and Business University for their support of my work. Specially, I must thank Assoc. Prof. Dr. Diane Martinez who helped me English proofreading very carefully.

Seventh, I must give my full appreciation to all the academic committees for their careful reading and constructive suggestions on my Ph.D. dissertation. (1) I want to showed my great respect and appreciation to the Chairman of the Committee Assoc. Prof. Dr. Duanpen Theerawanviwat. Since proposal defense of my dissertation was examined in December 2016, she have been the chairman of my dissertation. In the past three years, she has worked very hard to guide my dissertation. I am very grateful to her for helping me learn a lot of knowledge. Especially since the final defense in July

2018, she has given more patient and careful help to my dissertation. (2) I would like to thank Dr. Chompunuch Jittithavorn, a principal committee examiner, who spent a lot of time reviewing my many revised manuscripts and offering constructive comments and suggestions. Since June 2018, she had served as Principal Committee Examiner of my Ph.D. dissertation, guiding me to revise and improve my Ph.D. dissertation patiently and meticulously. (3) I would like to thank committee examiners of my Ph.D. dissertation such as Dr. Chiang-Kuo Tu, Dr. Chun-Shuo Chen and Dr. Jia-Fure Wang for patiently reviewing my dissertation and offering constructive comments and suggestions. Their valuable advice had enabled me to improve the level of my doctoral dissertation and deeply inspire my future academic career. (4) I thank the academic committees very much for tolerating the shortcomings of my dissertation. I feel that I'm always not smart enough to disappoint them. I also feel that my dissertation needs more efforts to do better. I will make more efforts to remedy the research deficiencies of the dissertation in the follow-up study.

Eighth, I am very grateful to my family and friends for their love and unconditional support during these years. To finish my Ph.D. dissertation, I took up nearly all the holidays that I should had spent with them. My studies could not had been carried out smoothly without their understanding and support. I need also thank myself for more than six years of hard work.

Finally, I want to thank all those who have helped me. Their tolerance and love for me made me constantly correct my shortcomings and illuminate the way forward in my life.

Hongxia Li
August 21, 2019

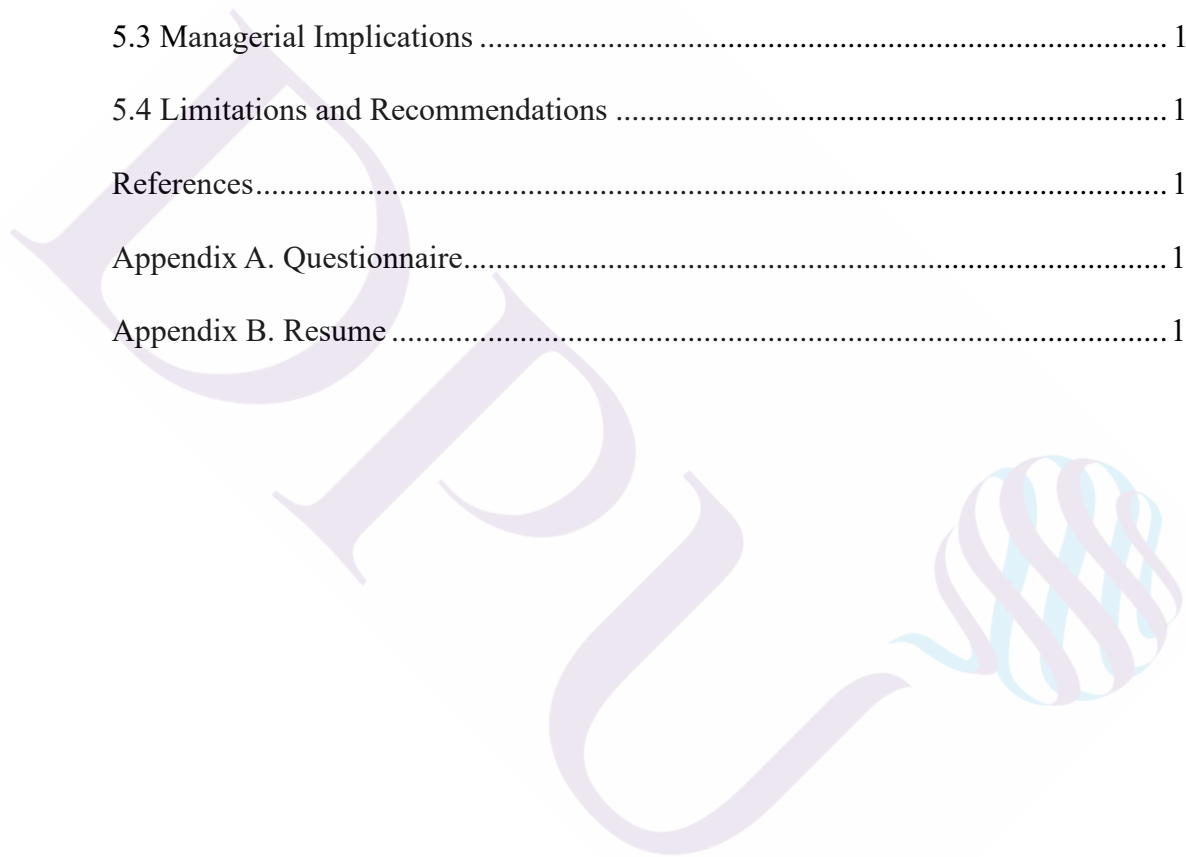
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Chapter 1. Introduction

1.1 Background

The argument of work engagement enhancing job performance had gained wide acceptance among practitioners and researchers. Work engagement became synonymous with organizational success as enterprises over the world were willing to spend millions annually to improve their employee engagement (Aryee et al., 2016). Duthler & Dhanesh (2018) examined relationships among employees' perception of corporate social responsibility, three models of internal corporate social responsibility communication and employee engagement. According to a global engagement survey conducted by Steelcase company and Ipsos company, 67% of Chinese workers were not engaged enough. Not only in China but throughout the world, employee engagement was a critical issue that must be improved (Taper, 2016). When China enters a well-off society, knowledged workers will not just work to make a living. Their autonomy work dedication with vigor and absorption was not only a subjective experience of satisfaction, but also objective functions related to vitality, psychological flexibility, and self-realization, which showed work engagement.

For a long time, knowledged workers were viewed as passive performers of their assigned job mission from supervisors and the organization. In fact, the initiative and innovative spirit of knowledge workers can provide "win-win" benefits for employers and employees. Over recent years, some scholars (Duffy, Allan, Autin, & Douglass, 2014; Duffy, England, Douglass, Autin, & Allan, 2017; Kim, Praskova, & Lee, 2016; Tims, Bakker, Derks, & Rhenen, 2013b) argued that job design theory needed to address the issue that workers could customize their jobs according to individual

demands and resources instead of passively performing work assigned by supervisors and the organizations, which showed job crafting. Job crafting was not a new concept and was first put forward in 2001, as a mean to explore a proactive approach to work from the perspective of workers (Wrzesniewski & Dutton, 2001). Job crafting was a concept that workers redesigned their work. Workers modified certain aspects of their work to improve the fit between job characteristics and their own needs, abilities and preferences.

As one of the concepts put forward by Drucker (1999), an American management guru, the concept of knowledged worker referred to those who grasp and use symbols and concepts, and used knowledge or information to work. Today's knowledged workers generally had higher professional knowledge and personal quality, higher educational background and other abilities. They were the group of workers who pursue autonomy, individualization, diversification and innovation spirit. The competition among enterprises, the creation, utilization and value-added of knowledge, and the rational allocation of resources were ultimately realized by knowledged workers.

In the real work situation, job crafting and work engagement of knowledged workers might be more or less influenced by their emotions and thoughts. The hedonic principle that people approached pleasure and avoided pain was the basic motivational principle throughout the history of psychology. These different ways of regulating pleasure and pain were called "regulatory focus", divided into promotion focus and prevention focus, which had a major impact on people's feelings, thoughts, and actions independent of the hedonic principle per se(Higgins, 1998). Regulatory focus was related to people's principle of approaching pleasure and avoiding pain, and had a significant impact on people's emotions, thoughts and behaviors.

With the increasing attention to the intrinsic value and significance of the work, knowledged workers realized the importance of living a calling, such as following my heart, finding your calling, your calling being calling (Berg, Grant, & Johnson, 2010), heeding your life's calling (Dobrow, 2013) and the effect of perceiving a calling on well-being (Duffy et al., 2017). These ideas slowly became a consensus. In fact, living a calling saying in Chinese traditional culture included phrases, such as Angel in white, to worry before the common people worry and to enjoy only after the people could enjoy, the teacher being preaching, teach and dispel doubting of corpus thought.

1.2 Research Questions

Based on the above background, this study proposed five following research questions according to literature gaps or academic controversies.

First, the effect of living a calling on job crafting was explored. The qualitative research on the relationship between an unanswered calling and job crafting were published in top international journals (*Organization Science*) (Berg et al, 2010). Berg et al (2010) research results showed that unanswered calls can engage individuals to strengthen their tasks, expand their work and reframe their roles. But no research literature was found on the relationship between living a calling and job crafting. Therefore, this study put forward research questions 1 as follows.

Question 1. Does living a calling have positive effect on job crafting for knowledged workers?

Second, the effect of living a calling on job crafting was discussed. Crawford et al. (2010) gave the research results from 55 manuscripts of 64 samples articles that crafting hindering job demands were negatively associated with work engagement. Petrou et al. (2012) found from a diary survey completed by 95 workers from several organizations

that seeking challenges was positively associated with day-level work engagement, whereas day-level reducing demands was negatively associated with daily work engagement. Brenninkmeijer and Hekkert-Koning (2015) showed that crafting social and structural job resources could increase experience of work engagement, and the association between crafting challenging job demands and work engagement was not significant and crafting hindering job demands would be negatively related to work engagement according to the data collected among candidates from a Dutch consultancy organization within the branches pharmaceutical, medical, food and health care, and higher education professionals. Crafting social and structural job resources and crafting challenging job demands was positively related to employees' own work engagement, whereas decreasing hindering job demands was unrelated to their own engagement (Bakker et al., 2016). Thus, it can be seen that different scholars have different research conclusions about the impact of different dimensions of job crafting on work engagement. So, this study put forward research questions 2 as follows.

Question 2. Does living a calling have positive effect on work engagement for knowledged workers?

Third, it was explored that whether job crafting mediated the effect on the relationship between living a calling and work engagement or not. Job crafting was one of the meant to bridge the calling gap between actual self and counterfactual self (Berg et al., 2010). Living a calling enabled employees to experience more organizational identity, considered their work more meaningful, and achieved personal satisfaction, which had a broad and far-reaching impacted on the individual's work and life (Duffy et al., 2014). Combined with these indirect literatures, this study proposed the following research questions 3 based on the above two research questions.

Question 3. Does job crafting mediate the effect on the relationship between living a calling and work engagement for knowledgeable workers?

Fourth, it was explored that the effect of regulatory focus on the relationship between living a calling and job crafting. Promotion-focused individuals tend to see positive outcomes that were relevant for attaining success and personal growth (Higgins, 1998). Promotion focus might have a positive effect on the motivation of crafting hindering job demands by activating the need for development (Shimazu & Schaufeli, 2008). The psychological states of enjoyment and meaning facilitated by workers' experience were associated with callings they pursue (Berg et al., 2010). Individuals' callings include higher intrinsic motivation, job satisfaction, career success, engagement, and well-being (Duffy, Dik, & Steger, 2011). Promotion focus was related from calling to job crafting and included a variety of behaviors such as decision-making (Gu, Bohns, & Leonardelli, 2013) and bargaining (Elzamy & Amin, 2011). Prevention-focused individuals tend to be alert to negative outcomes, such as failures (Higgins et al., 1997). They might actively respond to job demands when these demands prevent the fulfillment of their obligations (Higgins, 1998). Prevention focus was related to safety and responsibility with crafting hindering job demands (Brennkmeijer & Hekkert-Koning, 2015). Employees with high prevention focus were more likely to take the initiative to create opportunities to reduce hindering job demands (Brennkmeijer & Hekkert-Koning, 2015). According to these literatures, this study proposed the following research questions 4 based on the above research question 1.

Question 4. Does regulatory focus moderate the relationship between living a calling and job crafting for knowledgeable workers?

Last, it was explored that the effect of regulatory focus on the relationship between

living a calling and work engagement. Promotion-focused individuals tend to be alert to positive outcomes and seek for possibilities that were relevant to attaining success and personal growth (Higgins et al., 1997). Promotion focus incorporated achievement, ideals, and gains (Madlock & Kennedy-Lightsey, 2010). Individual callings included higher intrinsic motivation, job satisfaction, career success, engagement, and well-being (Duffy et al., 2011). Individuals with a promotion focus strived for growth and development and aimed to maximized positive outcomes (Brenninkmeijer & Hekkert-Koning, 2015). Prevention-focused people might respond actively to job demands when these demands present barriers to fulfilling their obligations (Higgins, 1998). Prevention focus incorporated security, ought, and losses (Madlock & Kennedy-Lightsey, 2010). It was also an important to note that prevention focus was considered orthogonal constructs (Kline, 2010). Prevention focus was related to a variety of behaviors such as perceived risk (Lin et al., 2012). Prevention focus was used to conceptualize the individual and the organizational motivational orientation. Prevention focus paid attention to safety and responsibility with crafting hindering job demands (Brenninkmeijer & Hekkert-Koning, 2015). According to these indirect literatures, this study proposed the following research questions 5 based on the above research question 2.

Question 5. Does regulatory focus moderate the relationship between living a calling and work engagement for knowledged workers?

1.3 Purposes

Based on the above-mentioned background and research questions, this study not only explored whether job crafting affects the influence of living a calling on work engagement, but also whether regulatory focus affects the relationship between living

a calling and work engagement. Thus, combined with Self-discrepancy theory (Higgins, 1987) and JD-R model (Job Demands-Resources model) (Demeouti, 2001), the purposes of this study were follows.

(1) The direct effect of living a calling on job crafting for knowledgeable workers based on Self-discrepancy theory was quantitatively examined. The qualitative research on the relationship between an unanswered calling and job crafting were published in top international journals (*Organization Science*) (Berg, 2010), but no research literature was found on the relationship between living a calling and job crafting.

(2) The direct effect of living a calling on job crafting for knowledgeable workers based on Job Demands-Resources model was quantitatively examined. The literature showed that different dimensions of job crafting had different opinions on the impact of work engagement and its direction. This study clarifies the impact of job crafting on work engagement by quantitative research.

(3) The mediating effects of job crafting on the relationship between living a calling and work engagement for knowledgeable workers was quantitatively examined. No research was on how job crafting effects on the relationship between living a calling and work engagement.

(4) The moderating effects of regulatory focus on the relationship between living a calling and job crafting for knowledgeable workers based on Self-discrepancy theory as quantitatively examined. No research was found on the moderating effect of regulatory focus on the relationship between living a calling and job crafting.

(5) The moderating effects of regulatory focus on the relationship between living a calling and work engagement for knowledgeable workers was quantitatively examined. No research was found on the moderating effect of regulatory focus on the relationship

between living a calling and work engagement based on Self-discrepancy theory.

1.4 Scope

Based on the above objectives, the scope of the study included contents of the study, population and samples and data collection period, which was described as follows.

1.4.1 Contents

The main content of this study is a series of relationships among living a calling, job crafting, promotion focus, prevention focus and work engagement of knowledgeable workers as follows.

First, direct relationships included: (1) The direct influence of living a calling on crafting structural job resources, crafting hindering job demands, crafting social job resources and crafting challenging job demands; (2) The direct influence of crafting structural job resources, crafting hindering job demands, crafting social job resources and crafting challenging job demands on work engagement; (3) The direct influence of living a calling on work engagement.

Second, mediating relationships included (1) The mediating effect of crafting structural job resources on the relationship between living a calling and work engagement, (2) the mediating effect of crafting hindering job demands on the relationship between living a calling and work engagement, (3) the mediating effect of crafting social job resources on the relationship between living a calling and work engagement and (4) the mediating effect of crafting challenging job demands on the relationship between living a calling and work engagement.

Finally, moderating relationships included: (1) The moderating effect of promotion focus on the relationship between living a calling and crafting structural job resources, crafting hindering job demands, crafting social job resources and crafting challenging

job demands; (2) The moderating effect of prevention focus on the relationship between living a calling and crafting structural job resources, crafting hindering job demands, crafting social job resources and crafting challenging job demands; (3) The moderating effect of promotion focus on the relationship between living a calling and work engagement; (4) The moderating effect of prevention focus on the relationship between living a calling and work engagement.

1.4.2 Population and samples

This study concludes that knowledged workers were more likely to pursue autonomy, diversity and innovation, and were also more likely to achieve work engagement by living callings than non-knowledged workers. Work autonomy was not only a subjective experience of satisfaction, but it also had objective functions related to vitality, psychological flexibility, and self-realization (Lopes et al., 2014). So, the theoretical population in this study was knowledged workers.

To obtain knowledged workers samples in various jobs, the ideal target population was centered on part-time MBA students in Chongqing with a wide range of occupations. Similar to the rest of China, the sources of the part-time MBA students in Chongqing were not limited by gender, nationality, religious belief, marriage, household registration, type of work organization and occupation. These part-time MBA students in Chongqing had a wide range of occupations, including medical, services, education, finance, administration, science and technology, manufacturing and other industries, which reflects the overall diversity of work characteristics of samples.

Chongqing was the largest and most populous city among the People's Republic of China's four provincial-level municipalities and the only one that lies in the western

region of China. Chongqing's universities with part-time MBA students included Chongqing University, Southwestern University, Chongqing Technology and Business University and Chongqing University of Technology. Thus, the population in this study included all part-time MBA students at these universities.

1.4.3 Period of data collection

The data collection in this study was based on questionnaires. Online questionnaire notification and field questionnaires were used. The data collection period was as follows. 1,000 questionnaires were printed and 1,000 small gifts (pens) were purchased for respondents in the week of late February 2017. From March to April 2017, the purpose and the notice of the questionnaires were sent by QQ group and WeChat group to all part-time MBA students at Chongqing Technology and Business University, Southwest University, Chongqing University, Chongqing University of Technology. and then the field questionnaires were collected after the MBA students completed their answers. In April 2017, the questionnaires were entered into Excel documents, and invalid questionnaires were eliminated to complete the data collection.

1.5 Significances

Work engagement was an important antecedent of job performance (Alessandri, Borgogni, Schaufeli, Caprara, & Consiglio, 2015), service performance (Aryee, Walumbwa, Gachunga, & Hartnell, 2016), creativity (Choi, Tran, & Park, 2015), economic income (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009), organizational citizenship behavior (Kataria, Garg, & Rastogi, 2013) and work well-being (Buitendach, Bobat, Muzvidziwa, & Kanengoni, 2016). In recent years, the relationship between the concept of callings from theology and work engagement had drawn growing attention to practitioners and researchers. However, there were few

studies on the intermediate variables between living a calling and work engagement.

1.5.1 Theoretical significances

Based on Self-discrepancy theory and Job Resource-Demand Model, this study explore intermediate effects of job crafting and regulatory focus on the relationships between living a calling and work engagement, which had important theoretical significances.

This study was helpful for theoretical circles to clarify the effect of different dimensions of job crafting on work engagement. From the existing literatures, different dimensions of job crafting had direct effect on work engagement, the varying studies also differ. Crafting job resources could produce effective relationships for workers to increase their engagement and employability, whereas crafting hindering job demands were negatively associated with work engagement (Brenninkmeijer & Hekkert-Koning, 2015). Crafting social and structural job resources and crafting challenging job demands were positively related to work engagement, whereas decreasing hindering job demands were unrelated to engagement (Bakker et al., 2016). Based on the Job Resource-Demand model, this study quantitatively demonstrated the effect of different dimensions of job crafting on work engagement for knowledged workers.

This study was helpful for theorists to understand the impact of living a calling on job crafting. Berg (2010) completed qualitative research on the relationship between an unanswered calling and job crafting, but no research had been found on the relationship between living a calling and job crafting at present. This study quantitatively examined the direct effect of living a calling on job crafting for knowledged workers based on Self-discrepancy theory.

This study was helpful to deepen the theory of Job Resource-Demand model. At

present, no research had been found that job crafting had indirect effect on the relationship between living a calling and work engagement. This study quantitatively examined the mediating effect of job crafting on the relationship between living a calling and work engagement for knowledgeable workers based on Job Resources-Demands model.

It also opened up the research on the combination of Self-discrepancy theory and Job Resource-Demand model. Based on Job Resources-Demands model, it quantitatively examined the mediating effect of job crafting on the relationship between living a calling and work engagement for knowledgeable workers. Based on Self-discrepancy theory, it not only examined the moderating effect of regulatory focus on the relationship between living a calling and job crafting, but it also examined the moderating effect of regulatory focus on living a calling and work engagement. These studies combined the Self-discrepancy theory and Job Resource-Demand model, which theoretically combined cognitive and psychological variables in the antecedent variables of work engagement.

1.5.2 Practical significances

Work engagement had a very important impact on organizational performance and long-term development. How to improve work engagement had become a core issue of modern organizational sustainable development, which should be of concern to organizations, managers and workers. This study explored the antecedent of work engagement, which has the important practical significances.

This study was beneficial to organizations. Living callings and high work engagement for workers bring better job performance, service performance and creativity for the organization, and play an active role in the long-term sustainable

development should be of concern to organizations. The results in this study were helpful for organizational leaders to understand the common characteristics of living a calling and work engagement for workers, and to formulate systems and policies that were beneficial to organizational development and employee engagement.

This study was beneficial to managers. It provides the results of the relationship between job crafting based JD-R model and regulatory based on cognitive theory. It was helpful for managers to understand the general characteristics of workers' cognitive situation and psychological needed for living in a calling and work engagement, so as to adopt effective methods to promote workers for better living their callings and higher work engagement.

This study was beneficial to workers. It provides workers with a common relationship between living callings, job crafting, regulatory focus and work engagement. It could help workers to understand themselves more deeply, so as to enhance long-term career planning, quality of life; promote their own economic interests and well-being.

Chapter 2. Literature Review

After reviewed the literature concepts of living a calling, job crafting, regulatory focus and work engagement, based on self-discrepancy theory and Job Resource-Demand model (JD-R model), this study proposed eight groups of relationship hypothesis and a research model.

2.1 Reviews of Key Concepts

This section provided an overview on the four main concepts in this study, namely knowledged worker, living a calling, job crafting, work engagement and regulatory focus.

2.1.1 Knowledged worker

As one of the concepts put forward by Drucker (1999), an American management guru, the concept of knowledged worker referred to those who grasp and use symbols and concepts, and used knowledge or information to work. Knowledged worker had three perspective definitions. From the perspective of working style (Horibe, 1999), knowledged worker referred to those who use their brains more than their hands to create wealth. From the perspective of personnel characteristics (Vogt, 1995), knowledged workers referred to people who pursue good education and initiative creativity. From the perspective of the nature of work (Lee, 2018), knowledged worker referred to those who engage in knowledge work and use knowledge in their profession.

Compared with non-knowledged workers, knowledged workers had many particularities. (1) Knowledged workers had corresponding professional expertise and higher personal qualities. Most of the knowledged workers had received systematic professional education, had a high degree, and master certain professional knowledge

and skills. Because of the higher level of education, knowledged workers mostly had higher personal qualities, such as broad vision, strong thirst for knowledge, strong learning ability, broad knowledge level, and other aspects of ability literacy. (2) Knowledged workers had a strong desire to realize their self-worth. They had a higher level of demand and pay more attention to the realization of their own value. To this end, they were more enthusiastic about challenging and creative tasks and strive for perfect results. Through this process, they were eager to fully display their talents and realize their self-worth. (3) Knowledged workers had high creativity and autonomy. They relied on their own professional knowledge, used their brains to think creatively, and constantly form new ideas. They tended to had a relaxed and highly autonomous working environment, emphasizing self-guidance and self-management in their work.

Today's knowledged workers generally had higher professional knowledge and personal quality, higher educational background and other abilities and were the group of workers who pursue autonomy, individualization, diversification and innovation. The competition among enterprises, the creation, utilization and value-added of knowledge, and the rational allocation of resources were ultimately realized by knowledged workers (Lee, 2018). To sum up the above arguments, knowledged workers in this study referred to employees who worked in professional knowledge or a skill field and posed a college degree.

2.1.2 Living a calling

The original meaning of calling came from theology, which referred to people seeking and realizing of their natural attributes that they perceived as a calling from God. In recent years, professions in the field of psychology began to study the calling's personal and social psychological background of calling. Likewise, professionals in the

field of organizational behavior field explored its impacts on organizational variables and personal work variables (Dobrow & Tosti-Kharas, 2011). At the same time, researchers and theorists endeavored to figure out the key features and qualities of a calling (Duffy & Dik, 2013). Sociologists Bellah and Neelly (1985) even used “calling” along with “job” and “career” to describe three different orientations that Americans held toward their work. When individuals were job and career-oriented, their identities tended not to fully overlap with their occupations, so they considered work as a separate entity from the rest of their lives (Berg et al., 2010). When individuals were calling-oriented, however, their identities and occupations were inseparably linked (Berg et al., 2010).

Living a calling referred to some extent that an individual was engaged in the work or activity that was directed toward one’s calling (Duffy & Dik, 2013). An occupational calling meant an occupation that a person feels drawn to, expects to be intrinsically enjoyable and meaningful and identifies as a central part of his or her identity (Gazica, 2014; Gazica & Spector, 2015). Those with a calling orientation imbued their work with personal and social meaning: they perceived that it as intrinsically enjoyable and greatly contributive to the society. And personal identity and occupation were integrated into his or her individual job calling (Rich & Crawford, 2010). In the practice of an organization, the calling referred to the individual's strong passion and power in a certain field (Dobrow & Tosti-Kharas, 2011). The calling was defined as the ability of bringing lasting passion, pleasure, sense of purpose, and subjective achievement to the individual (Berg et al., 2010). The typical related researches of living a calling were shown in Table 1.

Table 1 Typical Related Researches of Living a Calling

Author	Research Methodology	Respondents and Sample
Berg (2010) Dobrow & Tosti-Kharas (2011)	Qualitative methods, Literature research, Observation, Survey, Conceptual analysis	Educators at a school and university developed a 12-item scale measure of calling, cross-sectional data from 1,500 respondents (2,278 observations) in 4 separate domains, music, art, business, and management
Duffy & Dik (2013)	Literature research, Question survey method	A total of 472 respondents were enrolled at a large public university located within a small city in the southeastern United States.
Shoshana (2013)	Literature research, Question survey method	Respondents were individuals enrolled at two U.S. summer high school music programs in 2001. Four-wave prospective longitudinal survey study (N = 450).
Duffy et al(2014)	Question survey method	Regarding highest level of educational attainment of responder, 8 (1%) some high school, 100 (10%) high school, 27 (3%) vocational school, 363 (35%) some college, 383 (37%) college, and 148 (14%) graduate/professional school
Gazica (2014)	Literature research, Question survey method	Sample consisted of 261 persons employed no fewer than 20 hours a week, Of the 261 respondents, 204 were female and 56 were male.
Douglass & Duffy (2015)	Literature research, Question survey method	The study examined the relation of calling and career adaptability with a sample of 330 undergraduate students.
Neubert & Halbesleben (2015)	Literature research, Survey method	This study tested the proposed relationships in a nationally random sample of 1,714 adults in the United States

Table 1 lists several typical related researches of living a calling. Table 1 showed different research subjects were used by different research methods. Generally speaking, they are mainly based on questionnaire research methods or qualitative research methods.

The meaning of life and work to a large extent could stimulate people to pursue a calling and was a key factor of living a calling. Callings were divided into searching a calling, perceiving a calling, living a calling and unanswered a calling. The influence

of the four kinds of calling on job satisfaction was not the same, From least influential to most influential was searching a calling, perceiving a calling and unanswerd a calling or living a calling (Cheng, Chen, Teng, & Yen, 2016; Duffy et al., 2013). Searching a calling was a process in which an individual intends to explore, experience, and even cultivate him or herself. The meaning of life and work to a large extent could encourage one's quest for a calling and also became a key factor of perceiving a calling (Elangovan et al., 2010). Perceiving a calling referred to the existence of a calling which inspired an individual engage in a specific profession or activity. Supports from parents, teachers and friends played a key role in the generation of individual calling. For example, mother was especially important in perceiving the callings for female college students (Schuh et al., 2016). From perceiving a calling to living a calling, there were many factors, and among them, economic, educational and religious variables were all likely to breed unanswerd occupational calling. Other factors, such as self-efficacy of career decision-making and work-family conflict, might also restrict living a calling.

Not all personal callings could be realized or answered. It might generate more internal conflicts, which was called an unanswerd calling. In fact, due to the economic, social and psychological factors among other things, people might not respond to a calling. Instead, to a certain extent, these factors might reduce a person's commitment and lead to frustration, regret, and negative emotions, and even directly affect individual behavior and performance. Berg et al. (2010) defined an unanswerd calling as a sense of occupational calling that an individual feel drawn to pursue, expects to be intrinsically enjoyable and meaningful, and took as a central part of his or her identity but was not formally experiencing in a work role. An unanswerd calling was thus an attitude towards a specific occupation that was not part of one's formal occupational

role (Duffy et al., 2014).

Living a calling enabled individuals to experience more work meaning and true self, which had a broad and far-reaching positive impact on an individual's work and life. Thus, living a calling in this study was defined intrinsic strength and lasting passion for one's own work. The measurement of living a calling in this study is developed by Duffy, Allan, and Bott (2012).

2.1.3 Job crafting

As first put forward in 2001, the concept of job crafting referred to a series of positive behavioral tendencies that workers performed themselves to align their interests, motivations, and passions with their work and change their work tasks and relationships boundaries (Wrzesniewski & Dutton, 2001). Workers modified some aspects of their jobs to improve the fit between job characteristics and their own needs, abilities, and preferences on their own initiatives (Wrzesniewski & Dutton, 2001). Task revision meant that staff took active actions to adjust their expected job roles when the work or tasks they undertook were assumed to be incorrect, while individualized treatment emphasized consultations between an employee and an organization under personalized work arrangements (Hornung, Rousseau, & Glaser, 2008). Job crafting could be a specific form of proactive work; where workers begin to change the level of job demands and job resources. Job crafting might be facilitated by individual job characteristics and might enable workers to fit their jobs to their personal knowledge, skills and abilities on the one hand and to their preferences and needed on the other hand (Tims & Bakker, 2010). Job crafting referred to changes that individuals make in their work to meet their own preferences and needed (Brenninkmeijer & Hekkert-Koning, 2015). The typical related researches of job crafting were shown in Table 2.

Table 2 Typical Related Researches of Job Crafting

Author	Antecedents	Outcomes	Measure Method	Research Type /Sample
Shanock & Eisenberger (2006)	Perceived organizational support,	In-role performance and extra-role performance	The Survey of Perceived Organizational Support; Performance measures;	248 full-time workers in a chain of large discount electronics and appliances stores
Berg et al. (2010a)	Unanswered occupational calling,	Beneficial organization; pleasant psychological states	Qualitative research	Theoretical speculation;
Bakker et al. (2012)	Proactive personality	Work engagement, Job performance	Proactive Personality Scale; job crafting scale ; Utrecht Work Engagement Scale ; Peer-ratings	Included 95 dyads of workers (N = 190). The respondents were recruited through several organizations in the Netherlands.
Petrou et al. (2012)	Day-level work pressure, Day-level job autonomy,	Day-level work engagement	Questionnaires ; Multilevel structural equation modeling	Included 475 occasions at the lower level and 95 respondents at the higher level
Brenninkmeijer & Hekkert-Koning (2015)	Regulatory focus	Work engagement ; Perceived employability	Questionnaires ; Results were analyzed using structural equation modeling.	Included 383 registered candidates from a consultancy organization that operates within the branch's pharmacy, medical devices, food, and healthcare.
(Bakker et al., 2016)	Work environment	Work engagement	Job crafting scale	206 workers (103 dyads)

Table 2 showed that job crafting is more of a mediating variable in various literatures. The antecedent and outcome variables of job crafting are different in different literatures. In today's times of rapid organizational change, job crafting might constitute a promising alternative to traditional job re-designing approaches. To a large extent, job crafting was a good way for workers to improve their work motivation and bring about other positive work outcomes.

To summarize, job crafting in this study referred to an employee's initiative behavioral intention to re-design work to improve the fit between job characteristics and one's own needs, abilities and preferences. Job crafting in this study included four dimensions, namely crafting structural job resources, crafting hindering job demands, crafting social job resources and crafting challenging job demands. Crafting structural job resources in this study emphasized that employees re-design job resources to be more diverse and present more opportunities for development and greater autonomy. Crafting hindering job demands in this study referred to employees who took the initiative to reduce job demands when perceiving job demands was too difficult. Crafting social job resources in this study meant that an employee took the initiative to pursue social support, job guidance and job feedback for one's work. Crafting challenging job demands in this study referred to an employee's motivation to develop knowledge and skills to achieve higher goals for one's own work. In this study, the measurement of job crafting in the literature Tims et al. (2012) is well used.

2.1.4 Work engagement

Kahn (1990) explored work engagement at an architectural firm. He observed that camp counselors and architects employed themselves physically, cognitively, and emotionally in their work roles, and he subsequently defined engagement as three-

component expression of physical, cognitive, and emotional roles. Engagement could improve job satisfaction, job accuracy and communication integrity (Oyserman & Lee, 2008).

Thus, more and more organizations were concerned about employee engagement. Employee engagement had a very important impact on the performance of the organization and its long-term development, so how to improve employee engagement became a core issue of sustainable development of modern enterprises. A definition of employee engagement by Maslach and Leiter (1997), suggested that engagement was the direct opposite of burnout; it was comprised of energy, involvement, and efficacy (Grant & Parker, 2009). Engaged workers were described as immersing themselves in their work roles, and thereby delivering high quality work (Harju et al., 2016). Engaged workers tend to be proactive, open to new information, and they were motivated to perform well in their work (Hambleton & Patsula, 1998). Employee expertise negatively related to work engagement's influence on service performance, which suggested that employee expertise compensated for low engagement (Hayes, 2013).

Research showed that work engagement was positively related to several key outcomes, such as financial returns, job performance, service performance and organizational citizenship behavior and it was negatively related to adverse effects such as organizational deviance. Daily work engagement had a direct positive relationships with daily financial returns (Xanthopoulou et al., 2009). Good relationship between leaders and workers was positively related to workers' work engagement and their appraisals of job performance (Breevaart, Bakker, Demerouti, & Heuvel, 2015). Work engagement directly impacted in-role and extra-role performance, indicating that

engaged workers were more likely to perform well on in-role performance and go beyond what was expected in their extra-role performance (Jackson, 2014). The personal resources intervention had a positive causal effect on work engagement and the joint personal resources and similarly job crafting intervention had a positive impact on self-ratings of job performance (Wingerden, Derks, & Bakker, 2015). Work engagement partially mediated the relation between positive orientation and job performance based on a sample of 388 male security agents (Alessandri, 2015). The literature also showed that workers' expertise, family balance and organizational bias had a negative correlation with employee engagement. Work engagement could also play an effect in family balance and service performance (Aryee et al., 2016). And it had a negative impact on organizational deviance (Clercq, Bouckennooghe, Raja, & Matsyborska, 2014). The typical related researches of work engagement were shown as Table 3.

Table 3 Typical Related Researches of Work Engagement

Author	Antecedents	Outcomes	Measure Method	Research type /sample
Xanthopoulou et al. (2019)	Job resources, Self-efficacy	Financial returns	Work Engagement Scale (UWES-9)	Forty-two workers working in three branches of a fast-food company
Christian et al. (2011)	Job attitudes, Job characteristics, Leadership, Dispositional Characteristics	Job performance: Task performance; Contextual performance	Work Engagement Scale (UWES-9)	a conceptual framework based on Macey and Schneider
Sonnentag et al. (2012)	Morning recovery level	Subsequent recovery level	Work Engagement Scale (UWES-9)	122 respondents
Kataria et al. (2013)	Psychological Climate	Organizational citizenship behavior (OCB)	Work Engagement Scale (UWES-9)	Thirteen of the 25 organizations agreed to participate in the survey. A total of 278 completed questionnaires
Clercq, Bouckenoghe, Raja, & Matsyborska (2014)	The goal congruence between workers and their supervisor	Organizational deviance	Work Engagement Scale (UWES-9)	Of the 393 professionals invited to participate, 272 responses entered the analyses, representing a response rate of 69 %.
Alessandri (2015)	Positive orientation	Job performance	The positivity scale	388 male security agents
Aryee et al. (2016)	Satisfaction with work-family balance	Service performance	Job Demands-Resources (JD-R) model	Of the 171 questionnaires distributed, 144 completed and matched responses

Table 3 showed that work engagement was not only the result of other antecedents, but also the cause of important outcomes such as economic returns, job performance, task performance, relationship performance, service performance and organizational citizenship behavior. In summary, work engagement in this study was a state of behavior in which workers wholeheartedly devoted themselves to work and were willing to make extra efforts for the organization. In this study, the measurement of work engagement refer to the literature (Schaufeli et al., 2006).

2.1.5 Regulatory focus

The theory of regulatory focus had developed on the basis of self-discrepancy (Higgins, 1998) which focused on self-emotion studied and held that self-discrepancy was a cognitive structure of individuals. Different types of self-concept and self-regulation determined the impacts of these standards on personal moods. Regulatory focus theory distinguished between two separate and independent self-regulatory orientations that were fundamental to human behavior: promotion focus and prevention focus (Higgins, 1998). Individuals with a promotion focus strived for growth and development and aimed to maximize positive outcomes, whereas individuals with a prevention focus sought for safety and security and attempt to minimize negative outcomes. Furthermore, promotion-focused people endeavors to fulfill goals related to their ideal selves like hopes, wishes and aspirations, while prevention-focused people aimed to fulfill goals related to their ought self, referring to their duties, obligations and responsibilities (Higgins, 1998). Activating ideal or ought self-regulation by priming ideal or ought self-guides, would increase respondents' predilection for regulatory strategies respectively, and this in turn would increase recalling episodes that exemplified those strategies. Regulatory focus could be described as a mindset that

influences how people think and act (Vries, Koster, & Stam, 2016). One of the possible antecedents of job crafting was regulatory focus (Brenninkmeijer & Hekkert-Koning, 2015). Typical related research of regulatory focus was shown as Table 4.

Table 4 Typical Related Researches of Regulatory Focus

Author	Research Methods	Participate /Sample/ Theories
Higgins (1998)	Literature Research, survey method, Experiential Summary, Thinking method, Conceptual analysis, Comparative study	Caretaker, undergraduate respondents
Roberts (2008)	Literature Research, Comparative study, survey method, Conceptual analysis	Phase 1: Development and Validation of the Work Regulatory Focus (WRF) Scale, Phase 2: Test of the Theoretical Model of WRF and Leadership. The scale was developed in two stages. The sample included 250 individuals employed full time.
Brenninkmeijer (2015)	Literature Research, survey method, Comparative study	Questionnaires were collected among 383 registered candidates from a consultancy organization for recruitment, assessment and coaching that operates within the branch's pharmacy, medical devices, food, and healthcare.

Table 4 listed the typical literature of regularity focus, and different subjects adopted different research methods. To sum up, regulatory focus in this study referred to individual cognitive ways of regulating pleasure and pain which had a major impact on one's feelings and thoughts based on self-discrepancy. Regulatory focus distinguished two separate and independent self-regulatory orientations as promotion focus and prevention focus. Promotion focus in this study referred to reaching goals related to ideal-self, such as hopes, wishes and aspirations; workers strived for growth and development and it aimed to maximize positive outcomes. Prevention focus in this

study meant fulfill goals related to ought self like duties, obligations and responsibilities that the workers strived for safety and security and prevention focus aimed to minimize negative outcomes. The measurement of promotion focus and prevention focus in this study were associated with the regulatory focus scale, developed by Neubert, Kacmar, Carlson, Chonko, and Roberts (2008).

2.2 Prior Theory

To solve academic problems in the introduction, this study first explored the possible academic relationship between living a calling and job crafting on Self-discrepancy theory, and then revealed the relationship between job crafting and work engagement based on Job Resources-Demands model.

2.2.1 Self-discrepancy theory: living a calling, regulatory focus and job crafting

Higgins's Self-discrepancy theory held that individual self-concept included ideal self, ought self and actual self (Higgins, 1996). Existence involved positive outcomes were more sensitive when ideal self-regulation dominated; existence involved negative outcomes were more sensitive when ought self-regulation dominated. The distinct motivational nature of ideal self-regulation and ought self-regulation was described for: (1) sensitivity for events reflecting different psychological situations; (2) strategic inclinations and tactical preferences; and (3) emotional vulnerabilities and emotional memories (Vries et al., 2016).

Self-discrepancy theory argued that the inconsistency of emotional aspirations and realistic situation often stimulates individual actions to maintain emotional balance (Edwards, Cable, Williamson, Lambert, & Shipp, 2006). Self-discrepancy theory was the study of self-emotion and stated that self-discrepancy was a cognitive structure of individuals. The inner self and the external audience repeatedly narrated their own life

experiences to form one's life story and self-concept (Kataria et al., 2013). According to self-discrepancy theory, self-regulation related to ideals was a desired end, and its motivation was different from self-regulation, but should be another desired state of end. The distinction between ideals and self-regulation suggests that when ideals were dominant, the sensitivity of events involving the existence and non-existence of positive outcomes should be greater; and when attention was dominant, the sensitivity of events involving the absence and presence of negative outcomes should be greater.

Regulatory focus theory was related to self-discrepancy. Regulatory focus could be described as a mindset that influences how people think and act (Vries et al., 2016). Regulatory focus theory distinguished between two separate and independent self-regulatory orientations that were fundamental to human behaviors: promotion focus and prevention focus (Higgins, 1998). People with promotion focus strived for growth and development and aimed to maximize positive outcomes, whereas people with prevention focus strived for safety and security and aimed to minimize negative outcomes. Furthermore, people with promotion focus tried to reach goals related to the ideal self, referring to their hopes, wishes and aspirations, while people with prevention focus went for fulfilling goals related to the ought self, such as duties, obligations and responsibilities.

Thus, living a calling, promotion focus and prevention focus were variables in the theory of self-difference. Living a calling was the strong passion and inner power of self-concept. Regulatory focus could be described as a mindset that influences how people think and act (Vries et al., 2016). One of the antecedents of job crafting was regulatory focus (Brenninkmeijer & Hekkert-Koning, 2015). Living a calling was positively related to employee's well-being, and therefore living a calling for workers

might mean opportunities to craft own jobs. Career calling viewed as a salient and meaningful career goal had positive correlations with well-being (Kim et al., 2016). Living a calling totally mediated the negative relation between job crafting and turnover intention (Esteves & Lopes, 2017).

2.2.2 Job Demands-Resources model: job crafting and work engagement

In the field of occupational research, the relationship between job characteristics and physical and mental health of employee was widely studied. In this regard, psychologists put forward a series of proposed research models. Among them, there were three important epoch-making models: Demand-Control model of job strain (Karasek, 1979), Job Demands-Resources (JD-R) model of Burnout (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), and Job Demands-Resources model to work engagement (Bakker, Rodriguez-Munoz, & Sanz-Vergel, 2016; Tims et al., 2012).

2.2.2.1 Demand-Control model of job strain

In the 1970s, there was stagflation crisis in the Western world with economic structural characteristics. Enterprises began to adjust and reform. In the era of globalization and complexity of the work, the research of job strain had become a hot spot (Johnson, 2008). Based on the Demand-Control model, there were two kinds of job characteristics that could affect an individual's occupational health. One was job stress as perceived by the individual, and the other was work control, which meant an individual's control of his or her work and skills. The demand control model of job stress included the pressure hypothesis and the buffer hypothesis. The stress hypothesis was that perceived stress increases with the increase of job demands, which meant the decrease of job control. The buffer hypothesis was that job control could regulate the

negative impact of job demands on mental health. When the level of job control was high, high work demands could promote an individual's positive work.

2.2.2.2 Job Demands-Resources model of burnout

With the development of industrial production, job burnout became a topic of study. Many studies showed that both alienation and indifference at work turn out to be that material, psychological and social resources were not fully satisfied, so the Job Demand- Resource model was used in research on burnout (Demerouti et al., 2001). Demerouti et al. (2001) formally proposed Job Demand- Resource model of burnout (JD-R) (Demerouti et al., 2001). The universality of the model was verified in various occupations. The model assumes that job burnout originated from job demands and job resources imbalance, and many job resources could compensate for it. Research results of this model could provide a tool for competitive advantage, for the evidence showed that job demands and resources balance could improve the health level of workers and maintain the production efficiency (Bakker, Demerouti, Taris, Schaufeli, & Schreurs, 2003).

The Job demands-resources model indicated that working conditions could be categorized into two broad categories: job demands and job resources, which were differentially related to specific outcomes (Demerouti et al., 2001). A series of LISREL analysis with self-reports as well as observer ratings of the working conditions provided strong evidence for the Job demands-resources model: Job demands were primarily related to burnout, whereas lack of job resources were related to disengagement (Demerouti et al., 2001). Job demands need physical, psychological, social, or organizational requirements, require constant physical or mental efforts or skills and were associated with certain physical and psychological factors. Its operating indicators

include: emotional demands, interpersonal demands, workload, time pressure, job responsibilities, role conflict, work-family conflict, work environment, etc. Work resources referred to the material, psychological, social or organizational resources in work. Job resources also helped employees achieve work objectives, reduced job demands related to physical and mental consumption, and motivate individuals to grow, learn and develop (Bakker & Demerouti, 2007; Demerouti et al., 2001; Dollard & Lamontagne, 2007) .

On the hypotheses of the main effect, the Job demands-resources model showed the influence that job demands and job resources had on the physical and mental health. In terms of the buffer effect of job resources, Job demands-resources model integrated human growth, motivation and health problems into the same model, which might be helpful to transfer from negative psychology to positive psychology. The Job demands-resources model focused on different variables in the job characteristics, that could be used in different occupations.

2.2.2.3 Job Demands-Resources model of work engagement

The Job Demands-Resources model later developed to focus on work engagement, well-being, job satisfaction, organizational commitment and job performance (Bakker & Demerouti, 2007). This study discussed job crafting through Job Demands-Resources model, because the author was very interested in how knowledgeable workers contribute to work engagement. Job Demands-Resources theory proposed that all job characteristics could be categorized as either job demands or job resources (Bakker & Demerouti, 2008, 2014; Bakker et al., 2016). Job demands referred to those physical, social or organizational aspects of the job that require sustained efforts at the physical or cognitive levels (Bakker et al., 2016). Job resources were defined as aspects of the

job that might be helpful to achieve work goals, reduce demands or stimulate personal growth (Bakker et al., 2016). According to the Job Demands-Resources model, job demands and job resources initiated two different and simultaneous processes, with chronic high job demands leading to strain, health problems and absenteeism, and high job resources leading to positive organizational outcomes (Demerouti et al., 2001). The Job Demands-Resources model also explained additional variance in job strain and work engagement, and indirectly explained the performance (Bakker et al., 2016). Specifically, job resources buffered the undesirable impact of job demands on strain, whereas challenge job demands boosted the positive impact of job resources on work engagement. By framing job crafting in terms of Job Demands-Resources model, this study could capture a wide variety of aspects that workers might proactively change in their jobs (Bakker et al., 2016).

Due to the important theoretical and practical significance of job crafting, several scholars carried out a multi-faceted research on job crafting in recent years. Based on the JD-R Model, some scholars defined job crafting as a change in workers' behavior in order to balance job demands and job resources, according to their own ability and needed (Petrou, Demerouti, Peeters, Schaufeli, & Hetland, 2012; Tims & Bakker, 2010). This definition emphasized the effects of job characteristics on employee work engagement and well-being. Workers imitated job crafting behaviors with each other and therefore influence mutual work engagement (Bakker et al., 2016). Crafting social and structural job resources and crafting challenging job demands were positively related to employee own work engagement, whereas crafting hindering job demands was unrelated to employee own engagement (Bakker et al., 2016). So, by the job demands-resources approach, job crafting not only proactively changed workers' work

environment, but it also influenced workers' work engagement for themselves and for their colleagues.

2.3 Related Research and Proposed Hypotheses

Based on the above literature of key concept and prior theory, this study proposed eight sets of hypotheses as follows.

2.3.1 Direct effects of living a calling on job crafting

Job crafting was one of the ways to bridge the calling gap between factual self and counterfactual self (Berg et al., 2010). The psychological states of enjoyment and meaning facilitated by workers experience were associated with their pursuit for callings (Berg et al., 2010). The propositions on callings, job crafting, and self-regulation processes had important implications for theory and future research (Berg et al., 2010). These dimensions referred to actual behaviors what people crafted their jobs (Kim et al., 2016). Living a calling generally mediated the negative relation between job crafting and turnover intention (Esteves & Lopes, 2017). Job crafting was a form of proactive work tend that involved how workers actively changed their job characteristics (Rudolph, Katz, Lavigne, & Zacher, 2017). Higgins's Self-discrepancy theory held that individual self-concept included ideal self, ought self and actual self (Higgins, 1996). Self-discrepancy theory argued that the inconsistency of emotional aspirations and realistic situations often stimulates individual actions to maintain emotional balance (Edwards, Cable, Williamson, Lambert, & Shipp, 2006). The theory of self-discrepancy was the study of self-emotion and stated that self-discrepancy was a cognitive structure of individuals. The inner self and the external audience repeatedly narrated their own life experiences to form calling (Kataria et al., 2013). So, living a calling for workers might mean opportunities to craft own jobs. Therefore, this study

tested empirically that living a calling had a positive effect on job crafting and the following hypotheses were formulated:

H1: Living a calling had positive direct effect on job crafting.

On the basis of JD - R theory, Tims et al. (2012) empirically distinguished four dimensions of job crafting, namely: crafting structural job resources, crafting social job resources, crafting challenging job demands and crafting hindering job demands. The sub-hypothesis H1 was as follows.

Living a calling had positive direct effects on: H1a. crafting structural job resources; H1b crafting hindering job demands; H1c. crafting social job resources; H1d. crafting challenging job demands.

2.3.2 Direct effects of job crafting on work engagement

Job crafting was a way that workers invisibly express and freely fit their own sense of what the job should be (Wrzesniewski & Dutton, 2001). Job crafting could be described as ways that workers might increase their job resources and seek more challenges to proactively cope with job boredom and thus enhance their work engagement (Harju et al., 2016). A positive outcome of job crafting was work engagement (Tims et al., 2012). By crafting workers' own job resources and setting their own job challenges, they actively work on their own engagement (Bakker et al., 2012). Workers might imitate job crafting behaviors with each other, thereby influencing their work engagement (Bakker et al., 2016). Using the job demands-resources model approach, it was found that workers' active change of work environment could influence their own work engagement and that of their colleagues among 206 workers (103 dyads) (Bakker et al., 2016).

When workers faced high job demands (challenges) and had enough job resources,

they could actively develop in their work (Hakanen et al., 2008). Job resources particularly had an impact on engagement when job demands were high (Hakanen et al., 2008). Work engagement could be promoted by job crafting, but it might also promote initiatives, such as active feedback (Bakker & Demerouti, 2008). Crafting hindering job demands could harm personal growth and tend to trigger negative emotions and passive or emotion-focused coping styles and were negatively related to work engagement (Crawford, Lepine, & Rich, 2010). Crafting challenging job demands also motivated workers to reach difficult goals, even though these goals require more efforts (Tims et al., 2012). Minimizing the emotional, mental or physical workload could decrease the optimal level of challenge, which might result in a less stimulating environment and lower one's work engagement (Petrou et al., 2012). Increasing structural and social job resources could have a positive relationship with high work engagement, and reducing hindering job demands could protect and increase workers' well-being and reduce their level of burnout (Tims, Bakker, & Derks, 2013a). Crafting job resources could be effective for workers to increase their engagement and employability, whereas crafting hindering job demands was negatively associated with work engagement (Brennkmeijer & Hekkert-Koning, 2015). Crafting social and structural job resources and crafting challenge job demands was positively related to own work engagement, whereas decreasing hindering job demands was unrelated to own engagement (Bakker et al., 2016). Seeking challenges was used to predict employees' work engagement (Harju et al., 2016). Taken together, these studies gave empirical and theoretical supports for the correlation between job crafting and work engagement.

Based on the propositions of the JD-R model and literature described above, this

study examined whether job crafting could have direct effects on work engagement, and the following hypotheses were formulated:

H2: (a) crafting structural job resources, (c) crafting social job resources and (d) crafting challenging job demands had positive direct effects on work engagement; (b) crafting hindering job demands had a negative direct effect on work engagement.

2.3.3 Direct effects of living a calling on work engagement

Living a calling was the main source of personal work and life passion. According to a survey of 62% of the respondents who had different levels of college degrees, the results showed that living a calling enables workers to experience more organizational identity, work significance, work engagement and truth, which had a broad and far-reaching positive impact on individuals' work and life (Duffy et al., 2014). The calling positively related to an employee's career adaptability, work engagement, and career satisfaction according to the survey on 832 Chinese workers (Xie, Xia, Xin, & Zhou, 2016a). The sense of callings totally mediated the negative relation between the job crafting and turnover intention (Esteves & Lopes, 2017), that was to say, the sense of callings was positively related to work engagement. The indirect effects of work meaning, and career commitment on living a calling and with high levels of job satisfaction were significant (Duffy et al., 2017). While career and calling attribute were present among respondents, it proved that there was no strong relationship with employee work engagement in their present occupations (Avinante, Anastacio, Mangalile, & Francisco, 2017). With a calling orientation, several self-reported benefits could be linked, including higher life, health, and job satisfaction, and lower absenteeism than job- and career-oriented respondents (Berg et al., 2010).

Saying about the relationship between sense of mission and work engagement could be found everywhere in Chinese traditional culture, such as " It took a teacher to transmit wisdom, impart knowledge, and resolve doubts. " which was a saying that referred to the relationship between living a calling and work engagement for the faculty. "Angels in white" was another saying that referred to the relationship between living a calling and work engagement for medical staff. "To worry before the common people could worry, and to enjoy only after the people could enjoy" was a saying that referred to the relationship between living a calling and work engagement for civil servants. Honoring the ancestors of Confucian culture in China also showed the relationship between living a calling and work engagement for family interests. Therefore, this study puts forward hypothesis H3 as follows.

H3: Living a calling had a positively direct effect on work engagement.

2.3.4 Mediating effects of job crafting

The propositions on callings, job crafting, and self-regulation processes had important implications for theory and future research (Berg et al., 2010). Job crafting was one of the meant to bridge the calling gap between actual self and counterfactual self (Berg et al., 2010). Living a calling enabled workers to experience more organizational identity, work meaning and true self, which had a broad and far-reaching impact on an individual's work and life (Duffy et al., 2014). Living a calling generally mediated the negative relation between crafting challenging job demands and turnover intention (Esteves & Lopes, 2017). The crucial role of job crafting had an effect on work engagement and turnover intention (Agarwal & Gupta, 2017). It was a form of proactive work behavior that involved how workers actively changed their job characteristics (Rudolph et al., 2017).

This concept of job crafting also echoed the orientation of positive organizational scholarship. Job resources played an intrinsically motivational role by facilitating learning and personal development, and were extrinsically motivational by providing instrumental help for achieving of work goals (Bakker & Demerouti, 2007). Job resources liked feedback, social support, and skill variety, were assumed to play either an extrinsically motivational role in achieving work goals, or an intrinsically motivational role in fostering workers' growth, learning, and development (Hakanen, Perhoniemi, & Toppinen-Tanner, 2008). They fulfill workers' basic needed for autonomy, relatedness and competence (Broeck, Vansteenkiste, Witte, & Lens, 2008). In addition, job crafting also had a positive impact on an organization. It could affect organizations' financial performances, job satisfaction and commitment of organization members (Kim & Lee, 2015). Workers responded to organizational change communication via job crafting behaviors, which could further enhance or hinder their adjustment to the change (Petrou, Demerouti, & Schaufeli, 2016). Work engagement was a positive outcome of job crafting (Tims et al., 2012). An employee's job crafting was related to his or her colleague's work engagement through the colleague's job crafting (Bakker et al., 2016). By crafting workers' own resources and setting their own challenges, they actively worked on their own engagement (Bakker et al., 2012). Workers might imitate each other's job crafting behaviors, thereby influencing mutual work engagement (Bakker et al., 2016).

Increasing structural and social job resources had a positive relationship with high work engagement, and reducing hindering job demands could protect and increase workers' well-being and reduce their level of burnout (Tims et al., 2013a). Crafting job resources could be effective for workers to increase their engagement and employability,

whereas crafting hindering job demands was negatively associated with work engagement (Brenninkmeijer & Hekkert-Koning, 2015). Crafting social and structural job resources and crafting challenge job demands was positively related to one's own work engagement, whereas decreasing hindering job demands was unrelated to one's own engagement (Bakker et al., 2016). Seeking challenges was to positively predicts employee work engagement (Harju et al., 2016). Job crafting might be facilitated by job features and individual characteristics, which might enable workers to match their personal knowledge, skills and abilities on the one hand and fit their preferences and needed on the other. Job crafting framed with JD–R model (Job Demand-Resource model, JD-R) showed that the employee might increase the level of job resources available at work and decrease the difficulty of job demands at work (Tims & Bakker, 2010).

As explained above, workers who were living a calling might be more inclined to craft their job resources and job demands, which might eventually affect their work engagement. This study examined empirically that living a calling might be associated with stronger work engagement through positive associations with increasing the mediation of structural job resources, social resources, and challenging demands, and decreasing the mediation of hindering job demands. Therefore, it was expected that all forms of job crafting could act as mediating factors between living a calling and work engagement, leading to the following hypotheses:

H4: (a) crafting structural job resources, (b) crafting hindering job demands, (c) crafting social job resources and (d) crafting challenging job demands had a mediating effect on the relationship between living a calling and work engagement.

2.3.5 Moderating effects of promotion focus on the relationship between living a calling and job crafting

Regulatory focus theory was related to a variety of emotions and behaviors at the workplace (Kim, 2012). It distinguished between two separate and independent self-regulatory orientations that were fundamental to human behaviors: promotion focus and prevention focus (Higgins, Shah, & Friedman, 1997). Promotion-focused individuals tend to be alert to positive outcomes and seek possibilities that were relevant for attaining success and personal growth (Higgins, 1998). Promotion focus encourages people to reach goals related to their ideal self, referring to their hopes, wishes and aspirations. Promotion focus incorporates achievement, ideals, and gains (Madlock & Kennedy-Lightsey, 2010).

Promotion focus might had a positive effect on the motivation of crafting job resources and crafting job demands by activating workers' need for development (Shimazu & Schaufeli, 2008). The psychological states of enjoyment and meaning facilitated by workers experience were associated with the callings of their pursuit (Berg et al., 2010). An individuals' calling included higher intrinsic motivation, job satisfaction, career success, engagement, and well-being (Duffy, Dik, & Steger, 2011). Promotion focus was related to calling and job crafting to a variety of behaviors such as decision-making (Gu, Bohns, & Leonardelli, 2013) and bargaining (Elzamly & Amin, 2011). Pursuing one's calling had the potential to be associated with strengthening relational bonds or alienating others, and even for individuals with the most flexible work identities, challenges, and pressure created by a hostile or unsupportive work environment might weaken a sense of calling (Cardador & Caza, 2012). Individuals with promotion focus strived for growth and development and aimed to maximize

positive outcomes (Brenninkmeijer & Hekkert-Koning, 2015). They were more sensitive to positive outcomes, and more likely to achieve personal satisfaction by crafting job resources and crafting challenging job demands (Brenninkmeijer & Hekkert-Koning, 2015).

Based on the literature, this study examined whether promotion focus had a moderating effect between living a calling and job crafting, and the following hypotheses were formulated:

H5: Promotion focus had positive moderating effects on the relationships between living a calling and job crafting.

The sub-hypothesis of H5 was as follows. Promotion focus had positive moderating effects on the relationships between living a calling and (a) crafting structural job resources, (b) crafting hindering job demands, (c) crafting social job resources and (d) crafting challenging job demands.

2.3.6 Moderating effects of prevention focus on the relationship between living a calling and job crafting

Individuals with a prevention focus tended to be alert to negative outcomes, such as failures (Higgins et al., 1997). Prevention-focused people might respond actively to job demands when these demands present a barrier to fulfilling of their obligations (Higgins, 1998). Prevention focus consists of security, responsibility /duties, and losses (Madlock & Kennedy-Lightsey, 2010). Prevention focus was related to a variety of behaviors such as perceived risk (Lin, Chang, & Lin, 2012). Thus, prevention focus was driven by duties, obligations and responsibilities, with sensitivity to the presence or absence of negative outcomes.

Prevention focus was used to conceptualize the individual and the organizational

motivational orientation. A calling orientation could lead to increasing subjective well-being, but the pursuit of one's calling might also be a difficult path that leads to high sacrifice, personal strain, and depletion, resulting in lowered subjective well-being (Cardador & Caza, 2012). Individuals were engaged in unhealthy pursuit of callings when they form negative and depleting relationships, facilitated by a strong investment in work and accompanied by a rigid work identity (Cardador & Caza, 2012). Without work-identity flexibility, individuals with callings had more difficulty adapting to the natural changes and stressors in their profession, lives, and work environment (Cardador & Caza, 2012). Job crafting behaviors (i.e., seeking resources and seeking challenges) in general helped workers stay motivated, healthy and performed their tasks adequately during organizational change (Demerouti, 2013). Reducing demands proved to be less helpful strategies and was linked to future employee feelings of exhaustion (Demerouti, 2013). Leaders with prevention focus of the leader would promote a preference for stability, risk aversion and a quality-oriented culture at the group level amongst workers (Demerouti, 2013).

Individuals with a prevention focus strived for safety and security and aimed to minimize negative outcomes (Brenninkmeijer & Hekkert-Koning, 2015) as they paid attention to safety and responsibility with crafting hindering job demands (Brenninkmeijer & Hekkert-Koning, 2015). Workers with high prevention focus were more likely to take the initiative to create opportunities to reduce hindering job demands (Brenninkmeijer & Hekkert-Koning, 2015). Thus, prevention-focused individuals probably were responsible for filling their duties, and this might include duties that arise from job demands. Based on literature, this study examined whether prevention focus had moderating effects between living a calling and job crafting, and the following

hypotheses were formulated:

H6: Prevention focus had negative moderating effects on the relationships between living a calling and job crafting. The sub-hypothesis of H6 was as follows. Prevention focus had negative moderating effects on the relationships between living a calling and (H6a) crafting structural job resources, (H6b) crafting hindering job demands, (H6c) crafting social job resources and (H6d) crafting challenging job demands.

2.3.7 Moderating effects of promotion focus on the relationship between living a calling and work engagement

Promotion-focused individuals tend to be alert to positive outcomes and seek for possibilities that were relevant to attaining success and personal growth (Higgins et al., 1997). Promotion focus encouraged people to reach goals related to their ideal self, referring to their hopes, wishes and aspirations (Higgins, 1998). Promotion focus incorporated achievement, ideals, and gains (Madlock & Kennedy-Lightsey, 2010). Individual callings included higher intrinsic motivation, job satisfaction, career success, engagement, and well-being (Duffy et al., 2011). Individuals with a promotion focus strived for growth and development and aimed to maximize positive outcomes (Brenninkmeijer & Hekkert-Koning, 2015). They were more sensitive to positive outcomes, and they were more likely to achieve personal satisfaction by crafting job resources and crafting challenging job demands (Brenninkmeijer & Hekkert-Koning, 2015). Based on the literature, this study examined whether promotion focus had moderating effects between living a calling and work engagement, and the following hypotheses H7 were formulated:

H7: Promotion focus had positive moderating effects on the relationship between living a calling and work engagement.

2.3.8 Moderating effect of prevention focus on the relationship between living a calling and work engagement.

Individuals with a prevention focus tended to be alert to negative outcomes, such as failures. Prevention-focused people might respond actively to job demands when these demands present barriers to fulfilling their obligations (Higgins, 1998). Prevention focus incorporated security, ought, and losses (Madlock & Kennedy-Lightsey, 2010). It was also an important to note that prevention focus was considered orthogonal constructs (Kline, 2010). Prevention focus was related to a variety of behaviors such as perceived risk (Lin et al., 2012). Prevention focus was used to conceptualize the individual and the organizational motivational orientation. Prevention focus paid attention to safety and responsibility with crafting hindering job demands (Brenninkmeijer & Hekkert-Koning, 2015). Based on literature, this study examined whether prevention focus had moderating effects between living a calling and job crafting, and the following hypotheses were formulated:

H8: Prevention focus had negative moderating effects on the relationship between living a calling and work engagement.

2.4 Proposed Model

As China developed, knowledged workers paid more and more attention to the intrinsic value and significance of their work, and they realize the importance of living their callings. Does living a calling of knowledged workers affect work engagement through job crafting? Does regularity focus of knowledged workers affect the relationship between living a calling and job crafting? Based on the literatures review of key concept, prior theory and research hypotheses, the proposed research model was showed in Figure 1.

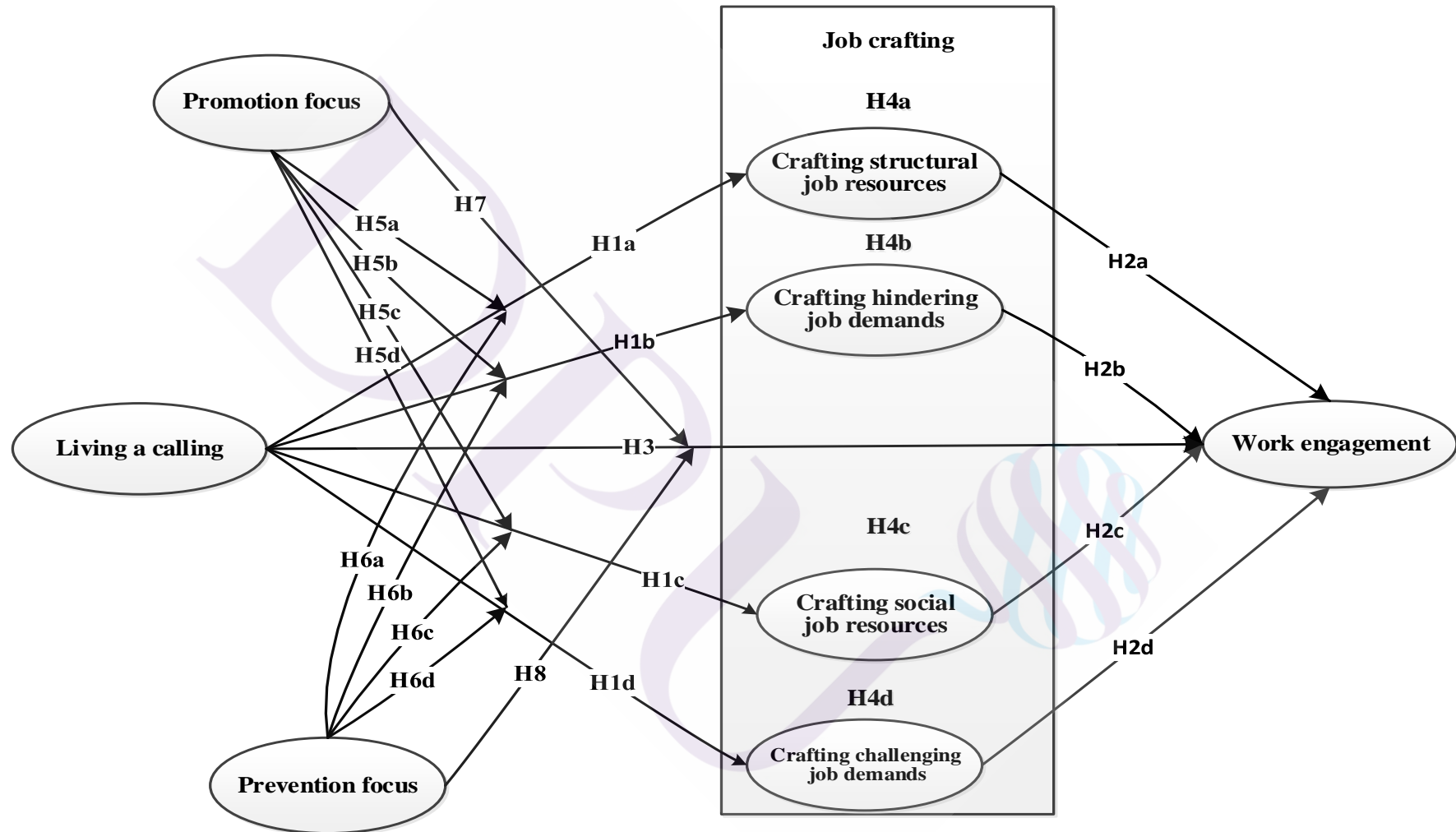


Figure 1 Proposed Model

Model 1 showed eight groups of hypothetical relationships and three types of effects as follows.

First, three groups of direct effects included: (1) The positive effect of living a calling on crafting structural job resources (H1a), crafting hindering job demands (H1b), crafting social job resources (H1c) and crafting challenging job demands (H1d); (2) The positive effect of crafting structural job resources (H2a), crafting hindering job demands (H2b), crafting social job resources (H2c) and crafting challenging job demands (H2d) on work engagement; (3) The positive effect of living a calling on work engagement (H3).

Second, a group of mediating effects included: (1) The mediating effect of crafting structural job resources on the relationship between living a calling and work engagement (H4a), (2) the mediating effect of crafting hindering job demands on the relationship between living a calling and work engagement (H4b), (3) the mediating effect of crafting social job resources on the relationship between living a calling and work engagement (H4c) and (4) the mediating effect of crafting challenging job demands on the relationship between living a calling and work engagement (H4d).

Finally, four groups of moderating effects included: (1) The moderating effect of promotion focus on the relationship between living a calling and crafting structural job resources (H5a), crafting hindering job demands (H5b), crafting social job resources (H5c) and crafting challenging job demands (H5d); (2) The moderating effect of prevention focus on the relationship between living a calling and crafting structural job resources (H6a), crafting hindering job demands (H6b), crafting social job resources (H6c) and crafting challenging job demands (H6d); (3) The moderating effect of promotion focus on the relationship between living a calling and work engagement

(H7); (4) The moderating effect of prevention focus on the relationship between living a calling and work engagement (H8).



Chapter 3. Research Methods

Based on the above literature research, this study used questionnaire survey method to explore the relationship of living a calling, job crafting, regulatory focus and work engagement for knowledged workers.

3.1 Population, Sample and Sampling Procedures

This section described the population and sample of knowledged workers with common characteristics used in this study, and the design sampling procedures according to the random uniformity rule.

3.1.1 Population

Employees in the workplace, including someone who was a cleaner, might had a calling, so the theoretical population in this study was the employees in the workplace. Work autonomy was not only a subjective experience of satisfaction, but it also related to vitality, psychological flexibility, and self-realization (Lopes et al., 2014). The topic of work autonomy appealed to organizational scholars since it moved beyond hedonic perspectives of work behavior into deeper considerations of purpose, significance and happiness (Rosso et al., 2010). Increasing work autonomy would hence provide a “win-win” situation with benefits for both employers and employees (Lopes et al., 2014). This study concluded that knowledge employees were more likely to pursue autonomy, diversity, innovation spirit and living callings than non-knowledged workers employees such as cleaners and shop-floor workers to a certain extent. Therefore, the ideal population in this study was knowledged workers.

Nowadays, knowledged workers became a key force of modernization of science and technology, economic development and social progress in China. Knowledged

workers who work in a professional knowledge or skill field in China had a different levels of college degrees. The knowledged workers in this study were those who work in the field of professional knowledge or skills and had different levels of college degrees. Therefore, this study believed that the characteristics of the ideal target population were as followed. (1) The ideal respondents did not work fewer than 20 hours a week (Gazica, 2014) ; (2) the industrial structures and characteristics of them were widely distributed ; (3) they had a different levels of college degrees; (4) they had a strong desire to improve their ability and level of self-cultivation.

The part-time MBA students with a wide range of occupations catered to the above characteristics to a certain extent. All MBA students included two categories of full-time MBA students and part-time MBA students. Full-time MBA students were not working during their study, so were not included in this study. For example, the data analysis of job narrative interpretation was based on online posts from 140 part-time MBA students (Yeo & Li, 2015). Part-time MBA students had group work assignments and these experiences contributed to their perception of positive group work outcomes (Rafferty, 2013). Moulaye, Taher, and Chen (2011) explored the relationship between personality types of Chinese part-time MBA students and their performance. The sample population in the study by Duffy et al. (2017) were from some college (n = 234), undergraduate degree (n = 278), and professional degree (n = 125). Research on the proactive disposition was from samples of 282 upper-level undergraduates, 130 business students sample and 134 first-year MBA students (Bateman & Crant, 1993).

The part-time MBA students with a wide range of occupations in Chongqing make the ideal target population in this study and its reasons were as follows. (1) The same

could be said for the rest of China. Part-time MBA students in Chongqing were similar to MBA students throughout China where they were not limited gender, geographical location, nationality, religious belief, marriage, household registration and career background, which meant this population also represents a random sample. (2) Population distribution, education level, economic level and openness of Chongqing are among the top level in China, which reflected the practical research values of Chongqing part-time MBA students as population. (3) These part-time MBA students had a wide range of occupations, including medical, service, education, finance, administration, science and technology, manufacturing and other industries, which reflects the overall diversity of work characteristics of samples.

3.1.2 Sample

Chongqing was the largest and most populous city among the People's Republic of China's four provincial-level municipalities and the only one that lies in the western region of China. Chongqing's universities with part-time MBA students included Chongqing University, Southwestern University, Chongqing Technology and Business University and Chongqing University of Technology. Thus, all part-time MBA students from all four universities were involved in the survey.

In general, there were about 2,750 part-time MBA students in Chongqing. Approximately 1,500 part-time MBA students were from Chongqing University, 500 from Southwestern University, 500 were from Chongqing Technology and Business University and 250 were from Chongqing University of Technology.

3.1.3 Sampling procedures

The sampling procedure of this study had two steps. Firstly, according to the theoretical needs of the sampling survey, the effective sample size of this study was

extracted. Secondly, according to the proportional sampling rule, the sample size is extracted. Detailed sampling procedures are as follows.

According to the theoretical requirements of the sampling survey, the valid sample size of the study was determined. For a finite population, the formula (1) for a valid sample number was as follows (Minglong Wu, 2016).

$$n = \frac{N}{\left(\frac{\alpha}{k}\right)^2 \frac{N-1}{P(1-P)} + 1} \quad (1)$$

where α was the significance level; k was the quantile of the normal distribution; N was population; and p was usually set to 0.50, for credible sample size (Minglong Wu, 2016). In this study, N was 2750; α was 0.05; k was 1.96; P was 0.5. According to the calculation of sampling Formula (1), the valid sample size in this study should be over 196.

Some scholars directly defined the number of formal samples from the attributes of questionnaires. Creswell (2002) asserted that sample size should be over 350 in the general questionnaire survey. Airasian and Gay (2003) argued that the formal sample size of the questionnaire survey should account for 10% of the population if the population was more than 500; if the population was less than 500, the sample size should account for more than 20% of the population. Neuman (2003) held that the number of samples should account for more than 30% of the population if the population was small. There was no consensus among scholars on sample size in the questionnaire survey.

Considering the possibility of invalid questionnaires, sampling ratio of per University was 24%. where approximately 360 part-time MBA students were from Chongqing University, 120 part-time MBA students were from Southwestern

University, 120 part-time MBA students were from Chongqing Technology and Business University and 60 part-time MBA students were from Chongqing University of Technology. The total number of the sample was 660 part-time MBA students.

3.2 Data Collection Methods

The questionnaire design followed the principle of probability and statistics, and infers the general characteristics by measuring relatively large individual rules. This study examined the relationship on living a calling, job crafting, regulatory focus and work engagement of knowledged workers by using the mature scale in literature and 7-point Likert scale. The data collection in this study was divided into questionnaire design, construct measurement, data collection process and quality of the instrument.

3.2.1 Questionnaire design

The introduction of the questionnaire included coding, greetings and instructions. The survey cover letter stated the identity of investigators and the main contents, purpose, reasons and scope of the investigation to ensure the confidentiality of respondent data and that participation was voluntary. The details of the cover letter were as follows.

“Dear ladies and gentlemen, I am a Ph. D. student from Dhurakij Pundit University. To complete a research on job cognition and orientation, I developed a questionnaire. This questionnaire was not for commercial purposes, but for academic research only. The time it will take to complete the questionnaire was about 15 minutes. Part 1 and Part 2 contain both very subjective questions. Please select from 1-7 according to your situation. There were no right or wrong answers. Please answer them as truthfully and accurately as possible. Each question in Part 1 and Part 2 was written in Chinese and English for easy reference. Part 3 was basic data, which will be used for statistical

analysis only, and will not be disclosed to the public. Each of your answers will had a direct impact on the results of the study, so be sure to fill in every item and do not skip any questions. Thank you! I look forward to your participation, support and assistance.”

The announcements of cover survey letters were sent to the QQ group, WeChat group and website of the target population in order to cover the entire target population. Demographic questions were placed at the end of the questionnaire to find out some background information about the respondents. These questions were designed to collect information about the respondents, such as gender, age, years of work, educational background, working hours per week and types of work organization. This information was used only for statistical analysis and never disclosed to the public.

The participants in this study also needed two translators to translate English into Chinese. The two translators should be fully proficient in both languages, familiar with the cultures associated with the different language groups, and had an understanding of the subject areas with respect to the principles of correct and clear writing (Hambleton & Kanjee, 1995). One of the two translators, who was fully proficient in both English and Chinese, was responsible for translating the questionnaire from English to Chinese. And the other independently focused on back-translation from Chinese to English. In turn, the two English versions were compared by the first translator to assess equivalence (Hambleton & Patsula, 1998). The discrepancies were minor and were resolved through consultation between both translators. In addition, both translators had linguistic and context-specific expertise, which helped improve the quality of the translation–back-translation process. Finally, based on a decentering technique, the translation avoided word-for-word translations, and instead focuses on the preservation of meaning across languages (Resnik, Oard, & Levow, 2010). This strategy resulted in

a balanced treatment of psychological, linguistic, and cultural considerations. Moreover, this study specifically used both Chinese and English in the questionnaire to avoid understanding bias.

The respondents were invited to complete a survey that contained questions about their level of living a calling, promotion focus, prevention focus, job crafting and work engagement. The following methods were used to eliminate invalid questionnaires in this study. (1) Questionnaires with missing items. (2) Questionnaires with contradictory responses. (3) Questionnaires with all the same answers. (4) Questionnaires that showed obvious regularity. (5) Questionnaires where respondents did not follow the instructions.

In order to avoid common method variation, this study conducted preventive measures before the implementation of the questionnaire. First, the variable data area was divided into different sources. Then, the content of the questionnaire design and measurement tools were crafted to avoid unnecessary psychological responses to the questionnaire as far as possible.

3.2.2 Construct measurement

The main body of the questionnaire included all the questions to be investigated and consisted of questions and answers. The main body of the questionnaire used the scale of living a calling (Duffy et al., 2012), job crafting (Tims et al., 2012), work engagement (Schaufeli et al., 2006), promotion focus (Neubert et al., 2008) and prevention focus (Neubert et al., 2008). Each scale consisted of a set of statements, each of which used the Likert 7-point scale. Respondents were required to choose a value from 1 to 7. The measurement scale was given in Appendix A. There were 54 total questions with 6 questions-pertaining to living a calling, 18 regulatory focus, 21 job crafting and 9 work

engagement.

The six questions on living a calling were as follows: “I had regular opportunities to live out my calling,” “I am currently working in a job that closely aligns with my calling,” “I am consistently living out my calling,” “I am currently engaging in activities that align with my calling,” “I am living out my calling right now in my job,” and “I am working in the job to which we feel called” (Duffy et al., 2012). Respondents were asked to answer each item on a 7-point Likert scale ranging from “strongly disagree” to “strongly agree”. The option of “not applicable” was also included for respondents who had no sense of a calling (Duffy et al., 2012). This scale has been found to have a strong internal consistency reliability (Cronbach $\alpha = .85$) (Duffy et al., 2012). Living a calling scale was given in Appendix A.

The promotion focus scale and prevention focus scales referred to the regulatory focus scale, developed by Neubert et al. (2008). The regulatory focus scale consists of two dimensions: promotion focus (nine items, $\alpha = 0.82$, e.g. “I take chances at work to maximize my goals for advancement”) and prevention focus (nine items, $\alpha = 0.84$, e.g. “I do everything I could to avoid loss at work”). Unless otherwise indicated, all measures use a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) (Madlock & Kennedy-Lightsey, 2010). To be more accurate and consistent with other variables, promotion focus scale and prevention focus scale in this study use the 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Promotion focus scale and prevention focus scale were given in Appendix A.

There were two main perspectives on job crafting. One was the three-dimensional job crafting on task, relationship and cognition (Wrzesniewski & Dutton, 2001). Task crafting meant to increase or reduce the number of employee’s job tasks to expand or

narrow their job scope and change their job performance (Wrzesniewski & Dutton, 2001). For example, an employee could ask for new skilled work when (s)he feels that the job was becoming monotonous. For instance, dentists spend more time talking to patients and telling them the importance of protecting teeth. Accountants create a new way to reduce the amount of duplication work. Relationship crafting referred to changing the scope and quality of interpersonal communication to a certain extent (Wrzesniewski & Dutton, 2001). For example, computer technicians enhance their social relationships to help their partners and provide experience for novices. Hospital cleaners gain more appreciation by increasing communication with patients and their families. High quality relationships could motivate workers to trust and respect each other, so that workers could adapt and improve their level of work commitment, so as to form a more positive attitude, such as workplace friendships (Chen, Mao, An, Liu, & Yen, 2013). Cognitive crafting meant that workers change their understanding and perception of work tasks and relationships to produce different values (Wrzesniewski & Dutton, 2001).

The other was the four-dimensional job crafting: increasing structural job resources, decreasing hindering job demands, increasing social job resources and increasing challenging job demands based on the Job Demands-Resources model (Tims et al., 2012). These dimensions referred to the actual behavior of workers changing or shaping their work. Increasing structural resources referred to proactively mobilizing job opportunities, autonomy or skill diversity, whereas increasing social resources was seeking social support or performance feedback (Bakker et al., 2016). The two dimensions of increasing challenging job demands and decreasing hindering demand depend on different job needs. Increasing challenging job demands were the demands

that promote personal growth and stimulate individuals to hit demanding targets (Crawford et al., 2010). Decreasing hindering job demands meant to reduce the demands that were barriers to personal growth, learning and reaching goals (Bakker et al., 2016).

The division of four-dimensional job crafting based on the Job Demands-Resources model had also been widely supported by researchers (Kim et al., 2016; Nielsen & Abildgaard, 2012; Petrou et al., 2012). In fact, four dimensions and three dimensions of two perspectives of job crafting were essentially the same. Crafting social job resources was like crafting a relationship, and crafting challenging job demands and crafting hindering demands were like crafting tasks. When workers had few job resources, such as lack of support from colleagues, they could interact with colleagues for advice and support, which was relationship crafting. When workers were dissatisfied with challenging job demands, they could craft more challenges, such as adding tasks and volunteering to participate in interesting projects, which was also task crafting. Different from the three-dimensional job crafting of task, relationship and cognition, four-dimensional job crafting based on the Job Demands - Resources model seek more about the dynamic balance of job demands and job resources.

In this study, job crafting referred to a series of positive actions by knowledgeable workers to carry out their work tasks and relationship boundaries. Job crafting was measured by the 4-dimensions and 21-item job crafting scale developed by Tims et al. (2012). The reliabilities of these dimensions: crafting structural job resources (five items, $\alpha=0.76$, e.g. "I try to learn new things at work"), crafting social job resources (five items, $\alpha=0.73$, e.g. "I ask others for feedback on my job performance"), crafting challenging job demands (five items, $\alpha=0.77$, e.g. "When there was not much to do at

work, I see it as a chance to start new projects”), and hindering job demands (six items, $\alpha=0.75$, e.g. “I make sure that my work was mentally less intense”). Respondents could respond to these statements on a five-point Likert scale that ranged from “never” (1) to “often” (5) (Tims et al., 2012). To be more accurate and consistent with other variables, the job crafting scale in this study used to the Likert 7-point scale. Job crafting scale was given in Appendix A.

There were two scales of employee engagement. One scale was the job engagement scale including three dimensions of physical engagement, cognitive engagement and emotional engagement on the basis of Kahn’s (1990) engagement. Job engagement was defined as promoting connections to work and to others and giving full play to one’s physical, cognitive and emotional abilities in the performance of tasks. The other scale was the work engagement scale including three dimensions of vigor, dedication, concentration on the basis of Maslach and Leiter’s (1997) engagement. To achieve high work engagement, workers tend to experience working conditions, such as management support, clear roles, freedom of expression, recognition of performance and contribution to organizational goals. In this study, work engagement was defined as a fulfilling work-related state of mind characterized by vigor, dedication, and absorption. The nine-item version of the Utrecht Work Engagement Scale was employed to measure work engagement (Schaufeli et al., 2006). Based on the definition of work engagement featured with vigor, dedication, and absorption, a three-dimensional questionnaire made. The Cronbach’s α of work engagement in the nine-item version of the Utrecht Work Engagement Scale was .95 (Schaufeli et al., 2006). This scale had 7 response options ranging from 0 (never) to 6 (always) (Schaufeli et al., 2006). To be more accurate and consistent with other variables, work engagement scale in this study

used 7 response options ranging from 1 (never) to 7 (always). Work engagement scale was given Appendix A.

3.2.3 Data collection processes

The field questionnaires were conducted in this study. More than twenty teachers who teaching part-time MBA students were also invited to assist with this survey. The process of data collection was as followed.

First, field questionnaires and gifts were prepared. 1,000 questionnaires were printed and 1,000 small gifts (pens) were purchased for respondents in the week of late February 2017.

Second, field questionnaires were collected from Chongqing Technology and Business University. On March 3, 2017, the purpose and the notice of the questionnaires were sent by QQ group and WeChat group to all part-time MBA students at Chongqing Technology and Business University. During the break on March 4 and 5, 2017, field questionnaires and gifts were distributed to the part-time MBA students in different classes of Chongqing Technology and Business University, and in turn, and the field questionnaires were collected after the MBA students completed their answers.

Third, field questionnaires were collected from Southwest University. On March 10, 2017, the purpose and notice of the questionnaires were sent by QQ group and WeChat group to part-time MBA students at Southwest University. During the break on March 11 and 12, 2017, field questionnaires and gifts were distributed to the part-time MBA students in different classes of Southwest University, and in turn, the field questionnaires were collected after the MBA students completed their answers.

Fourth, field questionnaires were collected from Chongqing University. On March 17, 2017, the purpose and notice of the questionnaires were sent by QQ group and

WeChat group to part-time MBA students at Chongqing University. During the break on March 18,19,25 and 26, 2017, field questionnaires and gifts were distributed to the part-time MBA students in different classes at Chongqing University, and in turn, and the field questionnaires were collected after the MBA students completed their answers.

Fifth, field questionnaires were collected from Chongqing University of Technology. On March 31, 2017, the purpose and notice of questionnaires were sent by QQ group and WeChat group to part-time MBA students in Chongqing University of Technology. During the break on April 1, 2017, field questionnaires and gifts were distributed to the part-time MBA students in different classes at Chongqing University of Technology, and turn, and the field questionnaires were collected after the MBA students completed their answers.

Finally, the data of field questionnaires was input and stored. In April 2017, the questionnaires were entered into Excel documents, and invalid questionnaires were eliminated to complete the data collection.

3.2.4 Quality of the instrument

The quality of the instrument in this study was measured by its reliability and validity. The measurement requirements of reliability and validity were as follows.

3.2.4.1 Reliability

Reliability was the stability and consistency of the results measured by the scale instrument. The Cronbach's alpha (Cronbach's α) method was used in this study. The greater the Cronbach's alpha reliability coefficient, the smaller the measurement error (Devellis, 1991).

3.2.4.2 Validity

Validity included content validity, construct validity and discriminant validity, so

as to determine whether the test was a representative sample in the field of behavior to be measured.

Content validity referred to the applicability of questionnaire items to the measurement of related concepts, that is, the rationality of questionnaire item design. Content validity could be explained from two perspectives. The first was expert judgment from experts in industry or literature. ALL items on the questionnaires in this study were from the mature scale of famous literature. The content validity of the questionnaire was fully illustrated through the pre-test of the questionnaire and the revision of the items combined with the results. According to Cronbach, content validity could be quantitatively estimated by the correlation of scores of a group of subjects on two replicas of tests taken from the same content range. If the correlation was low, it meant that at least one of the two tests lacks content validity.

Construct validity referred to the degree to which a test actually measures the theoretical structure or characteristics, that is, to what extent the actual measurement explains the hypothetical theory. Construct validity was divided into convergence validity and discriminatory validity. Construct validity meant that items or tests measuring the same potential traits were in the same dimension, and the measured values between items or tests were highly correlated. A measurement model needed to meet the following conditions, which was called convergent validity (Hair et al., 2009; Fornell and Larcker, 1981) . Ideal index of factor loading was above 0.7. Acceptable index of factor loading was between 0.6 and 0.7. Composite reliability (CR) was between 0.7 and 0.95. The square of square multiple correlations (SMC) was more than 0.5.

Discriminant validity referred to the low correlation or significant difference

between the potential traits represented by each dimension and those represented by other dimensions. As for whether there was enough discriminant validity among the dimensions, it usually depends on the comparison between the full standardized correlation coefficient of each item and the square root value of AVE. Average of variance extracted (AVE) was more than 0.5, which meant that every factor could explain more than 50% of variance. When the former was less than the latter, it indicated enough discriminant validity and on the contrary, it was not enough.

3.3 Data Analysis methods

Based on data analysis tools, descriptive statistics, reliability analysis, confirmatory factor analysis, model estimation and model fit were used in data analysis methods.

3.3.1 Data analysis tool

This study used questionnaires to collect data, which was manually entered into Excel, so the statistical software was used as the data analysis tool. Statistical Product and Service Solutions (SPSS) software, Analysis of Moment Structures (AMOS) software and Process program were used to analyzed the data. The Statistical technology in this study adopts descriptive statistics, reliability analysis, multiple regression, and structural equation modeling.

SPSS (Statistical Package for the Social Science) statistical analysis software was used to process and analyze the questionnaire data in this study, and then AMOS (Analysis of Moment Structures) software was also used to analyze the data of Structural Equation Modeling (SEM) in this study. SPSS was a popular statistical software in the field of behavioral science and social sciences. Structural equation model (SEM) was an important statistical method for quantitative research in the field

of behavior and society. It combines the statistical techniques of factor analysis and linear model regression analysis in traditional multivariate statistical analysis. It could also be used to identify, estimate and verify various causal models. In the construction of structural equation models, commonly used statistical software include Lisrel, Mplus, AMOS, Eqs, R language, etc. AMOS could validate various measurement models and different path analysis models. It could also perform multi-group analysis and structural mean test, such as validation factor analysis, path analysis of observation variables, path analysis of potential variables, path analysis of mixed models, hypothetical model segmentation of multi-group analysis and structural mean analysis, which was suitable for this study.

3.3.2 Statistical Techniques

The statistical techniques used in this study include descriptive statistics, structural equation models and normal assessment.

3.3.2.1 Descriptive statistics

SPSS was used as an analytical tool in this study. Firstly, the effective questionnaires were analyzed by SPSS statistical analysis software. Secondly, the rationality and representativeness of the respondents was demonstrated. Finally, the data structure of each variable was analyzed. Standard deviations were used to measure the deviation to the average of respondents' age, working years and hours per week in this study.

3.3.2.2 Structural Equation Modeling

Structural Equation Model (SEM) had been gradually popularized in the fields of social science, behavioral science and education (Raykov and Marcoulides, 2006). At present, SEM was used to understand potential variable significance. Since this study

was related to research on potential psychological variables, it was appropriate to use structural equation model analysis.

The most commonly used method in SEM was the maximum likelihood estimation. The data must be in accordance with the assumption of multivariate normality and the number of samples should not be too small ; they should be at least more than 100 when the maximum likelihood estimation method was applied (Ding, Velicer, & Harlow, 1995). When the skewness absolute value of the individual variables was less than 3 and the absolute value of kurtosis less than 10, it could be regarded as conforming to the multivariate normality (Ding et al., 1995).

SEM estimation was mainly to evaluate the minimum difference between sample covariance matrix and model expected covariance matrix, that is, to solve the minimum value of the difference between two matrices. AMOS statistical software and Maximum Likelihood (ML) were used to evaluate the model in this study.

Confirmatory Factor Analysis (CFA) was the first step of SEM analysis. CFA provided sufficient information about model setting, assessment and confidence in results. If the fitness of the measurement model was found to be acceptable, a second step was taken to complete SEM assessment (Kenny, 2006) . When it was found that the fitness of the model was poor, it was necessary to correct it based on practical experience and mathematical model (Kenny, 2006) .

Model 10 of Statistician Dr. Andrew F. Hayes' 76 conceptual diagrams were used to analyze moderating effect (Hayes, 2017). Using the principles of ordinary least squares regression, Andrew F. Hayes showed how to estimate and interpret direct, indirect, and conditional effects, probe and visualize interactions (Hayes, 2017). The model proposed in this study could be tested by referring to model 10 of Hayes (2017)

76 models.

Assuming linear associations between variables, and that promotion focus (PRO) and prevention focus (PRE) linearly moderate the effect of living a calling (LC) on work engagement (WE), the first stage dual moderated mediation model could be estimated with two equations:

$$\hat{JC} = i_{JC} + a_1 * LC + a_2 * PRO + a_3 * PRE + a_4 * LC * PRO + a_5 * LC * PRE \quad (2)$$

$$\hat{WE} = i_{WE} + c' * LC + b * JC \quad (3)$$

In this model, the effect of living a calling (LC) on job crafting (JC) ($\theta_{LC \rightarrow JC}$) was

$$\theta_{LC \rightarrow JC} = a_1 + a_4 * PRO + a_5 * PRE \quad (4)$$

from Equation (2) (Hayes, 2018) and thus depends on both promotion focus (PRO) and prevention focus (PRE), whereas the effect of promotion focus (PRO) on work engagement (WE) was b from Equation (3). Multiplication of these effects yields the indirect effect of living a calling (LC) on work engagement (WE) through job crafting (JC):

$$\theta_{LC \rightarrow JC} * b = (a_1 + a_4 * PRO + a_5 * PRE) * b = a_1 * b + a_4 * b * PRO + a_5 * b * PRE \quad (5)$$

which was an additive function of promotion focus (PRO) and prevention focus (PRE). In Equation (5), $a_1 * b$ was the conditional indirect effect of living a calling (LC) on work engagement (WE) through job crafting (JC) when promotion focus (PRO) and prevention focus (PRE) were both zero, $a_4 * b$ quantifies the rate of change in the indirect effect of living a calling (LC) as promotion focus (PRO) changes but prevention focus (PRE) was held constant, and $a_5 * b$ quantifies the rate of change in the indirect effect of living a calling (LC) as prevention focus (PRE) changes but promotion focus (PRO)

was held constant. When a_4*b was zero, the indirect effect of living a calling (LC) was linearly independent of promotion focus (PRO) when prevention focus (PRE) was held fixed, and when a_5*b was zero, the indirect effect of living a calling (LC) was linearly independent of prevention focus (PRE) when promotion focus (PRO) was held fixed. As ordinary partial regression coefficients quantify the relationship between a predictor and the dependent variable when other predictors were held constant, was called a_4*b and a_5*b indices of partial moderated mediation of living a calling (LC)'s indirect effect by promotion focus (PRO) and prevention focus (PRE), respectively. These quantify the relationship between one moderator and the size of living a calling (LC)'s indirect effect on work engagement (WE) through job crafting (JC) when the second moderator was held constant.

The second stage dual moderated mediation model allows the effect of job crafting (JC) on work engagement (WE) to be moderated by two moderators. Making the same assumptions as in the first stage model, though in this case that job crafting (JC)'s effect on work engagement (WE) was a linear function of promotion focus (PRO) and prevention focus (PRE), it was estimated with the equations.

$$JC = i_{JC} + a * LC \quad (6)$$

$$WE = i_{WE} + c' * LC + b_1 * JC + b_2 * PRO + b_3 * PRE + b_4 * JC * PRO + b_5 * JC * PRE \quad (7)$$

The effect of living a calling (LC) on job crafting (JC) was unmoderated and estimated with a in Equation (6), and the conditional effect of job crafting (JC) on work engagement (WE) is

$$\theta_{JC \rightarrow WE} = b_1 + b_4 * PRO + b_5 * PRE \quad (8)$$

from Equation (8) and thus varies with both promotion focus (PRO) and prevention

focus (PRE). Multiplication of these effects yields the indirect effect of living a calling (LC) on work engagement (WE) through job crafting (JC):

$$a * \theta_{JC \rightarrow WE} = a(b_1 + b_4 * PRO + b_5 * PRE) = a * b_1 + a * b_4 * PRO + a * b_5 * PRE \quad (9)$$

Which was a linear function of promotion focus (PRO) and prevention focus (PRE). In Equation (9), $a * b_1$ was the conditional indirect effect of living a calling (LC) when promotion focus (PRO) were both zero, $a * b_4$ was the index of partial moderated mediation of living a calling (LC)'s indirect effect on work engagement (WE) by promotion focus (PRO), and $a * b_5$ was the index of partial moderated mediation of living a calling (LC)'s indirect effect on work engagement (WE) by prevention focus (PRE). These indices quantify the rate of change in the indirect effect of living a calling (LC) as one moderator changes but the other was held constant.

3.3.2.3 Normality assessment

When SEM was analyzed by Maximum Likelihood Estimation (ML), the assumption was that the endogenous variable was a continuous variable and presents a multivariate normal. That is, each sample was independent, the joint variable distribution was normal; all two-variable relationships need to be linear, and the residual distribution was homogeneous. It was impractical to test whether the joint distribution of all variables conforms to the normal distribution, and it was difficult to assess the multivariate normality among all variables. Fortunately, at present, many multivariate normal tests could be detected by univariate distribution.

Skewness and kurtosis were two ways to test univariate normality, and one variable could embrace both. Skewness referred to the normal distribution of graphs and mean asymmetry. If the scores of most variables were lower than the average, the data was skewed positively. If the scores of most variables were higher than the average, the data

was negative. So, a positive skewness meant that the graph had a longer tail extending to the right and a higher vertex on the left, and a negative skewness just the opposite. The positive kurtosis indicated that the graph had higher vertices, while the negative kurtosis indicated that the graph had lower valleys. If the maximum likelihood estimation method was used properly with good standard deviation, Kline (2005) suggests that the skewness of the variable be within ± 2 and the kurtosis be within ± 7 . If the source of data came from the Likert scale, from strongly disagree to strongly agree, it was best to adopt the 7-point scale.

Outliers meant that the value of a sample was quite different from that of other samples. General extreme values were not specifically defined. The common understanding was that the score of a sample variable was 3 standard deviations greater than the average, which was the extreme value. To check whether a single variable was an extreme value, a good way was to standardize the variable to a Z-score value, which meant an extreme value if the absolute value was more than 3.

It was difficult to test the extreme value of multivariable. The multivariate kurtosis coefficient and its critical value could be counted in the Mardia multivariate test. If the critical value was more than 5, the data itself does not conform to multivariate normality (Kline, 2010).

In the preprocessing part of data, frequency analysis was used to test outliers in this study. Mean value was used to describe the centralization trend of data and sample standard deviation was used to describe the dispersion of studied variables. This study assumed that the population distribution of the sample was a normal distribution, so skewness and kurtosis were used to check whether the sample data conform to normal distribution. When the Mardia coefficient was less than $p^*(p+2)$ (p was the number of

observed variables), the sample data had a multivariate normal distribution (Bollen,1989) .

3.3.3 Hypothesis testing

According to Anderson and Gerbing (1988), the structural equation model analysis should be divided in two stages. The first stage was the measurement structure model, which was to test whether the measurement variables in the model were correctly measured to their potential variables (Gerbing, 1988). The second stage was the structural model analysis, which analyzes the magnitude and explanatory power of the causal relationship between variables in the tested and accepted measurement model (Gerbing, 1988). This study bootstrapped 5000 samples in the original sample and calculated the value of the 95% confidence interval (Preacher & Hayes, 2008). This study first used AMOS software for standardized regression analysis and bootstrapped 5000 samples in 390 validity samples to estimate the direct effects of the model hypothesis. First, AMOS software was used to test the direct effect of living a calling on work engagement. Second, AMOS software was used to test the direct effect of living a calling on crafting structural job resources, crafting hindering job demands, crafting social job resources and crafting challenging job demands. Third, AMOS software was used to test the direct effect of crafting structural job resources, crafting hindering job demands, crafting social job resources and crafting challenging job demands on work engagement.

Testing the mediating effects between independent variables and outcome variable used causal steps approach (Baron & Kenny, 1986) were the first test condition. However, several recent studies in various fields of research had argued that this constraint might be relaxed without hampering the validity of the mediation analysis.

The bootstrap method was popular in recent years and was accepted as a substitute for the Sobel method for the direct test of the product of coefficients. This study explored the situation of multiple parallel mediators (crafting structural job resources, crafting hindering job demands, crafting social job resources and crafting challenging job demands). For the multiple parallel mediator, Structural Equation Model (SEM) was used to test multiple mediating paths and to analyze their indirect effects (MacKinnon, 2000). There were three advantages of using the bootstrap method to test the mediating effect of Structural Equation Model with multiple parallel mediators (Preacher, Hayes, 2008; Chen Rui, Zheng Yuhuang, Liu Wenjing, 2014). (1) How much was the common mediating effect of all parallel mediators? (2) How effective was a single mediator after eliminating the effect of other mediating paths? (3) were the effects of different mediating paths significant? Therefore, according to the mediation effect procedure of Zhao (2010) and the Bootstrap method of Preacher (2008) and Hayes (2013), this study performed bootstrapping on 5,000 samples and computed 95 percent confidence intervals in 390 valid samples for estimating the mediating effects of multiple parallel mediators of crafting structural job resources, crafting hindering job demands, crafting social job resources, crafting challenging job demands on the relationship between living a calling and work engagement by Structural Equation Model (SEM).

The Moderating model test was used in this study to implement was scales of promotion focus and prevention focus. When the moderating effect was analyzed, mean centering was used to transform independent variable and the moderating variable into Z scores to get the standardized variable (Aiken, West, & Reno, 1991; Dawson, 2014; Kraemer & Blasey, 2004).

Chapter 4. Results

Using the above research methods, this chapter showed the data collection results, reliability analysis, Confirmatory Factor Analysis, reliability and validity, Structural Equation Model, direct effects, mediating effects and moderating effects.

4.1 Data Collection Results

Data collection results showed sampling results, descriptive statistics and normality assessment of the variables.

4.1.1 Sampling results

The results of sample data collection were shown in Table 5.

Table 5 Sampling Results

University	Population	Excepted Sample Size	Valid Sample Size
Chongqing University	1500	360	155
Chongqing Technology and Business University	500	120	107
Southwestern University	500	120	90
Chongqing University of Technology	250	60	38
Total	2750	660	390

With 495 questionnaires collected, the actual collection rate of the questionnaire was about 75% of the total issued questionnaires. Based on the method of eliminating invalid questionnaires, 390 valid samples were obtained. The valid samples consisted of 390 part-time MBA students and the valid rate was 59%. The number of valid samples meets the research needed in this study. Therefore, the data of valid samples could be further measured and analyzed.

4.1.2 Descriptive statistics

In this study, standard deviation (SD) was used to measure respondents' age, work years and hours per week they work. The smaller the standard deviation is, the less the value deviates from the average, and vice versa. The standard deviation of sample respondents reflects the degree of discretization of the sample. The descriptive statistics of 390 valid samples were shown in Table 6.

Table 6 Descriptive Statistical Characteristics

Demographic Background	Categories	Numbers (N=390)	Percentage (%)
gender	male	190	48.7
	female	200	51.3
age	18-25	17	4.4
	26-30	174	44.6
	31-35	115	29.5
	36-40	38	9.7
	41-45	35	9.0
	≥46	11	2.8
work years	1-3	26	6.7
	4-6	126	32.3
	7-9	81	20.8
	9-12	60	15.4
	13-15	33	8.5
	16-18	25	6.4
	19-21	18	4.6
	22-24	11	2.8
	≥25	10	2.6
education qualification	Junior college	27	6.9
	Bachelor's degree	324	83.1
	Master's degree	34	8.7
	Doctor's degree	5	1.3
Worked hours a week	20-29	49	12.6
	30-39	121	31.0
	≥40	220	56.4
professional rank	medication	8	2.1
	service	54	13.8
	education	43	11.0
	finance	70	17.9
	administration	64	16.4
	technology	29	7.4
	manufacturing	61	15.6
	others	61	15.6

Table 6 showed that 190 were male and 200 were female among the 390 valid respondents. Their age ranges from 22 to 51 years old, with 32 years old being the average age. The standard deviation of age of the valid sample respondents was 6.58 through the calculation of the SPSS software. The age standard deviation of the sample respondents was the mean of the distance that describes the deviation of the age data from the age average.

The majority (340 respondents) of the respondents work more than 30 hours a week. 120 respondents work between 30 and 39 hours a week. Professional fields of respondents comprised of service (13.8%), education (11%), finance (17.9), administration (16.4), technology (7.4%), manufacturing (15.6%), medical (2.1%) and others (15.6%). The above statistical analysis and their standard deviations of age and years worked showed that the valid samples in this study meet the needed of statistical distribution characteristics. Distribution of gender, educational background and hours worked per week were listed in Table 6. Therefore, the data of valid samples could be further measured and analyzed.

4.1.3 Normality assessment of the variables

Skewness describes the symmetry of samples' distribution and kurtosis describes the fitness of peak value of samples' distribution. The sample data in this study were all consistent with the distribution of univariate normal as shown Table 7.

Table 7 Normality Assessment of the Variables (N=390)

Variable	Min	Max	Skew	c.r.	Curtosis	c.r.
Living a calling						
ulc1	1.000	7.000	-.067	-.544	-.423	-1.705
ulc2	1.000	7.000	-.332	-2.678	-.508	-2.049
ulc3	1.000	7.000	-.034	-.277	-.484	-1.949
ulc4	1.000	7.000	-.106	-.855	-.496	-2.001
ulc5	1.000	7.000	-.208	-1.674	-.692	-2.789
ulc6	1.000	7.000	-.183	-1.475	-.601	-2.421

Variable	Min	Max	Skew	c.r.	Curtosis	c.r.
Promotion focus						
rpa1	1.000	7.000	-.867	-6.992	.397	1.600
rpa2	1.000	7.000	-1.027	-8.278	.669	2.699
rpa3	1.000	7.000	-1.007	-8.117	.567	2.286
rpi1	1.000	7.000	-.714	-5.755	.178	.716
rpi2	1.000	7.000	-.815	-6.571	.322	1.299
rpi3	1.000	7.000	-.863	-6.955	.449	1.811
rpg1	1.000	7.000	-.737	-5.938	.015	.061
rpg2	1.000	7.000	-.415	-3.346	-.149	-.599
rpg3	1.000	7.000	-.367	-2.960	-.428	-1.725
Prevention focus						
rps1	1.000	7.000	-.863	-6.958	.611	2.464
rps2	1.000	7.000	-.352	-2.836	-.276	-1.114
rps3	1.000	7.000	-.534	-4.302	-.255	-1.029
rpo1	1.000	7.000	-.591	-4.767	-.062	-.250
rpo2	1.000	7.000	-1.003	-8.090	1.085	4.373
rpo3	1.000	7.000	-.765	-6.171	.560	2.256
rpl1	1.000	7.000	-1.218	-9.819	1.461	5.889
rpl2	1.000	7.000	-.763	-6.151	.186	.748
rpl3	1.000	7.000	-.726	-5.853	.081	.327
Crafting structural job resources						
jst1	1.000	7.000	-1.338	-10.786	1.609	6.485
jst2	1.000	7.000	-1.373	-11.071	1.842	7.426
jst3	1.000	7.000	-1.516	-12.224	2.236	9.013
jst4	1.000	7.000	-1.349	-10.874	2.178	8.778
jst5	1.000	7.000	-1.026	-8.273	.567	2.284
Crafting hindering job demands						
jd3	1.000	7.000	-.467	-3.766	-.454	-1.829
jd1	1.000	7.000	-.531	-4.280	-.055	-.221
jd2	1.000	7.000	-.632	-5.095	.059	.239
jd4	1.000	7.000	-.523	-4.218	-.069	-.280
jd5	1.000	7.000	-.424	-3.418	-.215	-.868
jd6	1.000	7.000	-.483	-3.893	-.158	-.638
Crafting social job resources						
jso5	1.000	7.000	-.616	-4.968	.018	.071
jso4	1.000	7.000	-.578	-4.661	-.191	-.770
jso3	1.000	7.000	-.695	-5.606	.132	.534
jso2	1.000	7.000	-.565	-4.556	-.183	-.739
jso1	1.000	7.000	-.549	-4.430	-.245	-.989
Crafting challenging job demands						
jch3	1.000	7.000	-.719	-5.800	.134	.541
jch1	1.000	7.000	-.716	-5.770	.063	.254
jch2	1.000	7.000	-.739	-5.955	.226	.912
jch4	1.000	7.000	-.826	-6.659	.074	.298
jch5	1.000	7.000	-.543	-4.377	-.196	-.790
Work engagement						
wab3	1.000	7.000	-.494	-3.982	-.436	-1.756
wab2	1.000	7.000	-.295	-2.376	-.523	-2.109
wab1	1.000	7.000	-.370	-2.984	-.654	-2.634
wde3	1.000	7.000	-.440	-3.547	-.340	-1.370
wde2	1.000	7.000	-.473	-3.812	-.198	-.799
wde1	1.000	7.000	-.537	-4.327	-.261	-1.052
Multivariate					1171.208	129.818

Table 7 showed that all variables in this study conformed to the univariate normal, because the assessment of normality showed that the absolute value of skewness was less than 3 and the absolute value of kurtosis was less than 10, which could be regarded as normal distribution. Sample data of Mardia coefficient multivariate normality were examined in this study. If the maximum likelihood estimation method was used properly with good standard deviation, Kline (2010) suggests that the skewness of the variable be within ± 2 and the kurtosis be within ± 7 . When the Mardia coefficient was less than $p^*(p+2)$ (P was the number of observed variables), the data had multivariate normality (Bollen,1989) . The number of observation variable in this study was 62, so the calculated control value was $62*(62+2)=3968$. The data showed that the Mardia coefficient was 1171, less than 3968, so sample distribution in this study was applicable for maximum likelihood estimate of structural equation model.

4.2 Reliability

The results of Cronbach's α for each variable in this study was shown in Table 8.

Table 8 Reliability

Variable	Number of items	Cronbach's alpha
Living a calling	6	0.926
Promotion focus	9	0.838
Prevention focus	9	0.856
Crafting structural job resources	5	0.903
Crafting hindering job demands	6	0.752
Crafting social job resources	5	0.817
Crafting challenging job resources	5	0.776
Work engagement	9	0.920

Note: N=390

Table 8 showed that the reliability coefficients in all dimensions were above 0.7,

which indicated a good internal consistency among those variables. A further statistical analysis could be conducted.

4.3 Validity

Validity that included construct validity, content validity and discriminant validity were showed as followed.

4.3.1 Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) was used to test the similarity between the relationship of variables in the proposed model and the relationship of sample variables. This study used AMOS for CFA to test the fit index of factor model, as shown in Table 9 and Figure 2.

Table 9 and Figure 2 showed that the fit index on P-value, χ^2/df , GFI, AGFI, CFI, NFI, NNFI, IFI, SRMR and RMSEA reached acceptable and reasonable ranges, which indicated an accurate factor model and could be further analyzed.

Table 9 Fit Index of Confirmatory Factor Analysis

Index	Proposed Research Model	Acceptable values
Degree of freedom(df)	566	
p-value	.000	<0.05
χ^2/df	2.197	<3 (Kline, 2010)
Goodness of fit index (GFI)	0.849	≥ 0.8 (Hu & Bentler, 1999)
Adjusted goodness of fit index (AGFI)	0.822	≥ 0.8 (Marsh et al., 1988)
Comparative fit index (CFI)	0.947	≥ 0.9 (Bentler, 1990)
Normed fit index (NFI)	0.907	≥ 0.8 (Ullman, 2001)
Non- Normed fit index (NNFI)	0.941	≥ 0.9 (Hair et al., 2010)
Incremental fit index (IFI)	0.947	≥ 0.9 (Bollen, 1990)
Standardized root mean square residual (SRMR)	0.059	<0.08 (Kline, 2010)
Root mean square error of approximation (RMSEA)	0.055	<0.08 (Hair et al., 2010)

Note: N=390

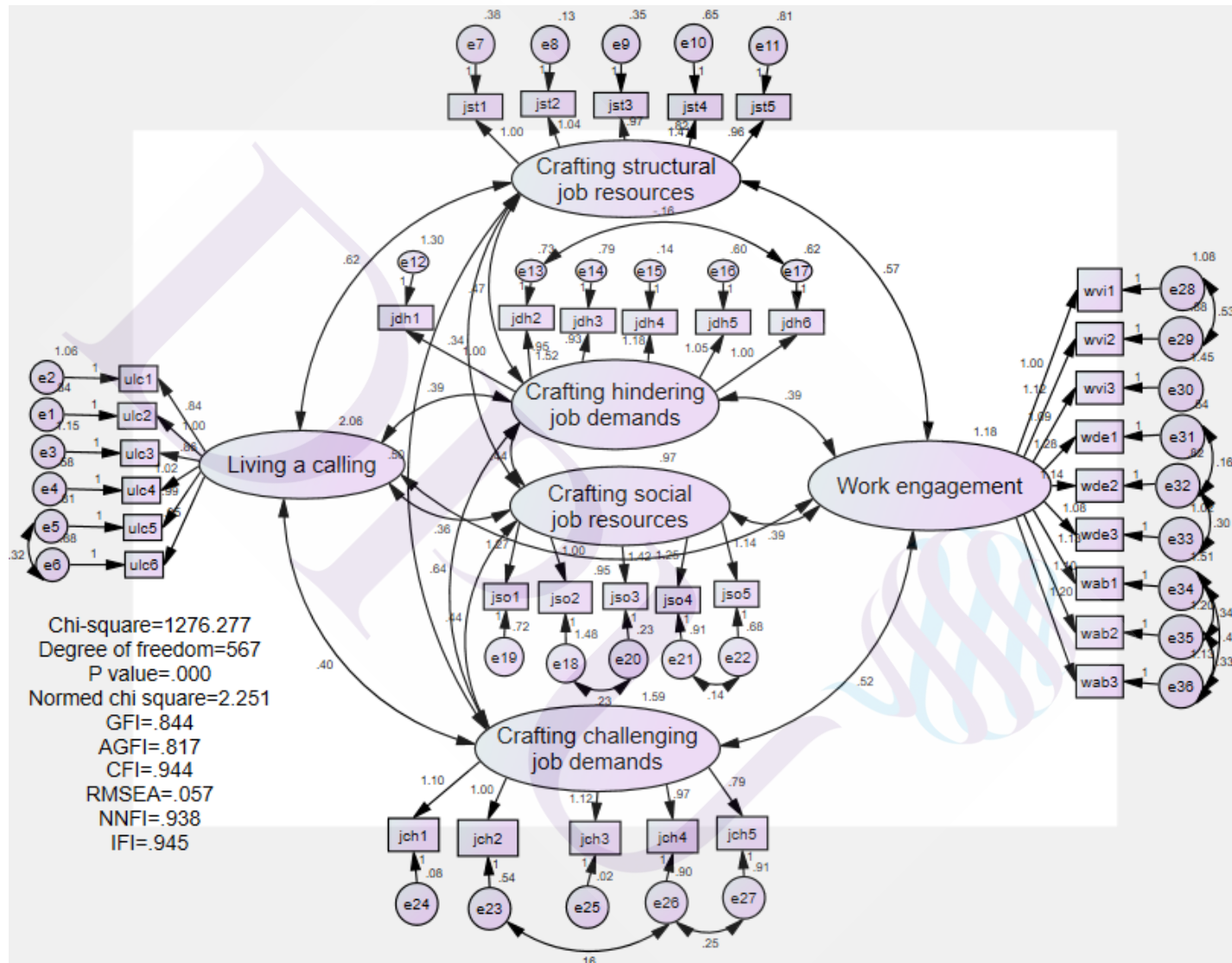


Figure 2 Confirmatory Factor Analysis Model

4.3.2 Convergence validity

Convergence validity meant that the measurement of the same potential traits (items) could fall on the same convergent factors (variables), and the measurement relationships among the items were highly correlated. The convergence validity in this study was shown in Table 10.

Table 10 Convergent Validity

Variable	λ	λ^2	$1-\lambda^2$	CR	AVE
Living a calling	0.860	0.740	0.260	0.927	0.681
	0.876	0.767	0.233		
	0.878	0.771	0.229		
	0.746	0.557	0.443		
	0.831	0.691	0.309		
	0.748	0.560	0.440		
Crafting structural resources	0.784	0.615	0.385	0.934	.742
	0.771	0.594	0.406		
	0.889	0.790	0.210		
	0.959	0.920	0.080		
	0.888	0.789	0.211		
Crafting hindering job demands	0.834	0.696	0.304	0.931	0.696
	0.859	0.738	0.262		
	0.974	0.949	0.051		
	0.784	0.615	0.385		
	0.797	0.635	0.365		
	0.735	0.540	0.460		
Crafting social job resources	0.814	0.663	0.337	0.907	0.664
	0.692	0.479	0.521		
	0.960	0.922	0.078		
	0.781	0.610	0.390		
	0.804	0.646	0.354		
Crafting challenging job demands	0.728	0.530	0.470	0.943	0.772
	0.791	0.626	0.374		
	0.994	0.988	0.012		
	0.867	0.752	0.248		
	0.981	0.962	0.038		
Work engagement	0.742	0.551	0.449	0.933	0.608
	0.799	0.638	0.362		
	0.695	0.483	0.517		
	0.885	0.783	0.217		
	0.837	0.701	0.299		
	0.770	0.593	0.407		
	0.728	0.530	0.470		
	0.755	0.570	0.430		
	0.787	0.619	0.381		

Notes : factor loading (Estimate, λ), average variance extracted (AVE), composite reliability (CR). N=390

When the load of standardized factors was more than 0.5, CR was more than 0.7, the convergence validity was reliable.

4.3.3 Discriminant validity

Discriminant validity referred to the low correlation or significant difference between the potential traits represented by one variable and those represented by other variables. The discriminant validity in this study was mainly based on Average Variance Extracted (AVE) (Fornell and Larcker, 1981). If the square root of the average variance extraction (AVE) of the latent variable was more than the correlation coefficient of the latent variable with other variables, the model variable had good discriminant validity.

According to analysis of AMOS statistical software, the correlation coefficient matrix in this study was shown in the lower left corner of Table 11 and the square root of AVE in this study was shown in the diagonal value of Table 11.

Table 11 The Correlation Coefficient Matrix of the Variables

Variable	Mean	SD	1	2	3	4	5	6	7	8
1.living a calling	4.23	1.42	(.825)							
2.crafting structural job resources	5.74	1.14	.357**	(.861)						
3.crafting hindering job demands	4.88	0.99	.213**	.315**	(.834)					
4.crafting social job resources	4.95	1.15	.253**	.299**	.364**	(.814)				
5.crafting challenging job demands	5.25	1.06	.214**	.333**	.410**	.366**	(.878)			
6.work engagement	4.61	1.30	.603**	.439**	.282**	.377**	.384**	(.780)		
7.promotion focus	5.25	0.88	.275**	.553**	.254**	.346**	.381**	.381**	--	
8.prevention focus	5.26	0.90	.509**	.509**	.317**	.297**	.405**	.279**	.689**	--

Notes: N=390, *p<.05, **<.01, ***p<.001, SD= standard deviation, average variance extracted (AVE), the square root of AVE was shown in the diagonal value.

The results in this study showed that the square root of the AVE of the variables was larger than their correlation coefficient. Each variable had a significant correlation, which was suitable for the subsequent Confirmatory Factor Analysis.

4.4 Structural Equation Model

This study bootstrapped 5000 samples and calculated the value of the 95% confidence interval in 390 valid samples, and the model fit index was calculated by AMOS statistical software as shown in Table 12 and Figure 3.

Table 12 Fit Index of Structural Equation Model

Index	Proposed Research Model	Acceptable Values
Degree of freedom(df)	574	
p-value	.000	<.05
χ^2/df	2.473	<3 (Kline, 2010)
Goodness of fit index (GFI)	0.828	≥ 0.8 (Hu & Bentler, 1999)
Adjusted goodness of fit index (AGFI)	0.801	≥ 0.8 (Marsh et al., 1988)
Comparative fit index (CFI)	0.934	≥ 0.9 (Bentler, 1990)
Normed fit index (NFI)	0.894	≥ 0.8 (Ullman, 2001)
Non- Normed fit index (NNFI)	0.927	≥ 0.9 (Hair et al., 2010)
Incremental fit index (IFI)	0.934	≥ 0.9 (Bollen, 1990)
standardized root mean square residual (SRMR)	0.014	<0.08 (Kline, 2010)
Root mean square error of approximation (RMSEA)	0.062	<0.08 (Hair et al., 2010)

Notes: N=390

Living a calling influenced crafting structural job resources, crafting hindering job demands, crafting social job resources and crafting challenging job demands. Crafting structural job resources, crafting hindering job demands, crafting social job resources and crafting challenging job demands influenced work engagement.

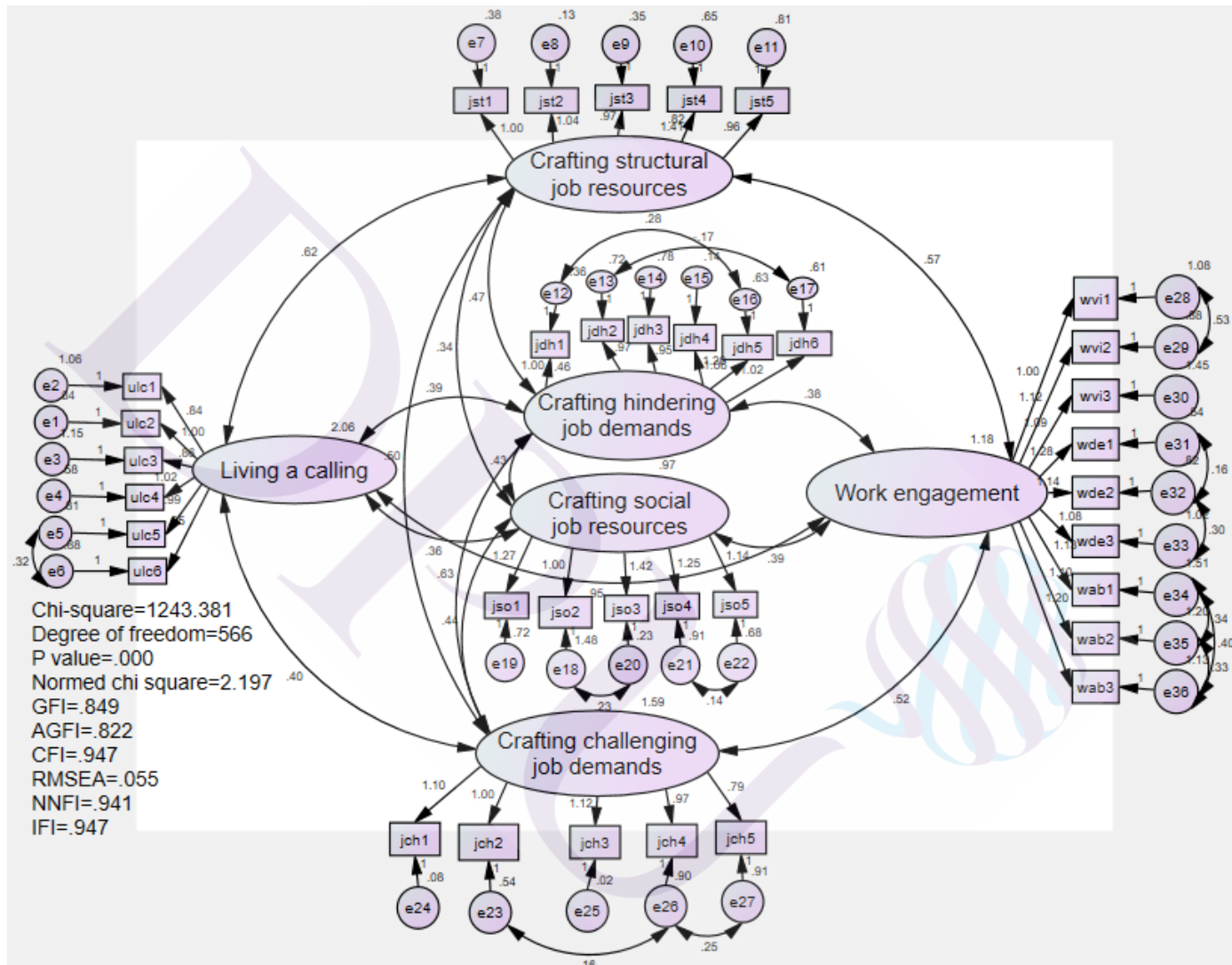


Figure 3 Structural Equation Model

Figure 3 showed that each factor variable had several measurement indexes, and each measurement indices had a measurement error term that was residual (e1~e36). Crafting structural job resources, crafting hindering job demands, crafting social job resources, crafting challenging job demands and work engagement were all dependent variables, so the measurement residual should be added respectively (e37~e41).

The value of statistical test indices such as χ^2/df (2.473), GFI (0.828), AGFI (0.801), CFI (0.934), NFI (0.894), IFI (0.934), NNFI (0.927), SRMR (0.014) and RMSEA (0.062) had already met the acceptable values of model fit in the literature, which indicated that it was a reliable model and be further analyzed.

4.5 Direct Effects

Multiple regression analysis was used to test the correlation among living a calling, crafting structural job resources, crafting hindering job demands, crafting social job resources, crafting challenging job demands and work engagement. SEM yielded eight significant direct effects and one insignificant direct effect by using the AMOS procedure.

In this study, Structural Equation Modeling (SEM) was performed using AMOS software to test the hypotheses of direct effects. To assess the significance of the effects, 5,000 samples were bootstrapped to calculate the value of the 95% confidence interval in 390 valid samples (Preacher & Hayes, 2008) as shown Table 13.

Table 13 Direct Effects

Hypothesis	& Path	coff		Bias-corrected Method			Percentile Method			
		SE	Z	lower	upper	p	lower	upper	p	
H1a	living a calling → crafting structural job resources	.294	.043	6.84	.208	.389	.000	.208	.389	.000
H1b	living a calling → crafting hindering job demands	.196	.045	4.36	.105	.292	.000	.104	.291	.000
H1c	living a calling → crafting social job resources	.230	.046	5.00	.128	.336	.000	.127	.334	.000
H1d	living a calling → crafting challenging job demands	.165	.037	4.46	.077	.269	.001	.075	.267	.001
H2a	crafting structural job resources → work engagement	.165	.044	3.75	.062	.266	.002	.063	.267	.002
H2b	crafting hindering job demands → work engagement	.005	.038	0.13	-.092	.102	.939	-.089	.105	.900
H2c	crafting social job resources → work engagement	.124	.039	3.18	.012	.241	.030	.016	.245	.027
H2d	crafting challenging job demands → work engagement	.189	.047	4.02	.042	.344	.012	.034	.334	.016
H3	living a calling → work engagement	.370	.043	8.60	.270	.482	.000	.268	.479	.000

Notes: SE=standardized estimates, Z= Point estimate /SE. N=390.

As could be seen in Table 13, only the correlation coefficient between crafting hindering job demands and work engagement was below 0.1 and $p > 0.05$, thus, it was not significant. Living a calling had a significant effect on crafting structural job resources, crafting hindering job demands, crafting social job resources and crafting challenging job demands because the correlation coefficients were above 0.1 and $p < 0.05$. Crafting structural job resources, crafting hindering job demands, crafting social job resources and crafting challenging job demands had significant effects on work engagement because their correlation coefficients were also above 0.1 and $p < 0.05$. Living a calling had a significant effect on work engagement because their correlation coefficients were above 0.1 and $p < 0.05$. Regarding the degree among the variables, this study could further explore the impact of these variables by regression analysis based on the results and verified whether the hypothesis was valid.

AMOS's standardized test showed that living a calling had a significant effect on crafting structural job resources (estimate = .370, $p < .001$), crafting hindering job demands (estimate = .294, $p < .001$), crafting social job resources (estimate = .230, $p < .001$), and crafting challenging job demands (estimate = .165, $p < .001$), which supported H1a, H1b, H1c and H1d. When knowledgeable workers were living a calling, they tended to think about matching job demands with job resources, which involved crafting structural job resources, crafting hindering job demands, crafting social resources and crafting challenging job demands.

AMOS's standardized test in Table 13 showed that work engagement was positively associated with crafting structural resources (estimate = .171, $p < .01$), crafting social job resources (estimate = .270, $p < .05$), crafting challenging job demands (estimate = .238, $p < .05$), but not with crafting hindering demands (estimate = .006, ns),

so H2a, H2c and H2d were supported except H2b. In other words, crafting structural job resources, crafting social job resources and crafting challenging job demands had significant direct effects on work engagement, but crafting hindering job demands had insignificant direct effects on work engagement.

The literature on the direct effect of crafting structural job resources and crafting social job resources on work engagement were consistent with Wrzesniewski & Dutton (2001), Hakanen et al. (2008), Brenninkmeijer & HekkertKoning (2015), Harju et al. (2016), Tims et al. (2012), Bakker et al. (2012) and Bakker et al. (2016). when workers begin crafting structural job resources and crafting social job resources, employee's work engagement could be improved. Based on the literature, the direct effect of crafting hindering job demands effect on work engagement was not significant. Although Brenninkmeijer and Hekkert-Koning (2015) held that work engagement was negatively associated with crafting hindering demands, Petrou et al. (2012) reported that day-level reducing demands was negatively associated with daily work engagement. Crafting hindering job demands could harm personal growth and tend to trigger negative emotions and passive or emotion-focused coping styles and were negatively related to work engagement (Crawford et al., 2010). Bakker et al. (2016) showed decreasing hindering job demands were unrelated to one's own engagement. Crafting challenging job demands also motivates workers to reach difficult goals, even though these goals require more efforts (Tims et al., 2012). Minimizing the emotional, mental or physical workload could decrease the optimal level of challenge, which might result in a less stimulating environment and lower one's work engagement (Petrou et al., 2012). From this perspective, crafting hindering job demands might be affected by a variety of factors.

AMOS's standardized test showed that living a calling had a significant effect on work engagement (estimate = .370, $p < .001$) as shown in Table 13. So, H3 was supported. This was consistent with the results of a survey of 832 Chinese workers, which found a positive correlation between employee's calling and work engagement (Xie, Xia, Xin, Zhou, 2016) and high-level workers with significantly indirect effects on living a calling and job satisfaction (Duffy et al. (2017), but it was different without a strong correlation between career calling and employee engagement (Avinante et al., 2017). When knowledgeable workers live a calling, they tend to be enthusiastic about work engagement.

4.6 Mediating Effects of Job Crafting

For the multiple parallel mediator, SEM was used to test multiple mediating paths and analyze their indirect effects (MacKinnon, 2000). To assess the significance of the indirect effects, 5,000 samples were bootstrapped to compute 95 percent confidence intervals from 390 valid samples to estimate the significance of mediating effects (Preacher & Hayes, 2008). Table 14 showed the comparative analysis results of multiple mediating paths of job crafting between living a calling and work engagement.

Table 14 Mediating Effects

Hypothesis & Path	coeff	Bias-corrected Method					Percentile Method		
		SE	Z	lower	upper	p	lower	upper	p
H3 living a calling → work engagement	.370	.043	8.60	.270	.482	.000	.268	.479	.000
H4a living a calling → crafting structural job resources → work engagement	.049	.019	2.63	.019	.086	.001	.018	.084	.002
H4b living a calling → crafting hindering job demands → work engagement	.001	.013	-0.15	-.020	.021	.916	-.020	.021	.899
H4c living a calling → crafting social job resources → work engagement	.029	.022	1.91	.005	.066	.018	.003	.063	.026
H4d living a calling → crafting challenging job demands → work engagement	.032	.031	2.19	.008	.070	.007	.005	.064	.017

Notes: Z= Point estimate /SE. N=390.

Although the *p* values of the two methods vary slightly, the significance of bias-corrected method and percentile methods were the same (see Table 14). Path H3 in Table 14 showed that living a calling had a direct effect on work engagement. This meant that the four mediators between living a calling and work engagement do not had complete mediating effect.

The mediating effects of job crafting on the relationship between living a calling and work engagement were test by AMOS software in Table 14. The standardized specific indirect effects were significant for crafting structural job resources (estimate = .049, *p*<.01), crafting social job resources (estimate = .029, *p*<.05) and crafting challenging job demands (estimate = .032, *p*<.05). So, H4a, H4c and H4d were supported. The standardized indirect effects of crafting hindering job demands (estimate = .001, not significant [N.S.]) on the relationship between living a calling and work engagement were not significant. Thus, H4b was rejected.

H4a, H4b, H4c and H4d were rejected by direct references, but they were consistent with the previously mentioned indirect references (Berg et al., 2010; Duffy et al., 2014; Esteves & Lopes, 2017; Agarwal & Gupta, 2018; Rudolph et al., 2017). Job crafting was one of the meant to bridge the gap between the actual self-based calling and the counterfactual self (Berg et al., 2010), which suggests that living a calling could be achieved through the mediating effect of job crafting. Living a calling could enable workers to experience more organizational identity, work meaning and personal calling (Duffy et al., 2014), which had a broad and far-reaching impact on the individual's work and life. Living a calling totally mediates the negative relation between increasing challenging job demands and turnover intention (Esteves & Lopes, 2017). The crucial role of job crafting had an effect on work engagement and turnover intention (Agarwal

& Gupta, 2018) Job crafting was a form of proactive work behavior that involves how workers actively change their job characteristics (Rudolph et al., 2017). The literature indirectly indicated the mediating possibilities of job crafting on the relationship between living a calling and work engagement.

4.7 Moderating Effects of Regulatory Focus

The model proposed in this study was suitable for the Model 10 in 76 Hayes models (Hayes, 2017). The Process plug-in procedure for SPSS software was used to test the moderating effects in this study, as shown Table 16. According to the data in Table 16 and the hypothesis in Chapter 2, moderating effects were classified and analyzed as follows.

Table 15 Moderating Effects

Hypothesis & path	coeff	se	t	p	LLCI	ULCI
living a calling → crafting structural job resources	.161	.039	4.140	.000	.084	.237
promotion focus → crafting structural job resources	.385	.065	5.948	.000	.258	.513
H5a. living a calling × promotion focus → crafting structural job resources	.016	.039	.409	.683	-.061	.093
prevention focus → crafting structural job resources	.237	.061	3.886	.000	.117	.357
H6a. living a calling × prevention focus → crafting structural job resources	-.077	.042	-1.823	.069	-.160	.006
living a calling → crafting hindering job demands	.130	.048	2.679	.008	.035	.225
promotion focus → crafting hindering job demands	.123	.081	1.516	.130	-.036	.282
H5b. living a calling × promotion focus → crafting hindering job demands	.125	.049	2.568	.011	.029	.221
prevention focus → crafting hindering job demands	.269	.076	3.528	.000	.119	.418
H6b. living a calling × prevention focus → crafting hindering job demands	-.108	.053	-2.050	.041	-.212	-.004
living a calling → crafting social job resources	.131	.046	2.826	.005	.040	.222
promotion focus → crafting social job resources	.203	.077	2.623	.009	.051	.355
H5c. living a calling × promotion focus → crafting social job resources	.014	.047	.299	.765	-.078	.105
prevention focus → crafting social job resources	.297	.073	4.083	.000	.154	.440
H6c. living a calling × prevention focus → crafting social job resources	-.062	.050	-1.233	.218	-.161	.037
living a calling → crafting challenging job demands	.086	.048	1.806	.072	-.008	.181
promotion focus → crafting challenging job demands	.478	.080	5.986	.000	.321	.635
H5d. living a calling × promotion focus → crafting challenging job demands	.077	.048	1.598	.111	-.018	.172
prevention focus → crafting challenging job demands	.038	.075	.503	.615	-.110	.186
H6d. living a calling × prevention focus → crafting challenging job demands	-.083	.052	-1.586	.114	-.185	.020
crafting structural job resources → work engagement	.228	.052	4.395	.000	.126	.330
crafting hindering job demands → work engagement	-.002	.045	-.034	.973	-.089	.086
crafting social job resources → work engagement	.154	.046	3.376	.001	.064	.244
crafting challenging job demands → work engagement	.193	.045	4.304	.000	.105	.281
living a calling → work engagement	.367	.040	9.251	.000	.289	.445
promotion focus → work engagement	.028	.069	.401	.689	-.108	.164

Hypothesis & path	coeff	se	t	p	LLCI	ULCI
H7. living a calling × promotion focus → work engagement	.093	.039	2.384	.018	.016	.170
prevention focus → work engagement	-.116	.063	-1.840	.067	-.240	.008
H8. living a calling × prevention focus → work engagement	-.001	.042	-.023	.982	-.084	.082
living a calling → job crafting	.127	.030	4.226	.000	.068	.186
promotion focus → job crafting	.289	.050	5.755	.000	.190	.388
H5. living a calling × promotion focus → job crafting	.061	.030	2.024	.044	.002	.121
prevention focus → job crafting	.213	.047	4.506	.000	.120	.306
H6. living a calling × prevention focus → job crafting	-.084	.033	-2.557	.011	-.148	-.019
job crafting → work engagement	.508	.066	7.674	.000	.378	.638
living a calling → work engagement	.376	.040	9.412	.000	.297	.454
promotion focus → work engagement	.092	.068	1.358	.175	-.041	.226
living a calling×promotion focus → work engagement	.082	.039	2.090	.037	.005	.160
prevention focus → work engagement	-.118	.063	-1.872	.062	-.241	.006
living a calling×prevention focus → work engagement	-.001	.043	-.031	.975	-.086	.083

Notes: N=390.

Table 15 showed that the moderating effect of promotion focus on the relationship between living a calling and crafting hindering job demands does not contain 0 (LLCI= 0.29, ULCI= 2.21), and had a positive moderating effect, so, H5b was supported. Table 16 showed that the moderating effect of prevention focus on the relationship between living a calling and crafting hindering job demands does not contain 0 (LLCI= -.212, ULCI= -.004), and had a negative moderating effect, so, H6b was supported.

Table 15 showed that the moderating effect of promotion focus on the relationship between living a calling and the other components of job crafting except crafting hindering job demands contains 0, so, the moderating effect of promotion focus on the relationship between living a calling and the other components of job crafting except crafting hindering job demands was not significant. Therefore, H5a, H5c and H5d was rejected. Table 15 showed that the moderating effect of prevention focus on the relationship between living a calling and the other components of job crafting except crafting hindering job demands contains 0, so, the moderating effect of prevention focus on the relationship between living a calling and the other components of job crafting except crafting hindering job demands was not significant. Therefore, H6a, H6c and H6d was rejected.

Moderating effects of regulatory focus on the relationship between living a calling and work engagement was followed. Table 15 showed that the moderating effect of promotion focus on the relationship between living a calling and work engagement did not contain 0 (LLCI=.016, ULCI=.170), and had a positive moderating effect, so, H7 was supported. Pursuing a calling might be related to intimacy or alienation of others, and even the most flexible individuals might weaken living a calling to an opposed or unsupported work environment (Cardador & Caza, 2012). Individuals who

were promotion focused were committed to growth and development, aiming at maximizing positive outcomes (Brenninkmeijer & Hekkert-Koning, 2015).

Table 15 showed that the moderating effect of prevention focus on the relationship between living a calling and work engagement contained 0 (LLCI= -.084, ULCI= .082). So, the moderating effect of prevention focus on the relationship between living a calling and work engagement was not significant. Therefore, H8 of hypothesis was rejected. This was related to the references mentioned in the foregoing hypothesis (Lin Chang & Lin, 2012; Cardador & Caza, 2012). When individuals form negative and exhausted interpersonal relationships, a strong commitment to work and a rigid work identity contribute to an unhealthy calling (Cardador & Caza, 2012). Promotion focus included prevention of security, liability, and loss, and involved behaviors, such as perceived risk, and negative outcomes (Lin Chang & Lin, 2012). This study was different from what Demerouti (2013) on reducing demand behavior as a very useful strategy of future workers.

Table 15 showed that the total moderating effect of promotion focus on the relationship between living a calling and job crafting (total index) does not contain 0 (LLCI= .002, ULCI= .221), and had a positive moderating effect, so, H5 was supported.

Table 15 showed that the total moderating effect of prevention focus on the relationship between living a calling and job crafting (total index) does not contain 0 (LLCI= -.148, ULCI= -.019), and had a negative moderating effect, so, H6 was supported. The literature mentioned in the hypothesis also points out that promotion focus involves various decision-making behaviors (Gu, Bohns, & Leonardelli, 2013) and contracts (Elzamly & Amin, 2011) between living a calling and job crafting.

4.8 Test Results

The test results of the proposed 8 groups of 23 research hypotheses were shown in Table 16.

Table 16 Hypothetical Test Results

Hypothesis	Contents	Expected sign	Empirical result
H1	Living a calling had a positive direct effect on		
	a. crafting structural job resources.	+	Supported
	b. crafting hindering job demands.	+	Supported
	c. crafting social job resources.	+	Supported
	d. crafting challenging job demands.	+	Supported
H2	crafting structural resources.	+	Supported
	c. crafting social resources.	+	Supported
	d. crafting challenging demands.	+	Supported
	has a positive direct effect on work engagement;		
	b. crafting hindering demands had a negative direct effect on work engagement.	-	Rejected
H3	Living a calling had a positive direct effect on work engagement.	+	Supported
H4	The following job crafting had mediating effect between living a calling and work engagement.		
	a. crafting structural job resources.	NA	Supported
	b. crafting hindering job demands.	NA	Rejected
	c. crafting social job resources.	NA	Supported
	d. crafting challenging job demands.	NA	Supported
H5	Promotion focus had a positive moderating effect between living a calling and		
	a. crafting structural job resources.	+	Rejected
	b. crafting hindering job demands.	+	Supported
	c. crafting social job resources.	+	Rejected
	d. crafting challenging job demands.	+	Rejected
H6	Prevention focus had a negative moderating effect between living a calling and		
	a. crafting structural job resources.	-	Rejected
	b. crafting hindering job demands.	-	Supported
	c. crafting social job resources.	-	Rejected
	d. crafting challenging job demands.	-	Rejected
H7	Promotion focus had a positive moderating effect between living a calling and work engagement	+	Supported
H8	Prevention focus had a negative moderating effect between living a calling and work engagement	-	Rejected

The test results of the proposed research hypothesis were summarized as follows.

(1) Living a calling had a significantly positive effect on crafting structural job resources, crafting hindering job demands, crafting social job resources and crafting challenging job demands, so, H1a, H1b, H1c and H1d were supported.

(2) Crafting structural job resources, crafting social job resources and crafting challenging job demands had a significantly positive effect on work engagement, but the relationship between crafting hindering job demands effect on work engagement was not significant, so, H2a, H2c and H2d were supported, but H2b was not.

(3) Living a calling had a significantly positive direct effect on work engagement; thus, H3 was supported.

(4) Crafting structural job resources, crafting social job resources and crafting challenging job demands had a mediating effect on the relationship between living a calling and work engagement, but crafting hindering job demands did not, so, the results match H4a, H4c and H4d except H4b.

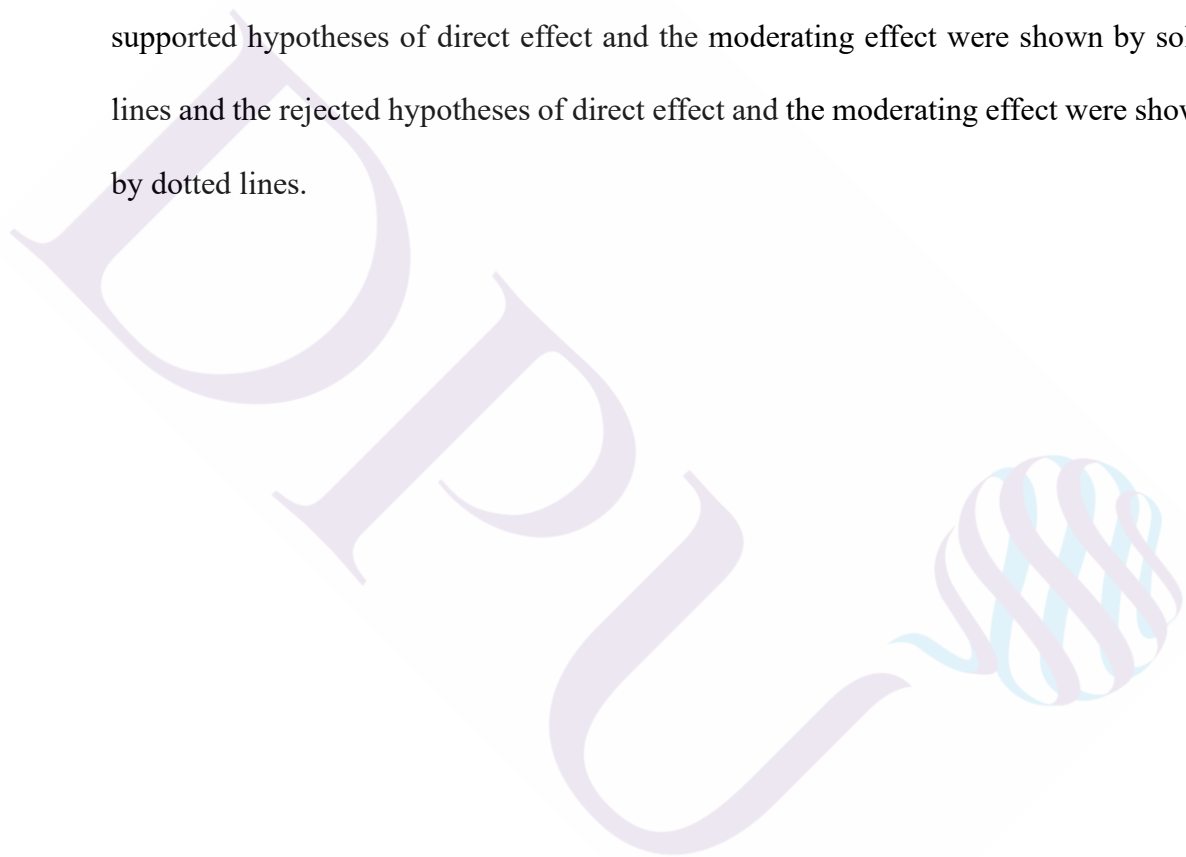
(5) Promotion focus had positive significant moderating effects on the relationship between living a calling and crafting hindering job demands, so H5b was supported, but promotion focus had no moderating effects on the relationship between living a calling and crafting structural job resources, crafting social job resources, and crafting challenging job demands, so H5a, H5c and H5d were rejected.

(6) Prevention focus had a significantly negative moderating effect on the relationship between living a calling and crafting structural job resources and crafting hindering job demands, so H6b of hypothesis was supported. But prevention focus had no moderating effects between living a calling and crafting social job resources and crafting challenging job demands, So H6c, H6b and H6d were rejected.

(7) Promotion focus had a significantly positive moderating effect on the relationship between living a calling and work engagement, so H7 was supported.

(8) Prevention focus had no significant moderating effects on the relationship between living a calling and work engagement, so H8 was rejected.

The test results of the proposed model were shown in Figure 4. In Figure 4, except that the hypotheses of mediating effect cannot be expressed directly by lines, the supported hypotheses of direct effect and the moderating effect were shown by solid lines and the rejected hypotheses of direct effect and the moderating effect were shown by dotted lines.



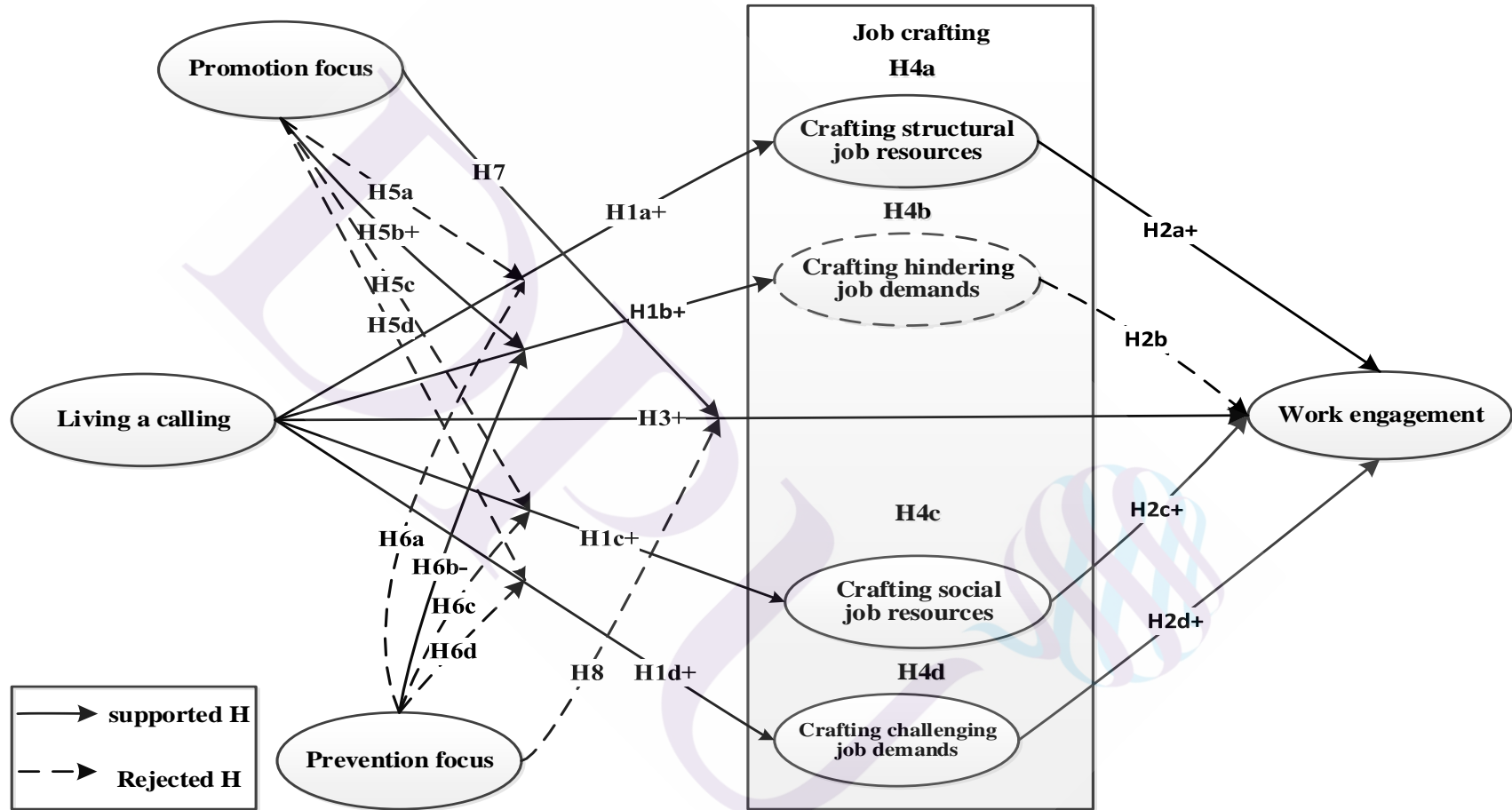


Figure 4 Test Results of Proposed Model

Chapter 5. Discussions and Conclusions

This chapter looked more into discussions and responded to the questions proposed based on the previous empirical research. Thus, the contents of this chapter concluded with a brief discussion of research results, theoretical contributions, managerial implications, limitations in this study and directions for future research.

5.1 Discussions

Work engagement was one of the most important antecedents of job performance (Tims, Derks & Rhenen, 2016). This study explored the relationships of several important antecedents of work engagement such as living a calling, job crafting and regulatory focus. The results were discussed as follows.

5.1.1 Direct effect

(1) Direct effect of living a calling on job crafting

The results in this study showed that living a calling had significantly positive effect on crafting structural job resources, crafting hindering job demands, crafting social job resources and crafting challenging job demands. This was a direct response to question 1 of this study.

First of all, the knowledge workers of living a calling tried to develop their own capabilities and professionally, learned new things at work, used their capacities to the fullest and had independent working ability.

Second, the knowledge workers of living a calling could make sure that their work was mentally and emotionally less intense, manage and organize their work so as to minimize contact with people whose expectations were unrealistic and emotional, had not difficult decisions and could concentrate on their work.

Third, the knowledge workers of living a calling could ask their supervisors, colleagues and others for inspiration, feedback and advice on their jobs.

Fourth, the knowledge workers of living a calling offered myself proactively as project co-worker, learned about new developments, saw chances, took on extra tasks and made their work more challenging.

These results showed that knowledged workers who pursued a calling had strong work enthusiasm and psychological strength to craft their jobs. Living a calling enabled individuals to experience more work meaning and personal satisfaction, which had a broad and far-reaching positive impact on individual work and life. Having a calling was linked to several self-reported benefits, including higher levels of personal health and job satisfaction than job-oriented and career-oriented respondents (Berg, 2010). Thus, knowledged workers tend to craft their jobs to the best of their abilities when they pursued a calling. When knowledged workers lived a calling, they could do their best to craft jobs. Therefore, organizations and managers should adopt as many ways and means as possible to make knowledged workers living a calling.

(2) Direct effect of job crafting on work engagement

The results in this study showed that crafting structural job resources, crafting social job resources and crafting challenging job demands had positive significant effect on work engagement, but crafting hindering job demands had no significant effect on work engagement, which agrees with Tims et al. (2012) , Bakker et al. (2016) and Harju et al. (2016), but differs from the conclusions of Crawford et al. (2010), Petrou et al. (2012) and Brenninkmeijer and Hekkert-Koning (2015). This was a direct response to question 2 of this study.

First, crafting structural job resources made knowledged workers try to develop

their capabilities and professionals, learn new things at work and use their capabilities to the fullest, so they could feel vigor, dedication and absorption of work.

Second, crafting social job resources made knowledgeable workers ask their inspiration, feedback and advice, so they could also feel vigor, dedication and absorption of work.

Third, crafting challenging job demands made knowledgeable workers get new development, extra tasks and more challenging work, so they could also feel vigor, dedication and absorption of work.

However, crafting hindering job demands made knowledgeable workers reduce mental intense, emotional intense and unrealistic expectations, which cannot enhance their work engagement.

The result of Tims et al. (2012) indicate that crafting structural job resources, crafting social job resources and crafting challenging job demands of three job crafting dimensions were more likely to be engaged, and decreasing hindering job demands showed no significant correlations with the outcome measures of work engagement. Tims, Derks & Rhenen (2016) showed that team job crafting relates to individual performance through individual job crafting and individual work engagement, according to the data collected among 525 individuals working in 54 teams that provide occupational health services. Harju et al. (2016) suggested that seeking challenges at work enhances workers' work engagement, prevents job boredom, and generates other job crafting behaviors. Crawford et al. (2010) gave the research results from 55 manuscripts of 64 samples articles that crafting hindering job demands were negatively associated with work engagement. Petrou et al. (2012) found from a diary survey completed by 95 workers from several organizations that seeking challenges was

positively associated with day-level work engagement, whereas day-level reducing demands was negatively associated with daily work engagement. Brenninkmeijer and Hekkert-Koning (2015) showed that crafting social and structural job resources could increase experience of work engagement, and the association between crafting challenging job demands and work engagement was not significant and crafting hindering job demands would be negatively related to work engagement according to the data collected among candidates from a Dutch consultancy organization within the branches pharmaceutical, medical, food and health care, and higher education professionals. From this point of view, different research subjects had different results in the direct relationship between crafting hindering and challenging job demands and work engagement.

This survey on 390 part-time MBA students of knowledgeable workers held that crafting structural job resources, crafting social job resources and crafting challenging job demands had positive direct effect on work engagement, but crafting hindering job demands was unrelated to work engagement. Crafting structural job resources might help workers use their skills and abilities better, thus leading to more work engagement. Crafting social job resources enables workers to establish a better working relationship network, and improve work engagement. Crafting challenging job demands could give workers passion and pleasures at work, thus improving work engagement. The relationship between crafting hindering job demands and work engagement was more complicated than simple linear relationships.

(3) Direct effect of living a calling on work engagement

The results in this study showed that living a calling had a positively significant direct effect on work engagement, which was consistent with the literature. The results

was similar to Xie et al. (2016a) from 832 Chinese workers and Duffy (2011) from a sample of 370 workers representing diverse occupations at a Western research university. A calling positively relates to an employee's career adaptability, work engagement, and career satisfaction according to the survey on 832 Chinese workers with career construction theory (Xie, Xia, Xin, & Zhou, 2016a). Duffy (2011) gives the results that living a calling in a particular career was positively related to work-related outcomes such as an employee's career adaptability, work engagement, and career satisfaction. According to a survey of 62% of the respondents who had different levels of college degrees, the results showed that living a calling enables workers to experience more organizational identity, work significance, work engagement and truth itself, which had a broad and far-reaching positive impact on individuals' work and life (Duffy et al., 2014). The indirect effects of work meaning, and career commitment on living a calling and job satisfaction were significant (Duffy et al., 2017). From this point of view, living a calling of knowledgeable workers had a positive impact on work engagement.

5.1.2 Mediating effect

The results in this study showed that crafting structural job resources, crafting social job resources and crafting challenging job demands had significant mediating effects on the relationship between living a calling and work engagement, but crafting hindering did not. This was a response to question 3 of this study.

Job crafting was one of the means to bridge the calling gap between actual self and counterfactual self (Berg et al., 2010). Living a calling enabled workers to experience more organizational identity, considered their work more meaningful, and achieved personal satisfaction, which had a broad and far-reaching impact on the individual's

work and life (Duffy et al., 2014). The crucial role of job crafting had an effect on work engagement and turnover intention (Agarwal & Gupta, 2017). Work engagement was a positive outcome of job crafting (Tims et al., 2012). By crafting workers' own resources and setting their own challenges, they actively work on their own engagement (Bakker et al., 2012). Crafting job resources could be effective for workers to increase their engagement and employability, whereas crafting hindering job demands was negatively associated with work engagement (Brenninkmeijer & Hekkert-Koning, 2015). Prior research also indirectly demonstrated the significant mediating effect of crafting structural job resources, crafting social job resources and crafting challenging job demands on the relationship between living a calling and work engagement, while the mediating effect of crafting hindering job demands on the relationship between living a calling and work engagement was not significant.

In order to better distinguish the relative size of each mediating path, three groups of mediating effect path were compared. This showed that the organization should focus and support the three types of job crafting of knowledge workers, which were in turn crafting structural job resources, crafting challenging job demands and crafting social job resources.

5.1.3 Moderating effect

(1) Moderating effect of promotion focus on the relationship between living a calling and crafting hindering job demands.

The results in this study showed that promotion focus of knowledge workers had significantly positive moderating effects on the relationship between living a calling and crafting hindering job demands. There were three reasons. First, From the previous conclusions, it can be seen that the direct effect of living a calling of knowledge workers

on crafting hindering job demands is positive and significant. Second, promotion focus of knowledgeable workers, which made them get gains, achievement and ideals, help them reduce mental intense, emotional intense and unrealistic expectations. So, promotion focus of knowledgeable workers promoted crafting hindering job demands. Third, product of living a calling and promotion focus had a significant positive effect on crafting hindering job demands. So, promotion focus of knowledgeable workers had significantly positive moderating effects on the relationship between living a calling and crafting hindering job demands. This was the first response to research question 4.

Promotion-focused individuals tend to see positive outcomes that were relevant for attaining success and personal growth (Higgins, 1998). Promotion focus might had a positive effect on the motivation of crafting hindering job demands by activating the need for development (Shimazu & Schaufeli, 2008). The psychological states of enjoyment and meaning facilitated by workers experience were associated with callings they pursue (Berg et al., 2010). Individuals' callings include higher intrinsic motivation, job satisfaction, career success, engagement, and well-being (Duffy, Dik, & Steger, 2011). Promotion focus was related from calling to job crafting and included a variety of behaviors such as decision-making (Gu, Bohns, & Leonardelli, 2013) and bargaining (Elzamly & Amin, 2011). Therefore, when knowledgeable workers were driven by promotion focus, the impact of living a calling on crafting hindering job demands significantly increased.

(2) Moderating effect of prevention focus on the relationship between living a calling and crafting hindering job demands.

The results in this study showed that prevention focus had significantly negative moderating effects on the relationship between living a calling and crafting hindering

job demands. This was the second response to research question 4.

Prevention-focused individuals tend to be alert to negative outcomes, such as failures (Higgins et al., 1997). They might actively respond to job demands when these demands prevent the fulfillment of their obligations (Higgins, 1998). Prevention focus was related to safety and responsibility with crafting hindering job demands (Brenninkmeijer & Hekkert-Koning, 2015). Workers with high prevention focus were more likely to take the initiative to create opportunities to reduce hindering job demands (Brenninkmeijer & Hekkert-Koning, 2015). Therefore, when knowledgeable workers were driven by prevention focus, the impact of living a calling on crafting hindering job demands will significantly decrease.

(3) Moderating effect of regulatory focus on the relationship between living a calling and crafting structural job resources, crafting social job demands and crafting challenging job demands.

The results in this study showed that promotion focus of knowledgeable workers had no significant moderating effect on the relationship between living a calling and crafting structural job resources. This was the third response to research question 4.

This showed that promotion focus of knowledgeable workers cannot moderate the relationship between living a calling and crafting structural job resources. That is to say, promotion focus of knowledgeable workers has no significant effect on the relationship between living a calling and crafting structural job resources. This showed that there was no need for organizations and managers to pay attention to the impact of knowledgeable workers' promotion focus on their living a calling and crafting structural job resources.

The results in this study showed that promotion focus of knowledgeable workers had

no significant moderating effect on the relationship between living a calling and crafting social job resources. This showed that promotion focus of knowledgeable workers cannot moderate the relationship between living a calling and crafting social job resources. That is to say, promotion focus of knowledgeable workers has no significant effect on the relationship between living a calling and crafting social job resources. This shows that there is no need for organizations and managers to pay attention to the impact of knowledgeable workers' promotion focus on their living a calling and crafting social job resources.

The results in this study showed that promotion focus of knowledgeable workers had no significant moderating effect on the relationship between living a calling and crafting challenging job demands. This showed that promotion focus of knowledgeable workers cannot moderate the relationship between living a calling and crafting challenging job demands. That is to say, promotion focus of knowledgeable workers has no significant effect on the relationship between living a calling and crafting challenging job demands. This shows that there is no need for organizations and managers to pay attention to the impact of knowledgeable workers' promotion focus on their living a calling and crafting challenging job demands.

The results in this study showed that prevention focus of knowledgeable workers had no significant moderating effect on the relationship between living a calling and crafting structural job resources. This showed that prevention focus of knowledgeable workers cannot moderate the relationship between living a calling and crafting structural job resources. That is to say, prevention focus of knowledgeable workers has no significant effect on the relationship between living a calling and crafting structural job resources. This shows that there is no need for organizations and managers to pay

attention to the impact of knowledgeable workers' prevention focus on their living a calling and crafting structural job resources.

The results in this study showed that prevention focus of knowledgeable workers had no significant moderating effect on the relationship between living a calling and crafting social job resources. This showed that prevention focus of knowledgeable workers cannot moderate the relationship between living a calling and crafting social job resources. That is to say, prevention focus of knowledgeable workers has no significant effect on the relationship between living a calling and crafting social job resources. This shows that there is no need for organizations and managers to pay attention to the impact of knowledgeable workers' prevention focus on their living a calling and crafting social job resources.

The results in this study showed that prevention of knowledgeable workers had no significant moderating effect on the relationship between living a calling and crafting challenging job demands. This showed that prevention focus of knowledgeable workers cannot moderate the relationship between living a calling and crafting challenging job demands. That is to say, prevention focus of knowledgeable workers has no significant effect on the relationship between living a calling and crafting challenging job demands. This shows that there is no need for organizations and managers to pay attention to the impact of knowledgeable workers' prevention focus on their living a calling and crafting challenging job demands.

(4) Moderating effect of regulatory focus on the relationship between living a calling and job crafting.

The results showed that the promotion focus of knowledgeable workers could significantly positively moderate the relationship between living a calling and the total

job crafting, while prevention focus of knowledgeable workers could significantly negatively moderate the relationship between living a calling and the total job crafting. Since total job crafting of knowledgeable workers could significantly and positively affect work engagement, promotion focus of knowledgeable workers should be increased and their prevention focus should be decreased on the relationship between living a calling and job crafting for organizations and managers. This was the fourth response to research question 4.

(5) Moderating effect of promotion focus on the relationship between living a calling and work engagement.

The results in this study showed that promotion focus had significantly positive moderating effects on the relationship between living a calling and work engagement. Individuals with a promotion focus strive for growth and development and aimed to maximize positive outcomes (Brenninkmeijer & Hekkert-Koning, 2015). Therefore, when knowledgeable workers were driven by promotion focus, the impact of living a calling on work engagement can significantly increase. Organizations and managers should take some measures to improve their promotion focus in order that knowledgeable workers can increase their work engagement when living a calling. This was the first response to research question 5.

(6) Moderating effect of prevention focus on the relationship between living a calling and work engagement.

The results in this study showed that prevention focus had no significant moderating effects on the relationship between living a calling and work engagement. Prevention focus had been related to a variety of behaviors such as perceived risk (Lin et al., 2012). When knowledgeable workers were driven by prevention focus, the impact

of living a calling on crafting hindering job demands had no significant change. So, moderating effect of prevention focus on the relationship between living a calling and work engagement was no significant. That is to say, promotion focus of knowledgeable workers has no significant effect on the relationship between living a calling and work engagement. This shows that there is no need for organizations and managers to pay attention to the impact of promotion focus of knowledgeable workers on their living a calling and work engagement. This was the second response to research question 5.

5.2 Theoretical Contributions

As discussed in previous research results, the main theoretical contributions in this study were as follows.

As the first and validating theoretical contribution, this study confirms the controversial issue that crafting hindering job demands had no significant impact on work engagement, and also verifies the literature consensus that crafting structural job resources, crafting social job resources and crafting challenging job demands had a significantly positive effect on work engagement.

As the second and interesting theoretical contribution, this study clearly indicated and verifies that living a calling had a significantly positive impact on crafting structural job resources, crafting hindering job demands, crafting social job resources and crafting challenging job demands for knowledgeable workers.

As the third and the most important theoretical contribution, this study explicitly proposes and validates that crafting structural job resources, crafting social job resources, and crafting challenging job demands could significantly mediate the relationship between living a calling and work engagement for knowledgeable workers.

As the fourth and exploratory theoretical contribution, this study explicitly proposes

and validates that promotion focus could significantly and positively moderate the relationship between living a calling and crafting hindering job demands, and prevention focus could significantly and negatively moderate the relationship between living a calling and crafting hindering job demands for knowledgeable workers.

As the fifth and insightful theoretical contribution, this study finds that promotion focus could significantly and positively moderate the relationship between living a calling and work engagement for knowledgeable workers.

5.3 Managerial Implications

Based on the previous theoretical contributions, the management implications in this study were as follows.

First, organizational managers should pay attention and positively respond to structural job resources, social job resources and challenging job demands for knowledgeable workers so that they may engage more actively in their work. This study also suggests that organizational managers should ignore crafting hindering job demands of knowledgeable workers, because the direct impact of crafting hindering job demands of knowledgeable workers on work engagement was not significant.

Second, organizations should provide better conditions for knowledgeable workers who pursue a calling, such as providing more autonomy and diversity. Knowledgeable workers who live their calling could play a role in crafting structural job resources, social job resources and challenging job demands, so that organizations and knowledgeable workers obtain "win-win" benefits.

Third, this study suggests that organizations should pay attention to the mediating role of crafting structural job resources, crafting social job resources and crafting challenging job demands as they relate to the relationship between living a calling and

work engagement. Crafting structural job resources, crafting social job resources and crafting challenging job demands together promote the impact of living a calling and work engagement. This study suggests that organizational managers should encourage workers to craft structural job resources, social job resources and challenging job demands, because job crafting was conducive to enhancing employee engagement. Therefore, organizational managers should pay more attention to living a calling and at the same time respond to workers' needs, which could make it very likely that workers were willing to invest structural job resources, social job resources and challenging job demands. At the same time, organizational managers could ignore crafting hindering job resources of knowledge, because the direct impact of crafting hindering job resources on work engagement was not significant.

Fourth, organizations had no need to care for the effect of crafting hindering job demands they relate to the relationship between living a calling and work engagement. When decreasing hindering job demands was slight, living a calling had positive relationship with work engagement. However, if hindering job demands decreases too much, living a calling could had the reverse relationship with work engagement.

Fifth, organizations could decrease the relationship between living a calling and crafting hindering job demands by using the positive moderating effect of promotion focus and the negative moderating effect of prevention focus. When knowledgeable workers had a strong calling, organizations could take measures to enhance prevention focus of knowledgeable workers, in order to reduce their crafting hindering job demands. When knowledgeable workers had a strong desire to craft hindering job demands, organizations could take measures to enhance prevention focus to promote pursuing a calling.

Sixth, organizations could increase the relationship between living a calling and work engagement by using the positive moderating effect of promotion focus. When knowledgeable workers had a strong calling, organizations could take measures to enhance promotion focus of knowledgeable workers, in order to increase their work engagement. This study related to the study of sociology and organizational psychology, which had become somewhat neglected these days. In conclusion, these insights might help organizational managers to focus on workers' living a calling and encourage them to craft structural job resources, social job resources and challenging job demands. Finally, organizational managers should encourage workers to raise or lower their promotion focus or prevention focus. The original samples in this study possess the potential to contribute to debate on work-life balance and particularly the significance of meaning of work and careers in China.

5.4 Limitations and Recommendations

Several limitations in this study and recommendations for future research should be considered in the interpretation of the findings.

First, due to the limitation of data collection, cross-sectional data were used in this study, which cannot fully suggest causal relationships. The premise in this study was that knowledgeable workers were living their own callings. However, due to various factors, many knowledgeable workers cannot live their callings at times. Future research could discuss what would affect knowledgeable workers' living their callings. This point of view showed that the cross-sectional data in this study has research limitations. Longitudinal data should be collected as much as possible in future research to obtain more accurate conclusions.

Second, although this study included factors that account for variance in ages, work

years and hours worked per week, some potentially influential covariates that had been considered in this study were not included, such as gender, educational background and organizational types. Moreover, the object in this study was limited to part-time MBA students, which might limit the definitive evaluation of the relative importance on the antecedents of job crafting and work engagement in the current study. However, it offers a good chance for future researchers to take more steps in this direction.

Third, this study solely highlights the key role of job crafting on work engagement for knowledgeable workers. In fact, there might be some negative consequences of job crafting for knowledgeable workers such as deviating from job requirements. Future studies based on this study could explore negative consequences of job crafting.

Fourth, living a calling, job crafting and regulatory focus were only some of the many variables of work engagement. In fact, there were many antecedents to work engagement, such as perceived organizational support, and unanswered professional calling. Therefore, how antecedents such as perceived organizational support and unanswered professional calling affect work engagement will be researched in the future.

Finally, this study used the questionnaire survey method, so its sidedness was a shortcoming. The world today was a world of data, and the speed of producing new data was amazing. With the hype of big data and the advent of artificial intelligence, big data had entered the real application and research stage. Big data provides a new way to solve some problems when no way could determine the cause and effect among some variables. Big data could change the nature of an organization. In fact, there were many organizations whose sole existence was based upon their capabilities to generate insights of their workers that only big data could deliver. Therefore, the research method

of enabled big data will also be applied to the relationships between living a calling and work engagement in the future.



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Appendix A. Questionnaire

编码(code):
调查问卷 (Questionnaire)
<p>亲爱的女士/先生:</p> <p>您好! 请您花点时间想想什么对您的工作生活很重要。</p> <p>我是 Dhurakij Pundit University 博士生。为了完成有关工作方面的认知与心理倾向研究, 我将发起一项调查问卷。本问卷绝不用于商业用途, 仅用于学术研究。</p> <p>整份问卷填答时间约为 15 分钟左右。第一二部分都是非常主观的问项, 每个题目根据您的实际情况从 1 至 7 中选择 1 个数, 没有正确或错误的答案之分, 请您尽可能如实和准确地回答。第一至二部分中的每题都附有中文和英文, 中文和英文都是同一个意思的不同语言表达, 供您参考。第三部分是个人基础数据, 仅供统计分析, 绝不对外公开。您的每个回答都会直接影响到研究结果, 所以请您务必填答每个问题, 不要漏答题目。</p> <p style="text-align: right;">期待您的参与、支持和协助! 谢谢!</p> <p style="text-align: right;">联系方式: 287219393@qq.com 李红霞</p> <p>Dear ladies and gentlemen,</p> <p>I am a Ph. D. student from Dhurakij Pundit University. To complete a research on job cognition and orientation, I developed a questionnaire. This questionnaire was not for commercial purposes, but for academic research only. The time it will take to complete the questionnaire was about 15 minutes. Part 1 and Part 2 contain both very subjective questions. Please select from 1-7 according to your situation. There were no right or wrong answers. Please answer them as truthfully and accurately as possible. Each question in Part 1 and Part 2 was written in Chinese and English for easy reference. Part 3 was basic data, which will be used for statistical analysis only, and will not be disclosed to the public. Each of your answers will had a direct impact on the results of the study, so be sure to fill in every item and do not skip any questions.</p> <p style="text-align: right;">Thank you! I look forward to your participation, support and assistance.</p> <p style="text-align: right;">Email: 287219393@qq.com Hongxia Li</p>

	underlying relationships between aspects of my job.							
wvi1	我在工作中感到充满活力。 At my work, I feel bursting with energy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wvi2	我的职业使我感到强壮和活。 At my job, I feel strong and vigorous.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wvi3	早上一起床, 我就想去上班。 When I get up in the morning, I feel like going to work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wde1	我对我的职业很热情。 I am enthusiastic about my job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wde2	我的职业激励我。 My job inspires me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wde3	我为我所做的工作感到自豪。 I am proud of the work that I do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wab1	当我紧张工作时, 我感到快乐。 I feel happy when I am working intensely.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wab2	我沉浸在工作中。 I am immersed in my work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wab3	当我工作的时候, 忘记了自我。 I get carried away when I'm working.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
【第三部分】 以下为个人基本数据, 此数据仅供统计分析, 绝不对外公开, 请您放心填写。								
【Part 3】 The following was the basic personal data. The data was only for statistical analysis. It was never disclosed to the public. Please feel free to fill it in.								
1 性别(gender): 男(male) <input type="checkbox"/> 女(female) <input type="checkbox"/>								
2 年龄(age): _____								
3 参加工作年月(work years): _____								
4 您就读 MBA 之前的学历是(Your academic background before attending MBA students): 大专 (Junior College) <input type="checkbox"/> 本科 (Bachelor) <input type="checkbox"/> 硕士 (Master) <input type="checkbox"/> 博士 (Doctor) <input type="checkbox"/>								
5 您每周工作时间多少小时? (How many hours do you work per week?): 未满 20 小时(Less than 20 hours) <input type="checkbox"/> 20 小时到 29 小时(20 hours to 39 hours) <input type="checkbox"/> 30 到 39 小时(20 hours to 39 hours) <input type="checkbox"/> 40 小时以上(More than 40 hours.) <input type="checkbox"/>								
6 您工作单位的类型是 (Type of your work organization is) : 医疗机构 (medical institution) <input type="checkbox"/> 服务业 (Service industry) <input type="checkbox"/> 教育业 (Education industry) <input type="checkbox"/> 金融业 (Finance) <input type="checkbox"/> 行政机关 (Administrative organ) <input type="checkbox"/> 科技业 (Science and technology industry) <input type="checkbox"/> 制造业 (manufacturing industry) <input type="checkbox"/> 其他 (others) <input type="checkbox"/>								
本问卷到此结束, 请您再次确认是否每题均已回答, 感谢您填答问卷! At the end of this questionnaire, please reconfirm whether each question had been answered. Thank you for filling in the questionnaire.								

Appendix B. Resume

My Chinese name was 李红霞, and my English name was Hongxia Li, Li

Hongxia or Li Hong-Xia. The name on my passport was LI HONGXIA.

I had Published 2 academic journal papers related to Ph.D. dissertation during my Ph.D. study as follows.

Li, H., Yang, X. (2018). When a calling was living: job crafting mediates the relationships between living a calling and work engagement. *Journal of Chinese Human Resource Management*. 9 (2), pp. 77-106. DOI: 10.1108/JCHRM-12-2017-0030. Document Type: Article. Source: Scopus

Chen, J. M., & Li, H. X. (2017). Behavioural decision game between organizational support and work engagement. *Journal of Discrete Mathematical Sciences and Cryptography*, 20(6-7), 1327-1332. DOI: 10.1108/JCHRM-12-2017-0030. Document Type: Article. Source: Scopus and EI. 20175204568842.

I had worked in Chongqing Technology and Business University as a full-time teacher, and mainly had taught major in information management and information system. I had Taught main courses during Ph.D. study as follows.

1. Management Information Systems
2. Customer Relationship Management
3. Enterprise Resource Planning
4. Data Model and Management Decision
5. Information System Developing Toolkit
6. E-commerce Security
7. Government Information Resource Management
8. Business Model Innovation and System Support

I had published a series of academic papers related to my work field during Ph.D. study as follows.

Li Hongxia, Chen Junming.2017. Decision-making Game between the organization and employee behavior relationship. *Management World*, 2017(04). (CSSCI and CNKI) (Chinese).

Li Hongxia, Chen Junming, Ni Zhen. 2017.Comparison of User behavior factors between micro-blog and Wechat. *Journal of Chongqing Technology and Business University (Social Sciences Edition)*, 34(03) (CNKI) (Chinese).

Li Hongxia, Chen Junming. 2016.Business data decision-making of foreign fast-food chains. *Technoeconomics & Management Research*,2016(09) (CSSCI and CNKI) (Chinese).

Li Hongxia, Chen Junming. A Study of Per Capita Income Doubled in 10 Years by Applying Intuitionistic Fuzzy Number Method. *East China Economic Management*,30(04) (CSSCI and CNKI) (Chinese).

Li Hongxia. 2015.Research on the Catering Business Information Consciousness Based on Logistic Regression Model of Principal Component Analysis. *Journal of Chongqing Technology and Business University (Social Sciences Edition)*,33(04) (CNKI) (Chinese).

Li Hongxia. Research on development path selection of e-commerce industry. *Shandong Social Sciences*, (09) (CSSCI and CNKI) (Chinese).

Chen Junming, **Li Hongxia**. 2015.Multiple Risk Preference Decision Making with Intuitionistic Fuzzy Weight and Intuitionistic Fuzzy Attribute. *Fuzzy Systems & Mathematics*,29(05) (CSCD and CNKI) (Chinese).

Li Hongxia. 2015.The multidimensional game towards online sellers.2015 *International Conference on Logistics, Informatics and Service Science, LISS*

2015; ISBN-13: 9781479918904; DOI: 10.1109/LISS.2015.7369666 (EI).

Li Hongxia. 2014.Comprehensive Evaluation on Rebate Website. *Journal of Chongqing Technology and Business University (Social Sciences Edition)*, 31(03) (CNKI) (Chinese).

I won the awards for scientific research and teaching achievements during Ph.D. study as follows.

[1] **Li Hongxia** (1/4), Theory Exploration and Simulation Practice of Management Honeypot, Chongqing Municipal People's Government, Science and Technology Progress Awards, 2016.6.21 (Li Hongxia ; Chen Junming; Su Lili; Yang Xiaoqiong) (Reward for Scientific Research Achievements).

[2] **Li Hongxia** (1/5), Research and Practice of Project-driven Innovative Talents Training in Economic Management Based on Science and Education Integration, Chongqing Technology and Business University, Teaching Achievement Award, 2017.01.06 (Li Hongxia ; Chen Junming; Su Lili; Xu Shiwei; Li Yong) (Teaching Achievement Award)