The Development of Burnout among Teachers in China: A Job Demands-Resources Perspective

By

Han Cheng

A thesis submitted in fulfilment of the requirement for the degree of Doctor of Philosophy

School of Business
Western Sydney University

December 2022

Acknowledgement

First and foremost, I would sincerely like to thank my supervisors, Dr Youqing Fan and Dr Henry Lau for their persistent guidance and support during my doctoral study at Western Sydney University. I am also very grateful to Western Sydney University for a three-year scholarship which enabled the completion of this study.

I wish to express my deepest gratitude to my principal supervisor, Dr Youqing Fan, for his exceptional mentorship and never-ending support throughout my PhD candidature, especially during the difficult times in Covid lockdown. I am also thankful to Dr Henry Lau, my co-supervisor, for his encouragement, support, and assistance with my research. Thanks should also go to Associate Professor Dilupa Nakandala, who kindly provide continuous help and encouragement, especially during the time when I was not able to return to Australia.

Many thanks to my great friends Belle, Salman, and Samanthi, who go out of their way to reach out and stay in touch. Thanks also to all my dearest friends who are always there for me in China, and I would not have completed without their heartfelt support. My great appreciation also goes to Nargess, Gaby, and Junxin for their friendship and support. Special thanks to Adrienne, my therapist, for her constant support, nurturing, and great influence.

Finally, my deepest gratitude to my mother and father. Without their love, this would not have been possible.

Statement of Authentication

I hereby declare that this submission is the product of my own work and to the best of my knowledge, it contains no materials previously published or written by another person, except where due acknowledged is made in the text. I also declare that I have not submitted this material, either in full or in part, for a degree at this or any other institution.

.....

Han Cheng

10 December 2022

Presentations and Publications

Cheng, H., Fan, Y. and Lau, H., 2019. The Relationships between Job Stress, Social Support and Burnout among Teachers in China. *Australian and New Zealand Academy of Management Conference*, Cairns, Queensland.

Cheng, H., Fan, Y. and Lau, H., 2022. The Mediating Role of Individual Behaviour Strategies in the JD-R Model: A Study on Teacher Burnout in China. *Australian and New Zealand Academy of Management Conference*, Gold Coast, Queensland.

Cheng, H., Fan, Y. and Lau, H., 2022. [In Press] An integrative review on job burnout among teachers in China: Implications for Human Resource Management. *The International Journal of Human Resource Management*.

Abstract

The burnout experience of teachers has received international research attention because teaching is among those professionals with the highest level of job stress. Teacher burnout has serious consequences for the teachers' occupational health and for the quality of education.

According to the job demands and resources (JD-R) model (Bakker & Demerouti 2017; Demerouti et al. 2001), burnout occurs in the health-impairment process in which high job demands make teachers feel exhausted and cynical toward their work. Moreover, in recent attempts to extend the JD-R model, researchers argued that personal demands and personal resources may act in a similar way as job demands and job resources. Notably, apart from demands and resources, recent literature explores the role of individual behaviour strategies in burnout process and attempts to integrate them into the JD-R model to increase its predictive power (Demerouti, Bakker & Xanthopoulou 2019). Though literature has shown that teachers across the globe share some common mechanisms in their burnout development, China's cultural context, social and educational conditions cultivate distinct work and personal characteristics and contribute to shape a unique burnout profile of Chinese teachers. This thesis aims to undertake a contextualized study on the development of burnout in the Chinese education sector and investigate on how those culturally specific antecedents contribute to the health-impairment process of the JD-R model in this teacher group.

The hypothesized research model extends the JD-R model by examining the impact of three culturally specific job demands on teacher burnout in China. Next, the model explores the mediating roles of job crafting and avoidant coping on the relationships between job demands and burnout. In addition, the model investigates the moderating roles of supervisor support and proactive personality on the relationships between job demands and job crafting, while also examines the moderating role of perfectionism on the relationships between job demands and avoidant coping. This research adopted a quantitative approach. Specifically, a survey study

was employed to collect data. Using structure equation modelling, the results of this study (N=552) among teachers in China provided support to most of the hypotheses proposed in the research model.

This research makes some important contributions to the literature. First, the research addresses the call of Bakker and Demerouti (2017) and Demerouti, Bakker and Xanthopoulou (2019) to extend the JD-R model by integrating individual behaviour strategies. The research theoretically develops and empirically confirms a mediation model to show how job demands influence burnout in a sample of Chinese teachers. Second, drawing on both JD-R theory and the transactional theory of stress and coping, the research investigates and explains the complex underlying mechanism in the job demands and burnout linkage. Finally, the research addresses the call of Bakker and Demerouti (2017) and Zeijen et al. (2021) to investigate the role of personal demands in the extension of the JD-R model.

The research also provides several implications for practice. First, policy makers and HR managers in the education sector should be aware of the specific job demands on Chinese teachers. Second, schools should support teachers to engage more in crafting their job and involve less in avoiding job tasks. Finally, HR managers may consider recruiting, developing, and managing employees who generally have lower tendency of perfectionism.

Table of Contents

List of Tables

List of Figures

Abbreviations

AC: Avoidant Coping

AVE: Average Variance Extracted

BO: Burnout

CFA: Confirmatory Factor Analysis

COR: The Conservation of Resources Theory

CR: Composite Reliability

CITC: Corrected Item-Total Correlation,

CY: Cynicism

DP: Depersonalization

EE: Emotional Exhaustion

EFA: Exploratory Factor Analysis.

JC: Job Crafting

JD: Job Demands

JD-R: The Job Demands and Resources Model

MBI: Maslach Burnout Inventory

PA: Reduce Personal Accomplishment

PCA: Principal Component Analysis

RA: Role Ambiguity

SE: Student's Exam Pressure

SEM: Structural Equation Modelling

SS: Supervisor Support

WL: Workload

Chapter 1 Introduction

1.1 Research Background

The burnout experience of teachers has received international research attention because teaching is among the professions with the highest level of job stress and burnout (Farber 1991; Hakanen, Bakker & Schaufeli 2006; Skaalvik & Skaalvik 2017; Stoeber & Rennert 2008). Teacher burnout has serious consequences for the teachers' personal and occupational health and for the subsequent quality of the education they provide. Research across a range of countries indicates that burnout can impair teachers' physical and mental health, reduce their job performance, and ultimately lead to them quitting the profession (Boreen, Niday & Johnson 2003; Hong 2012; Maslach & Leiter 1999; Tang et al. 2001). Burnout has been recognised as a serious occupational health issue over the past few decades (Maslach & Leiter 2016), and is generally conceptualised as a three-dimensional construct: emotional exhaustion (EE), depersonalization (DP) or cynicism (CY), and reduce personal accomplishment (PA) (Maslach, Schaufeli & Leiter 2001).

The potentially devastating consequences of burnout has led researchers to investigate the mechanism of burnout development. According to the job demands and resources (JD-R) model (Bakker & Demerouti 2017; Demerouti et al. 2001), burnout occurs in the health-impairment process in which high job demands lead to exhaustion and make teachers cynical about their work. In the educational setting, a number of studies across different cultures indicate that job demands are positive predictors of teacher burnout; these include heavy workloads, difficult students, role conflict and ambiguity (Kyriacou 2001; Pithers & Soden 1998). Job resources also play an important role in the development of burnout. When adequate job resource is available, they can weaken the relationship between job demands and burnout because they help with an effective way of coping. Job resources are found to be negatively related to teacher burnout, such as social support (Halbesleben 2006), autonomy, and performance feedback (Alarcon 2011).

Moreover, in recent attempts to extend the JD-R model, researchers argued that personal demands and personal resources may act in a similar way to job demands and job resources. Specifically, personal demands such as perfectionism and workaholism may facilitate the health-impairment process from job demands to burnout, while personal resources like emotional intelligence (Mérida-López & Extremera 2017) and personality traits (Kim, Jörg & Klassen 2019) can buffer the link between job demands and burnout. Notably, the most recent literature explores the role of individual behaviour strategies in the burnout process, and attempts to integrate them into the JD-R model to increase its predictive power (Demerouti, Bakker & Xanthopoulou 2019). Individual strategies represent methods or plans that people employ to achieve a goal or solve a problem (Demerouti 2015). Based on the self-regulation framework, individual strategies can be categorised as maladaptive or adaptive, depending on the situations in which they are used. For example, avoidant coping is considered maladaptive and positively predicts teacher burnout, while job crafting is adaptive and is therefore negatively associated with burnout (Bakker & de Vries 2021). It is argued that in the health-impairment process of the JD-R model, when teachers are facing a high level of job demands, they not only engage more commonly in maladaptive behaviours (e.g., avoidant coping), but also engage less in adaptive behaviours (e.g., job crafting). These two pathways will lead to increased level of teacher burnout.

While the literature has shown that teachers across the globe share some common factors and mechanisms in burnout development, recent research suggests that different educational and cultural conditions cultivate distinct work and personal characteristics, which contribute to a great variety of burnout experiences – burnout is a more nuanced phenomenon than previously understood. In a meta-analysis of teacher burnout from 156 studies across 36 countries, García-Arroyo, Osca Segovia and Peiró (2019) reported that differences between countries explain a significant percentage of burnout variability (20.1% for EE, 6.4% for C, and 14.8% for PA). In

a similar meta-analysis of 30 studies from different countries, Zheng and Guo (2017) reported that the negative relationship between emotional intelligence and burnout is significantly higher for teachers in China (r=-.38) than for teachers in other countries (r=-.21).

Teachers in China are one of the largest teacher group in the world, with a teaching workforce of approximately 1.6 million (Ministry of Education of People's Republic of China 2017); this group is experiencing extremely high level of burnout. In China, teachers reported the second highest scores on emotional exhaustion compared with their peers in 35 other countries (mean=54.75 compared with average means=38.29) (García-Arroyo, Osca Segovia & Peiró 2019). Moreover, a national survey identified that nearly 30% of Chinese teachers experienced serious burnout (SINA 2005), and this is 10% higher than that of teachers in the U.S. (Farber 1991).

China's cultural context, social and educational conditions contribute to shaping the unique burnout profile of Chinese teachers. First, some job demands are culturally specific and need to be understood within the Chinese context. In China, Confucian beliefs, the traditional Chinese education philosophy, expect teachers to be not only knowledge providers but also role models, authority figures, or even parents to the students (Cortazzi & Jin 1997; Lau, Yuen & Chan 2005b; Zhang & Zhu 2008). Such a high and sometimes unrealistic expectation makes Chinese teachers even more vulnerable to burnout (Luk et al. 2010). Also, in the Chinese education system, the emphasis on students' academic performance and fierce examination competition generates another major stressor for Chinese teachers because student success is believed to be a direct reflection of teacher quality and therefore becomes a measure for teacher success (Xu 2003; Zhang & Zhu 2007). Second, job resource such as supervisor support may be particularly important in alleviating burnout for Chinese teachers, as China is a country with relatively high power distance, which emphasizes hierarchy and group cohesion (Matsu moto, 1989; Zhang et al., 2019a). Finally, personal demands like perfectionism exert a profound

influence on teacher burnout in the Chinese education sector. In Confucian philosophy the teacher is portrayed as a highly respected authority figure, this carries the implication that teachers need to be perfect moral models for students. Teachers who have internalized these traditional values are likely to put extra pressure on themselves (personal demand) in addition to the high demands of the job.

Given the significant consequences of teacher burnout along with the unique burnout profile of Chinese teachers, a contextualized study is required to determine the factors that give rise to burnout in the Chinese education sector. Accordingly, this study investigates how those culturally specific antecedents contribute to the health-impairment process, as described in the JD-R model, in this teacher group.

1.2 Aim of the Study

This study aims to test and extend the JD-R model in a group of teachers within the Chinese cultural context. Specifically, this study explores job demands, job resources, personal demands, personal resources, individual behavioral strategies as antecedents of teacher burnout, and investigated the complex mechanism of burnout development. The research questions for the study will be explained in detail at the end of the literature review chapter.

1.3 Significance of the Study

The research contributes to the existing literature in several ways.

- First, it integrates both adaptive individual strategy (i.e., job crafting) and maladaptive strategy (i.e., avoidant coping) into the JD-R model. Specifically, this research shows that teachers under high levels of job demands will be less engaged in job crafting behaviors and more involved in avoidant coping behaviors, which in turn leads to an increased level of burnout. Notably, this study addresses the under researched area of the role of job crafting in the health impairment process of the JD-R model.

- Second, it investigates and explains the complex underlying mechanism in the job demands and burnout linkage. The research extends the JD-R model by incorporating job resource (supervisor support), personal resource (proactive personality), personal demand (perfectionism), and individual behaviour strategies (job crafting; avoidant coping) into the health impairment process proposed by JD-R theory. Based on the transactional theory, the present study also explains the corresponding roles of those variables through primary and secondary appraisal processes.

- This study makes a strong theoretical contribution by further integrating the JD-R model and the transactional theory to better understand burnout development. While recent development of JD-R theory attempts to include personal level factors into the model, there is a need to find theoretical support for the integration and make sense of the interplay between job and personal level factors. This research highlights the mediating role of avoidant coping and job crafting in burnout development, which further integrate the JD-R model with the transactional theory of stress and coping.

- The novelty of this study also lies in the examination and extension of the JD-R model under the Chinese culture context. Specifically, this study finds that culture has an impact on job demand, job resource, and personal demand, which all contribute to teacher burnout in China. Under the deep influence of Confucian philosophy, teachers in China experience culturally specific job demands, student exam pressure and role ambiguity. Moreover, supervisor support is of particular importance for teachers in engaging in job crafting behaviors. In addition, teachers are shaped by those traditional values and believe that they need to present themselves as perfect to meet such perceived high expectations.

1.4 Thesis Outline

Chapter 1 introduces the background of this research, describing the aims of the research and its contribution to the literature on burnout.

Chapter 2 provides a detailed review of teacher burnout in China using the JD-R framework. It reviews the concept of burnout, the main theories underpinning burnout research, key specific antecedents and outcomes of burnout in the Chinese educational context. Finally, this chapter identifies several research gaps and proposes a hypothesized research model, which aims to extend the JD-R model which was tested on a group of Chinese teachers.

Chapter 3 discusses the use of the survey method and addresses related methodological issues. It explains the implementation of the survey, measurement scales used in the survey, and ethics considerations in the data collection process. It also describes and justifies the statistical analytical techniques used to interpret the results.

Chapter 4 presents the results and findings of this study. It begins with a descriptive statistic of the sample followed by an examination of the dataset for reliability and validity using EFA and CFA. Next, it presents the results of structural equation modelling, including pathway analysis and mediation analysis; the findings from the moderation analysis are also provided.

Chapter 5 presents a detailed discussion of the findings in the context of the existing literature on burnout. It provides a detailed discussion of each hypothesis, demonstrating how the empirical evidence from this study relates to relevant research in the field of teacher burnout.

Chapter 6 covers the conclusions of this study. It discusses the implications for both theory and practice and finally, some limitations of this study are discussed.

Chapter 2 Literature Review

2.1 Introduction

Chapter 1 introduced the background of this research. It provided an overview of research on teacher burnout globally and then identified teacher burnout in the Chinese cultural context as its focus. Chapter 2 provides a detailed review of teacher burnout in China using the JD-R framework. It reviews the concept of burnout, the main theories underpinning burnout research and key antecedents and outcomes of burnout in the Chinese educational context. Finally, this chapter identifies several research gaps and proposes a hypothesized research model, which aims to extend the JD-R model which was tested on a group of Chinese teachers.

2.2 Definition of Burnout

The existing literature has defined burnout as a three-dimensional construct. Initially, it was characterised as a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment among workers in human service sectors who interreact extensively with people (teachers, nurses, etc.) (Maslach & Jackson 1986). Later, studies of burnout expanded to go beyond the human service professions, with its three dimensions being relabelled as broader, more useful terms: exhaustion, cynicism, and reduced professional efficacy (Maslach, Schaufeli & Leiter 2001). Exhaustion refers to feelings of being overextended and depleted of one's emotional and physical resources. Cynicism (or depersonalization) describes a detached response to one's work and a cynical attitude towards other people at work. Finally, reduced professional efficacy refers to a decline in one's feelings of competence and effectiveness in work (Maslach & Leiter, 2008). These definitions have been widely accepted in the burnout literature, and are commonly cited in the most recent research (Bianchi, Schonfeld & Laurent 2019; Demerouti 2015; Maslach 2017).

Burnout is a prolonged response to chronic job stressors, the development of burnout is therefore an ongoing process. The research on burnout generally supports a sequential link

from exhaustion to cynicism. When one faces excessive demands, exhaustion occurs first as emotional and physical resources are depleted, this prompts a detachment from various aspects of work in order to cope with work overload. Cynicism is therefore, an immediate response to exhaustion. However, reduced professional efficacy has a more complex relationship to the other two dimensions of burnout, sometimes being directly related to them and sometimes being more independent (Demerouti et al. 2001; Maslach & Leiter 2008).

2.3 Theoretical Perspectives

2.3.1 The Job Demands-Resources Model (JD-R) Model

In this study, using the JD-R model, the research synthesises the existing literature on teacher burnout in China. As one of the leading job stress models, the JD-R model was initially proposed approximately two decades ago to explain the development of burnout (Demerouti et al. 2001). Since then, it has been increasingly used by researchers, underpinning increasing numbers of empirical studies (Bakker, Demerouti & Sanz-Vergel 2014). The reason is the model's potential to include all job demands and job resources into a comprehensive framework to explain stress and burnout, and it can be adapted for application to a variety of occupations (Bakker & Demerouti 2017; Schaufeli & Taris 2014). The broad scope and flexibility of JD-R model, make it an effective framework to organize both the antecedents and outcomes of burnout among Chinese teachers across a wide range of work characteristics and at different levels. It offers insights into how those factors contribute to the development of burnout.

The JD-R model considers burnout to be a phenomenon that occurs when individuals experience high levels of job demands while having inadequate job resources available to them to cope with and effectively manage/decrease those demands (Bakker & de Vries 2021; Bakker & Demerouti 2017). Job demands refer to physical, social or organizational aspects of work that require physical or mental efforts and are therefore associated with psychological costs

(Demerouti et al. 2001). For example, workload, role ambiguity, role conflict, role stress, stressful events, and work pressure are found to be particularly important job demands (Lee & Ashforth 1996). Job resources are defined as characteristics of the job that help in achieving work goals, reduce job demands and the associated psychological costs, and/ or lead to personal growth (Demerouti et al. 2001). Examples of job resources are autonomy, skill variety, performance feedback, etc. (Alarcon 2011). According to the JD-R model, job demands have a strong positive relationship with exhaustion, while adequate and appropriate job resources demonstrate a consistent negative relationship with cynicism (termed as disengagement) (Bakker, Demerouti & Verbeke 2004). When employees are exposed to chronic high job demands, they will gradually become emotionally and physically exhausted. If they do not have enough job resources to handle those demands, they become disengaged from their work and develop cynical attitudes.

Later refinement of the model proposes that adequate and appropriate job resources can buffer the impact of job demands on burnout. For example, Bakker, Demerouti and Euwema (2005) found that a range of job resources including autonomy, performance feedback, social support, and quality of relationship with the supervisor, can act as a buffer for the relationship between job demands (work overload, emotional demands, physical demands, and work–home interference) and burnout among employees in higher professional education in the Netherlands. A study among employees in home care organizations (Xanthopoulou, Bakker, Dollard, et al. 2007) demonstrated that employees cope better with job demands (emotional demands/patient harassment) when they have adequate job resources (autonomy, social support, performance feedback, and opportunities for professional development) available.

More recent studies add personal resources to the JD-R model, arguing these can be used to deal with job demands (Bakker & Demerouti 2017). Personal resources are defined as aspects of the individual that relate to resiliency, which can be used by individuals to take control of

their (work) environment (Hobfoll et al. 2003). In a survey study among 714 Dutch employees, Xanthopoulou, Bakker, Demerouti, et al. (2007) showed that personal resources (optimism, self- efficacy, and self-esteem) have a mediating effect between job resource and exhaustion. Similarly, in a longitudinal study of employees in the Netherlands, Xanthopoulou et al. (2009) found that personal resources (optimism, self-efficacy, and self-esteem) have predictive validity for job resources and work engagement. Thus, individuals with more personal resources are likely to acquire more job resources, cope better with demands, and are less likely to experience burnout.

Research calls for theoretical extension of the JD-R model in two directions. Personal demands like workaholism and perfectionism could be integrated into the model, especially with regard to expanding understanding of the health impairment process. An example that confirms this need is seen in a study of 224 school principals where workaholism was found to be associated with higher levels of job demands and consequently more burnout (Guglielmi et al. 2012). A further area of suggested theoretical model extension is the integration of individual behaviour strategies, such as coping and job crafting, as these may also influence the processes suggested in the JD-R model (Demerouti, Bakker & Xanthopoulou 2019).

In the latest developments of the JD-R model, researchers attempt to integrate the challenge-hindrance stressor framework in JD-R theory and explore the different effects of hindrance demands and challenge demands on individual well-being (LePine, Podsakoff & LePine 2005; LePine 2022). Under this development, job demands have been further distinguished into hindrance and challenge job demands (Podsakoff, LePine & LePine 2007; Tadić, Bakker & Oerlemans 2015). Hindrance job demands refer to job demands or work conditions that involve excessive or undesirable constrains that interfere with or inhibit an individual's ability to achieve valuable goals (Rodell & Judge 2009). For example, role conflict, role overload, and role ambiguity are often studied as hindrance job demands (Mazzola & Disselhorst 2019). On

the other hand, challenging job demands are defined as demands that cost effort but that potentially promote personal growth and achievement of the employee (Kim & Beehr 2020). Examples of challenge stressors are high levels of workload, time pressure, and responsibility (Peng et al. 2019).

In particular, recent studies have shown that there is a curvilinear relationship between challenging demands and well-being indicators, such as job burnout (Montani et al. 2020; van Ruysseveldt & van Dijke 2011). For example, in a three-wave study among 320 Thai hotel employees, Haldorai, Kim and Phetvaroon (2022) found that challenge stressors had a U-shape relationship with service sabotage behaviour. Along the same vein, in a survey study among 307 IT managers in Australia, Sawang (2012) found that there is an inverted U-shaped relationship between challenge job demands and work engagement. In general, the curvilinear relationship between challenge demands and well-being variables points out that when individuals perceive low to moderate level of challenge job demands, they will be motivated to make effort at work and have a low risk of burnout. However, if the challenge demands are excessively high, individuals will find it difficult to cope with those demands and the risk of burnout is therefore high (Sheng et al. 2019; Stiglbauer & Kovacs 2018).

2.3.2 The Transactional Theory of Stress and Coping

In this study, the transactional theory of stress and coping is also used to explain the complex process of burnout development. According to Lazarus and Folkman (1987), two main theoretical constructs are central to understanding stress and coping - cognitive appraisal and coping. In the appraisal process, two kinds of appraisal are distinguished: primary appraisal and secondary appraisal (Lazarus & Folkman 1984). Primary appraisal refers to an individual's evaluation of whether and how a situation will affect one's well-being, while secondary appraisal is defined as one's evaluation of their coping resources and the options they have available to deal with a stressful encounter (Folkman 1984). It is noted that the two appraisals

are not necessarily independent and/or sequential processes. In reality, they are often interchangeable, and their interplay is a complicated and dynamic process (Dewe, Philip & Cooper, Gary L. 2007) .

Research supports both primary and secondary appraisal affecting subsequent coping strategies (Chang 1998). When a specific situation is deemed to be stressful (primary appraisal) and demands efforts to manage the transaction (secondary appraisal), coping actions are enacted. Coping is defined as the behavioural and cognitive efforts one uses to manage the internal and external demands of a stressful situation. It is further classified into two groups: problem-focused coping and emotional-focused coping (Lazarus & Folkman 1984, 1987). Within this theory, problem-focused coping includes activities for directly managing the elements of the stressful event, whereas emotional-focused coping involves attempts to regulate one's emotional reactions to the stressful encounter. After enacting these coping efforts, one appraises the outcome of coping as favourable, unfavourable, or unresolved. If the situation is unresolved or unfavourable, it may cause distress and initiate further coping attempts to resolve the stressor (Folkman 1997; Lazarus 1990; Lazarus et al. 1985). Burnout is defined in part as continued failure in coping with the stressor.

Moreover, recent studies link cognitive appraisal closely to job demands (Fernandez de Henestrosa, Sischka & Steffgen 2023; Li, Taris & Peeters 2022). Specifically, individuals may appraise job demands differently according to their personal perceptions and occupations. For example, in their study in the nurse occupation, Bakker and Sanz-Vergel (2013) proposed that whether job demands act as hindrances or challenges may depend on the occupational sector. Specifically, they found that workload, which is generally classified as a challenge job demand, is considered a hindrance job demand for nurses. Moreover, research also found that sometimes job demands can be appraised as both hindering and challenging (Searle & Auton 2015). For instance, in a sample of 479 non-teaching university employees, Webster, Beehr and Love

(2011) found that workload, role ambiguity, and role conflict could be simultaneously appraised as challenges as well as hindrances in their primary appraisal. Therefore, the appraisal of job demands as hindrance or challenge demands may differ among individuals from different backgrounds and should be considered under the specific context.

2.3.3 Other Theoretical Models

Other theories have also been used in the reviewed studies. Some have influenced the JD-R model and help to explain the underlying psychological mechanisms proposed in JD-R theory (Bakker & Demerouti 2017).

The Conservation of Resources theory (COR;Hobfoll 1989, 2001) is frequently adopted in teacher burnout research in China, and it draws attention to the function of resources in the development of burnout. The main tenet of COR theory is that people try to obtain, retain, protect, and gain things that they value, these are termed resources. According to the COR model, burnout is explained as a process of resource loss. When an individual experiences demanding working conditions, they naturally lose resources to meet the job demand and invest in other resources to replenish the lost ones. However, when this way of coping is unsuccessful and resources are continuously lost, burnout occurs (Hobfoll & Shirom 1993).

Similar to the transactional theory of stress and coping, Kyriacou and Sutcliffe (1978) developed a model specific to teaching, proposing that teachers experience stress and burnout when a potential stressor is perceived as a threat to one's self-esteem or well-being. This theory also emphasizes a cognitive phenomenological process in the development of burnout.

Other theoretical perspectives employed to explain the causes and outcomes of burnout include effort/reward imbalance theory (Siegrist 1996; Siegrist et al. 2004), job demand-control-support model (Karasek et al. 1998), organizational justice model (Colquitt et al. 2001), superiority theory of humour (Gruner 2017), work family border theory (Nippert-Eng 2008),

self-determination theory (Meyer & Gagne 2008), and theory of successful intelligence (Sternberg 2003).

Table 2. 1 Theoretical Perspectives of Teacher Burnout in China

Theories	Studies
Job demands and resources model	Jia and Lin (2013); Ju et al. (2015); Li, Wang and Liu (2015); Mao and Mo (2014); Wang and Liu (2020); Zhang, Zhang and Hua (2019)
Conservation of resource theory	Cheung, Tang and Tang (2011); Ho (2015); Jiang, Sun and Yu (2013); Leung and Lee (2006); Li, Wang and Liu (2015); Liu, Wu and Xing (2009); Lu et al. (2012); Mao and Mo (2014)
The transactional theory of stress and coping	Jia and Lin (2013); Li and Zhang (2020); Li et al. (2008); Sun et al. (2011)
Teacher stress model	Liu (2004); Yu et al. (2015)
Social identity theories	Shen, Li and Zhang (2009); Zhang and Zhu (2008)
Effort reward imbalance theory	Loerbroks et al. (2014); Wang et al. (2015)
Self-determination theory	Li, Wang and Liu (2015); Wang and Liu (2020)
Demand-control-support model	Wang et al. (2015)
Organizational justice model	Loerbroks et al. (2014)
Superiority theory of humour	Ho (2015)
Work family border theory	Li, Wang and Liu (2015)
Theory of successful intelligence	Chan (2007)

2.4 Review Method

Four databases, specifically Google Scholar, EBSCO, ERIC and CNKI (China Academic Journals) were searched for research articles using the following keywords: teacher, education, (professional) burnout, job stress, occupational stress, Chinese teacher, China. To be eligible for inclusion, the article had to meet the following three criteria. First, it needed to be published in a peer-reviewed journal between 1995-2020 and discuss empirical research on the correlates of Chinese teacher burnout. Second, the research subjects were full-time teachers in primary, secondary school, and/or college/university settings. Third, the studies were reported in English or Chinese language. Following these criteria, studies on teacher burnout among non-teaching staff, such as school principals, and in early education or special education, were removed. 67

empirical articles were identified (see details in Table 2.2), with 46 samples on primary and/or secondary level teacher burnout, 15 on college and university level teacher burnout, and 6 on teacher burnout in an unspecified level.

Generally, the reviewed empirical studies used cross-sectional designs and self-report questionnaires. It is notable that, except for one longitudinal study, the other 66 articles applied one-shot designs, which did not allow an inference of a causal relationship to be drawn. Sample sizes varied across the 67 studies, from N=86 to N=1,831. Apart from five exceptions that used a large sample size (N>1,000) (Lau, Yuen & Chan 2005b; Pan et al. 2010a; Zhang, Yang & Ling 2014; Zhong & Ling 2014), all studies employed small and/or convenient samples.

2.5 Measures of Burnout

In the burnout literature, the Maslach Burnout Inventory (MBI) is a clear leader in measuring burnout, which assesses all three dimensions of burnout (Maslach & Jackson 1986). In line with an early focus on employees doing "people work", the MBI-Human Service Survey (MBI-HSS) was designed to assess burnout among workers in the human service or health care professions. As burnout research expanded, the inventory was revised to measure burnout in educational settings (the MBI-Educators Survey, or MBI-ES), and in non-human-service fields (the MBI-General survey, or MBI-GS) (Maslach, Jackson & Leiter 1996).

In this review, the MBI and its variations remain the most common measures of teacher burnout in China. Nearly half of the studies utilize a directly translated version of MBI, with 18 studies using the MBI-ES and 12 studies using the MBI. Also, on the basis of the MBI, researchers in China attempt to localize burnout scales by making revisions to items, but they nevertheless follow the three-dimensional construct in the original measure (Li & Shi 2003; Li & Wu 2005; Wang, Liu & Wu 2003). For example, Li and Wu (2005) conducted interviews and open surveys among several occupation groups in China in order to make contextualized revisions to the MBI. They developed the Chinese Maslach burnout inventory (CMBI) including 7 items

on each of the three dimensions, with acceptable reliability (Cronbach's α=0.815 for EE, 0.765 for DP, 0.672 for PA) and construct validity (significant correlation with theoretically related constructs such as well-being and self-esteem). Similarly, Wang, Liu and Wu (2003) revised MBI-ES based on the literature of burnout measurements and interviews with 42 Chinese secondary school teachers. The modified version (MBI-ES-21) contained 7 items on each dimension, with satisfactory reliability (Cronbach's α=0.86 for EE, 0.84 for DP, 0.80 for PA) and construct validity (significant correlation with theoretically related constructs such as depression and self-efficacy). In the reviewed papers, the most commonly utilized measures that were tailored to the Chinese context were those of Li and Shi (2003; k=8); Li and Wang (2009; k=4); Li and Wu (2005; k=7); Wang, Liu and Wu (2003; k=5), while 5 other different measures were also used for burnout of teachers in China. In these studies, this study found that results do not vary across different measures. One possible explanation is that most of the measures used (65/67) are MBI or revised versions of MBI, and that those studies all reported results on the three dimensions of burnout.

Table 2. 2 A Review of Teacher Burnout Research in China from 1995 onward

No.	Author(s)	Research design	Time	Sample size	Data collection	Location	Measures	Dimensions Examined
1	Chan and Hui (1995)	Quantitative	Cross section	415	Questionnaires	Hong Kong	MBI-ES	EE DP PA
2	Tang et al. (2001)	Quantitative	Cross-section /Longitudinal	269/60	Questionnaires	Hong Kong	MBI	EE DP PA
3	Chan (2003)	Quantitative	Cross section	86	Questionnaires	Hong Kong	MBI-ES	EE DP PA
4	Xu (2003)	Quantitative	Cross section	367	Questionnaires	Shandong	BQPST	EE DP PA
5	Wang and Xu (2004)	Quantitative	Cross section	679	Questionnaires	Mainland China	MBI-ES-29	EE DP PA IB
6	Liu (2004)	Quantitative	Cross section	199	Questionnaires	Jilin	MBI-ES	EE DP PA
7	Xu, Zhu and Huang (2005)	Quantitative	Cross section	766	Questionnaires	Shandong/Hubei	MBI-ES	EE DP PA
8	Xu, Zhu and Shao (2005)	Quantitative	Cross section	766	Questionnaires	Shandong/Hubei	MBI-ES	EE DP PA
9	Lau, Yuen and Chan (2005b)	Quantitative	Cross section	1797	Questionnaires	Hong Kong	MBI	EE DP PA
10	Chan (2006)	Quantitative	Cross section	167	Questionnaires	Hong Kong	MBI-9	EE DP PA
11	Leung and Lee (2006)	Quantitative	Cross section	379	Questionnaires	Hong Kong	MBI-ES	EE DP PA
12	Gan et al. (2006)	Mixed methods	Cross section	20/266	Interviews/ Questionnaires	Zhejiang	JBOS-T	EE DP PA
13	Tian and Li (2006)	Quantitative	Cross section	410	Questionnaires	Beijing	MBI-GS-16	EE CY PA
14	Chan (2007)	Quantitative	Cross section	267	Questionnaires	Hong Kong	MBI-ES	EE DP PA
15	Li, Yang and Shen (2007)	Quantitative	Cross section	247	Questionnaires	Not specified	CMBI	EE DP PA
16	Li, Gao and Shen (2007)	Quantitative	Cross section	350	Questionnaires	Henan	CMBI	EE DP PA
17	Zhang and Zhu (2007)	Quantitative	Cross section	133	Questionnaires	Mainland China	MBI	EE DP PA
18	Song (2008)	Quantitative	Cross section	400	Questionnaires	Henan	Self-developed	EE DP PA
19	Liu et al. (2008)	Quantitative	Cross section	511	Questionnaires	Heilongjiang	MBI-ES	Total Score
20	Wang and Xu (2008)	Quantitative	Cross section	266	Questionnaires	Zhejiang	MBI-ES	Total Score
21	Zhang and Zhu (2008)	Quantitative	Cross section	164	Questionnaires	Mainland China	MBI	EE DP PA
22	Jing (2008)	Quantitative	Cross section	262	Questionnaires	Hubei	MBI-ES	EE DP PA
23	Meng (2008)	Quantitative	Cross section	724	Questionnaires	Henan	MBI-ES	EE DP PA
24	Hao (2008)	Quantitative	Cross section	168	Questionnaires	Henan	MBI-GS-16	EE CY PA

Table 2.2 (continued)

No.	Author(s)	Research design	Time	Sample size	Data collection	Location	Measures	Dimensions Examined
25	Li et al. (2008)	Quantitative	Cross section	728	Questionnaires	Guangdong	MBI-GS-16	EE CY PA
26	Li and Wang (2009)	Quantitative	Cross section	612/586	Questionnaires	Not specified	MBI-ES-15	EE DP PA
27	Lin, Chen and Zhai (2009)	Quantitative	Cross section	482	Questionnaires	Beijing	MBI-ES-29	EE DP PA IB
28	(Zhong et al. 2009)	Quantitative	Cross section	300	Questionnaires	Mainland China	MBI-GS-16	Total Score
29	Liu, Wu and Xing (2009)	Quantitative	Cross section	703	Questionnaires	Guangdong	MBI-ES-21	Total Score
30	Meng et al. (2009)	Quantitative	Cross section	398	Questionnaires	Mainland China	CMBI	EE DP PA
31	Jiao (2009)	Quantitative	Cross section	498	Questionnaires	Zhejiang	MBI-ES	EE DP PA
32	Shen, Li and Zhang (2009)	Quantitative	Cross section	545	Questionnaires	Henan	CMBI	EE DP PA
33	Wang (2009)	Quantitative	Cross section	856	Questionnaires	Chongqing	JBOS-T	EE DP PA
34	Luk et al. (2010)	Quantitative	Cross section	138	Questionnaires	Macau	MBI	EE DP PA
35	Li and Yong (2010)	Quantitative	Cross section	454	Questionnaires	Shandong	MBI	EE DP PA
36	Pan et al. (2010b)	Quantitative	Cross section	1325	Questionnaires	Chongqing/Hunan	JBOS-T	EE DP PA
37	Cheung, Tang and Tang (2011)	Quantitative	Cross section	264	Questionnaires	Zhejiang	MBI	EE DP PA
38	Kang and Qu (2011)	Quantitative	Cross section	402	Questionnaires	Hunan	MBI	EE DP PA
39	Sun et al. (2011)	Quantitative	Cross section	425	Questionnaires	Guangdong	CMBI	EE DP PA
40	Li (2012)	Quantitative	Cross section	200	Questionnaires	Hunan/Guangxi	MBI-ES	EE DP PA
41	Lu et al. (2012)	Quantitative	Cross section	223	Questionnaires	Guangxi/Beijing	MBI-ES-21	EE DP PA
42	Zhang and Zhang (2012)	Quantitative	Cross section	164	Questionnaires	Mainland China	MBI	EE DP PA
43	Cai and Zhu (2013)	Quantitative	Cross section	171	Questionnaires	Beijing/Shandong	JBOS-T	EE DP PA
44	Jia and Lin (2013)	Quantitative	Cross section	385	Questionnaires	Mainland China	MBI-ES-15	Total Score
45	Jiang, Sun and Yu (2013)	Quantitative	Cross section	488	Questionnaires	Guangdong	CMBI	EE DP PA
46	Liu and Fu (2013)	Quantitative	Cross section	304	Questionnaires	Jiangxi	MBI-ES	Total Score
47	Yao and Guan (2013b)	Quantitative	Cross section	347	Questionnaires	Beijing	MBI-ES-29	EE DP PA IB
48	Liu (2014)	Quantitative	Cross section	300	Questionnaires	Jiangsu	MBI-ES-21	EE DP PA

Table 2.2 (continued)

No.	Author(s)	Research design	Time	Sample Size	Data collection	Location	Measures	Dimensions Examined
49	Loerbroks et al. (2014)	Quantitative	Cross section	436	Questionnaires	Hubei	MBI	Total Score
50	Mao and Mo (2014)	Quantitative	Cross section	629	Questionnaires	Hunan	BQPST	EE DP PA
51	Zhang, Yang and Ling (2014)	Quantitative	Cross section	1821	Questionnaires	Hunan	MBI-ES-15	Total Score
52	Zhong and Ling (2014)	Quantitative	Cross section	1831	Questionnaires	Hunan	MBI-ES-15	Total Score
53	Li, Wang and Liu (2015)	Quantitative	Cross section	348	Questionnaires	Shanxi	MBI-GS-16	EE CY PA
54	Ju et al. (2015)	Quantitative	Cross section	307	Questionnaires	Mainland China	MBI-ES	EE DP PA
55	Wang et al. (2015)	Quantitative	Cross section	559	Questionnaires	Liaoning	MBI-GS-16	EE CY PA
56	Yang et al. (2015a)	Quantitative	Cross section	460	Questionnaires	Gansu/Shanxi	BQPST	Total Score
57	Yu et al. (2015)	Quantitative	Cross section	387	Questionnaires	Mainland China	MBI-GS-16	EE DP PA
58	Ho (2015)	Quantitative	Cross section	539	Questionnaires	Hong Kong	MBI-ES	EE DP PA
59	Guo (2017)	Quantitative	Cross section	154	Questionnaires	Beijing	MBI	EE DP PA
60	Cao et al. (2018)	Quantitative	Cross section	115	Questionnaires	Mainland China	STBI-6	Exhaustion Inadequacy
61	Ma (2018)	Quantitative	Cross section	438	Questionnaires	Qinghai	MBI-ES	EE DP PA
62	Hu and Zhao (2019)	Quantitative	Cross section	190	Questionnaires	Mainland China	MBI-GS-16	EE CY PA
63	Zhang, Zhang and Hua (2019)	Quantitative	Cross section	386	Questionnaires	Liaoning	MBI-ES-21	Total Score
64	Dong, Li and Zhou (2020)	Quantitative	Cross section	1485	Questionnaires	Sichuan	MBI-ES-21	Total Score
65	Li and Zhang (2020)	Quantitative	Cross section	210	Questionnaires	Shandong	MBI-ES	Total Score
66	Wang and Liu (2020)	Quantitative	Cross section	305	Questionnaires	Liaoning	MBI	Total Score
67	Xu et al. (2020)	Quantitative	Cross section	166	Questionnaires	Sichuan	CMBI	EE DP PA

Note: MBI-ES= MBI-Educators Survey (Maslach, Jackson & Leiter 1996); MBI= Maslach Burnout Inventory (Maslach, Jackson & Leiter 1996); BQPST= Burnout Questionnaire in Primary and Secondary Teachers (Xu, Ji & Chao 2004); MBI-GS-16= MBI-General survey revised version (Li & Shi 2003); MBI-ES-29= MBI-ES revised version (Wang & Xu 2004); MBI-ES-21= MBI-ES revised version (Wang, Liu & Wu 2003); MBI-ES-15= MBI-ES revised version (Li & Wang 2009); CMBI= Chinese Maslach Burnout Inventory (Li & Wu 2005); JBOS-T= Job-Burnout Scale for Middle School Teachers (Wang et al. 2005); STBI-6 = Socio-contextual Teacher Burnout Inventory reduced version (Pietarinen et al. 2013); EE= emotional exhaustion; DP= depersonalization; PA= reduced personal accomplishment; CY= cynicism; IB= intellectual burnout; Total Score= Burnout is calculated as a total score.

2.6 Antecedents of Teacher Burnout in China

Building on the JD-R model, this study organizes the antecedents of teacher burnout in China into three main categories: job demands, job resources, and personal resources. In addition, a further two groups of antecedents which are not adequately studied in the Chinese teacher group are identified by this study; these are important variables worthy of further research in this context: personal demands and individual behavioural strategies. The varied predicting effects of these variables on the three dimensions of burnout are discussed.

Table 2. 3 Antecedents of Teacher Burnout in China

Job demands	**Studies**
Job stressors	Cai and Zhu (2013); Chan (2003); Gan et al. (2006); Jia and Lin (2013); Jiao (2009); Jing (2008); Li and Zhang (2020); Li et al. (2008); Liu (2014); Liu (2004); Liu et al. (2008); Liu, Wu and Xing (2009); Meng et al. (2009); Wang et al. (2015); Xu (2003); Xu, Zhu and Huang (2005); Yu et al. (2015); Zhang, Yang and Ling (2014); Zhang and Zhu (2007); Zhang, Zhang and Hua (2019); (Zhong et al. 2009)
Job resources	**Studies**
Social support	Cai and Zhu (2013); Ho (2015); Ju et al. (2015); Leung and Lee (2006); Li (2012); Lin, Chen and Zhai (2009); Liu et al. (2008); Ma (2018); Song (2008); Wang and Xu (2004); Wang and Xu (2008); Xu, Zhu and Shao (2005); Xu et al. (2020); Zhang and Zhu (2007)
Personal resources	**Studies**
Teaching efficacy and self-efficacy	Cao et al. (2018); Chan (2007); Guo (2017); Jiao (2009); Jing (2008); Li, Yang and Shen (2007); Li and Yong (2010); Li and Zhang (2020); Li et al. (2008); Liu (2014); Liu (2004); Liu et al. (2008); Liu, Wu and Xing (2009); Meng (2008); Tang et al. (2001); Xu, Zhu and Shao (2005); Yu et al. (2015)
Self-esteem, self-concept, and self-evaluation	Hao (2008); Ho (2015); Li, Gao and Shen (2007); Liu et al. (2008); Sun et al. (2011); Xu, Zhu and Shao (2005)
Emotional intelligence	Chan (2006); Ju et al. (2015); Yao and Guan (2013b)

2.6.1 Job Demands

Of the 67 articles reviewed, 11 studies investigated the relationship between job demands and burnout, with more than 20 job demands being identified and examined (see a full list in Table 2.4). Rather than discuss all the stressors that related to Chinese teacher burnout, this study focuses on three demands (role responsibility, student exam performance, and workload) which should be understood within the Chinese context and contribute to the unique burnout profile of Chinese teachers.

Student exam performance is a particularly significant demand for teachers in China. Education is highly valued in Chinese society, and it is widely believed that excellent academic performance in exams is solid proof of a successful education. To achieve this goal, teachers are constantly under pressure to help students achieve high scores, from primary school to high school, culminating with the increasingly competitive college entrance examination (Zhang & Zhu 2007). Students' exam results are used directly by schools to evaluate the teachers' performance, and are considered by parents and students as a vital aspect of a teacher's professional ability, making it a major stressor contributing to burnout (Wang et al. 2015). Using multiple regression analysis, Xu (2003) found that pressure from a student exam performance explained 12% of the variance of emotional exhaustion, while Jiao (2009) reported that it explained 8% of that variance of depersonalization. Other studies include student exam performance as a single latent variable, without reporting details of its specific predictive validity (Liu 2004; Liu et al. 2008).

Table 2. 4 Job Stressors of Teacher Burnout in China

No.	Author(s)	Sample	Teacher type	Stressors
1	Xu (2003)	367	Primary and Secondary	• Examination • Workload • Role responsibility • Employment • Interpersonal relationship • Parents and students • Career development • Social statue
2	Liu (2004)	199	Primary and Secondary	• Examination • Workload • Role responsibility • Interpersonal relationship • Career expectation
3	Gan et al. (2006)	266	Secondary	• Lack of support and feeling inequity • Perceived business • Interpersonal conflict and depletion • Perceived social prejudice
4	Zhang and Zhu (2007)	133	Secondary	• Teacher stress • Workload • Role conflict • Role ambiguity
5	Liu et al. (2008)	511	Primary and Secondary	• Examination • Workload • Role responsibility • Interpersonal relationship • Career expectation
6	Liu, Wu and Xing (2009)	703	Primary and Secondary	• Education reform • Students • Administration and management • Job characteristic • Career development • Physical and mental condition • Family issue, social issue

Table 2.4 (continued)

No.	Author(s)	Sample	Teacher type	Stressors
7	Zhong et al. (2009)	300	University	• Factors intrinsic to the job • Management role • Relationships with others • Career and achievement • Organizational structure and climate • Interface between home and work
8	Jiao (2009)	498	Primary and Secondary	• Students • Parents • Self-development • Job expectation • Examination • Workload
9	Cai and Zhu (2013)	171	Secondary	• Role conflict • Workload • Personal development • Income
10	Jia and Lin (2013)	385	University	• Working condition • Teaching condition • Interpersonal relationship • Workload • Pleasure from Work
11	Wang et al. (2015)	559	Primary and Secondary	• Job demand • Job control • Social support • Extrinsic effort • Reward • Over commitment

Role ambiguity should also be understood in the Chinese context as an ambiguity of role responsibility. The role responsibility for Chinese teachers is different to that of western culture. Traditionally, the role of the Chinese teacher is deeply influenced by Confucian beliefs, which hold that teachers are not only knowledge providers but role models, authority figures, and even parents to the students (Cortazzi & Jin 1997; Lau, Yuen & Chan 2005b; Zhang & Zhu 2008). In a well-known Chinese saying, "a teacher a day, a parent forever" (*yiri weishi, zhongsheng weifu*), Chinese teachers are expected to take on a parenting role, to care about students in every aspect of their life. Such a high moral standard and overlapping roles between parent and teacher may be too overwhelming for a teacher to meet, and thus cause extra stress (Luk et al. 2010). Teachers are nevertheless also expected to be strict with students and teach with severity. There is another famous saying from *The Three Character*, "To feed the body, not the mind–fathers, on you the blame! Instruction without severity, the idle teachers' shame" (Pang 1999, p.20), which reflects this deep-rooted belief. Some researchers propose that this teaching philosophy will unconsciously distance Chinese teachers from their students in daily interactions, and possibly contribute to a relatively higher depersonalization level in burnout, compared to teachers in western countries (Lau, Yuen & Chan 2005b; Luk et al. 2010). In a survey study among 511 teachers from primary and secondary schools, Liu et al. (2008) showed that teacher's role responsibility has a significant positive correlation with burnout (β=.28), while Xu (2003) reported a positive correlation between role responsibility and emotional exhaustion (r=.15). Liu (2004) included role responsibility as a factor in the measurement of job demands but did not analyse it as an individual variable.

In addition, work overload is recognised as a serious stressor among Chinese teachers. Primary and secondary teachers in China often experience overwhelming workloads, because schools and parents expect teachers to help students with fierce competition. As result, teachers often have to work for extra hours to meet such demanding conditions (Jia & Lin 2013; Liu et al.

2008). In a survey study among 367 primary and secondary school teachers, workload ranked second amongst six major demands that teachers face, and is found to have a significant positive correlation with emotional exhaustion (r=.17) (Xu 2003). In a similar study among 133 English teachers from secondary school, Zhang and Zhu (2007) added that workload explained 15 % of the variance in emotional exhaustion and 4% of the variance in depersonalization. In a SEM analysis, Cai and Zhu (2013) reported that workload is a significant predicator of burnout (β=.37) among 200 secondary school teachers.

2.6.2 Job Resources

It is striking that job resource examined in teacher burnout research in China is mostly limited to the social support that teachers can get, while other important resources (e.g., performance feedback, autonomy, and skill variety) have largely been ignored. Social support refers to the assistance provided by one's own social network (Taylor et al. 2004). In the reviewed studies, 15 examined the relationship between social support and burnout among different teacher groups in China. Previous research has confirmed social support is associated with the dimension of emotional exhaustion, while inconclusive results are found for the relationships with the other two dimensions (Li 2012; Lin, Chen & Zhai 2009; Xu, Zhu & Shao 2005). Using multiple regression analysis, Xu, Zhu and Shao (2005) found a significant but weak association between social support and emotional exhaustion among 766 primary and secondary school teachers (β= -.11), and Li (2012) reported similar results between the two constructs among a small sample of 157 teachers from university (β=-.16). Xu, Zhu and Shao (2005) also found a significant but weak association between social support and depersonalization (β=-.17), while Li (2012) failed to find a significant association between the two constructs. Also, in a SEM analysis of 482 secondary school teachers, Lin, Chen and Zhai (2009) found that social support was significantly correlated to all three dimensions of burnout (β=-.30, -.23, and .20 for emotional exhaustion, depersonalization, and reduced personal accomplishment, respectively).

Sources of social support are significant in the prediction of burnout, with supervisor support and co-worker support being the most commonly studied sources (see Table 2.5). It is noticeable that supervisor support affects all three dimensions of burnout more strongly than co-worker support (Leung & Lee 2006; Song 2008; Wang & Xu 2004). Using SEM analysis in a study among 379 teachers, Leung and Lee (2006) found a stronger association between supervisor support and emotional exhaustion (β=-.32) than that between co-worker support and the same dimension (β=-.18). Using multiple regression analysis, Wang and Xu (2004), in a survey study among 679 primary and secondary teachers, found weak to moderate associations between supervisor support and burnout (β=-.27, -.33, for emotional exhaustion, depersonalization, respectively), while co-worker support correlates more weakly with these constructs (β=-.15, -.23), for emotional exhaustion, depersonalization, respectively). In a similar study of 400 teachers from secondary school, Song (2008) found a stronger association between supervisor support and burnout (β=-.27, -.26 for emotional exhaustion and reduced personal accomplishment, respectively) than between co-worker support and burnout (β=.18, -.24 for emotional exhaustion and reduced personal accomplishment, respectively). Support from families and friends, as well as support from students, are less studied in burnout research. However, a few studies do find them useful in alleviating burnout (Wang & Xu 2004; Zhang & Zhu 2007).

Table 2. 5 Sources of Social Support and Teacher Burnout

No.	Author(s)	Sample	Teacher type	Sources of social support
1	Wang and Xu (2004)	679	Primary and secondary	• Supervisor • Co-worker • Family • Student • Parents • Friends
2	Leung and Lee (2006)	379	Primary and secondary	• Supervisor • Co-worker
3	Zhang and Zhu (2007)	133	Secondary	• Supervisor • Co-worker • Family and friends
4	Song (2008)	400	Secondary	• Supervisor and principal • Co-worker • Student • Parent • Family and friends
5	Wang and Xu (2008)	266	Primary and secondary	• Organizational Support
6	Ju et al. (2015)	307	Secondary	• Supervisor • Co-worker
7	Ho (2015)	539	Primary and secondary	• Family • Friends • Colleagues • Principal

2.6.3 Personal Resources

A variety of personal resources have been explored in relation to Chinese teachers. Besides self-efficacy (teaching efficacy) and self-esteem which are considered crucial to an individuals' work wellbeing (Xanthopoulou et al. 2009), other constructs related to one's resiliency, such as emotional intelligence, have also been investigated,.

Some studies report that self-efficacy, a person's belief in his or her ability to perform certain tasks, is negatively correlated with teacher burnout, and most significantly with the dimension of reduced personal accomplishment (Chan 2007; Tang et al. 2001; Yu et al. 2015). Similarly, teaching efficacy (Cherniss 1993), which refers to teachers' professional efficacy, is also negatively associated with teacher burnout. Specifically, teaching efficacy is further defined as personal teaching efficacy and general teaching efficacy, with the two having different effects

on the three dimensions of burnout (Guo 2017; Li, Yang & Shen 2007; Li et al. 2008; Meng 2008). For example, among primary and secondary teacher groups, Li, Yang and Shen (2007), Li et al. (2008) and Meng (2008) found that personal teaching efficacy could predict depersonalization and reduced personal accomplishment, while general teaching efficacy would explain emotional exhaustion. However, in a university teacher sample, Guo (2017) reported that personal teaching efficacy explained the variance of all three dimensions, whereas general teaching efficacy showed no significant effect.

Furthermore, teachers with higher self-esteem experience lower burnout level. Findings from two studies show that self-esteem could negatively explain all three dimensions of burnout (Ho 2015; Xu, Zhu & Huang 2005). For example, in a sample of 766 primary and secondary teacher, Xu, Zhu and Huang (2005) reported that self-esteem negatively predicts emotional exhaustion (1% explained variance), depersonalization (6% explained variance) and reduced personal accomplishment (10% explained variance). Ho (2015) confirms the result in a similar teacher sample. These findings are consistent with other studies using similar measures of self-esteem, such as self-concept (Hao 2008; Liu et al. 2008) and self-evaluation (Sun et al. 2011).

Several personality traits have also been linked to a teacher's burnout. The Five-Factor Model of personality, which includes neuroticism, extraversion, conscientiousness, openness, and agreeableness (McCrae & John 1992), was used in two studies among primary and secondary teachers (Meng et al. 2009; Zhong & Ling 2014). Among the five personality traits, extraversion is consistently found to be negatively correlated with emotional exhaustion and reduced personal accomplishment. However, findings on agreeableness seem to be mixed. In a sample of 1,831 primary and secondary teachers, Zhong and Ling (2014) found that one's agreeableness is negatively correlated to all three dimensions of burnout, since teachers with this trait tend to be more friendly and empathetic towards other people at work, they therefore encounter fewer conflicts while gaining more support. However, Meng et al. (2009) showed

that teachers with higher agreeableness could experience higher emotional exhaustion and depersonalization, arguing that those teachers are generally more tolerant and patient at work, which may lead to unhealthy suppression of negative feelings and overwhelmed emotional labour. With another personality scale, Eysenck Personality Questionnaire, Shen, Li and Zhang (2009) confirmed a significant negative association between extraversion and burnout, and demonstrated a significant positive relationship between neuroticism and burnout. Additionally, several other personality traits, such as humour (Ho 2015), proactive attitude (Tang et al. 2001), and hardiness (Chan 2003), are found to be protective factors in relation to teacher burnout.

Recent research has begun to examine the effect of emotional intelligence (i.e., emotional appraisal, positive regulation, empathic sensitivity, positive utilization) on burnout (Chan 2006; Ju et al. 2015; Yao & Guan 2013a). Findings from those studies generally show that four aspects of emotional intelligence interact differently with three dimensions of burnout. Specifically, positive regulation of emotion is found to reduce emotional exhaustion, while positive utilization of emotion could generate feelings of personal accomplishment.

In summary, cultural and educational settings in China bring unique job demands (student exam performance, role ambiguity, workload) that lead to teacher burnout. Research has examined how job resource (social support) and personal resources (self-efficacy, self-esteem, and emotional intelligence) correlate with teacher burnout in China. However, as explored in earlier extensions of the JD-R model, there are other groups of variables that play important roles in the development of teacher burnout, although these have been less studied among Chinese teachers. A review of those variables is provided in the following sections, including personal demands (workaholism, perfectionism) and individual behavioural strategies (coping strategies, job crafting).

2.6.4 Personal Demands

Although personal demands are not found in teacher burnout research in China, the importance

of hindering personal level antecedents in the development of burnout is being increasingly recognized and studied. In their recent review of the JD-R theory, Bakker and Demerouti (2017) pointed out that personal demands, next to personal resources, can also be included in the JD-R model as a theoretical extension. Personal demands refer to "the requirements that individuals set for their own performance and behaviour that force them to invest effort in their work and are therefore associated with physical and psychological cost." (Barbier et al. 2013).

Personal demands including workaholism and perfectionism are often studied as antecedents of burnout in the health impairment process of the JD-R model. In a survey study of 2115 doctors, Schaufeli et al. (2009) found that workaholism is positively associated with burnout. Two studies in the educational setting confirms the positive relationship between workaholism and burnout. While Guglielmi et al. (2012) reported that workaholism was positively related to job demands and consequently to burnout among a sample of 224 school principals, Moyer, Aziz and Wuensch (2017) found that workaholism is positively associated with burnout through psychological capital among 400 faculty from a university.

Perfectionism is likely another personal demand that contributes to teacher burnout. Hewitt and Flett (1991) defined perfectionism as a multidimensional construct consisting of self-oriented perfectionism, other-oriented perfectionism, and socially prescribed perfectionism. Empirical evidence supports that of the three kinds of perfectionism, socially prescribed perfectionism, which refers to one's belief that the high standards they perceive others to require of them mean they will not be accepted by others if they cannot meet these standards (Taris, Beek & Schaufeli 2010), is correlated with teacher burnout. For example, in a group of 62 school teachers, Flett, Hewitt and Hallett (1995) reported a moderate positive association between socially prescribed perfectionism and emotional stress (r=.59). Using a similar conceptualization, Stoeber and Rennert (2008) found that negative reactions to imperfection, which is close to socially prescribed perfectionism, predicted higher levels of emotional exhaustion (β=.75),

depersonalization (β=.49) and lack of personal accomplishment (β=.63) among a sample of 118 secondary school teachers.

2.6.5 Individual Behavioural Strategies

Coping Strategies

Coping refers to constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person (Lazarus & Folkman 1984, p.141). Several different kinds of coping strategies have been identified in the literature, which can be generally classified into one of two categories: proactive coping or avoidance coping (Tobin et al. 1989). When teachers use proactive coping, they actively try to overcome or reduce the stressor. For example, a teacher who experiences a very high level of stress from student exam performance may try to optimize the way of working or try to lower the workload. In contrast, when teachers use avoidance coping, they may simply refuse to acknowledge the stressor and try to avoid it.

In this review of the literature, studies generally support that proactive coping is negatively correlated to burnout while avoidant coping is positively correlated to burnout (Chan & Hui 1995; Jing 2008; Meng 2008; Xu, Zhu & Shao 2005). Moreover, the two coping strategies seem to have different associations with each dimension of burnout. In a survey study of 766 primary and secondary school teachers, Xu, Zhu and Shao (2005) reported that proactive coping has a significant negative correlation with depersonalization and reduced personal accomplishment (β=-.15, -.29, respectively), while avoidant coping is positively correlated to emotional exhaustion and depersonalization (β=.09, .30, respectively). In a similar study of 724 teachers from secondary school, Meng (2008) found that proactive coping is negatively associated with emotional exhaustion and reduced personal accomplishment (β=-.21, -.20, respectively), while avoidant coping has a positive relationship with all three dimensions of

burnout (β=.10, .13, .20, for emotional exhaustion, depersonalization, and reduced personal accomplishment respectively).

Regarding the role of coping in the development of burnout, avoidant coping has been examined as a mediator in the pathway through job demands to burnout (Jia & Lin 2013; Zhang, Zhang & Hua 2019). In a SEM analysis of 385 teachers, Jia and Lin (2013) reported that avoidant coping amplifies the positive relationship between job stress (e.g., workloads, interpersonal stress) and burnout. They found that when teachers face overwhelming job demands, they may appraise the perceived demands as threatening and beyond their abilities to meet, and in turn adopt an avoidant coping strategy, such as distancing from work, or ignoring their responsibility. Consequently, as the actual problem is not solved and the stressful situation remains, teachers are likely to feel exhausted, develop cynical attitudes towards work, and eventually burn out. In a similar study, in a group of 386 teachers from primary and secondary schools, Zhang, Zhang and Hua (2019) found that avoidant coping also has a mediating effect, amplifying the positive relation between occupational stress (e.g., student exam performance, workload) and burnout.

A further study conceptualized both proactive and avoidant coping strategies as mediators in the pathway through job resource to burnout, with the two strategies playing distinct roles (Lin, Chen & Zhai 2009). In a survey study of 482 teachers, Lin, Chen and Zhai (2009) showed that proactive coping amplifies the negative relationship between social support and reduced personal accomplishment, while avoidant coping ameliorates the negative relationship between social support and emotional exhaustion and depersonalization. They reasoned that those teachers with adequate social support will perceive that they have access to enough resources to deal with job demands, which led them to proactive coping. Eventually, when they make enough effort and solve problems at work, they will feel an increased sense of personal accomplishment. On the other hand, teachers who lack social support tend to believe they do

not possess appropriate or sufficient resources and choose to use an avoidant coping strategy. When they avoid or deny their job demands, they are more likely to experience emotional depletion and become distant with people at work.

In addition, two studies extend the mediating role of proactive and avoidant coping strategies to the relationship between personal resources (e.g., self-esteem, extraversion) and burnout (Sun et al. 2011; Zhong & Ling 2014). For example, in a survey study of 425 primary school teachers, Sun et al. (2011) found that proactive coping amplifies the negative relation between self-esteem and burnout, while avoidant coping ameliorates that relationship. They provide a possible explanation, hypothesising that teachers with high self-esteem tend to have more confidence in their ability and are likely to employ proactive coping which in turn reduces burnout on all three dimensions. In contrast, teachers with low self-esteem believe that they have less control over their work, and may adopt avoidant coping, and this in turn increases emotional exhaustion and depersonalization.

Job Crafting

Job crafting is defined by Wrzesniewski and Dutton (2001) as "the physical and cognitive changes individuals make in the task or relational boundaries of their work" (p. 179). In order to study the concept at a more general level, researchers frame job crafting using the JD- R model and focus on the crafting of the job's characteristics. Specifically, job crafting is conceptualized as a behaviour, that is, an employees' ability to act to change the level of job demands or job resources, consisting of resources seeking, challenges seeking, and demands reducing (Petrou et al. 2012).

While research often links job crafting to work engagement as one of the positive outcomes of wellbeing and performance at work (Bakker, Tims & Derks 2012; Tims, Bakker & Derks 2012), few studies examine the role of job crafting in the health impairment process, nor test the

relationship between job crafting and burnout. There are only limited studies conducted in other occupational groups. Singh and Singh (2018) found that job crafting was negatively correlated to burnout among 268 IT management professionals (β=-.58). Similarly, Cheng and Yi (2018) confirmed the negative relationship among 355 hotel employees (β=-.34). Moreover, Bakker and de Vries (2021) proposed that job demands are likely to relate to burnout through job crafting. They reasoned that a high level of job demands will result in high levels of strain, which leads to less job crafting behaviours. Eventually, employees will face demanding job conditions with fewer resources and thus experience burnout. However, overall, there is a dearth of studies that have focussed on examining how job crafting is related to burnout in the education setting.

The Proactive and Passive Mechanisms

Both JD-R theory and transactional theory attempt to explore the proactive and passive mechanisms of individual behavior strategies as mediators in burnout development. In a recent extension of the JD-R model, Demerouti, Bakker and Xanthopoulou (2019) proposed that avoidant coping can be integrated in the JD-R model as a mediator in the health-impairment process, as some evidence suggests that coping is a reaction to high demands. Moreover, transactional theory of stress and coping (Lazarus & Folkman 1984) further explains the mediating role of avoidant coping in the context of cognitive appraisal. When job demands are high, teachers are likely to appraise their job as a stressful situation (primary appraisal). The more demanding their job is, the more likely they will engage in avoidant coping in the hope to manage the situation (secondary appraisal). However, avoiding job demands is not an effective strategy since it will not bring the stressor under control. The outcome of avoidant coping will be reappraised by teachers as unsuccessful and therefore requires further coping efforts. This continuous failure results in a negative effect, such as burnout.

On the other hand, the two theories also point to the mechanism of job crafting as a mediator in burnout development. Under the JD-R framework, Bakker and de Vries (2021) argued that when job demands and job strain is increasing, individuals not only engage more in maladaptive self-regulation cognitive and behaviors such as inflexible coping, but also less in adaptive self-regulation strategies such as job crafting, which will also make teachers vulnerable to burnout. In addition, the transactional theory elaborates that the more job demands teachers face, the less likely they will engage in job crafting behaviors (secondary appraisal), which is also an ineffective strategy and lead to negative psychological effects, such as burnout.

2.7 Outcomes of Teacher Burnout in China

Studies concerning the outcomes associated with teacher burnout in China are relatively less than those on antecedents. The JD-R model posits that burnout is a mediator in the energy draining process in which chronic job demands exhaust individuals' resources and therefore may lead to health problems and other negative organizational results (Hakanen, Schaufeli & Ahola 2008). Specifically, burnout is positively related to teachers' physical and mental problems, as well as decreased job performance and increased turnover intention.

Table 2. 6 Outcomes of Teacher Burnout in China

Outcomes	Studies
Mental health	Li, Gao and Shen (2007); Liu and Fu (2013); Ma (2018); Tang et al. (2001); (Zhong et al. 2009)
Overall well-being	Luk et al. (2010); Yang et al. (2015a); (Zhong et al. 2009)
Job performance	Meng et al. (2009)
Intention to quit	Leung and Lee (2006); Li, Gao and Shen (2007); Zhang and Zhang (2012)

Burnout experience has a negative impact on teachers' physical health, mental health, and overall well-being. Using SEM analysis in a longitudinal study in which teachers' burnout and mental health were measured at two times, Tang et al. (2001) found a significant positive

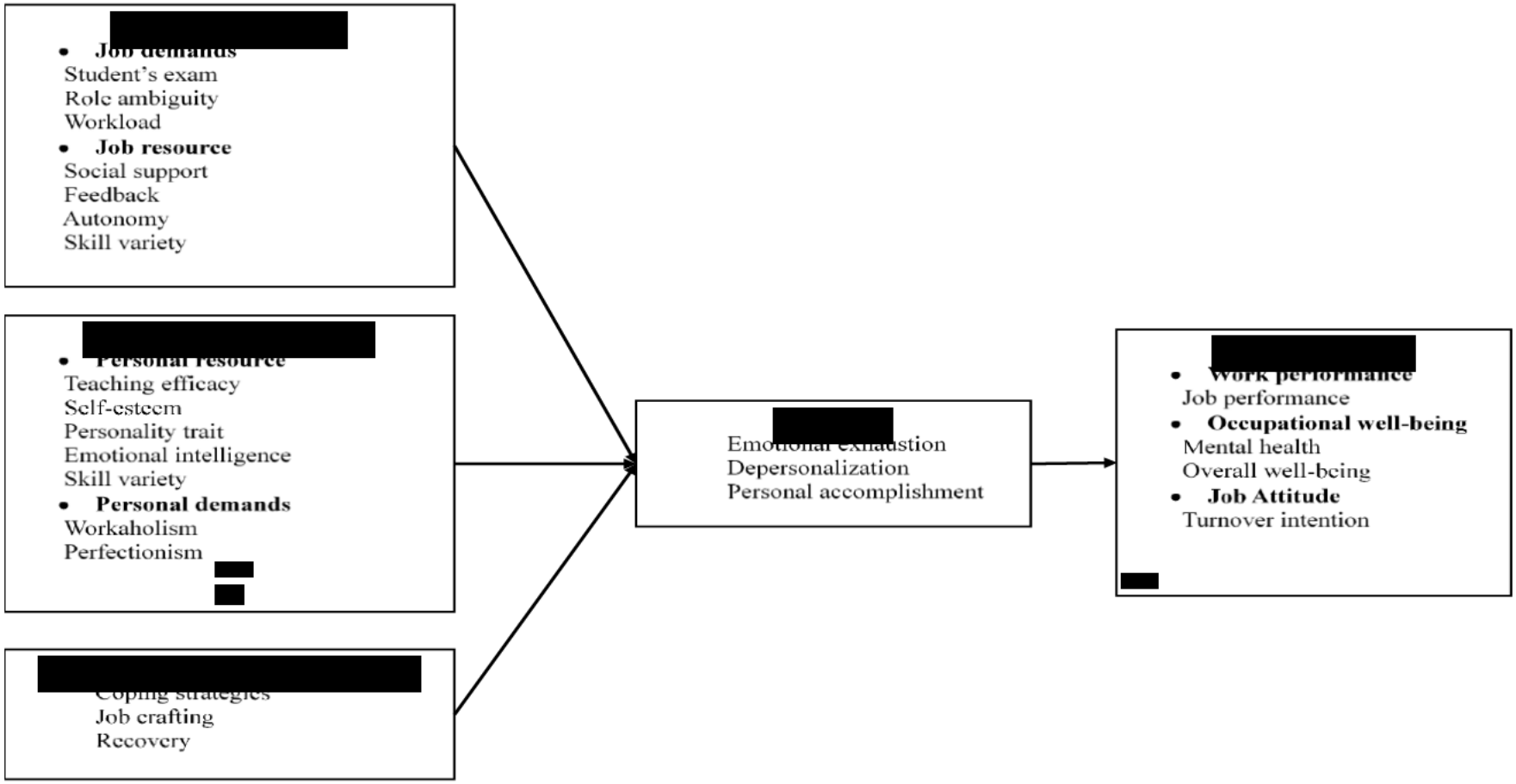
association between the two constructs (β=.39). Studies also indicate that the dimensions of burnout may be differently related to well-being (Luk et al. 2010; Yang et al. 2015b). For example, in a survey study of 138 teachers, Luk et al. (2010) found emotional exhaustion is more strongly correlated with personal health outcomes than the other two dimensions (r=-.63,-.46,.23, respectively). Yang et al. (2015b) found similar results in a larger sample of 460 teachers (r=-.50, -.33, -.35, respectively)

Regarding job-related outcomes, research has shown that emotional exhaustion is a significant predicator of examined job performance and turnover intention. Using objective measurements (e.g., performance appraisals from human resource departments, feedback from supervisors), Meng et al. (2009) found a negative but weak association between emotional exhaustion and teachers' job performance (β=-.17). Using SEM analysis, Leung and Lee (2006) also found a significant positive association between emotional exhaustion and teacher's intention to quit (β=.29), while Li, Gao and Shen (2007) reported a higher correlation between these constructs (β=.41).

2.8 Research Gap and Research Questions

Building on this review, a conceptual framework is created which can act as a guide for future research on teacher burnout in China. Drawing on recent developments in the JD-R model, this study categorises the antecedents into three groups: job characteristics (job demands, job resources), personal characteristics (personal resources, personal demands) and individual behavioural strategies. For each group, the variables that are most important for understanding burnout are listed. Specifically, this study highlights coping and job crafting as cognitive and behavioural strategies that can potentially be integrated into the JD-R model in burnout research of Chinese teachers. Figure 2.1 illustrates the conceptual model and overview of relationships investigated in the literature review.

Figure 2. 1 Conceptual Model & Overview of Relationships in the Literature Review



This review reveals a growing research interest in teacher burnout in China. There remain some research gaps however, which deserve further investigation. Specifically, the conceptual framework of this study shows that there are several opportunities for researchers to make important disciplinary contributions and extend the existing literature.

2.8.1 Job Demands under Specific Cultural Context

One of the unique aspects examined in this review is the culturally specific job demands that exist in the Chinese context. Few studies have however, analysed the impact of these job demands on burnout, especially a comprehensive investigation of the three demands that should be understood as a unique cultural context. For example, despite the importance of stress generated by student exam performance, few studies have directly linked this variable to burnout (Jiao 2009; Xu 2003), which limits our understanding of the impact of this demand on burnout. Also, several researchers have pointed out that there is significant ambiguity surrounding expectations of teachers' responsibilities and while this is a crucial factor contributing to Chinese teacher burnout, few research studies have examined its relationship to burnout. More empirical research is thus needed to examine how those China-specific job demands that arise due to distinct historical and social conditions, differ in form and level from those experienced by teachers in the west. This research therefore hypothesises that:

Hypothesis 1: Job demands (student exam pressure, role ambiguity, workload) are positively correlated with burnout.

2.8.2 The Mediating Role of Individual Behavioural Strategies in the JD-R model

In the recent ongoing development of the JD-R model, researchers have made efforts to expand the role of the individual further by integrating several individual cognitive and behavioural strategies (Bakker & Demerouti 2017; Demerouti, Bakker & Xanthopoulou 2019). Employees do not simply react to their work environment, they also proactively modify their job characteristics and influence their job tasks (Bakker & de Vries 2021). Employee behaviours

such as job crafting, and self-undermining were as a result, included in a recent revision of the model (Bakker & Demerouti 2017). In a more comprehensive reflection on individual strategies, Demerouti, Bakker and Xanthopoulou (2019) called for research into the role of coping, recovery, self-regulation, and job crafting in the JD-R model, stating that this type of innovation could increase the predictive ability of the model and better explain the complex process of employees' wellbeing. In a similar vein, Bakker and de Vries (2021) integrate several self-regulation cognitions and behaviours (coping inflexibility, self-undermining, recovery, job crafting) into the JD-R model, proposing that burnout is the result of high job demands and low resource, combined with failed self-regulation.

Findings of this review resonate with this call to further integrate individual behavioural strategies in the JD-R model, especially avoidant coping and job crafting. In our review, proactive coping and avoidant coping are two distinct strategies that naturally correlate in opposite directions to teacher burnout, and they also differently associate with the three dimensions of burnout. These results are consistent with previous studies in other occupation groups (Ângelo & Chambel 2014; Chen & Cunradi 2008; Hill, Hall & Appleton 2010). It is possible that these two coping strategies influence burnout through different pathways. However, the findings are inconclusive regarding their individual roles in the JD-R model. Moreover, the idea of coping flexibility is added to recent extension of the JD-R model (Bakker & de Vries 2021; Demerouti 2015). Those authors stated that proactive coping is not always better than avoidant coping, and instead coping flexibility (i.e., the ability to choose appropriate coping strategy depending on situational demands) is found to be most effective.

Among those different coping strategies, avoidant coping is found to have the most significant relationship with burnout (Demerouti 2015). This is probably because avoiding job demands is a passive behavior and this ineffective coping response especially reinforces subsequent feelings of helplessness and futility, which deserves further research attention.

While the review shows that avoidant coping plays an important role in the burnout process of Chinese teachers, research remains limited about how avoidant coping contributes to the development of teacher burnout. According to the transactional theory of stress and coping, avoidant coping can play a mediating role between the relationship of stressful situation (e.g., job demands) and negative outcome (e.g., burnout). In the few reviewed studies that examined avoidant coping as a mediator, the variable is only linked to one job demand or resource on the one hand and burnout on the other (Jia & Lin 2013; Lin, Chen & Zhai 2009; Sun et al. 2011; Zhang et al. 2019). To achieve a comprehensive understanding of the mechanism that underlie teacher burnout in China, there is a need to explore the interplay between avoidant coping and other antecedents of burnout (discussed above) and examine the role that avoidant coping plays in the JD-R model. The researcher therefore hypothesises that:

Hypothesis 2: Avoidant coping is positively correlated with burnout.

Hypothesis 3: Avoidant coping partially mediates the relationship between job demands and burnout. Higher levels of job demands are related to higher levels of avoidant coping, which, in turn, is related to higher levels of burnout.

Similarly, job crafting is another individual behavioural strategy that deserves further investigation. Bakker and de Vries (2021) proposed that job demands are likely to relate to burnout through job crafting. They reasoned that a high level of job demands will result in high levels of strain, which leads to less job crafting behaviours. Eventually, employees will face demanding job conditions with fewer resources and experience burnout. However, there is a dearth of studies that have focussed on how job crafting contributes to burnout in the Chinese education setting. Research is needed to investigate the mediating role of job crafting in the development of teacher burnout in the JD-R model. The researcher therefore hypothesizes that:

Hypothesis 4: Job crafting is negatively correlated with burnout.

Hypothesis 5: Job crafting partially mediates the relationship between job demands and burnout. Higher levels of job demands are related to lower levels of job crafting, which, in turn, is related to higher levels of burnout.

2.8.3 Supervisor Support as a Moderator between Job Demands and Job Crafting

Given that job crafting potentially plays an important role in the relationship between job demands and burnout, it is also worth considering the possibility that job crafting behaviour can be strengthened by the support of a supervisor. According to Wrzesniewski and Dutton (2001), the perceived opportunity for job crafting may depend on how employees are supervised. Wong, Škerlavaj and Černe (2017) further noted that the role of leaders in impacting their subordinates to engage in job crafting behaviours has been insufficiently studied and that, job crafting behaviour is potentially shaped by the social context.

From the perspective of the JD-R theory, job resources such as supervisor support may have distinct moderating effects in the relationship between job demands and burnout. However, it is not clear whether the moderating effect works through specific individual behaviour strategies like job crafting. Transactional theory of stress and coping provides a useful theoretical confirmation for the important role of supervisor support in encouraging job crafting behaviours. Folkman and Lazarus (1988) explained that when encountering a stressful event, an individual goes through a cognitive process named secondary appraisal to identify their coping resources and then decides what action to take to "shape, manage or resolve the event." (Dewe, Philip & Cooper, Gary L. 2007) . In the current study, when teachers are under demanding working conditions, they are likely to experience burnout through engaging less commonly in job crafting. However, a supportive supervisor is regarded as a helpful resource by providing teachers with feedback and appropriate tasks that match their abilities. With accessible and adequate resource, teachers are more likely to appraise their job demands as

manageable and feel more encouraged to engage in job crafting, even when remaining under great stress. When levels of supervisor support are higher, teachers will feel more able to make the job crafting changes than when levels of supervisor support are low. The researcher therefore hypothesises that:

Hypothesis 6: Supervisor support moderates the negative relationship between job demands and job crafting. This relationship will be weaker when teachers have more supervisor support.

2.8.4 Proactive Personality as a Moderator between Job Demands and Job Crafting

A proactive personality may also play a buffering role in the relationship between job demands and burnout. Recent studies on the JD-R model generally support the notion that personal resource plays a similar role to job resource in buffering the impact of job demands on burnout (Bakker & Demerouti 2017). The transactional theory of stress and coping also provides an explanation for the connection. As a valuable personal resource, proactive personality also helps in the secondary appraisal process. Proactive personality refers to "the relatively stable tendency to effect environmental change" (Bateman & Crant 1993, p103). When facing stressful job demands, teachers with a proactive personality are likely to take the initiative and respond actively to those demands; they are also more likely to appraise their task as manageable and engage in job crafting. The researcher therefore hypothesizes that:

Hypothesis 7: Proactive personality moderates the negative relationship between job demands and job crafting. This relationship will be weaker when teachers are more proactive.

2.8.5 Perfectionism as a Moderator between Job Demands and Avoidant Coping

There is a further call for inclusion of personal demands in the JD-R model (Bakker & de Vries 2021). Specifically, Salanova et al. (2008) noted that personal demand, such as perfectionism, could be further studied for the prediction of burnout as an extension of the JD-R model. Contrary to proactive personality, which weakens the loss spirals of job demands and burnout, perfectionism is likely to facilitate the health impairment process. In the secondary appraisal,

a person with perfectionist tendencies is more likely to appraise the stressful demand as too much to manage, as their personal demands negatively affect their perception of job demands. In the current study, when a teacher with perfectionist tendencies encounters a high level of job demands, they are likely to over-exaggerate the difficulty of completing their task and adopt avoidant coping behavior as a result. The researcher therefore hypothesises that:

Hypothesis 8: Perfectionism moderates the positive relationship between job demands and avoidant coping. This relationship will be stronger when teachers have more personal demands.

2.8.6 Research Questions and Hypothesised Research Model

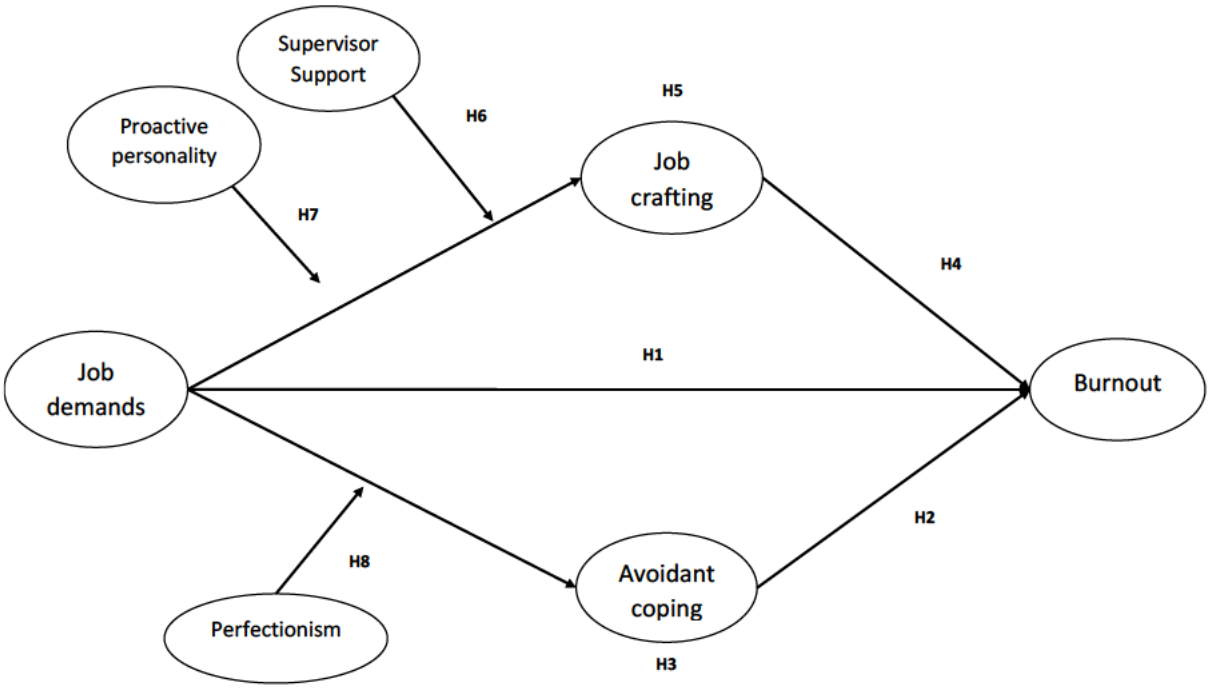
Given the above discussion, the present study intends to investigate how teacher burnout is developed in the Chinese education context. Table 2.7 presents the relevant research questions for the current study.

Table 2. 7 Research Question and Hypothesis

Research question (RQ)		Hypotheses
RQ1	How are job demands (student's exam pressure, role ambiguity, workload) related to teacher burnout?	**Hypothesis 1:** Job demands (student exam pressure, role ambiguity, workload) are positively related to burnout.
RQ2	How does avoidant coping contribute to the development of teacher burnout?	**Hypothesis 2:** Avoidant coping is positively correlated with burnout. **Hypothesis 3:** Avoidant coping partially mediates the relationship between job demands and burnout. Higher levels of job demands are related to higher levels of avoidant coping, which, in turn, is related to higher levels of burnout.
RQ3	How does job crafting contribute to the development of teacher burnout?	**Hypothesis 4:** Job crafting is negatively correlated with burnout. **Hypothesis 5:** Job crafting partially mediates the relationship between job demands and burnout. Higher levels of job demands are related to lower levels of job crafting, which, in turn, is related to higher levels of burnout.
RQ4	What role does job resource (supervisor support) play in the burnout mechanism?	**Hypothesis 6:** Supervisor support moderates the negative relationship between job demands and job crafting. This relationship will be weaker when teachers have more supervisor support.
RQ 5	What role does personal resource (proactive personality) play in the burnout mechanism?	**Hypothesis 7:** Proactive personality moderates the negative relationship between job demands and job crafting. This relationship will be weaker when teachers are more proactive.
RQ 6	What role does personal demand (perfectionism) play in the burnout mechanism?	**Hypothesis 8:** Perfectionism moderates the positive relationship between job demands and avoidant coping. This relationship will be stronger when teachers have more personal demands.

Based on the hypotheses, Figure 2.2 is a conceptual model which illustrates the hypothesised relationship.

Figure 2. 2 Hypothesised Research Model



2.9 Conclusion

This chapter provided a comprehensive review of teacher burnout research in the Chinese context under the JD-R framework. Firstly, the research systematically identified the job demands/resources, personal demands/resources, individual behavioural strategies and outcomes of teacher burnout in China. In general, it is found that some key antecedents contributing to Chinese teacher burnout are culturally specific, which suggests that a more contextualised analysis of burnout is required. Second, based on empirically validated factors and their relationships, an integrated conceptual framework of teacher burnout in China is illustrated, which serves as a guide to identifying important gaps in our understanding in this research field. Finally, this

review chapter presented the research questions and proposed a hypothesised research model demonstrating the relationships of key variables.

Chapter 3 Research Design and Methods

3.1 Introduction

The previous chapter reviewed the literature on teacher burnout in China and presented the hypothesised research model. This chapter discusses the use of the survey method and addresses related methodological issues. It explains the implementation of the survey, measurement scales used in the survey, and ethics considerations in the data collection process. It also describes and justifies the statistical analytical techniques used to interpret the results.

3.2 Research Design

3.2.1 Quantitative Research

To examine the relationships among burnout and its various antecedents, this study employs a quantitative research method. Creswell and Creswell (2017) suggest that quantitative research design is suitable when the focus of a study is to investigate the relationships between or among variables. In research, quantitative research methods have several advantages. First, quantitative methods can test and validate theories that are constructed to explain how a certain phenomenon occurs. In a quantitative study, the research question is presented in a precise way (Frankfort-Nachmias & Nachmias 1992). Second, quantitative researchers are able to measure multiple dependent and independent variables and analyse the data with descriptive and inferential statistical methods (Babbie 2020). Third, quantitative methods are efficient and cost-effective when a large population is studied.

3.2.2 Survey Method

The survey method is applied to collect research data. The purpose of survey research is to generalise from a sample to a population so that inferences can be made about characteristics, attitudes, or behaviours of this population (Fowler Jr 2013). A questionnaire survey can be in the form of a written document, an online questionnaire, a face-to-face interview, or a telephone interview.

There are several advantages to using the survey method. Standardisation makes it possible to collect similar data from different groups and compare the data between groups. The issue of observer subjectivity is significantly less than that of qualitative research methods, and because the survey is anonymous, respondents are more comfortable to provide truthful answers. There are however, some weaknesses inherent in survey methods. First, researchers cannot change the measurements during the data collection process when unexpected problems and new information may arise. Second, respondents may find it difficult to recall certain information or provide an accurate answer to an ambiguous question. Finally, several factors could affect the quality of the survey, including measurements, scales and item development. Some potential specific methodological issues in this study are discussed below.

Sample Size and Representativeness

The statistical technique used in this study was the CBSEM (covariance-based structure equation modelling) method. It is argued that in SEM analysis, it is difficult to reach a single answer with regard to the appropriate sample size, because it is affected by several factors (Kline 2015). Generally, a larger sample size is required for complex

models with more cases, which have more parameters than simple models. Stevens (2012) offered the guideline that the sample size needs to be five times higher than the total number of items measured. Based on this criterion, the present study contains 67 items, making a sample size of 335 (or greater) appropriate. In the present study, a sample size of 552 was obtained, which meets the minimum size requirement.

The sample of teachers in this study is as representative as possible. To ensure diversity of the sample, permission was acquired from three different education institutions located in two different Chinese provinces. Participants were then purposefully sampled from a variety of work units across the three institutions. For example, teachers participating in the survey taught various subjects, including maths, English, literature, etc.

Common Method Variance

In social science research, common method variance is a potential problem that is especially prevalent in studies that employ self-report data, such as surveys, questionnaires, and interviews (Richardson, Simmering & Sturman 2009). This problem occurs because the method may inflate or deflate the associations among variables because the data are collected with the common method (Campbell & Fisk 1959). It is thought that the measurement error can threaten the validity of the research findings regarding the relationships among the tested variables, which can result in the developed theory lacking a sound basis. Podsakoff et al. (2003) pointed out that the potential sources of common method variance are, having a common rater, item context, item characteristics, and measurement context.

There are two primary ways recommended by researchers to control for common method variance. One is to strengthen the design of the research procedures, and the other is to use statistical controls (Burton-Jones 2009). The present study followed these recommendations to minimise the common method bias. Regarding the procedural design, the items in the scales were carefully translated and thoroughly reviewed so that they were clearly understood and therefore less subject to bias. In addition, when the survey was conducted, human resources staff in each institution were asked to provide clear information to mitigate the potential that an item might be confusing to the participants. Regarding the statistical techniques, Harman's single factor test was adopted to reduce the likelihood of common variance bias, this was found not to be a significant concern in this study.

Back Translation

In the research field of occupational well-being, most instruments have been developed in the Western context using the English language. For the present study, the survey questionnaires were composed of 7 English measures and 2 Chinese measures. Among the 7 English measures, the Maslach Burnout Inventory–General Survey (MBI-GS) and the Job Content Questionnaire have already been translated to Mandarin (the Chinese official language) and validated in Chinese populations, while the remaining measures needed to be translated into Mandarin to collect data from the Chinese participants. Sanchez, Spector and Cooper (2006) argued that the translation of measures could potentially create confounding issues regarding language and culture. Therefore, careful back-translation work of all the measurements was conducted. In cross-cultural

research, back translation procedures follow a widely accepted standard (Brislin 1986). Based on the model described by Brislin (1970), the researcher firstly translated a survey questionnaire from the original language (English) into the target language (Mandarin). After that, a researcher who was fluent in both languages translated the survey back from the target language (Mandarin) into the original language (English). Then, it is required that another two English native speakers compared the translated version with the original version and found out if there was any the inaccuracy in the translation. Problematic items were identified and translated back again into the original language by the bilingual researcher. This process was repeated several times until it was agreed mutually that the items in the translated survey were considered equivalent and unambiguous. The translated version was then pilot tested by 20 teachers. Any confusions that were frequently raised by the teachers were sent back to the researcher for review and revision.

Measurement Scales

Researchers in management studies need to focus on the distinction between formative and reflective measures and consider whether to model their constructs with formative or reflective indicators (Podsakoff, Shen & Podsakoff 2006). In the reflective model, the direction of causality flows from the latent construct to the indicator. In other words, the variance in the reflective indicator reflects the variance in the latent construct. In the formative measurement model, the direction of causality is opposite, from the indicator to the construct, which means that the indicators define the meaning of the construct both conceptually and empirically. The decision to choose formative or

reflective indicators is important since it is necessary to use an appropriate specification of a measurement model to assign meaningful relationships in the structure model (Anderson & Gerbing 1988). Coltman et al. (2008) reported that reflective indicators are commonly used in the psychological and management literature, while formative indicators are more commonly used in economics and sociology.

In the present study, the reflective measurement model is used for the following reasons. First, in the reflective model, the indicators share a common theme and are interchangeable, which makes it possible for the researcher to measure the construct by a few relevant indicators (Nunnally & Bernstein 1994). Therefore, it is practical to include or exclude some indicators from the construct without materially affecting the content validity of it. Moreover, it is appropriate to use reflective measures in research conducted in reflective scenarios, such as measuring attitudes and personality (Netemeyer, Bearden & Sharma 2003; Spector 1992).

Regarding the scale development, this study used the Likert scale (Likert 1932) which is commonly used in management and business research to collect data (Alexandrov 2010). In the present study, it is appropriate to use a Likert-type scale because it measures variables including employee's perceptions of their work and attitude. Specifically, a seven-point Likert scale is employed. The reason for this is that item reliability is significantly increased from two-point scales to seven-point scales (Givon & Shapira 1984). It is also reported that people are more able to distinguish their

feelings when given are seven-point scale than a five-point one (Rossi, Wright & Anderson 2013).

3.3 Participant and Procedure

The participants were identified among teachers employed in 3 different education institutions from 2 cities in China. First, an invitation was sent to teachers via the HR department in each of the three institutions. In the invitation, those potential participants were provided with information of the aim of the study and the right of participants. Teachers are informed that it is voluntary to participate in the research and they can withdraw at any time without giving reason. Teachers who agreed to conduct the survey questionnaires were organized in meeting rooms at their workplace at an appointed time. During that time, a human resources manager was available at the meeting room in case the participants have any confusions regarding the research. The human resources manager adhered strictly to the questionnaires' brief regarding its administration. Once the survey is completed, participants were asked to leave the questionnaires in the meeting room. The questionnaires were then collected from the three institutions by the researcher. Before the questionnaire was sent out, a pilot study was conducted with 20 teachers testing the questionnaire design. Revisions were made to the ambiguous or confusing items based on the feedback of those 20 participants as well as human resource managers. A total of 690 questionnaires were delivered and 562 questionnaires were returned representing a response rate of 81 per cent.

3.4 Measurement

3.4.1 Job Demands

Job demands as a higher order construct were measured with subscales: student exam pressure, role ambiguity, and workload. Student exam pressure was measured using five items developed by Zhu et al. (2001) in a study among teachers from primary and secondary schools. A seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used to show participants' responses. Sample items included: 'I worried that my students could not perform well in exams.' and 'I have to be responsible for students' exam performance'. Role ambiguity was measured using six items from Rizzo et al.'s (1970) role ambiguity and role conflict scales. A seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used to indicate participants' responses. Sample items included: 'I know everything that I am expected to do at work with certainty.' and 'My job duties are clearly defined'. Workload was measured using five items from Karassik's (1985) Job Content Questionnaire. A seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used to indicate participants' responses. Sample items included: 'My job requires working very fast' and 'My job requires working very hard'. For the current sample, Cronbach's Alpha for student exam pressure, role ambiguity, and workload subscales were .92, .86, and .91, respectively.

3.4.2 Burnout

The potential level of participants' burnout was measured using the Maslach Burnout Inventory – General Survey (MBI-GS) (Maslach & Leiter 2016). The instrument measures three dimensions of burnout: exhaustion, cynicism, and reduced professional

efficacy. In this study, we collected data for exhaustion and cynicism, which are the core dimensions of burnout. Exhaustion describes feelings of work having overtaxed and depleted one's energy. Cynicism assesses an indifferent or distant attitude toward one's work and a dysfunctional style of coping with job demands. The inventory contains 9 items which are framed as statements of job-related feelings (e.g., "I feel emotionally drained from my work;" "In my opinion, I am good at my job;" "I doubt the significance of my work") and are rated on a 7-point scale. Burnout is reflected in higher scores on exhaustion and cynicism. Reliabilities in this study were $\alpha = .94$ for Exhaustion, and $\alpha = .92$ for Cynicism.

3.4.3 Job Crafting

Job crafting was measured using a job crafting questionnaire (Nielsen & Abildgaard 2012) that includes 15 items. A seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used to indicate participants' responses. Sample items included: 'I ask for feedback on my performance from my colleagues' and 'I regularly take on extra tasks even though I do not receive an extra salary for them'. For the current sample, Cronbach's Alpha for job crafting was .80.

3.4.4 Avoidant Coping

Avoidant coping was measured using the Simplified Coping Style Questionnaire (Jie and Jian, 1998) that includes 8 items. A seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used to indicate participants' responses. Sample items included: 'I wish that I could change how I feel.' and 'I avoid being with people in general'. For the current sample, Cronbach's Alpha for job crafting was .90.

3.4.5 Proactive Personality

Proactive personality was measured using the Proactive Personality Scale short version (Claes, Beheydt & Lemmens 2005) that includes 6 items. A seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used to indicate participants' responses. Sample items included: 'No matter what the odds, if I believe in something I will make it happen' and 'I am always looking for better ways to do things.' For the current sample, Cronbach's Alpha for job crafting was .92.

3.4.6 Supervisor Support

Supervisor support was measured using the Social Support Scale (Caplan et al., 1975) that includes 4 items. A seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used to indicate participants' responses. Sample items included: 'My supervisor goes out of his/her way to do things to make my life easier' and 'It is easy to talk with my supervisor'. For the current sample, Cronbach's Alpha for job crafting was .92.

3.4.7 Socially Prescribed Perfectionism

Socially prescribed perfectionism was measured using Hewitt and Flett's Multidimensional Perfectionism Scale short version (Cox, Enns & Clara 2002) that includes 5 items. A seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used to indicate participants' responses. Sample items included: 'Although they may not say it, other people get very upset with me when I slip up' and 'People expect nothing less than perfection from me'. For the current sample, Cronbach's Alpha for job crafting was .92.

3.4.8 Control Variables

Basic demographic information was collected at the end of the survey. This included questions on age, gender, education background, and years of teaching experience.

3.5 Research Ethics

Payne and Payne (2004) define ethical practice in social science research as "a moral stance that involves conducting research to achieve not just high professional standards of technical procedures, but also respect and protection for the people actively consenting to be studied" (p. 66). Before the survey was conducted, an ethical approval for the study was obtained from the Human Research Ethics Committee (HREC) at Western Sydney University. Three major issues were considered in the process of gaining ethical approval: achieving informed consent, managing foreseeable risks, and the anonymity of participants.

3.5.1 Informed Consent

Participants were required to acknowledge their informed consent, indicating their understanding of the study purpose, that they were at least 18 years old and were voluntarily participating in this study. The purpose of the study, the benefits to the participants, and an indication that the results of the study may be published were all made clear to the participants prior to them undertaking to survey. Participants had the right to discontinue the survey and withdraw from the research at any time. The questionnaire was strictly confidential. Only the researcher had access to the responses and the data. Anonymity for the participants was ensured by not collecting personal identifiers in association with the answers provided. Although risks for participating in this research were minimal, in the next section, *foreseeable risk* will be reviewed.

3.5.2 Foreseeable Risks

Participants were asked to report their work demands and the personal and job resources they have available to them to cope with those demands. They were also asked about their level of burnout in the workplace. One possible risk is that a few participants could experience discomfort when reporting questions related to burnout, because thinking about stress and exhaustion itself can be stressful for some people. Another risk to consider is the time burden, as some participants may find it time-consuming to finish all the survey questions and feel discomfort.

Regarding these two potential risks, participants were provided with related information to clarify the potential benefits and risks of the research in the information and consent form. In the participant information sheet, participants were informed that this study sought to discover which coping strategies one might use to mitigate burnout and improve well-being were most effective. It was explained that the final findings of the study would be shared with the participants so that participating in the survey could be understood as beneficial. Participants were also informed that their anonymity was guaranteed and that they could withdraw at any time during the survey should they feel discomfort or distress. The estimated time (20-25 minutes) for completing the survey was also indicated.

3.5.3 Confidentiality

The names of the three institutions which help with the research was not disclosed. Participants were informed that their responses will be presented in a way that the participant cannot be identified. The collected data will not be disclosed to any third

party and will have restricted access by only the researcher team. Storage of, and access to data, as well as data disposal, will be undertaken in line with the University's policy guidelines on research data management. Moreover, steps were taken at the workplace to ensure the data the participants provided would be confidential. Only aggregate data for the teachers were reported.

3.6 Data Analysis

SPSS 27 and AMOS 28 were employed to analyse the collected survey data. Specifically, SPSS was used for descriptive statistics, reliability analysis, EFA, and moderation analysis. While AMOS was used for CFA, SEM, and mediation analysis.

3.6.1 Descriptive Statistics

It is suggested that researchers should conduct basic descriptive statistical analyses such as frequencies, percentages, and averages, once the data is ready for analysis (Malhotra 2014). The descriptive statistics analysis is run to describe the population that has been sampled and summarize the demographic information about the participants. This analysis provides a guide to researchers for further analysis, such as multivariate analysis (Hair et al. 2010). In this study, gender, age, years of teaching experience, and educational background were included in the descriptive statistical analysis.

3.6.2 Reliability Analysis

In addition, the reliability of each variable was also assessed. The most frequently used measure of reliability is Cronbach's Alpha, which is also referred to as the alpha coefficient (Byrne 2013a). There is no universal agreement on the minimum threshold

for a reliable alpha value. However, an alpha value of 0.7 or greater is generally considered preferable, but a value of at least 0.6 is acceptable (Aron & Aron 2003).

3.6.3 Exploratory Factor Analysis (EFA)

An EFA is one of the multivariate statistical methods that strives to identify the smallest number of latent constructs that can parsimoniously explain the covariation observed among a large set of measured indicators (Gorsuch, 1997). It is recommended that an EFA should be conducted when a new dataset is used, because this method is found to detect problematic variables more easily than CFA. As noted previously, the measurements used in this study are all well-established scales. Therefore, the intention to conduct EFA in the current case was not to extract the items, but to re-examine the factors applicability in a new situation: the Chinese education sector. It is recommended by Marsh et al., (2014) that running an EFA and then a CFA is appropriate in adaptation studies, especially when the item is translated from the original language to a new language.

3.6.4 The Measurement Model (CFA)

SEM is used to investigate the relationships between predictor variables and outcome variables. It is recommended that the analysis of SEM should take two steps: the measurement model and the structure model (Hair et al., 2010). Specifically, the measurement model demonstrates the relationship between a group of indicator variables and their corresponding latent variables, while the structure model describes the relationship between latent variables (Byrne 2013a).

In the first step, Confirmatory Factor Analysis (CFA) was conducted in the measurement model to validate the factor structure of all the scales used in the study. When using a CFA, the research must postulate a prior model structure which describes a set of relations between a group of indicator variables and an underlying construct, and it is assumed that the observed indicators are caused by the construct (Brown & Moore 2012). For example, the research proposes that there are six survey items in the scale of avoidant coping, in which participant responses to the six items are assumed to be caused by avoidant coping. CFA is used to test the overall fit of the measurement model and assess the construct validity, including convergent validity and discriminate validity.

One of the advantages of CFA is its ability to help researchers bridge the gap between theory and observation (Hancock & Mueller 2001). Unlike exploratory factor analysis (EFA) which can potentially reach an inconsistent solution with regard to the initial theory, CFA can provide researchers with valuable information on whether the observed data fit the measurement model; it also shows the potential weakness of specific items. In the present study, SPSS AMOS were employed over other packages, such as LSREL, MPLUS, and EQS. There are several advantages to using AMOS. First, it has a user-friendly graphical interface which is easily accessible and well-organized for generating output (Hoyle 1995). Moreover, it allows the research to specify, estimate, access, and present models conveniently. CFA is employed to test several measurement models, including job demands, job crafting, avoidant coping, and burnout, etc.

3.6.5 The Structural Model (SEM)

In the second step, the structural model is examined to determine whether the hypothesised theoretical model fits the observed data. A theoretical model is regarded as a fit to the collected data to the extent that the model co-variance matrix is equivalent to the empirical co-variance matrix (Schermelleh-Engel, Moosbrugger & Müller 2003). A three-step approach is recommended to determine whether the theoretical model is a good fit with the observed data (Marsh & Grayson 1994). Firstly, it is necessary to determine that the iterative procedures in the SEM algorithm converge, and that all parameter estimates are mathematically sensible. Then, the research considers whether the parameter estimates are reasonable in relation to an *a priori* model. Finally, the chi-square test and other selected fit indices are evaluated.

In social science, SEM is one of the most powerful and popular statistical tools, which has several advantages over other standard statistical procedures (Byrne 2013b). For example, SEM is more versatile than other multivariate techniques as it enables researchers to simultaneously analyse multiple dependent relationships between dependent variables and independent variables. While regression analysis is also widely used in data analysis, because it is relatively simple compared to SEM in what it can simultaneously compare. SEM allows for simultaneous investigation of multiple relations and a thorough examination of hypothetical constructs. SEM analysis also takes into account the error variance associated with the independent variable, which is not considered in other traditional data analysis techniques.

SEM also has some limitations. First, it requires a minimum number of indicators to ensure the validity of the construct. It means that when more constructs are measured, more items are needed for the questionnaire (Bagozzi & Yi 2012). In addition, it is possible to attribute causality to results compared to other approaches, such as regression analysis, when using SEM (Iacobucci 2009).

In the present study, structure equation modelling is conducted to examine the pathway from job demands to burnout, with job crafting and avoidant coping tested as two mediators.

3.7 Conclusion

This chapter discussed the research design and methods, including rationale and justification. This study employed a quantitative design using descriptive and inferential statistical analyses, correlations and structural equation modelling to examine the data. Findings generated from the analysis of this study will be helpful in understanding the development of burnout in the Chinese education setting. Chapter 5 offers a detailed description of the results.

Chapter 4 Results

4.1 Introduction

This chapter presents the results and findings of this study. It begins with a descriptive statistic of the sample, followed by an examination of the dataset for reliability and validity using EFA and CFA. Next, it presents the results of structural equation modelling, including pathway analysis and mediation analysis. Finally, the findings from moderation analysis are also provided.

4.2 Descriptive Analysis

4.2.1 Gender and Age

In this study, the ratio between male and female staff was about 1:3. Among the 552 participants, 28 per cent (n = 155) were male and 72 per cent (n = 397) were female. This is also consistent with teaching being a female dominated occupation in China. In terms of age, more than 90 per cent (n=499) of the participants were under 50. Less than 10 per cent (n=53) were older than 51.

4.2.2 Year of Teaching and Education

35 per cent of the survey participants had worked in the teaching profession for less than 5 years. 25 per cent had worked in the teaching profession for between five and ten years. In terms of education, 385 participants held a bachelor's degree, which is 69.7 per cent of the total. Table 4.1 shows the full general demographic information of the participants.

Table 4. 1 Descriptive Statistics

Category	Value Label	Frequency	Percent
Gender	Male	155	28.1
	Female	397	71.9
Age	18-25	67	12.1
	26-30	137	24.8
	31-40	208	37.7
	41-50	87	15.8
	51-60	49	8.9
	>60	4	.7
Year of Teaching	<5	193	35.0
	5-10	138	25.0
	10-20	117	21.2
	>20	104	18.8
Education	Diploma or lower	73	13.2
	Bachelor's Degree	385	69.7
	Master's Degree or higher	94	17.0
	Total	552	100.0

4.3 Reliability Analysis

The reliability coefficients (Cronbach's Alpha), measures the reliability of the test variables. Cronbach's Alpha represents the overall internal consistency of a measure accounting for representative high and low ranges of all the items tested (Aron & Aron 2003). In this study, Cronbach's Alpha was used to measure the consistency of items used in each scale in the survey questionnaire. Hair et al. (2010) and DeVellis and Thorpe (2021) believe that the Cronbach's Alpha needs to be greater than 0.7 to achieve

good reliability. To improve reliability, an item may sometimes be omitted, this occurs according to two conditions. 1. If the correlation between an item and the total score of other items (Corrected Item-Total Correlation, CITC) is lower than 0.5, then the item can be deleted. 2. If the Cronbach's Alpha coefficient increases after deleting an item, then the item can be deleted. This study applied both these points as the basis for item reduction when necessary.

4.3.1 Job demands

In this study, the Cronbach's Alpha of student exam pressure (SE), workload (WL), and role ambiguity (RA) are 0.918, 0.862, and 0.906, respectively, which are all greater than the standard of 0.7, indicating that those variables have good internal consistency. CITC for all the items is greater than the standard of 0.5, indicating that the measured items meet the research requirements. Based on the value of "Cronbach's Alpha if Item Deleted ", deleting any item will not cause the Cronbach's Alpha value to increase, which also shows that the scale has good reliability.

Table 4. 2 Reliability of Job demands

Factor	Items	CITC	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
SE	SE1	.800	.897	0.918
	SE2	.802	.897	
	SE3	.753	.906	
	SE4	.793	.899	
	SE5	.798	.898	
WL	WL1	.678	.833	0.862
	WL2	.682	.832	
	WL3	.624	.846	
	WL4	.723	.821	
	WL5	.693	.829	
RA	RA1	.755	.887	0.906
	RA2	.768	.885	
	RA3	.702	.894	
	RA4	.763	.885	
	RA5	.734	.890	
	RA6	.721	.892	

4.3.2 Job crafting

In this study, the Cronbach's Alpha of increasing challenging demands (INJD), decreasing social job demands (DSJD), increasing social job resources (ISJR), increasing quantitative demands (IQJD), and decreasing hindering job demands **(**DHJD) are 0.805, 0.771, 0.767, 0.774, 0.768, respectively, which are all greater than the

standard of 0.7, indicating that those variables have good internal consistency. CITC for all the items are greater than the standard of 0.5, indicating that the measured items meet the research requirements. Based on the value of "Cronbach's Alpha if Item Deleted ", deleting any item will not cause the Cronbach's Alpha value to increase, which also shows that the scale has good reliability.

Table 4. 3 Reliability of Job Crafting

Factor	Items	CITC	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
INJD	JC1	.643	.744	0.805
	JC2	.555	.786	
	JC3	.653	.739	
	JC4	.630	.751	
DSJD	JC5	.604	.693	0.771
	JC6	.629	.664	
	JC7	.582	.717	
ISJR	JC8	.578	.712	0.767
	JC9	.639	.643	
	JC10	.584	.706	
IQJD	JC11	.608	.697	0.774
	JC12	.579	.730	
	JC13	.642	.659	
DHJD	JC14	.625	-	0.768
	JC15	.625	-	

4.3.3 Avoidant Coping

In this study, the Cronbach's Alpha of avoidant coping (AC) is 0.903, which is greater than the standard of 0.7, indicating that this variable has good internal consistency. CITC for all the items are greater than the standard of 0.5, indicating that the measured items meet the research requirements Based on the value of "Cronbach's Alpha if Item Deleted ", deleting any item will not cause the Cronbach's Alpha value to increase, which also shows that the scale has good reliability.

Table 4. 4 Reliability of Avoidant Coping

Factor	Items	CITC	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
AC	AC1	.698	.890	0.903
	AC2	.744	.886	
	AC3	.694	.890	
	AC4	.654	.894	
	AC5	.693	.891	
	AC6	.663	.893	
	AC7	.692	.891	
	AC8	.703	.889	

4.3.4 Burnout

In this study, the Cronbach's Alpha of emotional exhaustion (EE) and depersonalization (DP) are 0.911, 0.917, respectively, which are both greater than the standard of 0.7, indicating that those variables have good internal consistency. CITC for all the items is

greater than the standard of 0.5, indicating that the measured items meet the research requirements. Based on the value of "Cronbach's Alpha if Item Deleted ", deleting any item will not cause the Cronbach's Alpha value to increase, which also shows that the scale has good reliability.

Table 4. 5 Reliability of Burnout

Factor	Items	CITC	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
EE	EE1	.796	.886	0.911
	EE2	.815	.882	
	EE3	.814	.882	
	EE4	.760	.893	
	EE5	.688	.909	
DP	DP1	.821	.889	0.917
	DP2	.773	.905	
	DP3	.844	.881	
	DP4	.803	.895	

4.3.5 Social support, perfectionism, and proactive personality

In this study, the Cronbach's Alpha of social support (SS), perfectionism (Perf), and proactive personality (Proac) are 0.921, 0.949, and 0.92 respectively, which are all greater than the standard of 0.7, indicating that those variables have good internal consistency. CITC for all the items is greater than the standard of 0.5, indicating that the measured items meet the research requirements. Based on " Cronbach's Alpha if

Item Deleted ", deleting any item will not cause the Cronbach's Alpha value to increase, which also shows that each scale has good reliability.

Table 4. 6 Reliability of Moderating Variables

Factor	Items	CITC	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
SS	SS1	.830	.894	0.921
	SS2	.840	.890	
	SS3	.807	.902	
	SS4	.797	.905	
Perf	Perf1	.801	.947	0.949
	Perf2	.894	.931	
	Perf3	.869	.936	
	Perf4	.879	.934	
	Perf5	.856	.938	
Proac	Proac1	.769	.908	0.922
	Proac2	.776	.907	
	Proac3	.789	.906	
	Proac4	.767	.909	
	Proac5	.796	.905	
	Proac6	.757	.910	

4.4 Exploratory Factor Analysis (EFA)

An EFA analysis is conducted to re-examine whether the factors are applicable in a new situation: the Chinese education sector. When an EFA is to be employed, two prerequisites need to be met to conduct the analysis. First, it is necessary to conduct the Kaiser-Meyer-Olkin (KMO) test to evaluate the strength of the relationships and

suggest the factorability of the variables (Beavers et al. 2013). It is recommended that a KMO value of 0.7 or greater is acceptable (Field 2013). Second, the Bartlett's test of Sphericity needs to be significant (P<0.05).

Table 4. 7 KMO and Bartlett's Test

Variables	KMO	Chi-Square	df	Sig	Cumulative %	items
JD	0.949	5616.030	120	0.000	69.509	16
JC	0.868	2951.873	105	0.000	69.434	15
AC	0.934	2177.955	28	0.000	59.664	8
BO	0.925	3727.985	36	0.000	76.743	9
SS	0.857	1628.192	6	0.000	80.957	4
Perf	0.910	2724.838	10	0.000	83.146	5
Proac	0.921	2215.230	15	0.000	71.934	6
Total	0.929	22721.534	1953	0.000	72.205	63

The results showed that the KMO of each variable is above 0.70 and the Bartlett's test is also significant for all the variables (p<0.05), which means the data is appropriate for EFA. A principal component analysis (PCA) was conducted on all the items in this study. The results reported the factor loading of all the items to be above 0.5, with cross loading lower than 0.4 (see Appendix 6). The literature generally supports a factor loading of 0.5 or above is acceptable, while a factor loading of 0.7 is more acceptable (Cunningham 2010). Factor loadings of less than 0.05 are considered poor and should be removed from further analysis (Garver & Mentzer 1999). In the current study, the results of the EFA showed that the scales adapted well in the Chinese education context and no change occurred in the structure resulting from cultural differences.

4.5 Measurement Model (CFA)

A CFA is employed in the measurement model to test the relationship between the observed indicators and the latent constructs. This analysis demonstrates how well the indicators predict the latent construct. The measurement model is evaluated by examining the following criteria.

4.5.1 Individual Item Reliability

Individual item reliability is assessed by the factor loadings of each item. In the measurement model, a factor loading above 0.7 is recommended, meaning more than 50 per cent of the variance in the observed indicator is attributed to the construct (Hulland 1999). This generally accepted threshold shows that the shared variance between the construct and its indicators is more than the error variance (Barclay, Higgins & Thompson 1995). However, loadings over 0.5 are considered acceptable when there are an adequate number of indicators reflecting the same construct (Chin 1998).

4.5.2 Internal Consistency

According to Fornell and Larcker (1981), composite reliability (CR) is used to evaluate the internal consistency of the indicators. CR refers to the squared sum of all factor loadings divided by that same figure plus the sum of error terms. It is argued that the internal consistency presented by CR is similar to Cronbach's Alpha, but more advanced in that it uses loading estimated than the casual model. Also, it is not influenced by the number of items in the scale. The rule-of-thumb value for the minimum CR is 0.7. It is argued that the internal consistency presented by CR is similar to Cronbach's Alpha, but more advanced, in that it uses a loading estimated rather than

the causal model. CR is also not influenced by the number of items in the scale. The rule-of-thumb value for the minimum CR is 0.7.

4.5.3 Convergent Validity

Convergent validity shows that a set of observed indicators represents one and the same underlying construct. Fornell and Larcker (1981) recommended the Average Variance Extracted (AVE) as a criterion of convergent validity. The AVE measures the amount of variance of the indicator, and a minimum threshold of above 0.5 is considered acceptable. An AVE value of greater than 0.5 shows that fifty per cent of the variance of an indicator can be captured by the underlying construct.

4.5.4 Discriminant Validity

The discriminant validity indicates that there is a statistically significant difference in the correlation between the two different variables. Items in different variables should not be highly correlated. Table 4.8 shows the correlation among constructs. The correlation coefficient between job demands and job crafting is -0.427 ($p<0.01$), indicating that there is a significant negative correlation between the two constructs; the correlation coefficient between job demands and avoidant coping is 0.543 ($p<0.01$), indicating a significant positive correlation between the two constructs; the correlation coefficients between job demands, job crafting, avoidant coping and burnout were 0.669, -0.408, and 0.471 respectively ($p<0.01$), indicating a significant positive correlation between job demands, avoidant coping and burnout and a significant negative correlation between job crafting and burnout. It is noticed that the correlation between job demand and burnout is high (r=.669**) and could be a potential issue to

the discriminant validity. One possible reason is that we have included two culturally specific sub-constructs in job demand, student exam pressure and role ambiguity. The two constructs could be highly relevant to teacher's burnout in China. In considering the discriminant validity, organizational researchers have proposed different threshold value for r (Cheung et al. 2023). For example, Rönkkö and Cho (2022) defined a correlation at 0.8 or higher as having discriminant validity issues. Similarly, Voorhees et al. (2016) suggested a correlation of 0.75 as having no discriminant validity issues and 0.9 as having discriminant validity issues. Therefore, although the correlation between job demand and burnout is relatively high, we consider the two constructs not excessively overlapping, and carry out further tests to assess discriminant validity.

In this study, another commonly employed method is used to test discriminant validity, the AVE method (Fornell & Larcker 1981). Discriminant validity of the construct is established if the square root of AVE value for each latent construct is greater than the correlations among any two of latent constructs in the research model. As shown in the table 4.8, the diagonal elements (square root of AVE) in the correlational matrix range from 0.734 to 0.857, which are all greater than correlation outside the diagonal line. In summary, the discriminant validity of this study is satisfactory. See the table below for details.

Table 4. 8 Correlation Analysis and Discriminant Validity

	JD	JCM	AC	SS	Perf	Proac	BO
JD	**0.817**						
JC	-.427**	**0.708**					
AC	.543**	-.289**	**0.734**				
SS	-.265**	.147**	-.175**	**0.844**			
Perf	.113**	-.103*	.234**	-.097*	**0.822**		
Proac	-.125**	.106*	-.034	.341**	-.142**	**0.857**	
BO	.669**	-.408**	.471**	-.136**	.115**	-.005	**0.734**

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The square roots of AVE are bolded on the diagonal.

4.5.5 Model Fit Indices and Criteria

When confirmatory factor analysis is used to test validity, it is necessary to evaluate the fit of the measurement model, and then modify the model to improve the fit of the model where necessary. The model was evaluated with various fit indices, both absolute and incremental indices (Hu & Bentler 1999). The absolute fit indices include Chi Square (X^2) and Root Mean Square Error of Approximation (RMSEA), Goodness of Fit (GFI), Adjusted Goodness of Fit (AGFI), and the incremental fit indices include Normed Fit Index (NFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and

Incremental Fit Index (IFI). Table 4.9 shows the model fit indices and their accepted values as recommended by SEM researchers.

Table 4. 9 Summary of Fit Indices

Name of index	Level of acceptance	Citation
X^2 /DF	<3	Marsh and Hocevar (1985)
GFI	>0.9	Jöreskog and Sörbom (1986)
AGFI	>0.9	Jöreskog and Sörbom (1986)
RMSEA	<0.08	Steiger (1998)
NFI	>0.9	Bollen (1986)
IFI	>0.9	Bollen (1989)
TLI(NNFI)	>0.9	Bentler and Bonett (1980)
CFI	>0.9	Bentler (1990)

4.5.6 CFA Result for Each Construct

The section discussed the CFA result for the seven constructs studied in this research.

Job Demands

The CFA test for job demands demonstrate that CMIN/DF=1.868, which is less than 3; GFI, AGFI, NFI, TLI, IFI, and CFI all reach the acceptable level of 0.9; RMSEA = 0.040, which is less than 0.08. Since most of the fit indices are satisfactory, this model can be considered a good fit.

The standardized factor loading of each item is greater than 0.5, and significant ($p<0.05$), and the errors are all positive. The CR of JD, SE, WL, and RA are 0.858, 0.919, 0.862, and 0.906 respectively, which are all greater than 0.7. The AVE values of those variables are 0.669, 0.693, 0.556, and 0.617 respectively, which are all greater

than 0.5. As the model fit is acceptable and the convergent validity is also satisfactory, all the items are kept for further analysis.

Table 4. 10 Fit Indices for Job Demands

Name of index	Level of acceptance	Value
CMIN	-	188.717
DF	-	101
CMIN/DF	<3	1.868
GFI	>0.9	0.959
AGFI	>0.9	0.945
RMSEA	<0.08	0.040
NFI	>0.9	0.967
IFI	>0.9	0.984
TLI(NNFI)	>0.9	0.981
CFI	>0.9	0.984

Figure 4. 1 CFA Model for Job demands

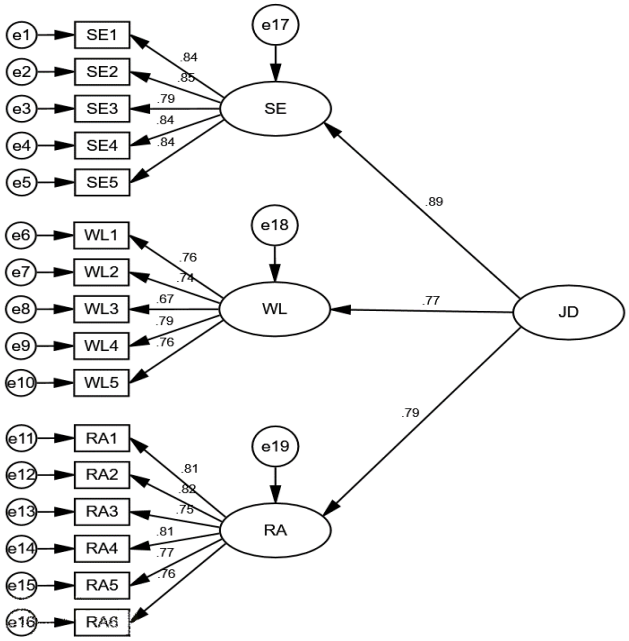


Table 4. 11 Results of CFA for Job demands

Variable	item	Unstandardized factor loading	S.E.	C.R.（t-value)	P	Standardized factor loading	CR	AVE
JD	SE	1				0.888	0.858	0.669
	WL	0.715	0.057	12.623	***	0.768		
	RA	0.777	0.058	13.317	***	0.792		
SE	SE1	1				0.837	0.919	0.693
	SE2	1.008	0.041	24.501	***	0.85		
	SE3	0.891	0.04	22.073	***	0.794		
	SE4	0.948	0.039	24.193	***	0.843		
	SE5	0.89	0.037	23.937	***	0.837		
WL	WL1	1				0.755	0.862	0.556
	WL2	0.981	0.058	17.045	***	0.743		
	WL3	0.811	0.053	15.356	***	0.673		
	WL4	1.048	0.058	18.121	***	0.788		
	WL5	0.959	0.055	17.569	***	0.764		
RA	RA1	1				0.805	0.906	0.617
	RA2	1.087	0.051	21.483	***	0.816		
	RA3	0.996	0.052	19.268	***	0.751		
	RA4	1.117	0.053	21.176	***	0.807		
	RA5	0.935	0.047	19.955	***	0.772		
	RA6	1.001	0.051	19.585	***	0.761		

Job Crafting

The CFA test for job crafting demonstrates that CMIN/DF=1.609, which is less than 3; GFI, AGFI, NFI, TLI, IFI, and CFI all reach the acceptable level of 0.9; RMSEA = 0.033, which is less than 0.08. Since most of the fit indices are satisfactory, this model can be considered a good fit.

The standardized factor loading of each item is greater than 0.5, and significant ($p<0.05$), and the errors are all positive. The CR of JC, INJD, DSJD, ISJR, IQJD, and DHJD were 0.834, 0.806, 0.772, 0.769, 0.776, and 0.775 respectively, which are all greater than 0.7. The AVE values of those variables are 0.502, 0.512, 0.530, 0.527, 0.537, and 0.634 respectively, which are all greater than 0.5. As the model fit is acceptable and the convergent validity is also satisfactory, all the items are kept for further analysis.

Table 4. 12 Fit Indices for Job Crafting

Name of index	Level of acceptance	Value
CMIN	-	136.806
DF	-	85
CMIN/DF	<3	1.609
GFI	>0.9	0.968
AGFI	>0.9	0.954
RMSEA	<0.08	0.033
NFI	>0.9	0.973
IFI	>0.9	0.982
TLI(NNFI)	>0.9	0.978
CFI	>0.9	0.982

Figure 4. 2 CFA Model for Job Crafting

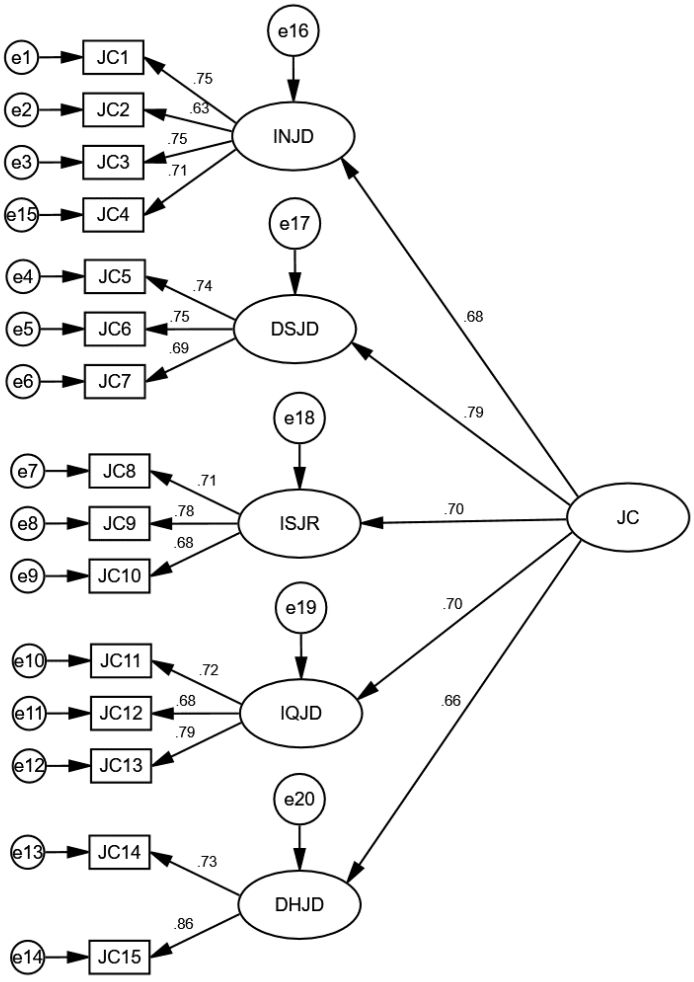


Table 4. 13 Results of CFA for Job Crafting

Variable	item	Unstandardized factor loading	S.E.	C.R.（t-value)	P	Standardized factor loading	CR	AVE
JC	INJD	1				0.684	0.834	0.502
	DSJD	1.154	0.118	9.74	***	0.785		
	ISJR	1.088	0.12	9.088	***	0.701		
	IQJD	0.985	0.107	9.186	***	0.705		
	DHJD	0.925	0.11	8.38	***	0.661		
INJD	JC1	1				0.752	0.806	0.512
	JC2	0.832	0.062	13.509	***	0.633		
	JC3	1.007	0.064	15.797	***	0.754		
	JC4	0.905	0.06	15.104	***	0.714		
DSJD	JC5	1				0.743	0.772	0.530
	JC6	1.052	0.071	14.739	***	0.75		
	JC7	0.944	0.068	13.936	***	0.69		
ISJR	JC8	1				0.712	0.769	0.527
	JC9	1.093	0.077	14.231	***	0.783		
	JC10	0.937	0.071	13.24	***	0.678		
IQJD	JC11	1				0.723	0.776	0.537
	JC12	1	0.073	13.618	***	0.685		
	JC13	1.099	0.075	14.651	***	0.787		
DHJD	JC14	1				0.729	0.775	0.634
	JC15	1.274	0.107	11.933	***	0.858		

Avoidant Coping

The CFA test for avoidant coping demonstrates that CMIN/DF=2.585, which is less than 3; GFI, AGFI, NFI, TLI, IFI, and CFI all reach the acceptable level of 0.9; RMSEA = 0.054, which is less than 0.08. Since most of the fit indices are satisfactory, this model can be considered a good fit.

The standardized factor loading of each item is greater than 0.5, and significant ($p<0.05$), and the errors are all positive. The CR of AC was 0.903, which is greater than 0.7. The AVE value of the variable is 0.540, which is greater than 0.5. As the model fit is acceptable and the convergent validity is also satisfactory, all the items are kept for further analysis.

Table 4. 14 Fit Indices for Avoidant Coping

Name of index	Level of acceptance	Value
CMIN	-	51.698
DF	-	20
CMIN/DF	<3	2.585
GFI	>0.9	0.977
AGFI	>0.9	0.958
RMSEA	<0.08	0.054
NFI	>0.9	0.976
IFI	>0.9	0.985
TLI(NNFI)	>0.9	0.979
CFI	>0.9	0.985

Figure 4. 3 CFA Model for Job Demands

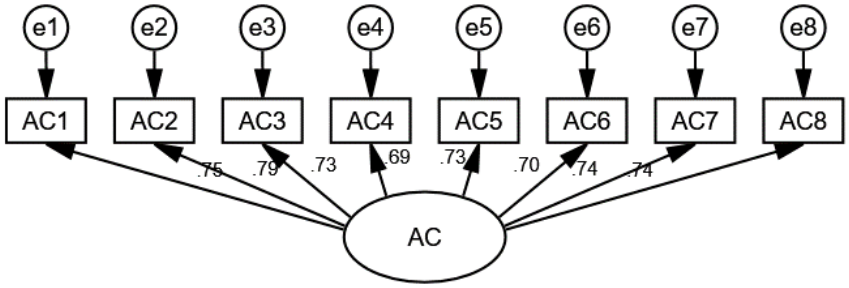


Table 4. 15 Results of CFA for Avoidant Coping

Variable	item	Unstandardized factor loading	S.E.	C.R.（t-value)	P	Standardized factor loading	CR	AVE
AC	AC1	1				0.746	0.903	0.540
	AC2	1.154	0.062	18.581	***	0.793		
	AC3	1.11	0.065	17.113	***	0.735		
	AC4	1.021	0.064	16.027	***	0.691		
	AC5	1.096	0.065	16.961	***	0.729		
	AC6	1.012	0.062	16.228	***	0.699		
	AC7	1.016	0.059	17.147	***	0.736		
	AC8	1.093	0.063	17.312	***	0.743		

Burnout

The CFA test for job demands demonstrate that CMIN/DF=2.223, which is less than 3; GFI, AGFI, NFI, TLI, IFI, and CFI all reach the acceptable level of 0.9; RMSEA = 0.047, which is less than 0.08. Since most of the fit indices are satisfactory, this model can be considered a good fit.

The standardized factor loading of each item is greater than 0.5, and significant ($p<0.05$), and the errors are all positive. The CR of BO, EE, and DP are 0.833, 0.912, and 0.918, respectively, which are all greater than 0.7. The AVE values of those variables are 0.714, 0.677, and 0.736 respectively, which are all greater than 0.5. As the model fit is acceptable and the convergent validity is also satisfactory, all the items are kept for further analysis.

Table 4. 16 Fit Indices for Burnout

Name of index	Level of acceptance	Value
CMIN	-	57.800
DF	-	26
CMIN/DF	<3	2.223
GFI	>0.9	0.977
AGFI	>0.9	0.960
RMSEA	<0.08	0.047
NFI	>0.9	0.985
IFI	>0.9	0.991
TLI(NNFI)	>0.9	0.988
CFI	>0.9	0.991

Figure 4. 4 CFA Model for Burnout

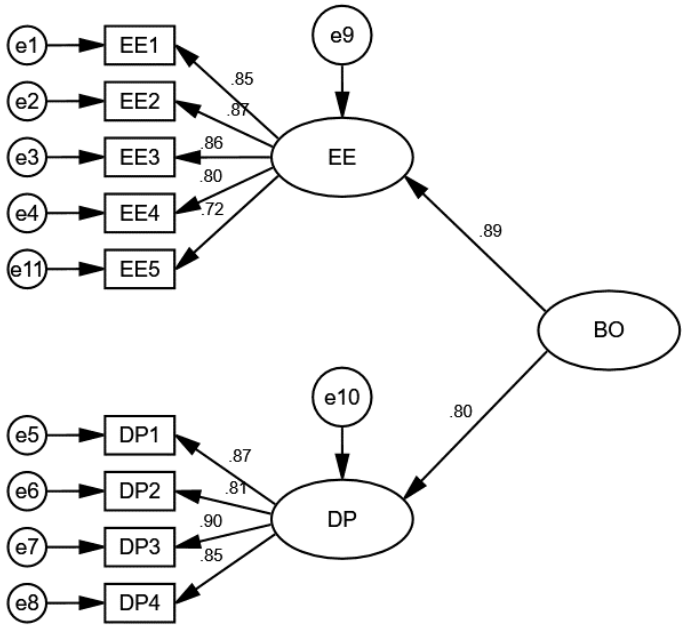


Table 4. 17 Results of CFA for Burnout

Variable	item	Unstandardized factor loading	S.E.	C.R.（t-value)	P	Standardized factor loading	CR	AVE
BO	EE	1				0.887	0.833	0.714
	DP	1				0.801		
EE	EE1	1				0.85	0.912	0.677
	EE2	1.123	0.043	25.998	***	0.869		
	EE3	1.042	0.041	25.506	***	0.859		
	EE4	1.001	0.044	22.977	***	0.805		
	EE5	0.93	0.048	19.518	***	0.722		
DP	DP1	1				0.872	0.918	0.736
	DP2	0.876	0.036	24.155	***	0.811		
	DP3	1.029	0.036	28.77	***	0.895		
	DP4	0.964	0.037	26.315	***	0.852		

Moderating Variables

The CFA test for moderating variables, social support, perfectionism, and proactive personality, demonstrate that CMIN/DF=1.601, which is less than 3; GFI, AGFI, NFI, TLI, IFI, and CFI all reach the acceptable level of 0.9; RMSEA = 0.033, which is less than 0.08. Since most of the fit indices are satisfactory, this model can be considered a good fit.

The standardized factor loading of each item is greater than 0.5, and significant ($p<0.05$), and the errors are all positive. The CR of SS, Perf, and Proac are 0.922, 0.950, and 0.922 respectively, which are all greater than 0.7. The AVE values of those variables are 0.747, 0.791, and 0.663 respectively, which are all greater than 0.5. As the model fit is acceptable and the convergent validity is also satisfactory, all the items are kept for further analysis.

Table 4. 18 Fit Indices for Moderating Factors

Name of index	Level of acceptance	Value
CMIN	-	139.270
DF	-	87
CMIN/DF	<3	1.601
GFI	>0.9	0.966
AGFI	>0.9	0.953
RMSEA	<0.08	0.033
NFI	>0.9	0.979
IFI	>0.9	0.992
TLI(NNFI)	>0.9	0.991
CFI	>0.9	0.992

Figure 4. 5 CFA Model for Moderating Factors

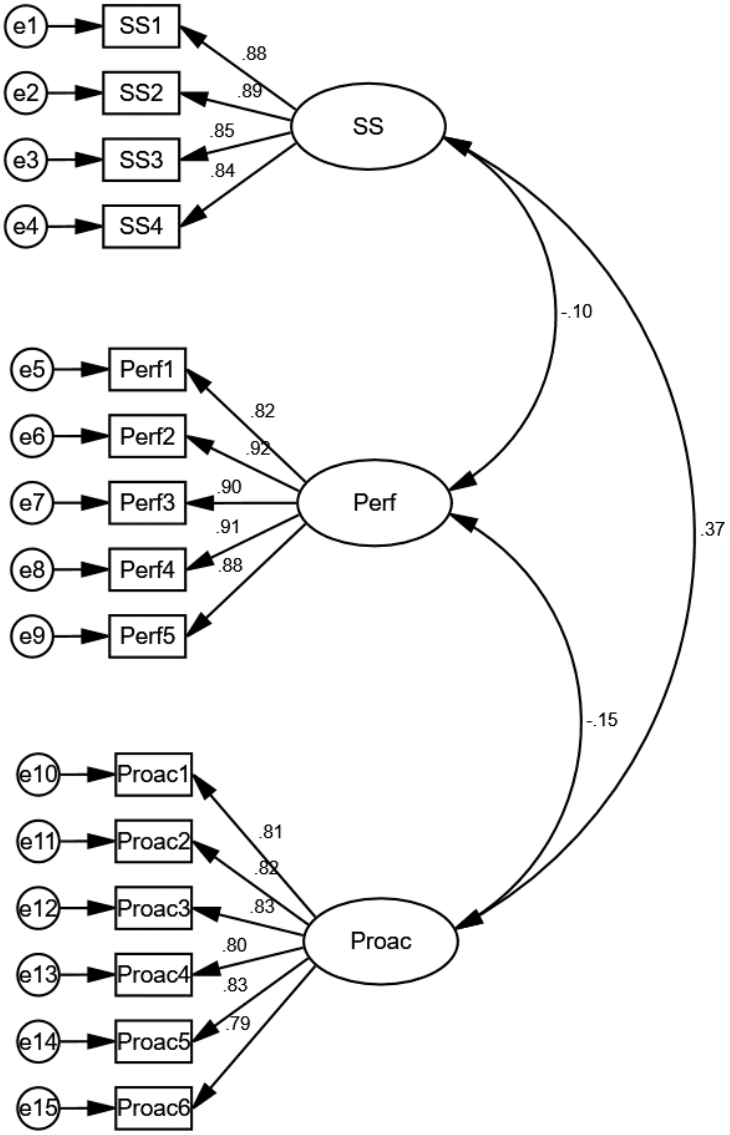


Table 4. 19 Results of CFA for Moderating Factors

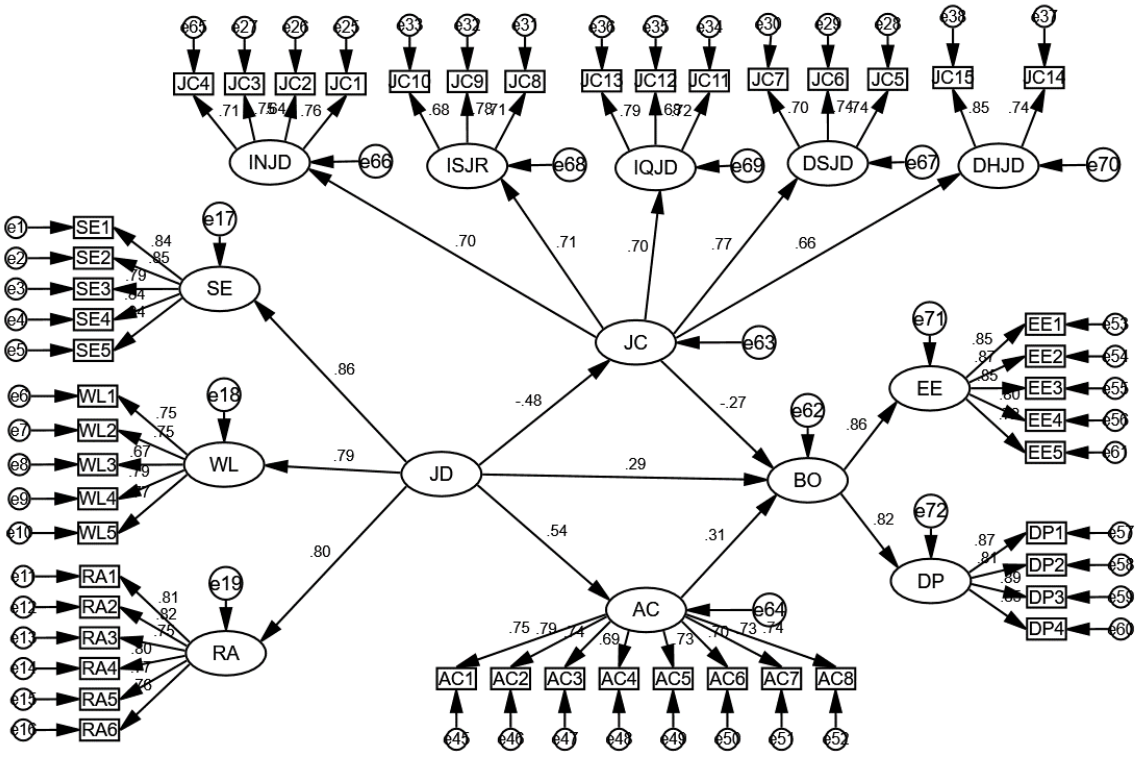
Variable	item	Unstandardized factor loading	S.E.	C.R.（t-value)	P	Standardized factor loading	CR	AVE
SS	SS1	1				0.88	0.922	0.747
	SS2	1.027	0.036	28.846	***	0.89		
	SS3	0.999	0.038	26.418	***	0.848		
	SS4	0.949	0.037	25.809	***	0.837		
Perf	Perf1	1				0.823	0.95	0.791
	Perf2	1.13	0.04	28.072	***	0.922		
	Perf3	1.056	0.039	27.049	***	0.902		
	Perf4	1.085	0.039	27.594	***	0.913		
	Perf5	1.087	0.042	26.037	***	0.882		
Proac	Proac1	1				0.811	0.922	0.663
	Proac2	1.006	0.046	21.905	***	0.815		
	Proac3	1.017	0.045	22.475	***	0.831		
	Proac4	1.011	0.047	21.467	***	0.804		
	Proac5	0.986	0.044	22.569	***	0.833		
	Proac6	0.933	0.044	21.033	***	0.792		

The above analysis showed that the measurement model is satisfactory, with reliable and valid measures of constructs. In the next step, the structural model was evaluated.

4.6 Structure Model (SEM)

The structure mode includes JD as the independent variable, JC and AC as the mediating variable, and BO as the dependent variable. When SEM is used to validate a theoretical model, a satisfactory model fit is a necessary condition for any further analysis (Byrne 2013b). The Maximum Likelihood (ML) estimation is used to estimate the model. The model fit refers to the degree of consistency between the expected covariance matrix in the research model and the covariance matrix in the observed data. The better the fit, the closer the model is to the data. To evaluate this, researchers should consider important statistical indices provided by SEM. In this study, several indices were selected to evaluate the model fit include Chi Square (X^2), Root Mean Square Error of Approximation (RMSEA), Goodness of Fit (GFI), Adjusted Goodness of Fit (AGFI), Normed Fit Index (NFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Incremental Fit Index (IFI). Each index should be comprehensively considered when one evaluates the fit between the model and the data. When most of the indices are satisfactory, the model can be considered having a good fit to the data.

Figure 4. 6 The Initial Structure Equation Model



4.6.1 Structural Equation Model

It can be seen from the table 4.20 that CMIN/DF is 1.279, which is less than 3. GFI, NFI, TLI, IFI, and CFI all reach the threshold of more than 0.9. RMSEA is 0.023, which is less than 0.08. However, AGFI is 0.895, which did not reach the threshold of 0.9. Therefore, the fit of this model does not reach the optimal standard, and the model can be modified to get a better fit.

Table 4. 20 The Initial Structure Equation Model-Fit Indices

Fit indices	Target values	Value
CMIN	-	1362.565
DF	-	1065
CMIN/DF	<3	1.279
GFI	>0.9	0.907
AGFI	>0.9	0.897
RMSEA	<0.08	0.023
NFI	>0.9	0.915
IFI	>0.9	0.980
TLI(NNFI)	>0.9	0.979
CFI	>0.9	0.980

Table 4. 21 The Initial Structure Equation Model

Path coefficients

Pathway			Standardized coefficients	Unstandardized coefficients	S.E.	T value	P
JC	<---	JD	-0.48	-0.312	0.04	-7.731	***
AC	<---	JD	0.539	0.451	0.044	10.164	***
BO	<---	JD	0.29	0.313	0.069	4.503	***
BO	<---	JC	-0.274	-0.455	0.096	-4.715	***
BO	<---	AC	0.312	0.402	0.07	5.728	***

Note：***=P<0.001

4.6.2 Model Modification

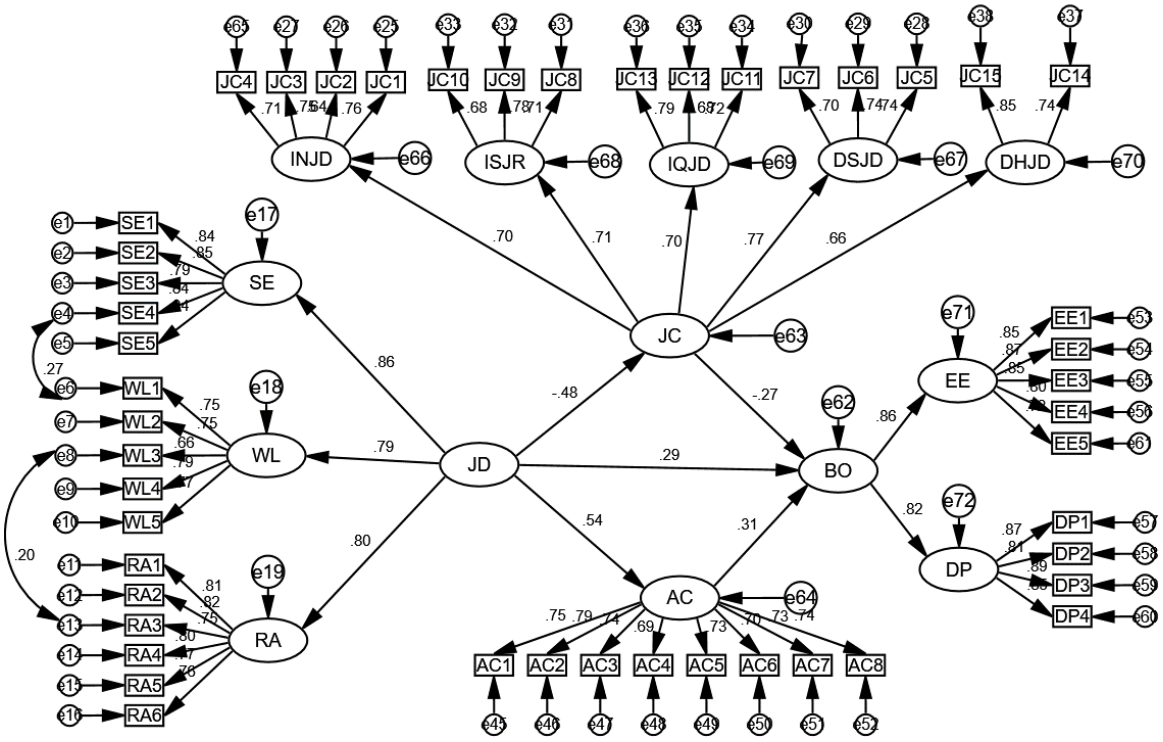
There are two commonly used methods for model modification: one is to change the paths among variables; the other is to make modifications based on the model modification indices (MI). This paper considers both methods to modify the initial model. It can be seen from table above that the P values of each path have reached the significant standard of less than 0.05, which shows that the hypothesis are all supported. Thus, the requirements of the first model modification method are not met. Therefore, the second method is used to modify the model based on MI. MI provides information for researchers to revise the model to achieve a better model fit, although such revisions need to be theoretically based. A large MI value means that the model needs to be reconstructed. If the MI value appears between variables, it means that the two variables have a collinear relationship; if the MI value appears between the residue terms of variables, it means that the two variables are not independent. In our analysis, MI indicates that the residue terms e4 and e6 might co-vary to some degree. Similarly, a nonzero covariance exists between e8 and e13. The following table shows the covariance of residuals, indicating that a correlation path between the two residuals can reduce the chi-square value of the model.

Table 4. 22 Modification Indices-Covariances of Residual Terms

			M.I.	**Par Change**
e4	<-->	e6	28.390	0.218
e8	<-->	e13	17.620	0.206

Based on MI, we establish a correlation between e4 and e6, as well as e8 and e13, and come to the modified structure equation model.

Figure 4. 7 Modified Structure Equation Model



It can be seen from table 4.23 below that CMIN/DF is 1.237, which is less than 3. GFI, AGFI, NFI, TLI, IFI, and CFI all reach the threshold of more than 0.9. RMSEA is 0.021, which is less than 0.08. Since most of the fit indices are satisfactory, this model can be considered a good fit.

Table 4. 23 The Modified Structure Equation Model-Fit Indices

Fit indices	Target values	Value
CMIN	-	1315.328
DF	-	1063
CMIN/DF	<3	1.237
GFI	>0.9	0.910

AGFI	>0.9	0.900
RMSEA	<0.08	0.021
IFI	>0.9	0.983
NFI	>0.9	0.918
TLI(NNFI)	>0.9	0.982
CFI	>0.9	0.983

The above analysis shows that the structure model is satisfactory, with most of the indices at an acceptable level. In the next step, the pathway analysis is conducted.

4.6.3 Pathway Analysis

Table 4. 24 The Modified Structure Equation Model

Path coefficients

Pathway			**Standardized coefficients**	**Unstandardized coefficients**	**S.E.**	**T value**	**P**	**Hypotheses**
BO	<---	JD	0.292	0.314	0.07	4.509	***	Supported
BO	<---	AC	0.311	0.4	0.07	5.69	***	Supported
BO	<---	JC	-0.273	-0.452	0.097	-4.684	***	Supported

Note：***=P<0.001

Table 4.24 above shows the standardized coefficient of JD to BO is 0.292 ($p<0.05$), indicating that JD is positively related to BO. Thus, hypothesis 1 is supported. The standardized coefficient of AC to BO is -0.311 ($p<0.05$), indicating that AC is positively related to BO. Thus, hypothesis 2 is supported. The standardized coefficient of JC to BO is -0.273 ($p<0.05$), indicating that JC is negatively related to BO. Thus, hypothesis 4 is supported.

4.6.4 Mediation Analysis

As recommended by Hayes and Preacher (2013), a bootstrap approach is used to test the mediating effect of JC between JD and BO, and also the mediating effect of AC between JD and BO. Compared with other approaches, bootstrapping does not make assumptions about the shape of the distributions of the variables or the sampling distribution of the statistic. Researchers have argued that bootstrapping is a way of circumventing the power problem introduced by asymmetries and other forms of non-normality in the sampling distribution (Bollen & Stine 1990; Shrout & Bolger 2002). It also produces a test that is not based on large-sample theory, meaning it can be applied to small samples with more confidence. In this study, the researcher set the bootstrap resample to 5000 and performed the mediation effect test. If the bootstrap confidence interval does not contain 0, the corresponding indirect effect exists.

1. The results in Table 4.25 also confirmed the significant indirect of JD on BO via AC (β=0.168, bias-corrected 95% confidence interval (CI) [0.098, 0.256], percentile 95% CI [0.096, 0.252]). In both of the methods, CI does not include zero. This finding implies that avoidant coping partially mediates the relationship between job demands and burnout, which supports Hypothesis 3.
2. The results in Table 4.25 confirmed the significant indirect of JD on BO via JC (β=0.132, bias-corrected 95% confidence interval (CI) [0.092, 0.188], percentile 95% CI [0.085, 0.18]). In both of the methods, CI does not include zero. This finding implies that job craft partially mediates the relationship between job demands and burnout, which supports Hypothesis 5.

Table 4. 25 Bootstrap Approach on Mediator (Job Crafting and Avoidant Coping)

Path	Indirect effect	Bias-Corrected		Percentile	
		95%CI		95%CI	
	Value	Lower	Upper	Lower	Upper
JD→AC→BO	0.168	0.098	0.256	0.096	0.252
JD→JC→BO	0.132	0.092	0.188	0.085	0.18

4.6.5 Moderation Analysis

Supervisor support

Using SPSS 27, the study conducted a moderated regression analysis to examine the moderating effect of SS on the relationships between JD and JC. In hierarchical regression analysis, JC is set as the dependent variable, JD as the independent variable, and supervisor support as the moderating variable. Gender, Age, Years of Teaching Experience, and Education are set as the control variables.

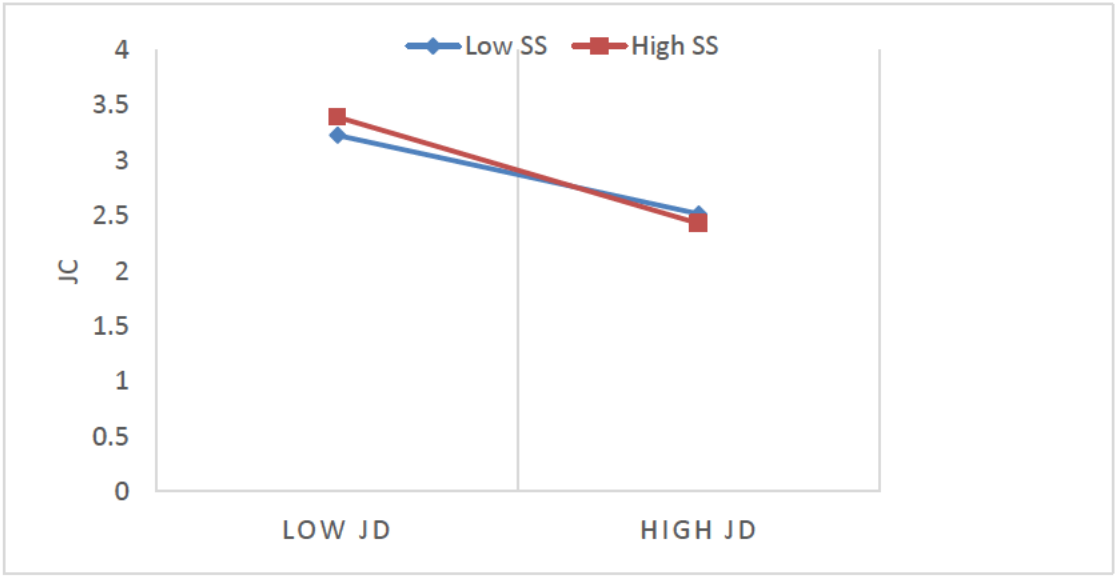
As Table 4.26 shows, the interaction term was negatively related to JC (β=-0.126, $P<0.05$, Model 4). The final regression equation can explain 20.3% of the variance of JC, and the R square and the F value are statistically significant. The finding shows that SS has a significant negative moderating effect between JD and JC, supporting Hypothesis 6.

Table 4. 26 Results of Regression Analysis for Moderator Model- Supervisor Support

Model	Model1		Model2		Model3		Model4	
	B	t	B	t	B	t	B	t
Control								
Gender	.035	.819	.058	1.504	.059	1.521	.059	1.537
Age	.094	1.309	.085	1.308	.084	1.297	.084	1.297
Years of Teaching	-.098	-1.355	-.025	-.378	-.026	-.390	-.024	-.371
Education	.032	.734	.030	.772	.028	.719	.020	.507
Independent								
JD			-.434	-11.142***	-.425	-10.5132***	-.356	-7.5032***
Moderator								
SS					.034	.848	.039	.983
Interaction								
JD*SS							-.126	-2.763**
R-squared	0.007		0.191		0.192		0.203	
F value	0.896		25.7072***		21.5322***		19.712***	

Note：***=P<0.001, **=P<0.01,*=P<0.05 Dependent variable：JC

Figure 4. 8 The Moderation Effect of Supervisor Support



Proactive personality

Similarly, a moderated regression analysis was conducted to examine the moderating effect of Proac on the relationships between JD and JC job demands. In the hierarchical

regression analysis, JC is set as the dependent variable, JD as the independent variable, and Proac as the moderating variable. Gender, Age, Years of Teaching Experience, and Education are set as the control variables.

As Table 4.27 shows, the final regression equation can explain 19.5% of the variance in job crafting, and the R square and the F value are statistically significant. However, the interaction term was not significant (β=0.044, P>0.05, Model 4). The finding shows that Proac does not have a significant moderating effect between JD and JC, which does not support Hypothesis 7.

Table 4. 27 Results of Regression Analysis for Moderator Model- Proactive Personality

Model	**Model1**		**Model2**		**Model3**		**Model4**	
	B	t	B	T	B	t	B	t
Control								
Gender	.035	.819	.058	1.504	.060	1.549	.059	1.529
Age	.094	1.309	.085	1.308	.085	1.305	.087	1.343
Years of Teaching	-.098	-1.355	-.025	-.378	-.027	-.410	-.027	-.418
Education	.032	.734	.030	.772	.028	.715	.027	.701
Independent								
JD			-.434	-11.142***	-.428	-10.886	-.423	-10.733***
Moderator								
Proac					.053	1.362	.045	1.149
Interaction								
JD*Proac							-.044	-1.127
R-squared	0.007		0.191		0.193		0.195	
F value	0.896		25.7072***		21.765***		18.847***	

Note：***=P<0.001, **=P<0.01, *=P<0.05 Dependent variable：JC

Perfectionism

A moderated regression analysis was also conducted to examine the moderating effect of Perf in the relationships between JD and AC. In the hierarchical regression analysis, AC is set as the dependent variable, JD as the independent variable, and Perf as the moderating variable. Gender, Age, Years of Teaching Experience, and Education are set as the control variables.

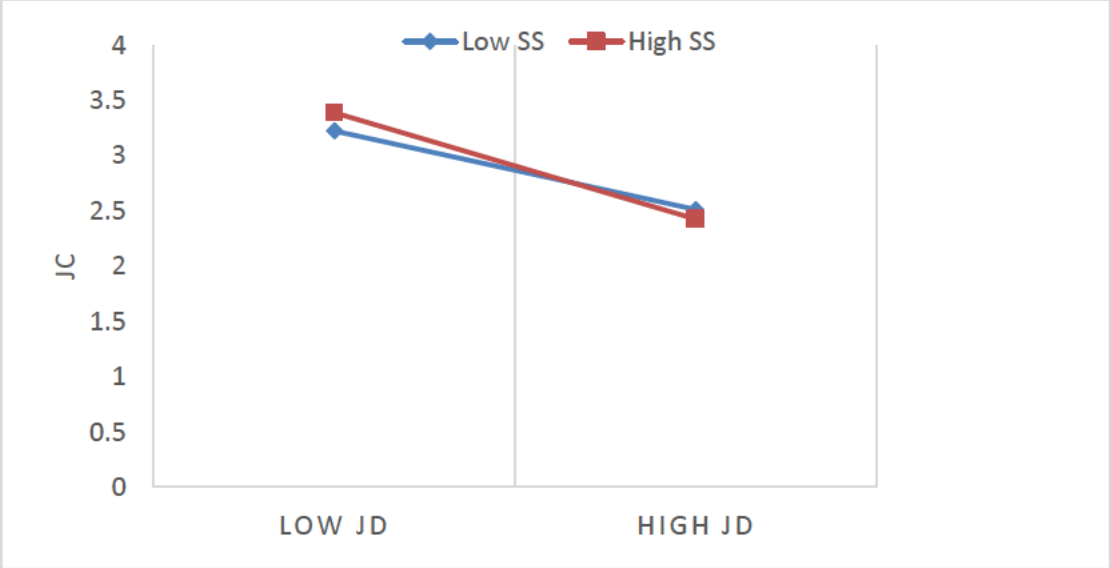
As Table 4.28 shows, the interaction term was positively related to AC (β=0.186, P<0.05, Model 4). The final regression equation can explain 36.8% of the variance of AC, and the R square and the F value are statistically significant. The finding shows that Perf has a significant positive moderating effect between JD and AC, supporting Hypothesis 8.

Table 4. 28 Results of Regression Analysis for Moderator Model-Perfectionism

Model	**Model1**		**Model2**		**Model3**		**Model4**	
	B	t	B	t	B	t	B	t
Control								
Gender	.094	2.229*	.066	1.837	.062	1.755	.058	1.679
Age	-.011	-.149	.001	.010	.009	.153	.004	.068
Years of Teaching	.167	2.342*	.078	1.281	.071	1.196	.081	1.403
Education	.039	.916	.041	1.133	.035	.991	.048	1.382
Independent								
JD			.529	14.649***	.510	14.318***	.509	14.658***
Moderator								
Perf					.172	4.891***	.212	6.033***
Interaction								
JD*Perf							.186	5.317***
R-squared	0.033		0.306		0.335		0.368	
F value	4.602***		48.037***		45.697***		45.167***	

Note：***=P<0.001, **=P<0.01, *=P<0.05 Dependent variable：AC

Figure 4. 9 The Moderation Effect of Perfectionism



4.7 Conclusion

This chapter described and then presented the results of the survey on the development of burnout among teachers working in three education institutions in China. Sample characteristics were described, and scale were assessed with EFA and CFA. EFA confirmed no exclusion of items as all the items reached sufficient factor loadings. Next, CFA was performed with all individual CFA models resulting in acceptable model fit. In the hypothesized research model, the three path relationships between job demands and burnout, avoidant coping and burnout, job crafting and burnout, are supported. The finding also provided support for the partially mediating role of avoidant coping and job crafting between the relationship of job demands and burnout. Finally, the moderating role of supervisor support and perfectionism is supported in the health impairment process of the JD-R model, while proactive personality was not found to be a moderator between job demands and job crafting.

Chapter 5 Discussion

5.1 Introduction

Chapter 5 presents a detailed discussion of the findings in relation to the existing literature in burnout research. It provides a discussion of each of the hypotheses, demonstrating how the empirical evidence from this study relates to relevant research in the field of teacher burnout.

5.2 Job Demands within a Specific Cultural Context

Research Question 1

How are job demands (student exam pressure, role ambiguity, workload) related to teacher burnout?

Hypothesis 1 'Job demands (student exam pressure, role ambiguity, workload) are positively related to burnout' is supported by the results (β=.292, $p<0.001$). It means that the higher the level of job demands from these three stressors that Chinese teachers perceive, the more burnout they will experience. This finding is consistent with the health impairment process proposed as described in the JD-R model (Bakker & Demerouti 2007). The JD-R model proposed that there are two different psychological processes in the development of job strain and motivation. Specifically, in the health impairment process, chronic overwhelming job demands deplete employees' mental and physical resources, and may therefore lead to health problems such as burnout (e.g. Demerouti et al. 2001). The positive relationship between job demands and burnout is also consistent with other empirical studies of burnout among teachers. In China, job demands are found to be positively related to teacher burnout among teachers in primary school (Jiao 2009; Liu 2004; Xu 2003), secondary school (Cai & Zhu 2013; Gan et al. 2006; Zhang & Zhu 2007), and university (Jia & Lin 2013; Zhong et al. 2009).

In other countries, this positive relationship between job demands and teacher burnout are also reported in studies, including teacher groups from Spain (Salanova et al. 2008), Norway (Skaalvik & Skaalvik 2017, 2020), Finland (Bakker et al. 2007; Hakanen, Bakker & Schaufeli 2006).

Although international research consistently shows that job demands is a positive predictor of teacher burnout, different kinds of job demands are measured in various cultural contexts. In a study on 274 Spanish teachers, the main job demands in the teaching occupation included quantitative overload, mental and emotional demands, and role stress (Salanova et al. 2008). However, in a study of 1145 Norwegian teachers, Skaalvik and Skaalvik (2017) measured the job demands imposed by time pressure, discipline problems, low student motivation, and value dissonance. In a study of 2038 Finish teachers, Hakanen, Bakker and Schaufeli (2006) used a latent job demand variable for teachers indicated by pupil misbehaviour, work overload, and physical work environment. In this current study, three indicators of job demands, student exam pressure, role ambiguity, and workload, were examined. These findings demonstrate that teachers in different cultural contexts may need to deal with distinct job demands according to their own education system and societal conditions, in addition to those that are common across the world. In a meta-analytical review of teacher burnout among 36 different countries, García-Arroyo, Osca Segovia and Peiró (2019) further explained that though high job demands is a general condition for teachers, they do not occur with same intensity in all nations. They argue that differences across countries with regard to job demands are related to high variability for a number of factors,

including teachers' salaries, the general status of teachers in society, and their working conditions, etc.

Theoretically, Bakker and Demerouti (2017) acknowledge that although flexibility of the JD-R model is one of the strengths that makes it popular among researchers, this could also be at the expense of specificity and the quality of its predictive power. In a review of teacher well-being using the JD-R model, Granziera, Collie and Martin (2021) also pointed out this limitation. According to the JD-R theory, all types of job characteristics that require psychological or physical effort can be defined as job demands. However, specific demands under unique cultural and social conditions should be considered when linking them to burnout.

Consisting with previous studies on teacher burnout in China, this study showed that Chinese teachers experience culturally specific job demands, including student exam pressure, role ambiguity, and workload. The specific cultural impacts will be elaborated in section 5.7.

5.3 The Mediating Role of Individual Behavioural Strategies in the JD-R Model

Research Question 2

How does avoidant coping contribute to the development of teacher burnout?

Hypothesis 2 'Avoidant coping is positively related to job burnout' - is supported by the results ($\beta=0.311$, $p<0.001$). It means that the more avoidant coping teachers engage in, the more likely they are going to experience burnout. This finding is consistent with empirical results from studies of other Chinese teacher groups.

A number of studies have reported the significant positive relationship between avoidant coping and burnout. For example, in a survey study of 766 primary and secondary school teachers, Xu, Zhu and Shao (2005) reported that avoidant coping is positively associated with the emotional exhaustion and depersonalization dimensions of burnout. Similarly, Meng (2008) found in a sample of 724 secondary school teachers that avoidant coping is positively related to all three dimensions of burnout (β=.10, .13, .20, for emotional exhaustion, depersonalization, and reduced personal accomplishment respectively). The finding is also consistent with research on emotion-focused coping (e.g., wishful thinking, denial, self-blame), which is very similar to avoidant coping. Previous studies have shown than burnout is positively associated with the use of emotion-focused coping (Antoniou, Ploumpi & Ntalla 2013; Shin et al. 2014). One possible explanation is that these coping strategies are not effective in directly solving the stressful demands, which in turn make employees feel helpless and futile (Demerouti 2015).

The current study also provides support to Hypothesis 3 'Avoidant coping partially mediates the relationship between job demands and burnout'. Avoidant coping is found to play a partially mediating role in the health impairment process. Specifically, higher levels of job demands are related to higher levels of avoidant coping which, in turn, was found to be related to higher levels of burnout. This is consistent with the propositions in recent extension of the JD-R model. In a review study on the individual strategies to prevent burnout, Demerouti (2015) suggested that avoidant coping, which refers to the refusal to face problematic or stressful situations, can be maladaptive and

is strongly positively related to burnout. Demerouti, Bakker and Xanthopoulou (2019) further argued that avoidant coping can be integrated in the JD-R model as a mediator in the health-impairment process, as some evidence suggests that coping is a reaction to high demands. This study provides empirical validation for those propositions. In the current study, when teachers face increasing job demands, they are likely to engage in an avoidant way of coping. Specifically, they may try to avoid the demanding task, continue procrastinating, or even ignore deadlines. In this way, the actual stressors remain unresolved and teachers are likely to feel exhausted and distant from their work, which overtime, leads to burnout.

Bakker and de Vries (2021) however, have argued that avoidant coping is not always maladaptive. For example, this strategy can be effective in the short term since it allows strained employees to recover and consequently brings energy to better deal with the stressor. Also, coping in an avoidant way is found to be adaptive in situations that are less controllable (Aluja et al., 2003). These inconsistencies may be explained by the specific demands included in the present study. First, job demands from student exam performance is a factor that is difficult for the teachers to control because this stressor is an ever-present feature of the competitive education system in China. Similarly, the ambiguity with regard to role responsibility that derives from a long history of the cultural influence of Confucian thinking, is expected for Chinese teachers, and this is also largely beyond the control of the teacher. This study found that teachers reacted to high levels of job demands by engaging in avoidant coping, and consequently experienced higher levels of burnout.

The mediating role of avoidant coping between job demands and burnout can be further explained by the transactional theory of stress and coping (Lazarus & Folkman 1984). This theory proposes that coping actions occur when an event is appraised as stressful (primary appraisal) and requires effort to manage or resolve the situation (secondary appraisal). Moreover, after the coping efforts, an individual reappraises the situation to determine whether any further coping strategy is required. In the current study, when teachers are confronted with increasing job demands, they are likely to appraise their job as a stressful situation (primary appraisal). The more demanding their job is, the more likely they will engage in avoidant coping in the hope to manage the situation (secondary appraisal). However, because avoiding job demands will not bring the stressor under control, the outcome of avoidant coping will likely be reappraised by teachers as unsuccessful and therefore require further coping efforts. This continuous failure results in a negative effect, such as burnout.

Research Question 3

How does job crafting contribute to the development of teacher burnout?

The study provides support for Hypothesis 4 'Job crafting is negatively related to job burnout' (β=-0.273, $p<0.001$). Specifically, the less job crafting behaviours teachers engaged in, the more likely they will experience burnout. This finding is consistent with studies among other occupational groups, such as IT management professionals (Singh & Singh 2018), and hotel employees (Cheng & Yi 2018). One possible explanation is that job crafting behaviour influences burnout through changed levels of job resources. In a longitudinal study, Tims, Bakker and Derks (2013) found that employees who

crafted their job resources showed an increase in actual job resources in two-month time, and the increased job resources are negatively associated with burnout. However, this finding is partly inconsistent with a recent development on job-crafting and employee health outcomes (Lichtenthaler & Fischbach 2016; Lichtenthaler & Fischbach 2019). In their attempt to further integrate job crafting into the JD-R model, Lichtenthaler and Fischbach (2019) differentiated two types of job crafting behaviours, promotion-and preventive-focused job crafting. While promotion-focused job crafting is positively related to burnout, preventive-focused job crafting is negatively related to burnout. Empirical evidence provide support for the different impacts of the two types of job crafting behaviours on job outcomes (Cheng, Lin & Kong 2023; Lichtenthaler & Fischbach 2018). In this study, we did not find a positive relationship between job crafting and burnout but only confirms the negative relationship between the two constructs. This is possibly because the measurement scale used in this study did not focus on measuring the two different types of job crafting, but rather on the five dimensions of job crafting initiatives.

While those findings support that job crafting is a negative predicator of burnout, a number of other studies in the literature examine reduced job crafting behaviour as a negative outcome of burnout. For example, in a two-wave study among 1877 Finish dentists, Hakanen, Peeters and Schaufeli (2018) reported that burnout positively predicts job crafting in the forms of decreasing hindering demands, and negatively predict job crafting in the forms of increasing structural resources. Similarly, in a meta-analysis study, Rudolph et al. (2017) showed that burnout negatively predicts job

crafting. One possible explanation is that the relationship between job crafting and burnout can be similar to the link between job crafting and work engagement, which has been seen in studies as both a positive outcome and predicator of job crafting (Bakker & Demerouti 2017; Tims, Bakker & Derks 2015). Demerouti (2015) argued that job crafting has been studied as a predicator of burnout in the sense that the behaviour can facilitate or hinder burnout. On the other hand, it has also been studied as an outcome of burnout in the sense that job crafting can be seen as an attempt to deal with it. In the current study, we found evidence to support job crafting as a negative predicator of burnout, that is, teachers who are less engaged with job crafting initiatives are more likely to experience burnout.

The current study also provides support for Hypothesis 5 'Job crafting partially mediates the relationship between job demands and burnout'. This means that apart from the direct effect job demands have on burnout, job demands also indirectly influence burnout through job crafting. Research on job crafting in the JD-R model usually focuses on the role it plays in the motivational process and frequently relate it to work engagement. For example, in a survey study of 95 employees, Bakker, Tims and Derks (2012) found that job crafting was positively associated with work engagement and colleague rating on in-role performance. Similarly, in a three-wave study of 288 employees of a chemical plant, job crafting in the form of seeking job resources predicted positive changes in the organization, and was indirectly associated with work engagement and job satisfaction (Tims, Bakker & Derks 2013). In a longitudinal study of 940 employees in a range of sectors from three European countries,

Vogt et al. (2016) reported that individuals who initiated job crafting in the forms of seeking resources and challenges experience increased psychological capital and work engagement. Moreover, meta-analysis has shown that overall job crafting behaviours positively predict job performances and work engagement (Rudolph et al. 2017).

This finding does however, also provide evidence that job crafting could play a role in the health impairment process of the JD-R model. Specifically, higher levels of job demands are related to lower levels of job crafting which, in turn, is related to higher levels of burnout. Bakker and de Vries (2021) argued that when job demands and job strain is increasing, individuals not only engage more in maladaptive self-regulation cognitive and behaviours such as inflexible coping, but also less in adaptive self-regulation strategies such as job crafting. The current study provides empirical support for this proposition. When teachers experience increasing job demands, they are less likely to engage in job crafting. For example, when job demands that derive from the need to enhance student exam performance, teachers may put a large amount of effort into helping students achieve high scores and feel an increased level of job strain as a result. In such a scenario, exhausted teachers are less able to proactively seek job resources or job challenges. Overtime, those teachers will have fewer resources available to deal with future job demands, which may eventually lead to burnout.

The mediating role of job crafting between the relationship of job demands and burnout can be further elaborated from the perspective of transactional theory (Lazarus & Folkman 1984). When teachers experience high levels of job demands, the resulting

job strain fosters an appraisal of their job as stressful (primary appraisal). The more demanding the situation is, the less likely they will engage in job crafting behaviours (secondary appraisal). Consequently, as teachers no longer proactively seek out job or personal resources to optimize their work, they are likely to be left with inadequate resources to cope with a demanding job situation. The outcome of less engagement with job crafting will likely be reappraised by teachers as unsuccessful and need further coping efforts. As in the case of avoidant coping, this ineffective strategy will lead to negative psychological effects, such as burnout.

5.4 Supervisor Support as a Moderator between Job Demands and Job Crafting

Research question 4

What role does job resource (supervisor support) play in the burnout mechanism?

This study provides support for Hypothesis 6 'Supervisor support moderates the negative relationship between job demands and job crafting'. Specifically, the negative effect from job demands on job crafting is weaker under high levels of supervision support. Previous research generally supports the idea that supervisor support, along with other job resources, is positively related to job crafting. The JD-R model proposed that important job resources play a role in facilitating job crafting behaviour and alleviate burnout. For example, Petrou et al. (2012) found that job autonomy (another job resource), is positively related to job crafting in the form of seeking resources. Similarly, skill variety and feedback are positively associated with job crafting (Kanten 2014), and Tims, Bakker and Derks (2013), reported that several job resources (skill variety, opportunities for development, and social support) are positively related to job

crafting. The close connection between job resources and job crafting is explained in the gain spirals of the JD-R model (Bakker & Demerouti 2017). It is pointed out that employees who find their job motivating are likely to proactively use job crafting behaviours, which lead to higher levels of job resources and even higher motivation.

The moderating role of supervisor support in the relationship between job demands and job crafting can also be explained in the framework of the transactional theory of stress and coping. Drawing on this theory, individuals appraise the stressful situation not only in terms of how demanding the situation is, but also with regard to how much resource they have to use to deal with the stressor. In the secondary appraisal, the individual who is labouring under a stressful transaction will go through a cognitive process in which they identify and evaluate the available coping resources (Dewe, Philip & Cooper, Gary L 2007; Folkman 1984). Consequently, supervisor support, as an important form of job resource, can play a buffering role between job demands and job crafting. If employees feel that they have supportive supervisors who provide sufficient help and feedback, they are more likely to feel encouraged to make the necessary changes to their job (Sheehan et al. 2021). If on the other hand, they evaluate the support that they get from supervisors to be inadequate, they are less motivated to engage in job crafting initiatives.

In the current case, where teachers faced job demands in relation to student exam performance, role ambiguity, and workloads, they perceived them as stressful situations at work. As a consequence, they were less willing to craft their job. However, when levels of supervisor support were higher, they saw the situation as more manageable

since more resource was available to cope with the stressor, than when levels of supervisor support were lower. In this way, they felt more encouraged to craft their jobs, and as a result experienced less burnout. For example, teachers who are consumed by making significant effort to tutor students on their exams, have less time and energy to make any changes to the job. However, when their supervisors were willing to listen to their challenges and provide a high level of guidance and feedback, they felt more supported and could initiate positive changes that benefitted their work environment. Such job crafting behaviour could include improving interpersonal relationships with colleagues and students, refining their skills in teaching exam contents, and finding meaning in helping students achieve academic success. Overtime, they are able to create more resources to deal with further job demands, and potentially lower their burnout level.

5.5 Proactive Personality as a Moderator between Job Demands and Job Crafting

Research question 5

What role does personal resource (proactive personality) play in the burnout mechanism?

Hypothesis 7 ‘Proactive personality moderates the negative relationship between job demands and job crafting’ is not supported by the results. This study showed that the buffering effect of proactive personality on the negative relationship between job demands and job crafting is not significant. This is inconsistent with previous findings on the relationship between proactive personality and job crafting. For example, Bakker, Tims and Derks (2012) found that proactive personality was a positive predictor of job crafting. They argue that employees with a proactive personality are most likely to

create favourable conditions for themselves on their job. Specifically, they reshape their work environment so that the job demands and resources fit better with their own needs and ability. Rudolph et al. (2017) meta-analysis, found that proactive personality is strongly associated with overall job crafting.

The insignificant result of the current study does not mean that proactive personality is not important to job crafting behaviour. Li, Jin and Chen (2020) conducted a longitudinal study of the relationships between proactive personality, job crafting and creative performance among employees in high-technology firms in China, and proactive personality was found to be an important causal factor in job crafting. Notably, in their study, proactive personality in Time 1 predicted (Plomp et al. 2016) job crafting in Time 2. Hence, a longitudinal study should be conducted to investigate the causal effect of proactive personality and job crafting over time among Chinese teachers. In addition, it is also possible that culture plays a role in this study's inconsistent finding. The majority of the research on proactive personality and job crafting are from a Western cultural context, such as the USA (Philip 2021; Philip & Kosmidou 2022), and the Netherlands and Germany (Plomp et al. 2016), while few empirical studies investigate this relationship in Eastern cultures. It is argued that personal resources are likely to be influenced by the cultural context (Cheng, Fan & Lau 2022). Hence, the inconsistent finding implies that more cross-cultural studies should be conducted to clarify this.

More importantly, previous research shows that the moderating role of proactive personality is often found in the motivational process of the JD-R model. Specifically, proactive personality is often studied as a mediator in the relationship between job/personal resources and job crafting. For example, in a sample of 653 Vietnam employees, Tho (2022) reported that employees' proactive personality moderates the relationship between their psychological capital and job crafting, which leads to increased innovation outputs. Similarly, in a survey study of 705 employees, Ahsan, ul Haq and Ahmad (2019) found that proactive personality moderates the relationship between job autonomy and job crafting, which is positively associated with work engagement. The insignificant moderating role of proactive personality in this study is possibly the result of the current research focus on the health impairment process of the JD-R model. Job crafting and proactive personality are more often studied in the motivational process, while these constructs are less examined in a negative psychological context. It is likely that they play a different role in the relationship between job demands and burnout from the relationship between job/personal resources and engagement. Further, according to Bakker, Demerouti and Verbeke (2004), the inconsistent finding may be attributed to the specific demands, resources and the type of job positions/roles that were examined in different studies. It is plausible that the insignificant result is due to specific demands among the Chinese teacher group that are tested in this model. In future research, the moderating role of proactive personality in the context of different demands or occupation groups could be investigated (Hu, Schaufeli & Taris 2011).

5.6 Perfectionism as a Moderator between Job Demands and Avoidant Coping

Research question 6

What role does personal demand (perfectionism) play in the burnout mechanism?

This study provides support for Hypothesis 8 'Perfectionism moderates the positive relationship between job demands and avoidant coping'. Specifically, the positive association between job demands and avoidant coping will be stronger where the tendency towards perfectionism is high. Perfectionism is often investigated as a personal demand that contributes to the development of burnout. The finding of the current study is consistent with previous research on the relationship of personal demands and avoidant coping. For example, in a survey study among 118 secondary school teachers, Stoeber and Rennert (2008) reported that perfectionism in the form of negative reactions to imperfection is positively related to avoidant coping. Dunkley et al. (2000) found that perfectionism in the form of evaluative concerns is a positive predicator of avoidant coping among 443 university students; similarly, Weiner and Carton (2012) confirmed the positive association in another sample of 172 university students. When employees with perfectionist tendencies face stressful situations, they respond in a helpless way that undermines efforts at problem-focused coping. They tend to quickly blame their ability and personal qualities and feel unable to handle the situation. They lack the motivation to engage in proactive coping, instead they choose to avoid the threatening stimuli (Dunkley, Zuroff & Blankstein 2003).

This finding is also consistent with the few research studies that have considered the moderating role of personal level hindering factors. For example, a previous study

found that salesman with an external locus of control, which can be seen as a personal demand, are faced with more stress when under excessive job demands, compared to those with an internal locus of control (Roberts, Lapidus & Chonko 1997). Similarly, employees with an external locus of control reported more somatic health problems when they are confronted with role conflict, as compared to those with internal locus of control (Fusilier, Ganster & Mayes 1987). A more recent study tested the moderating role of personal demands in the health impairment process of the JD-R model. The study examined personal demands (irrational performance demands, awfulizing, and irrational need for control) as a moderator on the relationship between demands and burnout but failed to find a significant interaction effect (Zeijen et al. 2021). However, they argued it is possible that other personal demands would potentially alter the relation between demands and work-related negative well-being. The current study provides evidence for the moderating role of perfectionism in the health impairment process in which high job demands lead to increased avoidant coping behaviour, which is associated with higher levels of burnout.

This finding may be explained by the process of secondary appraisal in the transactional theory. In this process, individuals assess to what extent they are capable of dealing with the demanding situation based on the coping resource available (Dewe, Philip & Cooper, Gary L 2007). Job resources (e.g., supervisor support) and personal resources (e.g., proactive personality) can be viewed as useful coping resources that enable the stressful situation to be evaluated as manageable. On the other hand, personal demands (e.g., perfectionism) can be seen as excessive demands which make individuals believe

that a particular job demand is very difficult to manage because they set a very high standard for themselves (Zeijen et al. 2021). If employees feel that they need to do every job task perfectly without any mistakes, they are more likely to use avoidance coping strategy. Conversely, if they are less concerned with doing their job perfectly and less afraid of making mistakes, they will be less likely to avoid their job demands.

The current study supports the idea that teachers experiencing job demands from the three stressors are more likely to adopt avoidant coping strategies. However, when the levels of perfectionism are higher, they will perceive the situation as even more stressful as a result of their irrationally high need to perform perfectly in their job, than when levels of perfectionism are low. Consequently, they are more likely to avoid dealing with their job as the situation seems overwhelming, and in turn experience more burnout. For example, teachers who are exhausted by the ambiguity of their role, which requires them to not only be responsible for students' study but also be their moral model, will likely avoid fulfilling all the expectations of their role. When they have a high level of perfectionist tendency, they will find it even more difficult to meet this job demand. This is because they believe that they need to meet the unrealistic standards they have set for themselves to always be a perfect role model to the students as a study guide and a moral figure. They are more likely to perceive their job demands as unmanageable, thus potentially increasing their burnout level.

5.7 The Impact of Chinese Culture on Teacher Burnout in China

The novelty of this study is that it examines and extends the JD-R model under the Chinese culture context. Specifically, this study finds that culture has an impact on job

demand, job resource, and personal demand, which all contribute to teacher burnout in China.

One of the unique aspects examined in this study is the culturally specific job demands under the Chinese context. This study found that teachers in China experience culturally specific job demands. First, compared with their Western peers, Chinese teachers are especially impacted by the stress caused by student exam performance. The fierce competition in the Chinese education system and high expectations of parents of their children's academic performance becomes a major source of demand on teachers. This is consistent with past studies, which indicates that stress from a Student exam performance is positively related to teacher burnout (Jiao 2009; Xu 2003). Second, though role ambiguity has been studied as an indicator of job demand in other countries, it may be experienced in a different way for Chinese teachers. In China, teachers are deeply influenced by Confucianism which lays high expectations on a teacher's role. The teaching profession is highly respected in Chinese society. Traditionally, teachers are not only responsible for delivering knowledge to their students but also need to be role models and sometimes even take a parent role (Cortazzi & Jin 1997; Lau, Yuen & Chan 2005a). This may further complicate a teacher's perceived responsibility to the students and contribute to developing burnout. Similarly, though large workloads are commonly reported across cultures, they may link closely to the previous two job demands. For Chinese teachers, overwhelming workload may result from teachers working long hours and putting in great effort to help students improve their exam skills and academic performance. Moreover, their role ambiguity due to the high expectation

of responsibility may make teachers more devoted to their role in terms of time and energy, which can potentially lead to burnout.

Regarding to job resource, the importance of supervisor support for teachers in engaging in job crafting behaviours may have another dimension in the Chinese context. Compared with their Western counterparts, support from supervisors may have a different impact for teachers in China due to China's unique cultural context. According to Hofstede's cross-cultural study (Hofstede, Hofstede & Minkov 2005), China is a country with relatively high power distance, which stresses hierarchy and group cohesion (Matsumoto 1989; Zhang, Zhang & Hua 2019). In addition, interpersonal harmony is highly valued in Chinese collectivist culture (Chen et al. 2021; Fang, Ge & Fan 2019). With these cultural characteristics, teachers are more likely to put a high value on their supervisor's approval and feedback, and support from supervisors is therefore more important for Chinese teachers in taking on job crafting initiatives. Previous empirical evidence has also confirmed that supervisor support has more impact on burnout of Chinese teachers than colleagues support or family support (Leung & Lee 2006; Song 2008; Wang & Xu 2004).

On a personal level, this study shows that the significant moderating effect of personal demand (perfectionism) is also likely to be influence by the Chinese cultural context (Chen, Yang & Jiao 2022; Qin et al. 2022). In the current case, the role of teacher is closely connected to Confucian philosophy, which portrays teacher as a highly respected authority figure. Teachers are regarded as an authoritative source of

knowledge and students are expected to respect and obey their teachers. It is possible that teachers are impacted by those traditional values and believe that they need to present themselves as perfect to meet such perceived high expectations. In this context, teachers who are perfectionists by nature are more reluctant to make mistakes or show any incompetence at their job task. Therefore, they more commonly engage in avoidant behaviours in face of high level of job demands, which further leads to burnout symptoms.

In summary, most of the hypotheses in the research model were supported, and the Chinese culture has a profound impact on those findings. The next chapter will elaborate on the theoretical contributions, practical implications, and limitations of this study.

Chapter 6 Conclusion

6.1 Theoretical Contribution

This study contributes to the literature of burnout research in four ways.

6.1.1 The Role of Individual Behavioural Strategies in the JD-R Model

First, the research addresses the call of Bakker and Demerouti (2017) and Demerouti, Bakker and Xanthopoulou (2019) to extend the JD-R model by integrating individual behaviour strategies. The research theoretically develops and empirically confirms a mediation model to show how job demands influence burnout in a sample of Chinese teachers. Specifically, the findings from the present study show that teachers under high levels of job demands will be less engaged in job crafting behaviours and more involved in avoidant coping behaviours, which in turn leads to an increased level of burnout. The findings are in line with the propositions in the work of Demerouti, Bakker and Xanthopoulou (2019), which indicates that coping can be integrated into the JD-R model as a mediator in the health-impairment process. Moreover, the research also provides empirical support for the proposition in a recent theoretical extension of JD-R model (Bakker & de Vries 2021), which proposed that individuals experiencing high levels of strain are less likely to use adaptive self-regulation strategies (e.g., job crafting), and more likely to use maladaptive self-regulation strategies (e.g., inflexible coping).

Notably, this study addresses the under researched area of the role of job crafting in the health impairment process of the JD-R model. The construct is often investigated in the motivational process which focuses on the relationship between job/personal resources and work engagement. However, the findings of this research show that job crafting

also plays a mediating role in the relationship between job demands and burnout. It demonstrated that when employees are confronted with a high level of job demands, even those who are otherwise motivated and who had previously initiated job crafting behaviours, reduce their level of effort and eventually experience burnout.

6.1.2 The Complex Mechanism of Teacher Burnout Development

Second, drawing on both JD-R theory and the transactional theory of stress and coping, the research investigated and explains the complex underlying mechanism in the nexus between job demands and burnout. The research extends the JD-R model by incorporating job resource (supervisor support), personal resource (proactive personality), personal demand (perfectionism), and individual behaviour strategies (job crafting; avoidant coping) into the health impairment process proposed by JD-R theory. Based on the transactional theory, the present study also explains the corresponding roles of those variables through primary and secondary appraisal processes.

Specifically, in their primary appraisal, when teachers were confronted with job demands from student exam pressure, role ambiguity and workload, they started to ascribe meaning to this individual/environmental transaction in the workplace and determine the significance of the transaction in relation to their well-being. Once they perceived the transaction as stressful, they undertook a further cognitive appraisal, the secondary appraisal, in which they identified and assessed their job resources, such as supervisor support, personal resources such as proactive personality, and personal demands such as perfectionism. Based on this evaluation, teachers determined whether the job demands were manageable and what might be done to manage them. In the

context of the present study, teachers chose to employ two actions, less job crafting and more avoidant coping. Since reducing job crafting leads to further depletion of job and personal resource, and increasing avoidant coping leaves the actual stressor unsolved, teachers are likely to experience a higher level of burnout.

6.1.3 The Mediating Effect of Avoidant Coping and Job Crafting

This research conducted an in-depth investigation on the mediating role of avoidant coping and job crafting in burnout development, which further integrates the JD-R model with the transactional theory of stress and coping. In particular, two different pathways have been found with the two distinct behavior strategies. High job demands not only result in more maladaptive behaviors such as avoidant coping, but also less adaptive strategies such as job crafting. In the current study, teachers who experience high job demands are found to be more avoidant to their job responsibility, while also becoming less engaged in job crafting activities. This finding adds knowledge to our understanding of the health impairment process of the JD-R model.

Meanwhile, the mediating role of both strategies can be explained by transactional theory in the lens of cognitive appraisal. Drawing on individual stress responses, the transactional theory provides a complementary explanation to the JD-R model, which originally focused on job-level demands and resources. While recent development of JD-R theory attempts to include personal level factors into the model, there is a need to find theoretical support for the integration and make sense of the interplay between job and personal level factors. This study makes a strong theoretical contribution by further

integrating the JD-R model and the transactional theory to better understand burnout development.

6.1.4 The Role of Personal Demands in the Extension of the JD-R Model

Finally, the research addresses the call of Bakker and Demerouti (2017) and Zeijen et al. (2021) to investigate the role of personal demands in the extension of the JD-R model. In recent years, research on the JD-R model has already expanded to include personal resources. Empirical studies show that personal resources such as self-efficacy and optimism can play a similar role as job resource. Research has however, paid little attention on the role of personal demands in the JD-R model. The few studies that have explored the role of personal demands, point out that perfectionism, workaholism, and having an external locus of control are potentially related to the perception of job demands and burnout. In response to these studies, the findings from the present research show that perfectionism plays a moderating role in the health impairment process. Individuals are more likely to enact avoidant coping when they hold the belief that their job performance needs to be perfect.

It is also noted that the Chinese culture may contribute to the significant influence of perfectionism in the current case. Confucian philosophy portrays the teacher as a highly respected authority figure. Teachers are regarded as an authoritative source of knowledge and students are expected to respect and obey their teachers. It is possible that teachers are impacted by those traditional values and believe that they need to present themselves as perfect to meet such perceived high expectations. In this context, teachers who are perfectionist by nature are more reluctant to make mistakes or show

any incompetence at their job task. Therefore, they more commonly engage in avoidant behaviours in face of high level of job demands.

6.2 Practical Implications

The findings of this study have several implications regarding interventions for the prevention of burnout.

First, policy makers and HR managers in the education sector should be aware of the specific job demands on Chinese teachers. This thesis provides evidence that job demands (i.e., student exam pressure, role ambiguity, workload) are positive predicators of teacher burnout in China. In order to reduce the risk of burnout, those demands should be reduced or optimised. For example, schools could redesign their job appraisal systems and avoid overemphasizing student academic performance as the only indicator of teacher's job performance. Also, education institutions could provide clear job descriptions regarding the teacher's role and responsibility, and manage the expectations of relevant parties, such as students, parents, supervisors, and teachers themselves. These measures could help alleviate the strain and burnout of teachers.

Second, the present study noted the important role of employee behaviours in the development of burnout. Specifically, teachers will engage in different kinds of behaviours relative to the job demands they experience. A decrease of job crafting initiatives and an increase of avoidant coping strategies are positively related to burnout. Therefore, schools should support teachers to engage more in crafting their job and engage less in avoidance of job tasks. For example, schools could provide training for

the teachers on how to proactively adjust their job through various forms of job crafting. Training programs could include skills to craft teachers' job content, interpersonal relationships, or on the meaning of their work. In this way, teachers could learn to reshape their daily work using a bottom-up approach in order to optimise job demands and enhance job resources. In terms of coping strategies, courses could be developed to raise teachers' awareness of the harm of using avoidant coping excessively. Meanwhile, a variety of coping strategies should be introduced to equip teachers with alternative options and allow them to cope flexibly and effectively in the future. When desirable behaviours are encouraged and maladaptive behaviours are controlled, the risk of burnout will be reduced.

Importantly, the study shows that the relationship between job demands and job crafting is moderated by supervisor support. This finding has practical implications for the training of the teacher supervisor. Supervisors should be trained to raise awareness and develop their own support skills to ensure they possess the knowledge and ability to encourage and manage teachers' job crafting behaviours. For example, supervisors need to be clear about how to sensitively support teachers in creating positive interpersonal relationships with their students and colleagues. Educational institutions should invest in resources to help supervisors in facilitating the development of teacher's job crafting. Schools can encourage supervisors to offer adequate feedback to teachers and build a strong social network among colleagues. Teachers who have access to those social supports are more likely to evaluate their job demands as manageable, to cope with any work issues more actively and experience less burnout.

Finally, the present study reveals that perfectionism, as a form of personal demands, facilitates the loss spirals of job demands and burnout. Specifically, perfectionism plays an important role in strengthening the undesirable impact of job demands on avoidant coping, one of the maladaptive self-regulation strategies. It suggests HR managers may consider recruiting, developing, and managing employees who generally have a lower tendency towards perfectionism. For example, schools could establish appropriate human resource policies and practices to reduce teacher's self-demand to be perfect at their job. Employee counselling services can be provided to raise the awareness about the potential harmful effects of personal demands in order to prevent burnout, and to challenge the dysfunctional beliefs and underlying assumptions of perfectionism. It is possible for teachers who have perfectionist tendencies to alter their thinking and approach, their personal demands could be reduced, which in turn could reduce the use of avoidant coping behaviour.

6.3 Limitations

While every effort is made to carry out quality research, there are several limitations that may have affected the findings.

First, this study employs a cross-sectional research design, and as a result it is not possible to infer causal relationships through such a design (Rudow 1999; Schaufeli & Enzmann 1998). The statistical analysis used only provides an explanatory power of the variables in the research model. The model in this study was unidirectional, that is, from job and personal characteristics to individual behaviour strategies and burnout. Some longitudinal studies in the occupational well-being field found that burnout can

influence individuals' behaviour, and in turn affect their perception of job demands and job resources. It is recommended that a longitudinal research design should be used to validate the hypothesised causality of relationships in the proposed research model.

Second, the variables tested in the model were exclusively measured with self-report questionnaires. Although the perceptions of Chinese teachers of their work environment, personal behaviour, and well-being as expressed though questionnaires are valuable sources of information, it does not necessarily reflect objective reality. Thus, the self-report bias could occur since personal and cultural factors may impact the response of Chinese participants (Xie, Chen & Roy 2006). For example, cultural value (i.e., individualism and collectivism) and personality (i.e., self-perceived superiority) impact self-rating among Chinese respondents. Future study could consider using both self-report questionnaire and objective ratings of job characteristics and burnout.

Third, this study only focuses on the health impairment process of the JD-R model, while it does not examine the potential curvilinear relationship between job demands and burnout (Montani et al. 2020; van Ruysseveldt & van Dijke 2011) . Recent development of the JD-R model shows that job demands can be further distinguished into hindrance and challenge demands (Podsakoff, LePine & LePine 2007; Tadić, Bakker & Oerlemans 2015). In particular, the relationship between challenge demands and job burnout is found to be curvilinear in several recent studies (Sheng et al. 2019; Stiglbauer & Kovacs 2018). It is therefore recommended that future study should

explore the curvilinear effect of challenge demands and further investigate how different levels of job demands can have different impacts on burnout.

In addition, although a comprehensive integrative literature review is conducted to identify the research gap in the area of teacher burnout in China, it only integrates and critiques the current literature. However, meta-analysis can go beyond by conducting secondary statistical analyses on the literature and generate further insights in the field. Using quantitative methods, meta-analysis is able to combine information from all relevant studies and provide more objective evaluations of the research findings. Therefore, future studies are encouraged to include more advanced analyses such as meta-analysis in their literature review.

6.4 Future Directions

This research shed light on several potential directions for future studies.

First, future research could further theorize the research model and provide an overall theoretical framework to explain the mediators and moderators. Specifically, the JD-R theory could be further integrated with the transactional theory to explain the complicated mechanism of burnout development. While this research theoretically develops and empirically confirms a mediation model to show how job demands influence burnout through different individual behavioral strategies, the role of moderators in the model worth further exploration under the transactional framework. For example, job resource and personal resource could also have a moderating effect between the relationship of job crafting and burnout, as the transactional theory

proposes that cognitive appraisal is an ongoing process, which not only happen before individual behavioral strategies but also after those attempts. More empirical research along this line is needed, especially enhancing the theories and hypothesis for the moderators.

Second, from a methodological perspective, future research should consider more rigorous research designs. This study relies on single-source data, which is often associated with the presence of common method variance (CMV). This issue may have the effect of spuriously inflating associations between variables (Podsakoff, MacKenzie & Podsakoff 2012). To avoid CMV issue, researchers could consider collecting new dataset, or at least time-lagged data. Also, objective measures should be included as dependent variables rather than using solely self-report data. For example, future studies could use dependent variables such as employee performance evaluated by the supervisor, or employees' behaviors as consequences of burnout, etc.

In addition, when analyzing data collected from various sources, it is recommended to consider differences among those sources. For example, if participants were recruited from different institutions or sectors, researchers should take the potential differences in each group into consideration when conducting regressions analysis.

Third, the participants are only from the education sector and the majority of them were female. How transferrable these findings are for other occupational groups in China is not clear, in particular, male dominated occupations/sectors. Future research should be extended to workers from other employment sectors in China in order to validate the

findings of this study in the Chinese cultural context. In addition, future research could conduct diary studies as job demands, resources, and burnout have been found to fluctuate from day to day (Butler et al. 2005; Ilies, Aw & Pluut 2015).

References

Ahsan, U, ul Haq, MA & Ahmad, MA 2019, 'Job Autonomy and Work Engagement: The mediating role of job crafting and the moderating role of proactive personality', *Global Management Journal for Academic & Corporate Studies*, vol. 9, no. 2, pp. 91-111.

Alarcon, GM 2011, 'A meta-analysis of burnout with job demands, resources, and attitudes', *Journal of Vocational Behavior*, vol. 79, no. 2, pp. 549-62, DOI 10.1016/j.jvb.2011.03.007.

Alexandrov, A 2010, 'Characteristics of Single-Item Measures in Likert Scale Format', *Electronic Journal of Business Research Methods*, vol. 8, no. 1, p. 1-12.

Anderson, JC & Gerbing, DW 1988, 'Structural equation modeling in practice: A review and recommended two-step approach', *Psychological Bulletin*, vol. 103, no. 3, pp. 411-23, DOI 10.1037/0033-2909.103.3.411.

Ângelo, RP & Chambel, MJ 2014, 'The role of proactive coping in the Job Demands–Resources Model: A cross-section study with firefighters', *European Journal of Work Organizational Psychology*, vol. 23, no. 2, pp. 203-16.

Antoniou, AS, Ploumpi, A & Ntalla, M 2013, 'Occupational stress and professional burnout in teachers of primary and secondary education: The role of coping strategies', *Psychology*, vol. 4, no. 03, pp. 349-55, DOI 10.4236/psych.2013.43A051

Aron, A & Aron, EN 2003, *Statistics for psychology (3rd ed.)*, New Jersey: Prentice, Englewood Cliffs.

Babbie, ER 2020, *The practice of social research*, Cengage learning.

Bagozzi, RP & Yi, Y 2012, 'Specification, evaluation, and interpretation of structural equation models', *Journal of the Academy of Marketing Science*, vol. 40, no. 1, pp. 8-34.

Bakker, AB & de Vries, JD 2021, 'Job Demands–Resources theory and self-regulation: new explanations and remedies for job burnout', *Anxiety, Stress, & Coping*, vol. 34, no. 1, pp. 1-21.

Bakker, AB & Demerouti, E 2007, 'The Job Demands ‐ Resources model: state of the art', *Journal of Managerial Psychology*, vol. 22, no. 3, pp. 309-28, DOI 10.1108/02683940710733115.

Bakker, AB & Demerouti, E 2017, 'Job demands–resources theory: Taking stock and looking forward', *Journal of Occupational Health Psychology*, vol. 22, no. 3, pp. 273-85, DOI 10.1037/ocp0000056.

Bakker, AB, Demerouti, E & Euwema, MC 2005, 'Job resources buffer the impact of job demands on burnout', *Journal of Occupational Health Psychology*, vol. 10, no. 2, pp. 170-80, DOI 10.1037/1076-8998.10.2.170.

Bakker, AB, Demerouti, E & Sanz-Vergel, AI 2014, 'Burnout and work engagement: The JD–R approach', *Annual Review of Organizational Psychology and Organizational Behavior* vol. 1, pp. 389-411.

Bakker, AB, Demerouti, E & Verbeke, W 2004, 'Using the job demands‐resources model to predict burnout and performance', *Human Resource Management: Published in Cooperation with the School of Business Administration, The University of Michigan, in alliance with the Society of Human Resources Management*, vol. 43, no. 1, pp. 83-104.

Bakker, AB, Hakanen, JJ, Demerouti, E & Xanthopoulou, D 2007, 'Job resources boost work engagement, particularly when job demands are high', *Journal of Educational Psychology*, vol. 99, no. 2, pp. 274-84, DOI 10.1037/0022-0663.99.2.274.

Bakker, AB & Sanz-Vergel, AI 2013, 'Weekly work engagement and flourishing: The role of hindrance and challenge job demands', *Journal of Vocational Behavior*, vol. 83, no. 3, pp. 397-409.

Bakker, AB, Tims, M & Derks, D 2012, 'Proactive personality and job performance: The role of job crafting and work engagement', *Human relations*, vol. 65, no. 10, pp. 1359-78.

Barbier, M, Hansez, I, Chmiel, N & Demerouti, E 2013, 'Performance expectations, personal resources, and job resources: How do they predict work engagement?', *European Journal of Work and Organizational Psychology*, vol. 22, no. 6, pp. 750-62.

Barclay, D, Higgins, C & Thompson, R 1995, 'The Partial Least Squares (PLS) approach to causal modelling: Personal computer adoption and use as an illustration.', *Technology Studies*, vol. 2, pp. 285-309.

Bateman, TS & Crant, JM 1993, 'The proactive component of organizational behavior: A measure and correlates', *Journal of Organizational Behavior*, vol. 14, no. 2, pp. 103-18.

Beavers, AS, Lounsbury, JW, Richards, JK, Huck, SW, Skolits, GJ & Esquivel, SL 2013, 'Practical considerations for using exploratory factor analysis in educational research', *Practical Assessment, Research, and Evaluation*, vol. 18, no. 1, p. 6, DOI 10.7275/qv2q-rk76.

Bentler, PM 1990, 'Comparative fit indexes in structural models', *Psychological Bulletin*, vol. 107, no. 2, pp. 238-46.

Bentler, PM & Bonett, DG 1980, 'Significance tests and goodness of fit in the analysis of covariance structures', *Psychological Bulletin*, vol. 88, no. 3, p. 588.

Bianchi, R, Schonfeld, IS & Laurent, E 2019, 'Burnout: Moving beyond the status quo', *International Journal of Stress Management*, vol. 26, no. 1, pp. 36-45, DOI 10.1037/str0000088.

Bollen, KA 1986, 'Sample size and Bentler and Bonett's nonnormed fit index', *Psychometrika*, vol. 51, no. 3, pp. 375-7.

Bollen, KA 1989, 'A new incremental fit index for general structural equation models', *Sociological Methods & Research*, vol. 17, no. 3, pp. 303-16.

Bollen, KA & Stine, R 1990, 'Direct and indirect effects: Classical and bootstrap estimates of variability', *Sociological Methodology*, pp. 115-40.

Boreen, J, Niday, D & Johnson, MK 2003, *Mentoring across boundaries: Helping beginning teachers succeed in challenging situations*, Stenhouse Publishers.

Brislin, RW 1970, 'Back-translation for cross-cultural research', *Journal of Cross-Cultural Psychology*, vol. 1, no. 3, pp. 185-216.

Brislin, RW 1986, 'The wording and translation of research instruments', in WJ Lonner & JW Berry (eds), *Field methods in cross-cultural research*, Sage Publications, Inc, pp. 137–64.

Brown, TA & Moore, MT 2012, 'Confirmatory factor analysis', *Handbook of Structural Equation Modeling*, vol. 361, p. 379.

Burton-Jones, A 2009, 'Minimizing method bias through programmatic research', *MIS quarterly*, pp. 445-71.

Butler, A, Grzywacz, J, Bass, B & Linney, K 2005, 'Extending the demands‐control model: A daily diary study of job characteristics, work‐family conflict and work‐family facilitation', *Journal of Occupational and Organizational Psychology*, vol. 78, no. 2, pp. 155-69.

Byrne, BM 2013a, *Structural equation modeling with EQS: Basic concepts, applications, and programming*, Routledge.

Byrne, BM 2013b, *Structural equation modeling with Mplus: Basic concepts, applications, and programming*, Routledge.

Cai, H & Zhu, A 2013, 'A study on burnout and its influencing factors among secondary shcool teachers', *Educational Research and Experiment*, no. 6, pp. 29-33.

Campbell, J & Fisk, P 1959, 'Multi-trait multi-method matrix analysis', *American Psychologist*, vol. 4, pp. 321-56.

Cao, Y, Postareff, L, Lindblom, S & Toom, A 2018, 'Teacher educators' approaches to teaching and the nexus with self-efficacy and burnout: examples from two teachers' universities in China', *Journal of Education for Teaching*, vol. 44, no. 4, pp. 479-95.

Chan, DW 2003, 'Hardiness and its role in the stress–burnout relationship among prospective Chinese teachers in Hong Kong', *Teaching and Teacher Education*, vol. 19, no. 4, pp. 381-95.

Chan, DW 2006, 'Emotional intelligence and components of burnout among Chinese secondary school teachers in Hong Kong', *Teaching and Teacher Education*, vol. 22, no. 8, pp. 1042-54, DOI 10.1016/j.tate.2006.04.005.

Chan, DW 2007, 'Burnout, self-efficacy, and successful intelligence among Chinese prospective and in‐service school teachers in Hong Kong', *Educational Psychology*, vol. 27, no. 1, pp. 33-49, DOI 10.1080/01443410601061397.

Chan, DW & Hui, EKP 1995, 'Burnout and coping among Chinese secondary school teachers in Hong Kong', *British Journal of Educational Psychology* vol. 65, pp. 15-25.

Chang, EC 1998, 'Dispositional optimism and primary and secondary appraisal of a stressor: Controlling for confounding influences and relations to coping and psychological and physical adjustment', *Journal of Personality and Social Psychology*, vol. 74, no. 4, p. 1109.

Chen, M-J & Cunradi, C 2008, 'Job stress, burnout and substance use among urban transit operators: The potential mediating role of coping behaviour', *Work & Stress*, vol. 22, no. 4, pp. 327-40.

Chen, S, Fan, Y, Zhang, G & Zhang, Y 2021, 'Collectivism-oriented human resource management on team creativity: effects of interpersonal harmony and human resource management strength', *The International Journal of Human Resource Management*, vol. 32, no. 18, pp. 3805-32.

Chen, W-W, Yang, X & Jiao, Z 2022, 'Authoritarian parenting, perfectionism, and academic procrastination', *Educational Psychology*, vol. 42, no. 9, pp. 1145-59.

Cheng, B, Lin, H & Kong, Y 2023, 'Challenge or hindrance? How and when organizational artificial intelligence adoption influences employee job crafting', *Journal of Business Research*, vol. 164, p. 113987.

Cheng, H, Fan, Y & Lau, H 2022, 'An integrative review on job burnout among teachers in China: Implications for Human Resource Management', *The International Journal of Human Resource Management*, pp. 1-33.

Cheng, J-C & Yi, O 2018, 'Hotel employee job crafting, burnout, and satisfaction: The moderating role of perceived organizational support', *International Journal of Hospitality Management*, vol. 72, pp. 78-85, DOI 10.1016/j.ijhm.2018.01.005.

Cherniss, C 1993, 'Role of professional self-efficacy in the etiology and amelioration of burnout', in W. B. Schaufeli, C. Maslach & T Marek (eds), *Series in applied psychology: Social issues and questions. Professional burnout: Recent developments in theory and research*, Taylor & Francis, Philadelphia, PA, US, pp. 135-49.

Cheung, F, Tang, CS & Tang, S 2011, 'Psychological capital as a moderator between emotional labor, burnout, and job satisfaction among school teachers in China', *International Journal of Stress Management*, vol. 18, no. 4, pp. 348-71, DOI 10.1037/a0025787.

Cheung, GW, Cooper-Thomas, HD, Lau, RS & Wang, LC 2023, 'Reporting reliability, convergent and discriminant validity with structural equation modeling: A review and best-practice recommendations', *Asia Pacific Journal of Management*, pp. 1-39.

Chin, WW 1998, 'The partial least squares approach to structural equation modeling', *Modern Methods for Business Research*, vol. 295, no. 2, pp. 295-336.

Claes, R, Beheydt, C & Lemmens, B 2005, 'Unidimensionality of abbreviated proactive personality scales across cultures', *Applied Psychology*, vol. 54, no. 4, pp. 476-89.

Colquitt, JA, Conlon, DE, Wesson, MJ, Porter, CO & Ng, KY 2001, 'Justice at the millennium: a meta-analytic review of 25 years of organizational justice research', *Journal of Applied Psychology*, vol. 86, no. 3, pp. 425-45, DOI 10.1037/0021-9010.86.3.425.

Coltman, T, Devinney, TM, Midgley, DF & Venaik, S 2008, 'Formative versus reflective measurement models: Two applications of formative measurement', *Journal of Business Research*, vol. 61, no. 12, pp. 1250-62.

Cortazzi, M & Jin, L 1997, 'Communication for learning across cultures', in *Overseas Students in Higher Education*, Routledge, pp. 80-102.

Cox, BJ, Enns, MW & Clara, IP 2002, 'The multidimensional structure of perfectionism in clinically distressed and college student samples', *Psychological Assessment*, vol. 14, no. 3, pp. 365-73.

Creswell, JW & Creswell, JD 2017, *Research design: Qualitative, quantitative, and mixed methods approaches*, Sage publications.

Cunningham, E 2010, *A practical guide to structural equation modeling using AMOS. Statsline*, Brunswick, Victoria.

Demerouti, E 2015, 'Strategies used by individuals to prevent burnout', *European Journal of Clinical Investigation*, vol. 45, no. 10, pp. 1106-12.

Demerouti, E, Bakker, AB, Nachreiner, F & Schaufeli, WB 2001, 'The job demands-resources model of burnout', *Journal of Applied Psychology*, vol. 86, no. 3, pp. 499-512, DOI 10.1037/0021-9010.86.3.499.

Demerouti, E, Bakker, AB & Xanthopoulou, D 2019, *Job Demands-Resources theory and the role of individual cognitive and behavioral strategies*, Pelckmans Pro., Antwerp, Belgium.

DeVellis, RF & Thorpe, CT 2021, *Scale development: Theory and applications*, Sage publications.

Dewe, P & Cooper, GL 2007, 'Coping research and measurement in the context of work related stress', in GP Hodgkinson & JK Ford (eds), *International Review of Industrial and Organizational Psychology*, John Wiley & Sons Ltd, pp. pp. 141–91.

Dewe, P & Cooper, GL 2007, 'Coping research and measurement in the context of work related stress', in *International Review of Industrial and Organizational Psychology 2007, Vol. 22*, John Wiley & Sons Ltd, Hoboken, NJ, US, pp. 141-91.

Dong, Z, Li, R & Zhou, J 2020, 'The effect of materiallism on job burnout in primary and middle schools teachers: the medating role of social comparison', *Chinese Journal of Clinical Psychology*, vol. 28, no. 2, pp. 274-6.

Dunkley, DM, Blankstein, KR, Halsall, J, Williams, M & Winkworth, G 2000, 'The relation between perfectionism and distress: Hassles, coping, and perceived social support as mediators and moderators', *Journal of Counseling Psychology*, vol. 47, no. 4, pp. 437-53, DOI 10.1037/0022-0167.47.4.437.

Dunkley, DM, Zuroff, DC & Blankstein, KR 2003, 'Self-critical perfectionism and daily affect: dispositional and situational influences on stress and coping', *Journal of Personality and Social Psychology*, vol. 84, no. 1, pp. 234-52, DOI 10.1037/0022-3514.84.1.234.

Fang, T, Ge, Y & Fan, Y 2019, 'Unions and the productivity performance of multinational enterprises: evidence from China', *Asian Business & Management*, vol. 18, pp. 281-300.

Farber, BA 1991, *Crisis in education: Stress and burnout in the American teacher*, Jossey Bass, San Francisco, CA.

Fernandez de Henestrosa, M, Sischka, PE & Steffgen, G 2023, 'Predicting Challenge and Threat Appraisal of Job Demands among Nurses: The Role of Matching Job Resources', *International Journal of Environmental Research and Public Health*, vol. 20, no. 2, p. 1288.

Field, A 2013, *Discovering statistics using IBM SPSS statistics*, Sage.

Flett, GL, Hewitt, PL & Hallett, CJ 1995, 'Perfectionism and job stress in teachers', *Canadian Journal of School Psychology*, vol. 11, no. 1, pp. 32-42.

Folkman, S 1984, 'Personal control and stress and coping processes: a theoretical analysis', *Journal of Personality and Social Psychology*, vol. 46, no. 4, pp. 839-52, DOI 10.1037//0022-3514.46.4.839.

Folkman, S 1997, 'Positive psychological states and coping with severe stress', *Social Science & Medicine*, vol. 45, no. 8, pp. 1207-21.

Folkman, S & Lazarus, RS 1988, 'Coping as a mediator of emotion', *Journal of Personality and Social Psychology*, vol. 54, no. 3, p. 466.

Fornell, C & Larcker, DF 1981, 'Evaluating structural equation models with unobservable variables and measurement error', *Journal of Marketing Research*, vol. 18, no. 1, pp. 39-50.

Fowler Jr, FJ 2013, *Survey research methods*, Sage publications.

Frankfort-Nachmias, C & Nachmias, D 1992, *Research Methods in the Social Sciences*, Inc. London, St. Martin's Press.

Fusilier, MR, Ganster, DC & Mayes, BT 1987, 'Effects of social support, role stress, and locus of control on health', *Journal of Management*, vol. 13, no. 3, pp. 517-28.

Gan, Y, Wang, X, Zhang, Y & Zhang, Y 2006, 'Job characteristics that affecting job burnout among secondary school teachers in China's rural area', *Acta Psychologica Sinica*, vol. 38, no. 1, pp. 92-8.

García-Arroyo, JA, Osca Segovia, A & Peiró, JM 2019, 'Meta-analytical review of teacher burnout across 36 societies: the role of national learning assessments and gender egalitarianism', *Psychology Health*, vol. 34, no. 6, pp. 733-53.

Garver, MS & Mentzer, JT 1999, 'Logistics research methods: employing structural equation modeling to test for construct validity', *Journal of Business Logistics*, vol. 20, no. 1, pp. 33-57.

Givon, MM & Shapira, Z 1984, 'Response to rating scales: A theoretical model and its application to the number of categories problem', *Journal of Marketing Research*, vol. 21, no. 4, pp. 410-9.

Granziera, H, Collie, R & Martin, A 2021, 'Understanding teacher wellbeing through job demands-resources theory', in *Cultivating teacher resilience*, Springer, Singapore, pp. 229-44.

Gruner, CR 2017, *The game of humor: A comprehensive theory of why we laugh*, Routledge.

Guglielmi, D, Simbula, S, Schaufeli, WB & Depolo, M 2012, 'Self-efficacy and workaholism as initiators of the job demands-resources model', *The Career Development International*, vol. 17, no. 4, pp. 375–89, DOI 10.1108/13620431211255842.

Guo, R 2017, 'A study of teaching efficacy, job burnout and their relationship of teachers of Chinese as a foreigb language', *Language Teaching and Linguistic Studies*, no. 2, pp. 47-56.

Hair, JF, Black, WC, Babin, BJ, Anderson, RE & Tatham, R 2010, *Multivariate data analysis (7th edition)*, Pearson Education Limited, Harlow.

Hakanen, JJ, Bakker, AB & Schaufeli, WB 2006, 'Burnout and work engagement among teachers', *Journal of School Psychology*, vol. 43, no. 6, pp. 495-513.

Hakanen, JJ, Peeters, MC & Schaufeli, WB 2018, 'Different types of employee well-being across time and their relationships with job crafting', *Journal of Occupational Health Psychology*, vol. 23, no. 2, pp. 289-301, DOI 10.1037/ocp0000081.

Hakanen, JJ, Schaufeli, WB & Ahola, K 2008, 'The Job Demands-Resources model: A three-year cross-lagged study of burnout, depression, commitment, and work engagement', *Work & Stress*, vol. 22, no. 3, pp. 224-41.

Halbesleben, JR 2006, 'Sources of social support and burnout: a meta-analytic test of the conservation of resources model', *Journal of Applied Psychology*, vol. 91, no. 5, pp. 1134-45.

Haldorai, K, Kim, WG & Phetvaroon, K 2022, 'Beyond the bend: The curvilinear effect of challenge stressors on work attitudes and behaviors', *Tourism Management*, vol. 90, p. 104482.

Hancock, GR & Mueller, RO 2001, 'Rethinking construct reliability within latent variable systems', in *Structural Equation Modeling: Present and Future*, pp. 195-216.

Hao, M 2008, 'Study of the status of occupational ennui of college physical education teachers in Henan province and its relation with the occupational self concept',

Journal of Physical Education, vol. 15, no. 7, pp. 63-6, DOI 10.16237/j.cnki.cn44-1404/g8.2008.07.016.

Hayes, AF & Preacher, KJ 2013, 'Conditional process modeling: Using structural equation modeling to examine contingent causal processes', in *Structural equation modeling: A second course, 2nd ed.*, IAP Information Age Publishing, Charlotte, NC, US, pp. 219-66.

Hewitt, PL & Flett, GL 1991, 'Perfectionism in the self and social contexts: conceptualization, assessment, and association with psychopathology', *Journal of Personality and Social psychology*, vol. 60, no. 3, pp. 456-70.

Hill, AP, Hall, HK & Appleton, PR 2010, 'Perfectionism and athlete burnout in junior elite athletes: The mediating role of coping tendencies', *Anxiety, Stress, & Coping*, vol. 23, no. 4, pp. 415-30.

Ho, SK 2015, 'Relationships among humour, self-esteem, and social support to burnout in school teachers', *Social Psychology of Education*, vol. 19, no. 1, pp. 41-59, DOI 10.1007/s11218-015-9309-7.

Hobfoll, SE 1989, 'Conservation of resources: A new attempt at conceptualizing stress', *American Psychologist*, vol. 44, no. 3, pp. 513-24.

Hobfoll, SE 2001, 'The influence of culture, community, and the nested‐self in the stress process: advancing conservation of resources theory', *Applied Psychology*, vol. 50, no. 3, pp. 337-421.

Hobfoll, SE, Johnson, RJ, Ennis, N & Jackson, AP 2003, 'Resource loss, resource gain, and emotional outcomes among inner city women', *Journal of Personality and Social Psychology*, vol. 84, no. 3, pp. 632-43.

Hobfoll, SE & Shirom, A 1993, 'Stress and burnout in the workplace: Conservation of resources', in *Handbook of Organizational Behavior*, vol. 1, pp. 41-61.

Hofstede, G, Hofstede, GJ & Minkov, M 2005, *Cultures and organizations: Software of the mind*, vol. 2, Mcgraw-hill New York.

Hong, JY 2012, 'Why do some beginning teachers leave the school, and others stay? Understanding teacher resilience through psychological lenses', *Teachers and Teaching*, vol. 18, no. 4, pp. 417-40.

Hoyle, RH 1995, 'The structural equation modeling approach: Basic concepts and fundamental issues', in *Structural equation modeling: Concepts, issues, and applications.*, Sage Publications, Inc, Thousand Oaks, CA, US, pp. 1-15.

Hu, Lt & Bentler, PM 1999, 'Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives', *Structural Equation Modeling: A Multidisciplinary Journal*, vol. 6, no. 1, pp. 1-55.

Hu, Q, Schaufeli, WB & Taris, TW 2011, 'The job demands–resources model: An analysis of additive and joint effects of demands and resources', *Journal of Vocational Behavior*, vol. 79, no. 1, pp. 181-90.

Hu, W & Zhao, H 2019, 'A study on the influence of five personalities of vocational college teachers on job burnuut in Northwest', *Qinghai Journal of Ethnology*, vol. 20, no. 4, pp. 50-5.

Hulland, J 1999, 'Use of partial least squares (PLS) in strategic management research: A review of four recent studies', *Strategic Management Journal*, vol. 20, no. 2, pp. 195-204.

Iacobucci, D 2009, 'Everything you always wanted to know about SEM (structural equations modeling) but were afraid to ask', *Journal of Consumer Psychology*, vol. 19, no. 4, pp. 673-80.

Ilies, R, Aw, SS & Pluut, H 2015, 'Intraindividual models of employee well-being: What have we learned and where do we go from here?', *European Journal of Work and Organizational Psychology*, vol. 24, no. 6, pp. 827-38.

Jia, X & Lin, C 2013, 'Relationship of university teachers' stress and coping style with job burnout', *Studies of Psychology and Behavior*, vol. 11, no. 6, pp. 759-64.

Jiang, H, Sun, P & Yu, Z 2013, 'The relationship between teachers' psychological capital and burnout symptoms in radio and TV universities', *Open Education Research*, vol. 19, no. 1, pp. 48-52, DOI 10.13966/j.cnki.kfjyyj.2013.01.014.

Jiao, Z 2009, 'Research on the occupational pressure, teaching efficacy and occupational burnout among P.E. teachers in primary and middle Schools', *Journal of Chengdu Sport University*, vol. 35, no. 4, pp. 84-7, DOI 10.15942/j.jcsu.2009.04.023.

Jing, L 2008, 'College P.E. teachers' occupational tiredness and its influences---a survey in Wuhan', *Journal of Wuhan Institute of Physical Education*, vol. 42, no. 11, pp. 82-5, DOI 10.15930/j.cnki.

Jöreskog, KG & Sörbom, D 1986, *LISREL VI: Analysis of linear structural relationships by maximum likelihood, instrumental variables, and least squares methods*, Scientific Software.

Ju, C, Lan, J, Li, Y, Feng, W & You, X 2015, 'The mediating role of workplace social support on the relationship between trait emotional intelligence and teacher burnout', *Teaching and Teacher Education*, vol. 51, pp. 58-67, DOI 10.1016/j.tate.2015.06.001.

Kang, Y & Qu, Z 2011, 'Vocational and technical college teachers' psychological contract and job burnout: The mediating role of job satisfaction', *Chinese Journal of Clinical Psychology* vol. 19, no. 2, pp. 234-6, DOI 10.16128/j.cnki.1005-3611.2011.02.018.

Kanten, P 2014, 'The antecedents of job crafting: Perceived organizational support, job characteristics and self-efficacy', *European Journal of Business and Social Sciences*, vol. 3, no. 5, pp. 113-28.

Karasek, R, Brisson, C, Kawakami, N, Houtman, I, Bongers, P & Amick, B 1998, 'The Job Content Questionnaire (JCQ): an instrument for internationally comparative assessments of psychosocial job characteristics', *Journal of Occupational Health Psychology*, vol. 3, no. 4, pp. 322-55, DOI 10.1037//1076-8998.3.4.322.

Kim, LE, Jörg, V & Klassen, RM 2019, 'A meta-analysis of the effects of teacher personality on teacher effectiveness and burnout', *Educational Psychology Review*, vol. 31, no. 1, pp. 163-95, DOI 10.1007/s10648-018-9458-2.

Kim, M & Beehr, TA 2020, 'Thriving on demand: Challenging work results in employee flourishing through appraisals and resources', *International Journal of Stress Management*, vol. 27, no. 2, p. 111.

Kline, RB 2015, *Principles and practice of structural equation modeling*, Guilford publications.

Kyriacou, C 2001, 'Teacher stress: Directions for future research', *Educational Review*, vol. 53, no. 1, pp. 27-35.

Kyriacou, C & Sutcliffe, J 1978, 'Teacher stress: Prevalence, sources, and symptoms', *British Journal of Educational Psychology*, vol. 48, no. 2, pp. 159-67.

Lau, PS, Yuen, MT & Chan, RM 2005a, 'Do demographic characteristics make a difference to burnout among Hong Kong secondary school teachers?', in *Quality-of-life Research In Chinese, Western and Global Contexts*, Springer, Dordrecht, pp. 491-516.

Lau, PS, Yuen, MT & Chan, RM 2005b, 'Do demographic characteristics make a difference to burnout among Hong Kong secondary school teachers?', in *Quality-of-life Research In Chinese, Western and Global Contexts* Springer, Dordrecht, pp. 491-516.

Lazarus, RS 1990, 'Theory-based stress measurement', *Psychological Inquiry*, vol. 1, no. 1, pp. 3-13.

Lazarus, RS, DeLongis, A, Folkman, S & Gruen, R 1985, 'Stress and adaptational outcomes: The problem of confounded measures', *American Psychologist*, vol. 40, no. 7, pp. 770–9, DOI 10.1037/0003-066X.40.7.770.

Lazarus, RS & Folkman, S 1984, *Stress, appraisal, and coping*, Springer publishing company.

Lazarus, RS & Folkman, S 1987, 'Transactional theory and research on emotions and coping', *European Journal of Personality*, vol. 1, no. 3, pp. 141-69.

Lee, RT & Ashforth, BE 1996, 'A meta-analytic examination of the correlates of the three dimensions of job burnout', *Journal of Applied Psychology*, vol. 81, no. 2, pp. 123-33, DOI 10.1037/0021-9010.81.2.123.

LePine, JA, Podsakoff, NP & LePine, MA 2005, 'A meta-analytic test of the challenge stressor–hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance', *Academy of management journal*, vol. 48, no. 5, pp. 764-75.

LePine, MA 2022, 'The challenge-hindrance stressor framework: an integrative conceptual review and path forward', *Group & Organization Management*, vol. 47, no. 2, pp. 223-54.

Leung, DYP & Lee, WWS 2006, 'Predicting intention to quit among Chinese teachers: differential predictability of the components of burnout', *Anxiety, Stress & Coping*, vol. 19, no. 2, pp. 129-41, DOI 10.1080/10615800600565476.

Li, C & Shi, K 2003, 'The influence of distributive justice and procedural justice on job burnout', *Acta Psychologica Sinica*, vol. 35, no. 5, pp. 677-84.

Li, C & Wang, H 2009, 'Relationship between time management and job burnout of teachers', *Chinese Journal of Clinical Psychology*, vol. 11, no. 7, pp. 107-9, DOI 10.16128/j.cnki.1005-3611.2009.01.042.

Li, H, Jin, H & Chen, T 2020, 'Linking proactive personality to creative performance: The role of job crafting and high‐involvement work systems', *The Journal of Creative Behavior*, vol. 54, no. 1, pp. 196-210.

Li, L 2012, 'The research on teachers' job burnout and social support for newly built university', *Journal of Educational Science of Hunan Normal University*, vol. 11, no. 5, pp. 77-9.

Li, M, Wang, Z & Liu, Y 2015, 'Work family conflicts and job burnout in primary and middle school teachers: The mediator role of self-determination motivarion ', *Psychological Development and Education*, vol. 31, no. 3, pp. 368-76.

Li, P, Taris, TW & Peeters, MC 2022, 'Today's challenge may be tomorrow's hindrance (and vice versa): Longitudinal changes in employee's appraisals of job demands and their outcomes', *Journal of Occupational and Organizational Psychology*, vol. 95, no. 2, pp. 521-49.

Li, Y, Gao, D & Shen, J 2007, 'Relationship among job burnout, self-esteem, mental health and intention to quit in teachers', *Psychological Development and Education*, no. 4, pp. 83-7.

Li, Y & Wu, M 2005, 'Developing the job burnout inventory', *Psychological Science*, vol. 28, no. 2, pp. 454-7.

Li, Y, Yang, X & Shen, J 2007, 'The relationship between teachers' sense of teaching efficacy and job burnout', *Psychological Science*, vol. 30, no. 4, pp. 952-4.

Li, Y & Yong, j 2010, 'Relationship model of teachers' occupational commitment, teaching efficacy and job burnout in primary and middle schools', *Chinese Journal of Clinical Psychology*, vol. 18, no. 3, pp. 360-2, DOI 10.16128/j.cnki.1005-3611.2010.03.033.

Li, Y & Zhang, J 2020, 'The influence of environmental factors on college English teachers' job burnout', *Education Science*, vol. 36, no. 2, pp. 71-5.

Li, Z, Ren, X, Lin, L & Shi, K 2008, 'Stressors, teaching efficacy, and burnout among secondary school teachers', *Psychological Science*, vol. 31, no. 1, pp. 218-21.

Lichtenthaler, PW & Fischbach, A 2016, 'Promotion-and prevention-focused job crafting: a theoretical extension and meta-analytical test', *Academy of Management Briarcliff Manor, NY 10510*, vol. 2016, no. 1, p. 10818.

Lichtenthaler, PW & Fischbach, A 2018, 'Leadership, job crafting, and employee health and performance', *Leadership & Organization Development Journal*, vol. 39, no. 5, pp. 620-32.

Lichtenthaler, PW & Fischbach, A 2019, 'A meta-analysis on promotion-and prevention-focused job crafting', *European Journal of Work and Organizational Psychology*, vol. 28, no. 1, pp. 30-50.

Likert, R 1932, 'A technique for the measurement of attitudes', *Archives of Psychology*, vol. 22 no. 140, p. 55.

Lin, D, Chen, X & Zhai, D 2009, 'Job burnout and its relationship with social support and coping style among the communist youth league cadres in middle schools', *Chinese Journal of Clinical Psychology*, vol. 17, no. 4, pp. 498-500, DOI 10.16128/j.cnki.1005-3611.2009.04.045.

Liu, J & Fu, D 2013, 'Relationships of occupational burnout and psychological health: the Intermediary and regulatory role of psychological capital structure', *Studies of Psychology and Behavior*, vol. 11, no. 6, pp. 765-9.

Liu, P 2014, 'A comprehensive research about the relationship of college English teachers' self-efficacy and job burnout', *Foreign Language Education*, vol. 35, no. 6, pp. 68-82, DOI 10.16362/j.cnki.cn61-1023/h.2014.06.024.

Liu, X 2004, 'Relationships between professional stress, teaching efficacy and burnout among primary and secondary school teachers', *Psychological Development and Education*, no. 2, pp. 56-61.

Liu, X, Wang, L, Jin, H & Qin, H 2008 'Mechanism of occupational stress on job burnout of primary and middle school teachers', *Chinese Journal of Clinical Psychology*, vol. 16, no. 5, pp. 537-9, DOI 10.16128/j.cnki.1005-3611.2008.05.035.

Liu, Y, Wu, Y & Xing, Q 2009, 'The influences of teacher's stress on job burnout: The moderating effect of teaching efficacy', *Psychological Development and Education*, no. 1, pp. 108-13.

Loerbroks, A, Meng, H, Chen, ML, Herr, R, Angerer, P & Li, J 2014, 'Primary school teachers in China: associations of organizational justice and effort-reward imbalance with burnout and intentions to leave the profession in a cross-sectional sample', *International Archives of Occupational and Environmental Health*, vol. 87, no. 7, pp. 695-703, DOI 10.1007/s00420-013-0912-7.

Lu, Y, He, F, Feng, L & Luan, Z 2012, 'A study on work-family conflict types of primary school teachers and their characteristics in burnout', *Teacher Education Research*, vol. 24, no. 3, pp. 68-73, DOI 10.13445/j.cnki.t.e.r.2012.03.007.

Luk, AL, Chan, BPS, Cheong, SW & Ko, SKK 2010, 'An exploration of the burnout situation on teachers in two schools in Macau', *Social Indicators Research*, vol. 95, no. 3, pp. 489-502.

Ma, C 2018, 'The effect of job burnout on mental health of primary and secondary boarding school teachers in Tibetan-inhibited areas of Qinghai', *Journal of Research on Education for Ethnic Minorities*, vol. 29, no. 2, pp. 31-8, DOI 10.15946/j.cnki.1001-7178.2018.02.004.

Malhotra, NK 2014, *Basic Marketing Research: Pearson New International Edition*, Pearson Education Limited.

Mao, J & Mo, T 2014, 'Relationship among psychology capital, emotional labor strategies and job burnout of primary and secondary school teachers', *Teacher Education Research*, vol. 26, no. 5, pp. 22-8, DOI 10.13445/j.cnki.t.e.r.2014.05.005.

Marsh, HW & Grayson, D 1994, 'Longitudinal confirmatory factor analysis: common, time-specific, item-specific, and residual-error components of variance', *Structural Equation Modeling: A Multidisciplinary Journal*, vol. 1, no. 2, pp. 116-45.

Marsh, HW & Hocevar, D 1985, 'Application of confirmatory factor analysis to the study of self-concept: First-and higher order factor models and their invariance across groups', *Psychological Bulletin*, vol. 97, no. 3, pp. 562-82, DOI 10.1037/0033-2909.97.3.562.

Maslach, C 2017, 'Finding solutions to the problem of burnout', *Consulting Psychology Journal: Practice and Research*, vol. 69, no. 2, pp. 143-52, DOI 10.1037/cpb0000090.

Maslach, C & Jackson, SE 1986, *Maslach burnout inventory manual (2nd ed.)*, Consulting Psychologists Press, Palo Alto, CA.

Maslach, C, Jackson, SE & Leiter, MP 1996, *MBI: Maslach burnout inventory*, CPP, Incorporated Sunnyvale, CA.

Maslach, C & Leiter, MP 1999, 'Teacher burnout: A research agenda', in R Vandenberghe & AM Huberman (eds), *Understanding and preventing teacher burnout: A sourcebook of international research and practice* Cambridge University Press, pp. 295-303.

Maslach, C & Leiter, MP 2008, 'Early predictors of job burnout and engagement', *Journal of Applied Psychology*, vol. 93, no. 3, pp. 498-512, DOI 10.1037/0021-9010.93.3.498.

Maslach, C & Leiter, MP 2016, 'Understanding the burnout experience: recent research and its implications for psychiatry', *World Psychiatry*, vol. 15, no. 2, pp. 103-11.

Maslach, C, Schaufeli, WB & Leiter, MP 2001, 'Job burnout', *Annual Review of Psychology*, vol. 52, no. 1, pp. 397-422.

Matsumoto, D 1989, 'Cultural influences on the perception of emotion', *Journal of Cross-Cultural Psychology*, vol. 20, no. 1, pp. 92-105.

Mazzola, JJ & Disselhorst, R 2019, 'Should we be “challenging” employees?: A critical review and meta‐analysis of the challenge‐hindrance model of stress', *Journal of Organizational Behavior*, vol. 40, no. 8, pp. 949-61.

McCrae, RR & John, OP 1992, 'An introduction to the five‐factor model and its applications', *Journal of Personality*, vol. 60, no. 2, pp. 175-215.

Meng, H, Chen, Y, Li, Y & Xiong, M 2009, 'The relationship of personality with job stress and burnout:evidence from a sample of teachers', *Psychological Science*, vol. 32, no. 4, pp. 846-9.

Meng, Y 2008, 'Studies of the relationship of secondary school teachers' coping style and teaching efficacy with professional burnout', *Psychological Science* vol. 31, no. 3, pp. 738-40, DOI 10.16719/j.cnki.

Mérida-López, S & Extremera, N 2017, 'Emotional intelligence and teacher burnout: A systematic review', *International Journal of Educational Research*, vol. 85, pp. 121-30.

Meyer, JP & Gagne, M 2008, 'Employee engagement from a self-determination theory perspective', *Industrial Organizational Psychology*, vol. 1, no. 1, pp. 60-2.

Ministry of Education of People's Republic of China 2017, *Educational Statistics in 2017*, viewed 1219 2018, <http://en.moe.gov.cn/Resources/Statistics/edu_stat2017/national/>.

Montani, F, Vandenberghe, C, Khedhaouria, A & Courcy, F 2020, 'Examining the inverted U-shaped relationship between workload and innovative work behavior: The role of work engagement and mindfulness', *Human Relations*, vol. 73, no. 1, pp. 59-93.

Moyer, F, Aziz, S & Wuensch, K 2017, 'From workaholism to burnout: psychological capital as a mediator', *International Journal of Workplace Health Management*, vol. 10, no. 3, pp. 213-27.

Netemeyer, RG, Bearden, WO & Sharma, S 2003, *Scaling procedures: Issues and applications*, Sage publications.

Nielsen, K & Abildgaard, JS 2012, 'The development and validation of a job crafting measure for use with blue-collar workers', *Work & Stress*, vol. 26, no. 4, pp. 365-84.

Nippert-Eng, CE 2008, *Home and work: Negotiating boundaries through everyday life*, University of Chicago Press.

Nunnally, J & Bernstein, I 1994, *Psychometric theory 3rd ed.*, McGraw-Hill, New York.

Pan, X, Tan, X, Qin, Q & Wang, L 2010a, 'Teacher's perceived organization justice and organizational citizenship behavior: The mediating role of job burnout', *Psychological Development and Education*, no. 4, pp. 409-15.

Pan, X, Tan, X, Qin, Q & Wang, L 2010b, 'Teacher’s perceived organization justice and organizational citizenship behavior: the mediating role of job burnout', *Psychological Development and Education*, no. 4, pp. 409-15.

Pang, WS 1999, *The three character classic*, Taipei: Shui Sing (in Chinese).

Payne, G & Payne, J 2004, *Key concepts in social research*, Sage.

Peng, Y, Zhang, W, Xu, X, Matthews, R & Jex, S 2019, 'When do work stressors lead to innovative performance? An examination of the moderating effects of learning goal orientation and job autonomy', *International Journal of Stress Management*, vol. 26, no. 3, p. 250.

Petrou, P, Demerouti, E, Peeters, MC, Schaufeli, WB & Hetland, J 2012, 'Crafting a job on a daily basis: Contextual correlates and the link to work engagement', *Journal of Organizational Behavior*, vol. 33, no. 8, pp. 1120-41.

Philip, J 2021, 'A multi-study approach to examine the interplay of proactive personality and political skill in job crafting', *Journal of Management & Organization*, pp. 1-20.

Philip, J & Kosmidou, V 2022, 'How proactive personality and ICT-enabled technostress creators configure as drivers of job crafting', *Journal of Management & Organization*, pp. 1-21.

Pietarinen, J, Pyhältö, K, Soini, T & Salmela-Aro, K 2013, 'Reducing teacher burnout: A socio-contextual approach', *Teaching & Teacher Education*, vol. 35, no. 8, pp. 62-72.

Pithers, R & Soden, R 1998, 'Scottish and Australian teacher stress and strain: a comparative study', *British Journal of Educational Psychology*, vol. 68, no. 2, pp. 269-79.

Plomp, J, Tims, M, Akkermans, J, Khapova, SN, Jansen, PG & Bakker, AB 2016, 'Career competencies and job crafting: How proactive employees influence their well-being', *The Career Development International*, vol. 21, no. 6, pp. 587-602, DOI 10.1108/CDI-08-2016-0145.

Podsakoff, NP, LePine, JA & LePine, MA 2007, 'Differential challenge stressor-hindrance stressor relationships with job attitudes, turnover intentions, turnover, and withdrawal behavior: a meta-analysis', *Journal of applied psychology*, vol. 92, no. 2, p. 438.

Podsakoff, NP, Shen, W & Podsakoff, PM 2006, 'The role of formative measurement models in strategic management research: review, critique, and implications for future research', *Research Methodology in Strategy and Management*, vol. 3, pp. 197-252.

Podsakoff, PM, MacKenzie, SB, Lee, J-Y & Podsakoff, NP 2003, 'Common method biases in behavioral research: a critical review of the literature and recommended remedies', *Journal of applied psychology*, vol. 88, no. 5, p. 879.

Podsakoff, PM, MacKenzie, SB & Podsakoff, NP 2012, 'Sources of method bias in social science research and recommendations on how to control it', *Annual review of psychology*, vol. 63, pp. 539-69.

Qin, L, Lu, J, Zhou, Y, Wijaya, TT, Huang, Y & Fauziddin, M 2022, 'Reduction of Academic Burnout in Preservice Teachers: PLS-SEM Approach', *Sustainability*, vol. 14, no. 20, p. 13416.

Richardson, HA, Simmering, MJ & Sturman, MC 2009, 'A tale of three perspectives: Examining post hoc statistical techniques for detection and correction of common method variance', *Organizational Research Methods*, vol. 12, no. 4, pp. 762-800.

Roberts, JA, Lapidus, RS & Chonko, LB 1997, 'Salespeople and stress: The moderating role of locus of control on work stressors and felt stress', *Journal of Marketing Theory and Practice*, vol. 5, no. 3, pp. 93-108.

Rodell, JB & Judge, TA 2009, 'Can "good" stressors spark "bad" behaviors? The mediating role of emotions in links of challenge and hindrance stressors with citizenship and counterproductive behaviors', *Journal of Applied Psychology*, vol. 94, no. 6, p. 1438.

Rönkkö, M & Cho, E 2022, 'An updated guideline for assessing discriminant validity', *Organizational Research Methods*, vol. 25, no. 1, pp. 6-14.

Rossi, PH, Wright, JD & Anderson, AB 2013, *Handbook of survey research*, Academic press.

Rudolph, CW, Katz, IM, Lavigne, KN & Zacher, H 2017, 'Job crafting: A meta-analysis of relationships with individual differences, job characteristics, and work outcomes', *Journal of Vocational Behavior*, vol. 102, pp. 112-38.

Rudow, B 1999, 'Stress and burnout in the teaching profession: European studies, issues, and research perspectives', in R Vandenberghe & AM Huberman (eds), *Understanding and preventing teacher burnout: A sourcebook of international research and practice* Cambridge University Press, New York, NY, US, pp. 38-58.

Salanova, M, Martinez, IM, Schaufeli, W & Lorente Prieto, L 2008, 'Extension of the Job Demands-Resources model in the prediction of burnout and engagement among teachers over time', *Psicothema*, vol. 20, no. 3, pp. 354-60.

Sanchez, JI, Spector, PE & Cooper, CL 2006, 'Frequently ignored methodological issues in cross-cultural stress research', in *Handbook of multicultural perspectives on stress and coping*, Springer, pp. 187-201.

Sawang, S 2012, 'Is there an inverted U‐shaped relationship between job demands and work engagement: The moderating role of social support?', *International Journal of Manpower*, vol. 33, no. 2, pp. 178-86.

Schaufeli, W & Enzmann, D 1998, *The burnout companion to study and practice: A critical analysis*, Taylor & Francis., Philadelphia.

Schaufeli, WB, Bakker, AB, Van der Heijden, FM & Prins, JT 2009, 'Workaholism, burnout and well-being among junior doctors: The mediating role of role conflict', *Work & Stress*, vol. 23, no. 2, pp. 155-72.

Schaufeli, WB & Taris, TW 2014, 'A critical review of the job demands-resources model: Implications for improving work and health', in *Bridging occupational, organizational and public health*, Springer, pp. 43-68.

Schermelleh-Engel, K, Moosbrugger, H & Müller, H 2003, 'Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures', *Methods of psychological research online*, vol. 8, no. 2, pp. 23-74.

Searle, BJ & Auton, JC 2015, 'The merits of measuring challenge and hindrance appraisals', *Anxiety, Stress, & Coping*, vol. 28, no. 2, pp. 121-43.

Sheehan, C, Tham, TL, Holland, P, Cooper, BK & Newman, A 2021, 'The relationship between HIWPs and nurse work engagement: the role of job crafting and supervisor support', *The International Journal of Human Resource Management*, pp. 1-27.

Shen, J, Li, Y & Zhang, N 2009, 'The relationship among teachers' personality, organizational identification and job burnout', *Psychological Science*, vol. 32, no. 4, pp. 774-7.

Sheng, X, Wang, Y, Hong, W, Zhu, Z & Zhang, X 2019, 'The curvilinear relationship between daily time pressure and work engagement: The role of psychological capital and sleep', *International Journal of Stress Management*, vol. 26, no. 1, p. 25.

Shin, H, Park, YM, Ying, JY, Kim, B, Noh, H & Lee, SM 2014, 'Relationships between coping strategies and burnout symptoms: A meta-analytic approach', *Professional Psychology: Research and Practice*, vol. 45, no. 1, pp. 44-56, DOI 10.1037/a0035220.

Shrout, PE & Bolger, N 2002, 'Mediation in experimental and nonexperimental studies: new procedures and recommendations', *Psychological Methods*, vol. 7, no. 4, pp. 422-45, DOI 10.1037/1082-989X.7.4.422.

Siegrist, J 1996, 'Adverse health effects of high-effort/low-reward conditions', *Journal of Occupational Health Psychology*, vol. 1, no. 1, pp. 27-41, DOI 10.1037/1076-8998.1.1.27.

Siegrist, J, Starke, D, Chandola, T, Godin, I, Marmot, M, Niedhammer, I et al. 2004, 'The measurement of effort–reward imbalance at work: European comparisons', *Social Science Medicine*, vol. 58, no. 8, pp. 1483-99.

SINA 2005, *Occupational stress and mental health survey among Chinese teachers*, viewed 0929 2018, <http://edu.sina.com.cn/l/2005-09-09/1653126581.html>.

Singh, V & Singh, M 2018, 'A burnout model of job crafting: Multiple mediator effects on job performance', *IIMB Management Review*, vol. 30, no. 4, pp. 305-15.

Skaalvik, EM & Skaalvik, S 2017, 'Dimensions of teacher burnout: Relations with potential stressors at school', *Social Psychology of Education*, vol. 20, no. 4, pp. 775-90.

Skaalvik, EM & Skaalvik, S 2020, 'Teacher burnout: relations between dimensions of burnout, perceived school context, job satisfaction and motivation for teaching. A longitudinal study', *Teachers and Teaching*, vol. 26, no. 7-8, pp. 602-16.

Song, Z 2008, 'Current situation of job burnout of junior high school teachers in Shangqiu urban areas and its relationship with social support', *Frontiers of Education in China*, vol. 3, no. 2, pp. 295-309, DOI 10.1007/s11516-008-0019-1.

Spector, PE 1992, 'A consideration of the validity and meaning of self-report measures of job conditions', in *International Review of Industrial and Organizational Psychology*, pp. 123-51.

Steiger, JH 1998, 'A note on multiple sample extensions of the RMSEA fit index', *Structural Equation Modeling: A Multidisciplinary Journal*, vol. 5, no. 4, pp. 411-9, DOI 10.1080/10705519809540115.

Sternberg, RJJHoge 2003, 'Giftedness according to the theory of successful intelligence', *Handbook of Gifted Education*, vol. 3, pp. 88-99.

Stevens, JP 2012, *Applied multivariate statistics for the social sciences*, Routledge.

Stiglbauer, B & Kovacs, C 2018, 'The more, the better? Curvilinear effects of job autonomy on well-being from vitamin model and PE-fit theory perspectives', *Journal of Occupational Health Psychology*, vol. 23, no. 4, p. 520.

Stoeber, J & Rennert, D 2008, 'Perfectionism in school teachers: Relations with stress appraisals, coping styles, and burnout', *Anxiety, Stress, & Coping*, vol. 21, no. 1, pp. 37-53.

Sun, P, Zheng, X, Xu, Q & Yu, Z 2011, 'Relationship between core self-evaluation, coping style and job burnout among primary teachers', *Psychological Development and Education*, no. 2, pp. 188-94, DOI 10.16187/j.cnki.issn1001-4918.2011.02.014.

Tadić, M, Bakker, AB & Oerlemans, WG 2015, 'Challenge versus hindrance job demands and well‐being: A diary study on the moderating role of job resources', *Journal of Occupational and Organizational Psychology*, vol. 88, no. 4, pp. 702-25.

Tang, CSK, Au, WT, Schwarzer, R & Schmitz, G 2001, 'Mental health outcomes of job stress among Chinese teachers: Role of stress resource factors and burnout', *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, vol. 22, no. 8, pp. 887-901.

Taris, TW, Beek, Iv & Schaufeli, WB 2010, 'Why do perfectionists have a higher burnout risk than others? The meditational effect of workaholism', *Romanian Journal of Applied Psychology*, vol. 12, no. 1, pp. 1-7.

Taylor, SE, Sherman, DK, Kim, HS, Jarcho, J, Takagi, K & Dunagan, MS 2004, 'Culture and social support: Who seeks it and why?', *Journal of Prsonality Social Psychology*, vol. 87, no. 3, pp. 354-62, DOI 10.1037/0022-3514.87.3.354.

Tho, ND 2022, 'Employees' psychological capital and innovation outputs: the roles of job crafting and proactive personality', *Innovation*, vol. 24, no. 2, pp. 333-53.

Tian, B & Li, L 2006, 'The influence of school organizational climate on job burnout ', *Psychological Science*, vol. 29, no. 1, pp. 189-93.

Tims, M, Bakker, AB & Derks, D 2012, 'Development and validation of the job crafting scale', *Journal of vocational behavior*, vol. 80, no. 1, pp. 173-86.

Tims, M, Bakker, AB & Derks, D 2013, 'The impact of job crafting on job demands, job resources, and well-being', *Journal of Occupational Health Psychology*, vol. 18, no. 2, pp. 230-40, DOI 10.1037/a0032141.

Tims, M, Bakker, AB & Derks, D 2015, 'Job crafting and job performance: A longitudinal study', *European Journal of Work and Organizational Psychology*, vol. 24, no. 6, pp. 914-28.

Tobin, DL, Holroyd, KA, Reynolds, RV & Wigal, JK 1989, 'The hierarchical factor structure of the Coping Strategies Inventory', *Cognitive Therapy Research*, vol. 13, no. 4, pp. 343-61.

van Ruysseveldt, J & van Dijke, M 2011, 'When are workload and workplace learning opportunities related in a curvilinear manner? The moderating role of autonomy', *Journal of vocational behavior*, vol. 79, no. 2, pp. 470-83.

Vogt, K, Hakanen, JJ, Brauchli, R, Jenny, GJ & Bauer, GF 2016, 'The consequences of job crafting: A three-wave study', *European Journal of Work and Organizational Psychology*, vol. 25, no. 3, pp. 353-62.

Voorhees, CM, Brady, MK, Calantone, R & Ramirez, E 2016, 'Discriminant validity testing in marketing: an analysis, causes for concern, and proposed remedies', *Journal of the academy of marketing science*, vol. 44, pp. 119-34.

Wang, F & Xu, Y 2004, 'Job burnout among elementary and high school teachers: characteristics and relationship with social support ', *Acta Psychologica Sinica*, vol. 36, no. 5, pp. 568-74.

Wang, G, Liu, C & Wu, X 2003, 'Development of educator burnout inventory', *Psychological Development and Education*, no. 3, pp. 82-6.

Wang, L 2009, 'The effects of schooI organizational fairness on teachers' job burnout ', *Psychological Science*, vol. 32, no. 6, pp. 1494-6.

Wang, L & Xu, C 2008, 'Impact of primary and secondary school teachers' perceived organizational support on their happiness and job burnout', *Chinese Journal of Clinical Psychology*, vol. 16, no. 6, pp. 574-8, DOI 10.16128/j.cnki.1005-3611.2008.06.037.

Wang, W & Liu, X 2020, 'Job characteristics and job burnout of PE teachers in primary and secondary schools: a chain mediation of self-determination and job exuberance', *Jornal of Shenyang Sport University*, vol. 39, no. 1, pp. 29-38.

Wang, X, Zhang, Y, Gan, Y & Zhang, Y 2005, 'Development of job burnout inventory for middle school teachers', *Chinese Journal of Applied Psychology*, vol. 11, no. 2, pp. 170-5.

Wang, Y, Ramos, A, Wu, H, Liu, L, Yang, X, Wang, J et al. 2015, 'Relationship between occupational stress and burnout among Chinese teachers: a cross-sectional survey in Liaoning, China', *International Archives of Occupational and Environmental Health*, vol. 88, no. 5, pp. 589-97, DOI 10.1007/s00420-014-0987-9.

Webster, JR, Beehr, TA & Love, K 2011, 'Extending the challenge-hindrance model of occupational stress: The role of appraisal', *Journal of Vocational Behavior*, vol. 79, no. 2, pp. 505-16.

Weiner, BA & Carton, JS 2012, 'Avoidant coping: A mediator of maladaptive perfectionism and test anxiety', *Personality and Individual Differences*, vol. 52, no. 5, pp. 632-6.

Wong, SI, Škerlavaj, M & Černe, M 2017, 'Build coalitions to fit: Autonomy expectations, competence mobilization, and job crafting', *Human Resource Management*, vol. 56, no. 5, pp. 785-801.

Wrzesniewski, A & Dutton, JE 2001, 'Crafting a job: Revisioning employees as active crafters of their work', *Academy of Management Review*, vol. 26, no. 2, pp. 179-201.

Xanthopoulou, D, Bakker, AB, Demerouti, E & Schaufeli, WB 2007, 'The role of personal resources in the job demands-resources model', *International Journal of Stress Management*, vol. 14, no. 2, p. 121.

Xanthopoulou, D, Bakker, AB, Demerouti, E & Schaufeli, WB 2009, 'Reciprocal relationships between job resources, personal resources, and work engagement', *Journal of Vocational behavior*, vol. 74, no. 3, pp. 235-44.

Xanthopoulou, D, Bakker, AB, Dollard, MF, Demerouti, E, Schaufeli, WB, Taris, TW et al. 2007, 'When do job demands particularly predict burnout? The moderating role of job resources', *Journal of Managerial Psychology*, vol. 22, no. 8, pp. 7666-786.

Xie, JL, Chen, Z & Roy, J-P 2006, 'Cultural and personality determinants of leniency in self-rating among Chinese people', *Management and Organization Review*, vol. 2, no. 2, pp. 181-207.

Xu, F 2003, 'A study on teachers' occupational stress and burnout', *Chinese Journal of Clinical Psychology*, vol. 11, no. 3, pp. 195-7.

Xu, F, Ji, F & Chao, Q 2004, 'The development of job burnout questionnaire in primary and secondary teachers', *Chinese Journal of Clinical Psychology*, vol. 12, no. 1, pp. 13-4.

Xu, F, Zhu, C & Huang, W 2005, 'A study on the relationship between teachers' job burnout and their job stress, self-Esteem, locus of control in primary and secondary school', *Psychological Exploration*, vol. 25, no. 1, pp. 74-7.

Xu, F, Zhu, C & Shao, L 2005, 'An investigation of primary and secondary school teachers' job burnout and Its related factors', *Psychological Science*, vol. 28, no. 5, pp. 1240-2.

Xu, P, Yang, K, Li, X & Qin, J 2020, 'The relationship between social support and job burnout among university teachers', *Education Research Monthly*, vol. 6, pp. 82-7.

Yang, L, Fu, C, Zhao, X, Chen, L, Yan, H & Zhang, Y 2015a, 'Mediating effect of job burnout on the relatioship between work-family conflict and subjective well-being', *Chinese Journal of Clinical Psychology* vol. 23, no. 2, pp. 330-5, DOI 10.16128/j.cnki.1005-3611.2015.02.032.

Yang, L, Fu, C, Zhao, X, Chen, L, Yan, H & Zhang, Y 2015b, 'Mediating effect of job burnout on the relatioship between work-family conflict and subjective well-being ', *Chinese Journal of Clinical Psychology* vol. 23, no. 2, pp. 330-5, DOI 10.16128/j.cnki.1005-3611.2015.02.032.

Yao, J & Guan, H 2013a, ' A study of the relationship between elementary and sencondary school teachers' emotional intelligence and job burnout ', *Journal of Education Studies*, vol. 9, no. 3, pp. 100-10, DOI 10.14082/j.cnki.1673-1298.2013.03.017.

Yao, J & Guan, H 2013b, ' A study of the relationship between elementary and sencondary school teachers' emotional intelligence and job burnout', *Journal of Education Studies*, vol. 9, no. 3, pp. 100-10, DOI 10.14082/j.cnki.1673-1298.2013.03.017.

Yu, X, Wang, P, Zhai, X, Dai, H & Yang, Q 2015, 'The effect of work stress on job burnout among teachers: the mediating role of self-efficacy', *Social Indicators Research*, vol. 122, no. 3, pp. 701-8, DOI 10.1007/s11205-014-0716-5.

Zeijen, ME, Brenninkmeijer, V, Peeters, MC & Mastenbroek, NJ 2021, 'Exploring the role of personal demands in the health-impairment process of the job demands-resources model: A study among master students', *International journal of environmental research and public health*, vol. 18, no. 2, p. 632.

Zhang, G, Chen, S, Fan, Y & Dong, Y 2019, 'Influence of leaders' loneliness on voice-taking: the role of social self-efficacy and performance pressure', *International Journal of Mental Health Promotion*, vol. 21, no. 1, pp. 13-29, DOI 10.32604/IJMHP.2019.010730.

Zhang, J, Yang, Z & Ling, H 2014, 'Work stress, job satisfaction and job burnout in primary and middle schools teachers', *Chinese Journal of Clinical Psychology*, vol. 22, no. 5, pp. 920-2, DOI 10.16128/j.cnki.1005-3611.2014.05.085.

Zhang, J & Zhang, Q 2012, 'Teacher burnout and turnover intention in a chinese sample: the mediating role of teacher satisfaction', *China Media Research*, vol. 8, no. 2, pp. 101-6.

Zhang, Q & Zhu, W 2007, 'Teacher stress, burnout, and social support in chinese secondary education', *Human Communication*, vol. 10, no. 4, pp. 487-96.

Zhang, Q & Zhu, W 2008, 'Exploring emotion in teaching: emotional labor, burnout, and satisfaction in chinese higher education', *Communication Education*, vol. 57, no. 1, pp. 105-22, DOI 10.1080/03634520701586310.

Zhang, Y, Zhang, S & Hua, W 2019, 'The impact of psychological capital and occupational stress on teacher burnout: Mediating role of coping styles', *The Asia-Pacific Education Researcher*, vol. 28, no. 4, pp. 339-49.

Zheng, C & Guo, L 2017, 'A meta-analysis of the relationship between teachers' emotional intelligence and burnout-based on researches in the 21st century', *Teacher Education Research*, vol. 30, no. 4, pp. 114-21.

Zhong, J, You, J, Gan, Y, Zhang, Y, Lu, C & Wang, H 2009, 'Job stress, burnout, depression symptoms, and physical health among Chinese university teachers', *Psychological Reports*, vol. 105, no. 3, pp. 1248-54, DOI 10.2466/PR0.105.F.1248-1254.

Zhong, N & Ling, H 2014, 'Relationship between personality, coping style and job burnout in primary/middle school teachers', *Chinese Journal of Clinical Psychology*, vol. 22, no. 3, pp. 525-9, DOI 10.16128/j.cnki.1005-3611.2014.03.080.

Appendices

Appendix 1 Ethics Approval

WESTERN SYDNEY
UNIVERSITY

HUMAN RESEARCH ETHICS COMMITTEE

29 October 2021
Doctor Youqing Fan
School of Business

Dear Youqing,

Project Title: "The antecedents of burnout among teachers in China: a job demands-resources perspective"

HREC Approval Number: H14589
Risk Rating: Moderate

I am pleased to advise the above research project meets the requirements of the National Statement on Ethical Conduct in Human Research 2007 (Updated 2018).

Ethical approval for this project has been granted by the Western Sydney University Human Research Ethics Committee. This HREC is constituted and operates in accordance with the National Statement on Ethical Conduct in Human Research 2007 (Updated 2018).

Approval of this project is valid from 29 October 2021 until 29 October 2025.

This protocol covers the following researchers:

Youqing Fan, Han Cheng, Henry Lau

Summary of Conditions of Approval

1. A progress report will be due annually on the anniversary of the approval date.

2. A final report will be due at the expiration of the approval period.

3. Any amendments to the project must be approved by the Human Research Ethics Committee prior to being implemented. Amendments must be requested using the HREC Amendment Request Form.

4. Any serious or unexpected adverse events on participants must be reported to the Human Research Ethics Committee via the Human Ethics Officer as a matter of priority.

5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the Committee as a matter of priority.

6. Consent forms are to be retained within the archives of the School or Research Institute and made available to the Committee upon request.

7. Approval is only valid while you hold a position or are enrolled at Western Sydney University. You will need to transfer your project or seek fresh ethics approval from your new institution if you leave Western Sydney University.

8. **Project specific conditions:**
There are no specific conditions applicable.

Please quote the registration number and title as indicated above in the subject line on all future correspondence related to this project. All correspondence should be sent to humanethics@westernsydney.edu.au as this email address is closely monitored.

Yours sincerely

Associate Professor Gabrielle Weidemann
Presiding Member,
Western Sydney University Human Research Ethics Committee

Western Sydney University
ABN 53 014 069 881 CRICOS Provider No. 00917K
Locked Bag 1797 Penrith NSW 2751 Australia
westernsydney.edu.au

Appendix 2 Informatio for Paticipants (English and Mandarin versions)

Participant Information Sheet

Project Title: The antecedents of burnout among teachers in China: a job demands-resources perspective

Project Summary: You are invited to participate in a research study being conducted by Ms. Han Cheng (PhD candidate from School of Business, Western Sydney University) under the Supervision of Dr. Youqing Fan and Dr. Henry Lau. The research aims to study burnout and well-being in the workplace among teachers who work in the for-profit education sector in China. Specifically, the study tries to identify the potential factors that influence burnout, including personal level and job level factors. Also, the study plans to examine the effective coping strategies that individuals can employ to mitigate burnout.

How is the study being paid for? This research is funded using candidature support fund provided by the School of Business, Western Sydney University.

What will I be asked to do?

You will be asked to participate in an on-line survey with questions relating to your work experience and well-being.

How much of my time will I need to give?

Approximately 20-25 mins.

What benefits will I, and/or the broader community, receive for participating?

This research project will investigate how job and personal level factors contribute to burnout in a for-profit education setting. For participants, a summary of the research results, as well as effective strategies to cope with burnout, will be shared to them once the study yields solid findings. For the broader community, there will be both theoretical and practical benefits. Theoretically, the findings will test and extend the JD-R model, an advanced framework in burnout research, among a sample to which the model has not yet been applied. Practically,

the results could help to develop a tailored intervention program to mitigate burnout. The possibility of more effective intervention could benefit teachers, students, and the for-profit education industry at large.

Will the study involve any risk or discomfort for me? If so, what will be done to rectify it?

It is possible that a few participants could experience slight discomfort when reporting questions related to burnout and how to cope with it. It is important to know that the study aims to find out what kind of coping strategy is useful in reducing burnout. As mentioned in the earlier section, you will receive evidence-based suggestions to help you address work-related stress, which is beneficial in the long-run. Moreover, please be assured that the survey is anonymous, and you can withdraw any time during the survey in case you feel discomfort and distress.

How do you intend to publish or disseminate the results?

It is anticipated that the results of this research project will be published and/or presented in a variety of forums. In any publication and/or presentation, information will be provided in such a way that the participant cannot be identified, except with your permission. The collected data will not be disclosed to any third party. The data will have restricted access by only the researcher team for current and future use. Research papers may be submitted to Journals for publication either before or after the submission of the thesis, and it will include the result of the data analysis based on collected data.

Will the data and information that I have provided be disposed of?

Please be assured that only the researchers will have access to the raw data you provide. However, your data may be used in other related projects for an extended period of time. Data will have restricted access and use only for closely related, ongoing projects or projects in the same general area of research. Storage of, and access to data, as well as data disposal, will be undertaken in line with the University's policy guidelines on research data management. Data is kept for 5 years after the completion of the thesis.

Can I withdraw from the study?

Participation is entirely voluntary and you are not obliged to be involved. If you do participate you can withdraw at any time without giving reason.

If you do choose to withdraw, any information that you have supplied will not be collected and analyse in this study. Please be aware that our data is collected through on-line anonymous survey, and you can withdraw at any point before submitting the survey.

What if I require further information?

Please contact Ms. Han Cheng (19467838@student.westernsydney.edu.au) should you wish to discuss the research further before deciding whether or not to participate.

Han Cheng: PhD Candidate, School of Business, Western Sydney University.
Tel:0449559637

What if I have a complaint?

If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through Research Engagement, Development and Innovation (REDI) on Tel +61 2 4736 0229 or email humanethics@westernsydney.edu.au.

Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

If you agree to participate in this study, you may be asked to sign the Participant Consent Form. The information sheet is for you to keep and the consent form is retained by the researcher/s.

This study has been approved by the Western Sydney University Human Research Ethics Committee. The Approval number is H*[enter approval number once the project has been approved]*.

WESTERN SYDNEY
UNIVERSITY

参与者信息表

项目名称：中国教师职业倦怠的前因：工作要求-资源视角

项目概要：邀请您参加由程晗女士（西悉尼大学商学院博士候选人）在范酉庆博士和刘亨利博士的指导下进行的一项研究。 该研究旨在调查在中国营利性教育机构工作的教师的职业倦怠和幸福感。具体而言，该研究试图识别影响职业倦怠的潜在因素，包括个人因素和工作因素。 此外，该研究还计划调查个人可以用来减轻职业倦怠的有效应对策略。

研究费用如何支付？ 这项研究由西悉尼大学商学院提供的候选人支持基金资助。

我会被要求做什么？

您将被要求参加一项有关您的工作经验和幸福感的在线问卷调查。

我需要付出多少时间？

大约 20-25 分钟。

我和/或更广泛的社区将因参与而获得什么好处？

该研究项目将调查工作和个人层面的因素如何导致营利性教育环境中的职业倦怠。对于参与者，一旦研究产生可靠的结果，将向他们分享研究结果的小结，以及应对职业倦怠的有效策略。对于更广泛的社区，这将带来理论和实践上的好处。从理论上讲，这些发现将在尚未应用该模型的样本中测试和扩展 JD-R 模型，这是一种研究职业倦怠研究的前沿框架。在应用层面上，结果可以帮助制定量身定制的干预计划，以减轻职业倦怠。更有效干预可以使教师、学生和整个营利性教育行业受益。

该研究是否会给我带来任何风险或不适？如果是这样，将采取什么措施来纠正它？

在报告与职业倦怠以及如何应对该现象的相关问题时，一些参与者可能会感到轻微不适。 重要的是要知道该研究旨在找出哪种应对策略有助于减少职业倦怠。 正如前面部分提到的，您将收到基于科学证据的建议，以帮助您解决与工作相关的压力，这从长远来看是有益的。 此外，请放心，本次调查是匿名的，您在调查过程中如果感到不适和困扰，可以随时退出。

您打算如何发布或传播研究结果？

预计该研究项目的结果将在多种渠道发表和/或展示。在任何出版物和/或演示文稿中，除非获得您的许可，否则所提供的信息都将保证参与者的匿名性。收集的数据不会透露给任何第三方。只有研究人员团队才能访问这些数据，以供当前和未来使用。研究论文可以在博士毕业论文提交之前或之后提交给期刊发表，它将包括基于收集数据的分析结果。

我提供的数据和信息会被处理掉吗？

请放心，只有研究人员才能访问您提供的原始数据。不过，您的数据可能会在一段时间内用于其他相关项目。数据的访问和使用将受到限制，仅用于密切相关的、正在进行的项目或同一研究领域的项目。数据的存储和访问以及数据处理将根据西悉尼大学关于研究数据管理的政策指南进行。数据在毕业论文完成后保存 5 年。

我可以退出研究吗？

参与完全是自愿的，您没有义务参与。如果您确实参加了，您可以随时退出而无需说明理由。

如果您选择退出，本研究将不会收集和分析您提供的任何信息。请注意，我们的数据是通过在线匿名调查收集的，您可以在提交问卷之前随时退出。

如果我需要更多信息怎么办？

如果您希望在决定是否参与之前进一步讨论研究，请联系程晗女士 (19467838@student.westernsydney.edu.au)。

程晗：西悉尼大学商学院博士候选人。电话：0449559637

如果我想要投诉怎么办？

如果您对本研究的道德行为有任何投诉或保留意见，您可以通过研究参与、发展和创新部门(REDI) 联系伦理委员会。联系方式包括电话 +61 2 4736 0229 或发送电子邮件至 humanethics@westernsydney.edu.au。

您提出的任何问题都将得到保密处理和全面调查，您将被告知结果。

如果您同意参与本研究，您可能需要签署参与者同意书。信息表由您保留，同意书由研究人员保留。

本研究已获得西悉尼大学人类研究伦理委员会的批准。批准号为 H[一旦项目获得批准，输入批准号]。

Appendix 3 Paticipants Consent Form (English and Mandarin versions)

WESTERN SYDNEY
UNIVERSITY

Consent Form

Project Title:

The antecedents of burnout among teachers in China: a job demands-resources perspective

This study has been approved by the Human Research Ethics Committee at Western Sydney University. The ethics reference number is: H*[insert number]*

I hereby consent to participate in the above-named research project.

I acknowledge that:

- I have read the participant information sheet (or where appropriate, have had it read to me) and have been given the opportunity to discuss the information and my involvement in the project with the researcher/s

- The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.

I consent to:

☐ *Participating in an on-line survey*

I consent for my data and information provided to be used in this project and other related projects for an extended period of time.

I understand that my involvement is confidential and that the information gained during the study may be published and stored for other research use but no information about me will be used in any way that reveals my identity.

I understand that I can withdraw from the study at any time without affecting my relationship with the researcher/s, and any organisations involved, now or in the future.

I understand that my participation in this study will have no effect on my relationship with the researcher/s, and any organisations involved, now or in the future. I

understand that I will be unable to withdraw my data and information from this project because information provided will be non-identified.

Signed:

Name:

Date:

What if I have a complaint?

If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through Research Engagement, Development and Innovation (REDI) on Tel +61 2 4736 0229 or email humanethics@westernsydney.edu.au.

Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

WESTERN SYDNEY
UNIVERSITY

同意书

项目名称：

中国教师职业倦怠的前因：工作要求-资源视角

该研究已获得西悉尼大学人类研究伦理委员会的批准。道德参考编号为：H[插入编号]

我在此同意参与上述研究项目。

我承认：

• 我已阅读参与者信息表（或在适当的情况下，已阅读给我听）并有机会与研究人员讨论该信息以及我在项目中的参与

• 研究人员已向我解释了项目所需的程序和所涉及的时间，我对项目的所有疑问都得到了满意的答复。

我同意：

☐ 参与在线调查

我同意我提供的数据和信息在此项目和其他相关项目中长期使用。

我了解我的参与是保密的，并且在研究期间获得的信息可能会被发布和存储，以用于其他研究用途，但不会以任何方式使用关于我的信息来揭示我的身份。

我明白我可以随时退出研究，而不会影响我与研究人员或任何相关组织的关系，无论是现在还是将来。

我明白我参与这项研究不会影响我与研究人员和任何参与的组织的关系，无论是现在还是将来。我了解我将无法从该项目中撤回我的数据和信息，因为所提供的信息将无法识别。

签名：

姓名：

日期：

如果我有投诉怎么办？

如果您对本研究的道德行为有任何投诉或保留意见，您可以通过研究参与、发展和创新部门(REDI) 联系伦理委员会。联系方式包括电话 +61 2 4736 0229 或发送电子邮件至 humanethics@westernsydney.edu.au。

您提出的任何问题都将得到保密处理和全面调查，您将被告知结果。

Appendix 4 Survey Questionnaire (English version)

Survey Questionnaire

1. Are you a full-time teacher working in a for-profit education institution in China?
☐Yes ☐No
2. What is your gender?
☐Male ☐Female
3. What is your age?
☐18-24 ☐25-34 ☐35-44 ☐45-54 ☐55 or more
4. How long have you been teaching?
☐ Less than 5 years ☐5-10 years ☐10-20 years ☐More than 20 years
5. What is your educational background?
☐Diploma ☐Bachelor's ☐Master's ☐Ph.D. ☐Other

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

	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
1. I feel emotionally drained from my work.	0	1	2	3	4	5	6
2. I feel used up at the end of the workday.	0	1	2	3	4	5	6
3. I feel tired when I get up in the morning and have to face another day on the job.	0	1	2	3	4	5	6

4. Working all day is really a strain for me.	0	1	2	3	4	5	6
5. I feel burned out from my work.	0	1	2	3	4	5	6
6. I have become less enthusiastic about my work.	0	1	2	3	4	5	6
7. I have become less interested in my work since I started this job.	0	1	2	3	4	5	6
8. I doubt the significance of my work.	0	1	2	3	4	5	6
9. I have become more cynical about whether my work contributes anything.	0	1	2	3	4	5	6

The following 23 statements are about how you feel about your job and working environment. Please rate how much you personally disagree or agree with these statements (from 1 to 7) – how much they reflect how you feel or think personally.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
10. I worried that my students couldn't perform well in exams.	1	2	3	4	5	6	7
11. I worried about the exam performance of the class I teach.	1	2	3	4	5	6	7
12. I have to be responsible for students' exam performance.	1	2	3	4	5	6	7
13. My institution uses student exam performance to evaluate my professional ability.	1	2	3	4	5	6	7

14. My institution appraises my position and bonus according to students' exam performance.	1	2	3	4	5	6	7
15. My job requires working very fast.	1	2	3	4	5	6	7
16. My job requires working very hard.	1	2	3	4	5	6	7
17. I am asked to do an excessive amount of work	1	2	3	4	5	6	7
18. I have enough time to get the job done	1	2	3	4	5	6	7
19. In my job, I often feel like different people are "pulling me in different directions."	1	2	3	4	5	6	7
20. I have to deal with competing demands at work	1	2	3	4	5	6	7
21. My superiors often tell me to do two different things that can't both be done	1	2	3	4	5	6	7
22. The tasks I am assigned at work rarely come into conflict with each other.	1	2	3	4	5	6	7
23. The things I am told to do at work do not conflict with each other.	1	2	3	4	5	6	7
24. In my job, I'm seldom placed in a situation where one job duty conflicts with other job duties.	1	2	3	4	5	6	7

25. My supervisor goes out of his/her way to do things to make my life easier.	1	2	3	4	5	6	7
26. It is easy to talk with my supervisor.	1	2	3	4	5	6	7
27. My supervisor can be relied on when things get tough at work.	1	2	3	4	5	6	7
28. My supervisor is willing to listen to my personal problems.	1	2	3	4	5	6	7
29. My colleagues go out of their way to do things to make my life easier.	1	2	3	4	5	6	7
30. It is easy to talk with my colleagues.	1	2	3	4	5	6	7
31. My colleagues can be relied on when things get tough at work.	1	2	3	4	5	6	7
32. My colleagues are willing to listen to my personal problems.	1	2	3	4	5	6	7

The following 5 statements are about how you feel about yourself when doing your job. Please rate how much you personally disagree or agree with these statements (from 1 to 7) – how much they reflect how you feel or think personally.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
33. In uncertain times, I usually expect the best.	1	2	3	4	5	6	7
34. If something can go wrong for me, it will.	1	2	3	4	5	6	7

35. I'm always optimistic about my future.	1	2	3	4	5	6	7
36. I hardly ever expect things to go my way.	1	2	3	4	5	6	7
37. I rarely count on good things happening to me.	1	2	3	4	5	6	7
38. Overall, I expect more good things to happen to me than bad.	1	2	3	4	5	6	7

The following 14 statements are about how you cope with stress from your work. To respond to the statements in this questionnaire, you should have a specific stressful situation related to work in mind. Take a few moments and think about a stressful situation that you have experienced in the past week. Please rate how much you personally disagree or with these statements (from 1 to 7) – how much they reflect how you feel or think personally.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
39. I daydream or imagine a better time or place than the one I am in.	1	2	3	4	5	6	7
40. I draw on my past experiences.	1	2	3	4	5	6	7
41. I think up a couple of different solutions to problems.	1	2	3	4	5	6	7
42. I wish that I could change how I feel.	1	2	3	4	5	6	7
43. I try to come out of experiences better than when I went in.	1	2	3	4	5	6	7

44. I wish that I could change what has happened.	1	2	3	4	5	6	7
45. I try to analyse the situation in order to understand it better.	1	2	3	4	5	6	7
46. I usually know what has to be done, so I keep up my efforts to make things work.	1	2	3	4	5	6	7
47. I take it out on other people.	1	2	3	4	5	6	7
48. I avoid being with people in general	1	2	3	4	5	6	7
49. I have fantasies or wishes about how things might turn out.	1	2	3	4	5	6	7
50. I stand my ground and fight for what I want.	1	2	3	4	5	6	7
51. I wish that the situation would go away or somehow be over with.	1	2	3	4	5	6	7
52. I make a plan of action and follow it.	1	2	3	4	5	6	7

Thank you for your participation. It is greatly appreciated.

Appendix 5 Survey Questionnaire (Mandarin version)

调查问卷

1. 你是在中国教育机构工作的专职教师吗？

☐是 ☐否

2. 你的性别是？

☐男 ☐女

3. 你的年龄是多少？

☐18-24 ☐25-34 ☐35-44 ☐45-54 ☐55 或更多

4. 你的教领有多长？

☐ 5 年以下 ☐5-10 年 ☐10-20 年 ☐ 20 年以上

5. 你的教育背景是什么？

☐文凭 ☐学士 ☐硕士 ☐博士 ☐其他

以下 9 项陈述是关于您在工作中的感受。 请仔细阅读每条陈述，并决定您是否对自己的工作有这种感觉。 如果您从未有过这种感觉，请在陈述后的空格中选择“0”（零）。 如果您有过这种感觉，请划出最能描述您有这种感觉的频率的数字（从 1 到 6），表明您有这种感觉的频率。

	从不	一年几次或更少	一个月一次或更少	一个月几次	一周一次	一周几次	每天
1. 我觉得工作使我在情感上枯竭了。	0	1	2	3	4	5	6
2. 我在工作日结束时感到筋疲力尽。	0	1	2	3	4	5	6
3. 早上起来感觉很累，又要面对一天的工作。	0	1	2	3	4	5	6
4. 整天工作对我来说真的是一种压力。	0	1	2	3	4	5	6
5. 我觉得工作使我精疲力竭。	0	1	2	3	4	5	6
6. 我对我的工作不那么热情了。	0	1	2	3	4	5	6
7. 自从我开始这份工作以来，我对我的工作变得不那么感兴趣了。	0	1	2	3	4	5	6
8. 我怀疑我工作的意义。	0	1	2	3	4	5	6
9. 我变的更加愤世嫉俗，怀疑我的工作是否有任何贡献。	0	1	2	3	4	5	6

以下 23 条陈述是关于您对工作和工作环境的感受。 请评价您个人同意或不同意这些陈述的程度（从 1 到 7）——它们在多大程度上反映了您个人的感受或想法。

	非常不同意	不同意	有点不同意	既不同意也不反对	有点同意	同意	非常同意
10.我担心我的学生考试成绩不好。	1	2	3	4	5	6	7
11.我担心我所教的班级的考试成绩。	1	2	3	4	5	6	7
12.我必须对学生的考试成绩负责。	1	2	3	4	5	6	7
13. 我所在的机构使用学生的考试成绩来评估我的专业能力。	1	2	3	4	5	6	7
14.我所在机构根据学生的考试成绩评估我的职位和奖金。	1	2	3	4	5	6	7
15. 我的工作要求工作非常快。	1	2	3	4	5	6	7
16. 我的工作需要非常努力。	1	2	3	4	5	6	7
17. 我被要求做过多的工作	1	2	3	4	5	6	7
18.我有足够的时间完成工作	1	2	3	4	5	6	7
19. 在我的工作中，我经常觉得不同的人在 “把我拉向不同的方向”。	1	2	3	4	5	6	7
20. 我必须处理工作中相互矛盾的需求	1	2	3	4	5	6	7
21.我的上司经常让我做两件不能同时完成的事情	1	2	3	4	5	6	7
22.我在工作中分配的任务很少相互冲突。	1	2	3	4	5	6	7

23. 我在工作中被告知要做的事情彼此不冲突。	1	2	3	4	5	6	7
24. 在我的工作中，我很少遇到一种工作职责与其他工作职责相冲突的情况。	1	2	3	4	5	6	7
25. 我的上司尽力让我的生活更轻松。	1	2	3	4	5	6	7
26. 与我的上司交谈很容易。	1	2	3	4	5	6	7
27. 当工作遇到困难时，可以依赖我的上司。	1	2	3	4	5	6	7
28.我的上司愿意倾听我的个人问题。	1	2	3	4	5	6	7
29. 我的同事们尽力让我的生活更轻松。	1	2	3	4	5	6	7
30. 与同事交谈很容易。	1	2	3	4	5	6	7
31. 当工作遇到困难时，我的同事可以依靠。	1	2	3	4	5	6	7
32.我的同事愿意倾听我的个人问题。	1	2	3	4	5	6	7

以下 5 项陈述是关于您在工作时对自己的感受。 请评价您个人同意或不同意这些陈述的程度（从 1 到 7）——它们在多大程度上反映了您个人的感受或想法。

	非常不同意	不同意	有点不同意	既不同意也不反对	有点同意	同意	非常同意

33. 在不确定的时期，我通常期待最好的。	1	2	3	4	5	6	7
34. 如果关于我的某件事情可能会出错，它就会出错。	1	2	3	4	5	6	7
35. 我对自己的未来总是很乐观。	1	2	3	4	5	6	7
36. 我几乎从没想过事情会按我期望的方式发展。	1	2	3	4	5	6	7
37. 我很少指望好事发生在我身上。	1	2	3	4	5	6	7
38. 总的来说，我预期发生在我身上的好事多于坏事。	1	2	3	4	5	6	7

以下 14 条陈述是关于您如何应对工作压力的。 要回应本问卷中的陈述，您应该考虑与工作相关的特定压力情况。 花点时间思考一下您在过去一周中遇到的一个感到压力的情况。 请评价您个人不同意或不同意这些陈述的程度（从 1 到 7）——它们在多大程度上反映了您个人的感受或想法。

	非常不同意	不同意	有点不同意	既不同意也不反对	有点同意	同意	非常同意
39.我做白日梦或幻想比我现在的处境更好的时间或地点。	1	2	3	4	5	6	7
40. 我借鉴过去的经验。	1	2	3	4	5	6	7

41.我针对问题想了几个不同的解决方案。	1	2	3	4	5	6	7
42.我希望我能改变我的感觉。	1	2	3	4	5	6	7
43. 我试着比刚开始时更好地从经历中走出来。	1	2	3	4	5	6	7
44.我希望我能改变已经发生的事情。	1	2	3	4	5	6	7
45. 我尝试分析情况，以便更好地了解它。	1	2	3	4	5	6	7
46. 我通常知道应该做什么，所以我会继续努力让事情顺利进行。	1	2	3	4	5	6	7
47. 我在其他人身上发泄。	1	2	3	4	5	6	7
48. 我一般都避免和人接触。	1	2	3	4	5	6	7
49. 我对事情会如何发展抱有幻想或愿望。	1	2	3	4	5	6	7
50. 我坚持我的立场并为我的目标而战。	1	2	3	4	5	6	7
51. 我希望这种情况会消失或以某种方式结束。	1	2	3	4	5	6	7
52. 我制定行动计划并执行。	1	2	3	4	5	6	7

感谢您的参与。 不胜感激。

Appendix 6 Results of EFA of all the constructs using PCA

Job demands

Factor	Items	Component		
		1	2	3
SE	SE1		.811	
	SE2		.772	
	SE3		.744	
	SE4		.747	
	SE5		.805	
WL	WL1			.701
	WL2			.755
	WL3			.743
	WL4			.782
	WL5			.735
RA	RA1	.768		
	RA2	.788		
	RA3	.694		
	RA4	.778		
	RA5	.770		
	RA6	.771		

Job crafting

Facotr	Items	Component				
		1	2	3	4	5
INJD	JC1	.736				
	JC2	.696				
	JC3	.795				
	JC4	.800				
DSJD	JC5				.731	
	JC6				.803	
	JC7				.770	
ISJR	JC8			.730		
	JC9			.791		
	JC10			.817		
IQJD	JC11		.798			
	JC12		.763			
	JC13		.789			
DHJD	JC14					.870
	JC15					.819

Avoidant coping

Factor	Items	Component
		1
AC	AC1	.778
	AC2	.817
	AC3	.773
	AC4	.738
	AC5	.771
	AC6	.745
	AC7	.773
	AC8	.781

Burnout

Factor	Items	Component	
		1	2
EE	EE1	.810	
	EE2	.831	
	EE3	.851	
	EE4	.783	
	EE5	.747	
DP	DP1		.832
	DP2		.832
	DP3		.860
	DP4		.829

Moderating factors

Factor	Items	Component		
		1	2	3
SS	SS1			.890
	SS2			.904
	SS3			.875
	SS4			.866
Perf	Perf1		.868	
	Perf2		.934	
	Perf3		.915	
	Perf4		.921	
	Perf5		.906	
Proac	Proac1	.812		
	Proac2	.828		
	Proac3	.836		
	Proac4	.844		
	Proac5	.859		
	Proac6	.831		