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Investigating the Effect of Job Demands-Resources on Employee Attitude and Behavior in the Telecommunications Industry: The Mediating Role of Emotion Regulation

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探討電信產業中工作要求與工作資源對員工態度與行為的影響：以情緒管理為中介變數

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Abstract

In very competitive global markets, mobile telecommunications companies face increasing threats from over the top (OTT) services such as LINE, Spotify, and Netflix, thus decreasing traditional voice and messaging services and creating congestion in mobile data traffic. New, more profitable business strategies are desperately needed by telecommunications companies to avoid becoming "the dump pipes of OTT services." This study extends the main stream of research on this topic by investigating the impact of job characteristics on employee attitudes and behavior. Job demands, job resources, job burnout, job engagement, emotion regulation, and job performance are considered in the model, and the extent of their causal relationship are tested. In particular, an investigation was conducted to examine the degree to which job characteristics, employee attitudes and behavior, and emotion regulation vary with respondents' demographic characteristics. Further, the mediating role of emotion regulation on the relationships between job characteristics and employee attitudes and behavior is examined. A total of 252 valid respondents were collected by distributing questionnaires to the employees of mobile telecommunications companies in Taiwan.

In the results, it was found that job demands positively influenced job burnout; job resources positively influenced job engagement and emotion regulation; job engagement positively influenced job performance; and emotion regulation positively influenced job engagement and job performance but negatively influenced job burnout. However, job demands positively influenced emotion regulation, unlike the hypothesized negative linkage. A comparison of the standardized path coefficients revealed that job resources had the strongest impact on job performance, followed by emotion regulation and job demands. Emotion regulation fully mediated the relationship between job demands and job performance and partially mediated both the relationship between job resources and job performance. Further, the ANOVA results revealed that the job demands, job resources, job burnout, job engagement, emotion regulation, and the job performance levels of the respondents varied significantly with their demographic characteristics. Finally, managerial suggestions were provided for the mobile telecommunications industry that may possibly enhance employees' job performance and their emotion regulation.

Keywords: Job demands-resources (JD-R) model, Emotion regulation, Job performance, Mobile telecommunications industry

摘要

在競爭非常激烈的全球市場中，行動電信公司面臨到 Over The Top (OTT)服務(例如：LINE、Spotify 以及 Netflix 等)的威脅與日俱增，這些 OTT 服務的興起使得行動電信公司傳統語音和簡訊服務營收萎縮，也讓行動數據的流量大幅增加。因此，為了避免成為 OTT 服務的笨水管，行動電信公司必須要尋找可營利的商業策略來因應市場環境的改變。本研究延伸過去相關主題的研究，並探討工作特質對於員工態度與行為的影響。研究模型考量到工作要求、工作資源、工作倦怠、工作投入和工作表現，並檢驗各個構面之間的關係。不同受測者的人口特性是否會對工作特質、員工態度與行為以及情緒管理有差異化的現象。此外，檢驗情緒管理在工作要求和工作表現之間與工作資源和工作表現之間的中介效果。訪問對象為台灣行動電話公司的員工，最後回收的有效樣本數為 252 份。

研究結果顯示，工作要求對工作倦怠有顯著的正向關係、工作資源對工作投入與情緒管理有顯著的正向關係、工作投入與工作表現有顯著的正向關係、情緒管理對工作投入與工作表現有顯著的正向關係，但與工作倦怠有顯著的負向關係。然而，工作要求對情緒管理有顯著的正向關係，此研究結果與假設相悖。從標準化路徑係數的比較，發現工作資源對工作表現的影響最強，其次則為情緒管理和工作要求。情緒管理在工作要求與情緒管理之間具有完全中介效果，且在工作資源與情緒管理之間具有部分中介效果。再來，ANOVA 分析的結果顯示受訪者的人口特性與工作要求、工作資源、工作倦怠、工作投入、情緒管理、以及工作表現之間存在差異性。最後，根據實證數據分析的結果，本研究提出管理層面上的建議來提升員工的工作表現與加強員工情緒管理能力。

關鍵字：工作要求-資源模式、情緒管理、工作表現、行動電信產業

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Chapter One

Introduction

1.1 Background and Motivation

In a very competitive global market, mobile telecommunications corporations face increasing impacts from over the top (OTT) services such as LINE, Spotify, and Netflix that result in reductions in their traditional voice and messaging services and in congestion of mobile data traffic. Global voice service revenues declined from US$731 in 2010 to US$684 billion in 2015. It totally decreased by US$47 billion in four years (Statista, 2017). Cisco (2017) predicted that global mobile data traffic will grow by 7-fold from 2016 to 2021, a compound annual growth rate of 47% and will reach 49.0 exabytes (EB equivalent to 1018 bytes) per month by 2021 (i.e., the equivalent of 12,238 million DVDs each month), up from 7.2 exabytes per month in 2016. Mobile traffic per mobile-connected end-user device will reach 5,657 megabytes per month by 2021, up from 977 megabytes per month in 2016, a CAGR of 42%. With this exponential increase in data traffic, telecommunications corporations have to invest enormous resources in network capacity enhancement, while OTT service providers rip revenues by using telecommunications networks. Hence, new, profitable business strategies are desperately needed in order to avoid their becoming the dumping pipes of OTT services. Recently, American Telephone & Telegraph (American Telephone & Telegraph [AT&T], 2016), a major telecommunications corporation in the U.S., acquired Time Warner in October 2016 to utilize Time Warner's vast content library and abilities together with obtaining its TV subscriber base and mobile/broadband distributions in order to create fresh approaches for customers, content creators, distributors, and advertisers. Similarly, Verizon, one of the largest U.S. telecommunications corporations, acquired Yahoo's core businesses, including search, mail, and instant messaging in July 2016. Hence, Verizon is now able to gain its own competitive position as a mobile media company and accelerate revenue streams in digital advertising (Verizon, 2016).

Likewise, mobile service in Taiwan is an oligopolistic market dominated by Chunghwa Telecom (CHT) (with a market share of 38.7%), Taiwan Mobile (TWM) (25.5%), and Far EasTone Telecommunications (FET) (25.2%) (National Communications Commission [NCC], 2016). These three major telecommunications corporations are struggling with the same difficult positions caused by OTT service

providers as well. To overcome this problem, CHT (2016) improved value-added services with something called Brilliant Hami Packages that contain KKBOX, Hami Pass, Hami TV, Hami Games, and the Hami Bookstore to increase their average revenue per user (ARPU). A bundled package of broadband and multimedia on demand (MOD) services was launched to attract more subscriptions, and a subscription video on demand (SVOD) service was also offered to cater to customers' various interests. MOD content was offered through different fixed-line and mobile network terminals. FET (2016) launched a digital brand called friDay in 2014 containing friDay Video, friDay Shopping, friDay Reading, and friDay PLAY services and integrated multiple mobile applications to meet the various needs of consumers. TWM (2016) launched three brands, including Taiwan Mobile, TWM Broadband, and TWM Solution offering quadruple play services covering mobile, fixed-line, cable TV, and broadband for consumer, household, and enterprise markets. Facing digital transformation and digital convergence, telecommunications companies have no choice but to find new, highly profitable strategies in order to compete in this fiercely competitive environment. With these new, profitable strategies, the employee complexity increases dramatically; more tasks are assigned, and working hours are prolonged.

Laborers in Taiwan worked 2,104 hours in 2015, ranked as the fourth longest working hours according to the Ministry of Labor (2017) and the Organization for Economic Co-operation and Development (Organization for Economic Co-operation and Development [OECD], 2017a; 2017b). However, annual real wage received using the 2001 price index has stopped growing since the year 2000. Facing such harsh working conditions, many workers rebelled against their employers and the government. For example, flight attendants of China Airlines (CAL) took strike actions in 2016 by paralyzing most of the flights, crippling operations, and leaving more than 20,000 air passengers stranded at the Taipei and Taoyuan airports (The China Post, 2016). The strike was settled by agreeing to raise flight attendants' overseas allowance to the same level at that of pilots, have double salaries on national holidays, ensuring 123 days of yearly leave of absence, and incorporate commuting time into working hours. Likewise, railway employees and drivers for the Taiwan Railway Administration (TRA) struck, appealing to shorten their overtime hours, recruiting extra staff, and providing overtime pay (Taipei Times, 2016). There have been few emotion regulation programs provided by corporations since they mainly care about the productivity of their employees but not employees' feelings in the workplace. This is reflected in their provision of numerous training programs to enhance professional ability. To help employees to get through economic difficulty, emotion regulation programs are being increasingly

launched by government and training institutes. For example, a nonprofit organization called Search Inside Yourself Leadership Institute (Search Inside Yourself Leadership Institute [SIYLI], 2017) initiated in 2007 by Google offered programs for individuals and organizations that taught and trained employees' emotional intelligence skills. After completing the programs, the participants showed less emotional drain, greater ability to focus, more work efficiency, and better maintenance of calm and poise during challenges. The Ministry of Economic Affairs (2014) held emotional intelligence workshops for employees in small and medium enterprises in Taiwan to teach participants how to control their feelings, convert stress into motivation, and strengthen problem solving abilities. These efforts allowed employees to learn how to control their emotions, develop empathy, communicate more effectively, and increased their resilience.

The core assumption of the job demands-resources (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) is that each job type has its own unique work characteristics associated with job stress, as classified into two broad categories: job demands and job resources. Job demands (e.g., work overload or emotional demands) refer to "the physical, social, or organizational aspects of a job that require sustained physical and/or mental effort and are associated with certain physiological and psychological costs". With high job demands, employees may feel more stressed, which can lead to poor performance, lack of ability to focus, and negative health impacts. Conversely, job resources (e.g., social support, performance feedback) are "the physical, psychological, social, or organizational aspects of a job that reduce the associated physiological and psychological costs", are functional in terms of achieving work goals, or stimulate personal growth, learning, and development. With sufficient job resources, employees may dedicate more to their work, increase their work efficiency, and have more opportunities for career development.

Related studies have examined the impacts of employees' emotion regulation on interpersonal conflict, job performance, distributive justice, emotional exhaustion, job satisfaction, hostility, service quality, occupational well-being, and intentions to quit (Mulki, Jaramillo, Goad, & Pesquera, 2015; Martínez-Íñigo & Totterdell, 2016; Hur, Han, Yoo, & Moon, 2015; Brotheridge & Grandey, 2002; Ghanizadeh & Royaei, 2015; Medler-Liraz & Seger-Guttmann, 2015; Cheung & Lun, 2015; Hur, Moon, & Jung, 2015; Côté & Morgan, 2002). Their results have suggested that employees with the ability to regulate their emotions are capable of dealing with workplace stress efficiently and can provide high quality services. Such a positive linkage between emotion regulation and work outcomes had been intensively verified in service industries

including education, communications, retailing, and healthcare. Nevertheless, emotion regulation has been regarded as an exogenous variable that influences occupational well-being, employee attitude, and work outcome, but the possibility of the influence of these factors on emotion regulation in complex workplaces has been ignored. Actually, supervisor/colleague support, career planning/emotion meditation workshops, and yoga courses provided by companies enhance employees' ability to regulate their emotions, but those overloaded with work with no time to take a break, and job complexity due to high job demands result in eventual loss of their emotion control. Hence, based on the JD-R model, these job characteristics were considered in the research model of this study. Consequently, a model was constructed to explore the extent of the impact of job characteristics on emotion regulation and that of emotion regulation on employee attitudes and behavior in the mobile telecommunications industry. Their causal relationships together with the mediating role of emotion regulation were investigated.

1.2 Research Objectives

As mentioned above, job demands and job resources can both positively and negatively affect employees attitude and behavior, including job engagement, job burnout, and job performance. However, the mediating roles of emotion regulation have never been investigated to examine the relationship between job characteristics and employee attitude and behavior. Hence, this study extends the main stream of research by investigating the impact of job characteristics on employee attitudes and behavior. The study objectives were aimed at the employees of five mobile telecommunications operators in Taiwan. Job demands, job resources, job burnout, job engagement, emotion regulation, and job performance were considered in the model, and the extent of their causal relationship was tested. In particular, an investigation was conducted to examine the degree to which job characteristics, employee attitudes and behavior, and emotion regulation vary with respondents' demographic characteristics. Further, the mediating role of emotion regulation on the relationships between job characteristics, employee attitude and behavior are examined in this study. This study provides a general picture of how emotion regulation affects the relationship between job characteristics and employee attitudes and behavior. Finally, managerial implications are drawn from the results that can be used to provide practical strategies for telecommunications corporations in order to improve employee job performance and enhance their emotion regulation.

Chapter Two

Job Demands-Resources Model

The job demands-resources (JD-R) model originated from the four models of the two-factor theory (Herzberg, Mausner, & Snyderman, 1959), the job characteristics model (Hackman & Oldham, 1976), the job demand-control (JD-C) model (Karasek, 1979), and the effort-reward imbalance (ERI) model (Siegrist, 1996). These models provided insights upon the impacts of job stress and motivation on employees' wellbeing. The two-factor theory suggests that employee satisfaction can be affected by two types of work factors: motivating factors and hygiene factors, and the theory offered managers appropriate strategies that can be implemented to help employees contribute to corporations. The job characteristics model is used to describe and demonstrate the relationships among core job dimensions, critical psychological states, and affective outcomes. The JD-C model provides insight into the sources of job stress and predicts how employees will react under different levels of job demand and job control. The central concept of the ERI model is that an imbalance between an individual's effort and subsequent rewards may lead to stressful experiences and provides insight into how employees' work conditions can be improved. However, there has been some criticism of these models (Bakker & Demerouti, 2014). First, the models tend to simply focus on only one type of job stress and work motivation. Taking two-factor theory for example, hygiene factors and motivation factors focus on employee satisfaction and motivation but neglect the impact of job stress. Next, the models simply assume that job demands lead to exhaustion when job resources are low despite the fact that work environments have become more complex. Both the JD-C model and ERI model do not consider other factors (e.g., emotional demands, supervisory support, and performance feedback) and other interactions that can interfere with the original relationship. Finally, the models are static and do not change in terms of job characteristics even though the world has become quite different. Based on the frameworks of these models, the JD-R model adjusts for these problems so that the model is better fitted to real world situations and considers more perspectives of the connections.

The JD-R model is a heuristic model, originally developed by Demerouti et al. (2001) to explore how work characteristics and employee wellbeing affect employee attitudes and behavior. It assumes that every job type has its own unique work

characteristics associated with job stress and that they can be classified into two broad categories: job demands and job resources. Job demands (e.g., work overload or emotional demands) refer to "the physical, social, or organizational aspects of a job that required sustained physical and/or mental effort and are associated with specific physiological and psychological costs". They may turn into stressors in situations that require high effort to sustain an expected performance level, consequently eliciting negative responses, including job exhaustion and impaired health. Conversely, job resources (e.g., social support and performance feedback) are "the physical, psychological, social, or organizational aspects of a job that reduce the associated physiological and psychological costs, are functional in terms of achieving work goals, or stimulate personal growth, learning, and development". Job resources may enhance employee involvement with their corporations, foster devotion to work, and have a positive impact on performance outcomes, thus causing employees to have low intention to leave their corporations. In the literature, the JD-R model has been widely adopted to predict how job characteristics influence job burnout (Bakker, Demerouti, & Verbeke, 2004; Hakanen, Bakker, & Schaufeli, 2006; Hu, Schaufeli, & Taris, 2011; Li, Jiang, Yao, & Li, 2013), job engagement (Demerout et al., 2001; Hu et al., 2011; Akkermans, Schaufeli, Brenninkmeijer, & Blonk, 2013), turnover intention (Bakker, Demerouti, & Schaufeli, 2003; Jourdain & Chênevert, 2010; Kimber & Gardner, 2016; Molino, Bakker, & Ghislieri, 2016), absence (Bakker et al., 2003), health impairment (Bakker et al., 2003), safety behavior (Chen & Chen, 2014; Li et al., 2013), and job performance (Bakker et al., 2004). For example, it has been used to examine factors that impact cabin crew safety behavior in airlines (Chen & Chen, 2014), to reveal how teachers' working conditions are related to their health problems and job performance via wellbeing (Hakanen et al., 2006), to discover the additive effects of job demands-resources on job engagement and job exhaustion in blue collar workers and health professionals (Hu et al., 2011), and to predict employees' self-reported absenteeism and turnover intentions in the field of telecommunications (Bakker et al., 2003).

The JD-R model also proposes that there are buffer and boost effects between job demands and job resources. These interactions may influence job exhaustion and job engagement. The buffer effect of job resources suggests that job resources can buffer the negative impact of job demands on job exhaustion. This concept is in agreement with the one in Karasek's (1979) job demand-control (JD-C) model, and it has been widely accepted in many studies among home care professionals (Xanthopoulou, Bakker, Dollard, Demerouti, Schaufeli, Taris, & Schreurs, 2007), blue collar workers in mechanic-related factories and health professionals from hospitals (Hu et al., 2011),

employees from different industries, including industrial work, construction, trade, pubs and restaurants, and transportation (Bakker et al., 2004), and staff members of high-level professional educational institutions (Bakker, Demerouti, & Euwema, 2005). With sufficient job resources such as performance feedback, supervisor support, and task autonomy, employees may better deal with their routine job demands, and thus, job resources buffer the potentially negative effects of excessive job demands on job exhaustion. Conversely, the impact of job resources on job engagement is amplified by high job demands (Bakker & Demerouti, 2007, 2014; Hu et al., 2011). Based on the conservation of resources (COR) theory (Hobfoll, 2001), individuals seek to obtain, retain, and protect the things they value, such as material, social, personal, or energy resources. The COR theory's central tenet is that resource loss (e.g., feeling that I have lost control over my life) is disproportionally more salient than resource gain (e.g., feeling that I have control over my life). However, resource gain may become increasingly important in resource loss situations. This implies that job resources may motivate employees when they were under of high job demand conditions.

According to the JD-R model, job demands and resources evoke two psychological processes: the health impairment process and the motivational process. In the health impairment process, excess job demands (i.e., work overload, emotional demands) deplete employees' mental and physical resources and result in job exhaustion, eventually leading to health problems (e.g., hand/arm injured without time breaks). In the motivational process, job resources (i.e., performance feedback, supervisor support) play motivational roles, so job resources can foster employees' job engagement and hence lead to positive job performance.

These dual processes have gained some supports in empirical studies. Job demands have been found to be a crucial predictor of the health impairment process and can be used to foresee employees' health problems, absence levels, and job performance as it relates to job exhaustion. Further, in the motivational process, job resources are a unique predictor of job performance, turnover intention, and organizational commitment, through job engagement (Bakker et al., 2003; Bakker et al., 2004; Hakanen et al., 2006; Hu et al., 2011). Bakker et al. (2003) conducted a JD-R model among 477 customer service employees in the call center of a Dutch telecom company. The sample included four different job positions: tele-operators, tele-advisors, tele-consultants, and supervisors. It was found that job demands are an important predictor of exhaustion and repetitive strain injury (RSI) and have a positive relationship with absence duration and long-term absence. Through a correlational analysis, this study revealed that exhaustion and RSI do not act as pure mediators between job demands and absenteeism. Instead,

they are more like conditional variables. If job demands cause health problems, absenteeism may follow. Conversely, job resources were found to be a predictor of involvement and to indirectly affect turnover intention. The correlational analysis revealed that the relationship between job resources and turnover intentions was significant and that involvement was a pure mediator between the two variables. Hence, the JD-R model involves dual processes. Bakker et al. (2004) conducted a study using the JD-R model for 146 participants in different industries (i.e., industrial work, construction, trade, pubs and restaurants, transportation, etc.). The results indicated that the relationship between job demands to exhaustion was positive and strongly significant. In contrast, job resources had a highly significant and negative impact on disengagement. Moreover, both the paths from exhaustion to in-role performance and from disengagement to extra-role performance were significantly supported. The direct effect of job demands on in-role performance was supported; however, the relationship between job resources and extra-role performance was not supported.

Hakanen et al. (2006) collected questionnaires using the JD-R model from all teachers who worked in elementary, low secondary, upper secondary, and vocational schools at the Education Department of Helsinki, Finland. It was shown that the direct impacts from job demands on health and from job resources on organizational commitment were both significant. The mediation roles of burnout and engagement to the dual processes were also supported. Hu et al. (2011) conducted the JD-R model in two different industries in China with 625 blue collar workers in three mechanic factories and 761 health professionals from four hospitals. The results showed that, for both groups of participants, burnout acted as a mediator between job demands and organizational outcomes, and work engagement mediated the relationship between job resources and organizational outcomes. Job resources were found to have a negative impact on burnout, implying that employees may be exhausted under conditions in which they have high job demands and/or low job resources. Additionally, job demands were found to be negatively related with work engagement although the relationship was weaker as compared to job resources.

In this study, the JD-R model is applied to investigate the causal relationship among job demands-resources, job burnout, job engagement, and job performance in Taiwan's mobile telecommunications companies. With high job demands, employees may experience job burnout and lower their job performance. However, job resources may foster employee engagement and in turn enhance job performance. Moreover, this study extends the JD-R model by adding emotion regulation to determine whether a mediating effect of emotion regulation exists in the JD-R model.

Chapter Three

Hypothesis Development

Based on the review of the theoretical background, job demands are the critical factors that negatively affect employee attitudes and performance, and, on the contrary, job resources are the essential factors that positively influence employee attitudes and performance. Further, emotion regulation is an important factor that has an impact on employee attitudes and performance and is a mediator between job characteristics (i.e., job demands and job resources) and job performance. The interrelationships between the constructs in the research model are addressed below.

3.1 Job demands and Job resources

Demerouti et al. (2001) first developed the job demands-resources (JD-R) model to explore how work characteristics and employees' wellbeing affected their attitudes and behavior. It assumes that whereas every occupation may have its own specific factors related to job stress, these factors can be classified into two broad categories: job demands and job resources, where job demands are defined as "the physical, social, or organizational aspects of a job that require sustained physical and/or mental effort and are associated with certain physiological and psychological costs", and job resources are "the physical, psychological, social, or organizational aspects of a job that either reduce job demands and the associated physiological and psychological costs", are functional in terms of achieving work goals, or stimulate personal growth, learning, and development. The same definitions of these two job characteristics have been extensively adopted to examine how these job characteristics influence job exhaustion (Bakker et al., 2004; Hakanen et al., 2006; Hu et al., 2011; Li et al., 2013), job engagement (Demerouti et al., 2001; Hu et al., 2011; Akkermans et al., 2013), turnover intention (Bakker et al., 2003; Jourdain & Chênevert, 2010; Kimber & Gardner, 2016; Molino et al., 2016), absence (Bakker et al., 2003), health impairment (Bakker et al., 2003), safety behavior (Chen & Chen, 2014; Li et al., 2013), and job performance (Bakker et al., 2004). Likewise, in this study, job demands and job resources are defined as stated above.

The influences of job characteristics (i.e., job demands, job resources) have been widely adopted in different disciplines, including nutrition production company (Bakker, Demerouti, Boer, & Schaufeli, 2003), call center (Bakker et al., 2003),

international airlines company (Chen & Chen, 2014), home health care organization (Elst, Cavents, Danels, Johanik, Baillien, Broeck, & Godderis, 2016; Jourdain & Chênevert, 2010; Xanthopoulou et al., 2007), oilfield company (Li et al., 2013), bank (Babakus, Yavas, & Ashill, 2009), and in educational institutions (Akkermans et al., 2013; Hakanen et al., 2006). These studies all indicated that job demands and job resources are important factors affecting employee attitudes and behavior. Since mobile telecommunications are under fierce competitions, and their profitability has been gradually eroded by OTT applications, operators have had to come out with effective strategies to increase their revenues. To compete with OTT applications and increase the utilization of the broadband network, operators have launched new multimedia services (e.g., NTT docomo launched the popular "i-channel" to deliver news, weather, entertainment and sports, horoscopes, the dmarket, music, magazines, and up-to-date information) or merge multimedia companies (e.g., AT&T acquiring Time Warner, Verizon acquiring Yahoo's core businesses). Also, they conduct routine, frequent promotional activities in retail stores, periodical functional checks of base stations and equipment, and monthly inspections by the NCC. Occasionally, employees have to work overtime to increase voice/data capability for special events (i.e., New Year's Eve, concerts) and quickly repair network functionality after disasters. Hence, employees are assigned to more job tasks and demands imposed by their supervisors and even experience expanded work shifts to get things done. Due to extra work burdens, they become stressed during their work shifts, which may in turn lower their performance and increase the possibility of ill health (Hakanen et al., 2006; Xanthopoulou et al., 2007). On the other hand, appropriate support from supervisors and colleagues will make them feel less pressure from their jobs, and consequently, they will dedicate themselves to their duties accordingly (Bakker et al., 2004; Hu et al., 2011). In telecommunications, common job resources available to employees include work-life coaching (i.e., a professional consultancy services available for employees who require advice on work life and job-related issues), training and career development programs (i.e., helping employees grow and develop during their careers), and recreation clubs (i.e., ensuring employees' physical, mental and emotional wellness, for example, emotion meditation workshops and yoga courses), etc. Hence, employees with abundant job resources provided by companies can devote themselves to their jobs, which leads to enhanced job performance.

3.2 Job Burnout and Job Engagement

Maslach, Jackson, and Leiter (1997) gave a specific definition of job burnout where they characterized it as "a psychological syndrome comprising emotional

exhaustion, depersonalization, and inefficacy that can occur among individuals who work with other people". Emotional exhaustion refers to feelings of being overextended and exhausted by the emotional demands of one's work. Depersonalization is characterized as a detached and cynical response to the recipients of one's service or care. Finally, inefficacy as well as reduced personal accomplishment refer to when employees experience reduced feelings of competence, success, and accomplishment both in jobs and corporations. These three categories eventually became the instrument known as the Maslach Burnout Inventory (MBI, Maslach & Jackson, 1981), which is used to measure job burnout and has been applied in different industries, including human services and health care (Vanheule, Rosseel, & Vlerick, 2007; Chandler, 2009; Girgisa, Hansen, & Goldstein, 2009), educational settings (Hogana & McKnight, 2007; Sabanci, 2009; Khezerlou, 2013), and as a general version (Ahola, Honkonen, Isometsa, Kalimo, Nykyri, Koskinen, Aromaa, & Lonnqvist, 2006; Rothmann, 2008). However, several studies (e.g., Demerouti et al., 2001; Bakker et al., 2004; Hakanen et al., 2006) have excluded inefficacy from their definitions of job burnout for a couple of reasons. First, exhaustion and depersonalization constituted the essence of the burnout syndrome, and inefficacy was the weakest burnout dimension in terms of significant relationships with other variables (Lee & Ashforth, 1996). Second, increasing numbers of empirical studies showed that emotional exhaustion and depersonalization are much more strongly correlated with each other than with personal accomplishment (Lee & Ashforth, 1996; Maslach, Schaufeli, & Leiter, 2001). Third, the causes of inefficacy were more related to individual characteristics (Cordes & Dougherty, 1993). Hence, in this study, for the construct of job burnout, the two dimensions of emotional exhaustion and depersonalization were adopted, but inefficacy was not. Further, following the definition from Maslach et al. (1997), job burnout refers to an extreme form of fatigue as a consequence of prolonged, intense physical, affective, and cognitive strain caused by exposure to specific working conditions; emotional exhaustion refers to feelings of being overextended and exhausted by the emotional demands of one's work, and depersonalization is characterized as a detached and cynical response to the recipients of one's service or care.

Based on the health impairment process from the JD-R model, excess job demands (i.e., work overload, emotional demands) deplete employees' mental and physical resources and result in job burnout. Previous studies have extensively examined the linkage of job demands and job burnout across human services, industries, and transportation in German and in Holland (Demerouti et al., 2001), the sectors of business services, government, health care in the Netherlands (Bakker et al., 2004), and

the Education Department in Helsinki, Finland (Hakanen et al., 2006), where a positive relationship between the two was found (i.e., employees with high job demands were found to have a high likelihood of suffering job burnout). In telecommunications, the extra demands of work put enormous pressure on employees, making them feel used up and tired of their duties. In particular, employees with high job demands are more likely feel burnout in their jobs. Hence, the following hypothesis is postulated:

H_1: Job demands have a direct and positive impact on job burnout.

Schaufeli, Salanova, González-romá, and Bakker (2002) gave a definition of job engagement where they characterized it as "a positive, fulfilling, work-related state of mind including vigor, dedication, and absorption". Vigor was characterized by high levels of energy and mental resilience while working. Dedication was characterized by a sense of significance, enthusiasm, inspiration, pride, and challenge. Absorption was characterized by being fully concentrated and happily engrossed in one's work, where time passes quickly, and one has difficulty detaching oneself from work. The same definition of job engagement has been adopted in different industries, including home health care organization (Elst et al., 2016), educational institution (Akkermans et al., 2013; Hakanen et al., 2006), insurance company, occupational health and safety service pension fund company, and home-care institution (Schaufeli & Bakker, 2004), mechanic factories and health professionals (Hu et al., 2011), private and public companies (Schaufeli et al., 2002), and food-processing company (Langelaan, Bakker, Doornen, & Schaufeli, 2006). Hence, following the original definition of job engagement in Schaufeli et al. (2002), this study adopted the same three dimensions: vigor, dedication, and absorption.

Based on the motivational process described in the JD-R model, adequate job resources (i.e., performance feedback and supervisor support) reduce employees' mental and physical demands and result in job engagement. A positive linkage between job resources and job engagement has been extensively verified across insurance companies, pension fund companies, and home-care institutions in the Netherlands (Schaufeli & Bakker, 2004), the education department in Helsinki, Finland (Hakanen et al., 2006), and mechanic factories and hospitals in China (Hu et al., 2011). That is, employees with sufficient support from their supervisors and colleagues have been found to devote themselves to their work. For example, in the study of Hakanen et al. (2006) on teachers in the Department of Education in Helsinki, Finland, the teachers who were able to draw upon job resources (i.e., supervisor/colleague support) were found to be more engaged in their work. Telecommunications employees who obtain

abundant assistance and support from their colleagues and supervisors and frequent feedback for group/personal tasks perform better at their jobs or improve their weaknesses. As a consequence, they devote themselves to doing their jobs. Hence, this the following hypothesis is postulated:

H_2: Job resources have a direct and positive impact on job engagement.

3.3 Emotion Regulation

Gross (2002) defined emotion regulation as "the processes by which we influence which emotions we have, when we have them, and how we experience and express them." These processes include changes in emotion dynamics, or the latency, rise time, magnitude, duration, and offset of responses in the behavioral, experiential, or physiological domains. Grandey, Dickter, and Sin (2004) defined emotion regulation as the two-general emotional and behavioral processes of surface acting and deep acting while testing the relationships between customer aggression and service employees' emotion regulation across two call centers in the U.S. Surface acting refers to behavioral changes in employees including suppressing or faking expression. Deep acting refers to internal change in employees that result in altered cognitions through perspective taking (i.e., reappraising the situation by taking another's point of view) or positive refocus (i.e., focusing attention on positive things to regulate feelings). Brackett, Palomera, Mojsa-Kaja, Reyes, and Salovey (2010) defined emotion regulation as "the capability to regulate one's own emotional states and to maintain desirable emotions and reduce or modify unwanted emotions" while testing the relationships among emotion regulation, burnout, and job satisfaction across three secondary schools in Kent, England. Mulki et al. (2015) defined emotion regulation as "the ability to regulate emotions allowing an individual to manage his/her feelings and behavior" while testing the antecedent of stress, employee emotion regulation, and the impact on organizational outcomes from the salespeople working for pharmaceutical and financial companies in Mexico. Côté and Morgan (2002) defined emotion regulation as "the conscious regulation of the responses to an emotion that are involved in public display" while testing the association between emotion regulation, job satisfaction, and intentions to quit among working college students at the University of Toronto, Canada. Hence, in this study, emotion regulation refers to the capability of a person to regulate his or her own emotional states (i.e., maintaining desirable emotions, reducing or modifying unwanted emotions) in order to manage his/her behavior.

The influences of employees' emotion regulation on interpersonal conflict and job performance (Mulki et al., 2015), distributive justice and emotional exhaustion

(Martínez-Íñigo & Totterdell, 2016), job satisfaction (Hur et al., 2015), burnout (Brotheridge & Grandey, 2002; Ghanizadeh & Royaei, 2015), hostility and service quality (Medler-Liraz & Seger-Guttmann, 2015), occupational well-being (Cheung & Lun, 2015), and intentions to quit (Côté & Morgan, 2002) have been extensively examined. However, the antecedents of emotion regulation in complex workplaces have been possibly ignored in the literature. As for the linkage of job resources to emotion regulation, it has been found that teachers and students with sufficient support and better social interaction are more likely to have the ability to control their emotions across three secondary schools in Kent, the U.K. (Brackett et al., 2010) and the University of New Hampshire, U.S.A. (Lopes, Brackett, Nzlek, Schütz, Sellin, & Salovey, 2004). In telecommunications, employees with abundant job resources provided by companies regulate their emotions to get through difficulties. As for the linkage of job demands to emotion regulation, no related study has been found. Nevertheless, it can be proposed that high job demands (e.g., overloaded with work and job complexity) might eventually decrease the capability of telecommunications employees to regulate their emotions. Hence, the following hypotheses are postulated:

H_3: Job demands have a direct and negative impact on emotion regulation.
H_4: Job resources have a direct and positive impact on emotion regulation.

Previous studies examined the linkage of emotion regulation and job burnout across six schools in Hangzhou, China (Cheung & Lun, 2015) and foreign language institutes in Mashhad, Iran (Ghanizadeh & Royaei, 2015), and a negative relationship between two was found. Teachers who were able to control their emotions (e.g., distracting attention away from an unpleasant situation, practicing relaxation techniques) were able to decrease the frequency of experiencing burnout. In telecommunications, employees find ways to relieve their stress themselves to avoid feeling stressed or frustrated over a long period of time by attending emotion regulation courses held by the company, talking to counselors, decorating office tables with comforting objects (e.g., cute animal pictures, small potted plants), or going outside to get some fresh air. Also, previous studies have examined the linkage between emotion regulation and job engagement across police officers in Australia (Brunetto, Teo, Shacklock, & Farr-Wharton, 2012) and first-line service (e.g., hotels, shops, banks, hospitals, beauty and hair businesses) employees in Israel (Yagil, 2012), and a positive relation between the two was found. For example, in a study by Brunetto et al. (2012) on police officers in Australia, those who could control or minimize their exposure to negative emotions and modify appraisals or evaluation of situations were able to find the meaning of their work and dedicate their efforts to their jobs. Likewise,

telecommunications employees with the ability to control their emotions can put themselves in others' shoes and remind themselves of the purpose of their jobs. Therefore, they devote themselves to their duties accordingly. Hence, the following hypotheses are postulated:

H_5: Emotion regulation has a direct and negative impact on job burnout.
H_6: Emotion regulation has a direct and positive impact on job engagement.

3.4 Job Performance

Jamal (1984) defined job performance as "employees' overall effectiveness, motivation, patient care skills, and withdrawal behavior, such as absenteeism, tardiness, and anticipated turnover" while testing the relationship between job stress and job performance among nurses in two hospitals in Montreal, Canada. Babakus et al. (2009) defined job performance as "employees' work behavior that can lead to achieving company objectives, make them well-prepared and organized with regard to completing tasks, and cause them to maintain a consistent level of performance" while testing the relationships among job demand, burnout, job performance, and customer orientation across the frontline employees at 50 branches of a bank in New Zealand. Bakker et al. (2004) gave a definition of job performance and characterized it as two sorts of employee accomplishments: in-role performance and extra-role performance while testing the impact of burnout on job performance across business services, government, and health care sectors in the Netherlands. In-role performance refers to the officially required outcomes and behaviors that directly serve the goals of an organization, and extra-role performance refers to discretionary behavior on the part of employees that is believed to directly promote the effective functioning of an organization without necessarily directly influencing a person's target productivity. Kahya (2007) gave a definition of job performance and characterized it as two broad classes of employee behavior including task performance and contextual performance while testing the effects of job characteristics and working conditions on job performance across a medium-sized manufacturing company in Turkey. Task performance refers to patterns of behavior that are directly involved in producing goods or service or activities that provide indirect support for an organization's core technical processes. Contextual performance refers to employee efforts that are not directly related to their main task function but are important because they shape the organizational, social, and psychological context that serves as the critical catalyst for task activities and processes. In accordance with previous studies, job performance in this study refers to behavior indicating that employees are able to successfully accomplish the tasks/goals assigned

to them, are subject to the normal constraints related to the reasonable utilization of available resources, and where a consistent level of performance is maintained at their jobs.

As for the linkage of job resources and job performance, Chen and Chen (2014) found that for flight attendants at five international airlines in Taiwan, the greater the perceived job resources, the more likely they were to engage in safety behavior. With sufficient job autonomy and professional development, flight attendants will use protective equipment, obey safety policy, and properly perform safety procedures related to any incident they may have to confront. In contrast, as for the linkage of job demands and job performance, Bakker et al. (2004) found that for employees working in business services, government, and health care sectors in Netherlands, a high level of job demands lowered their job performance. Under high work pressure and overloading, these employees lost their willingness to work that led to decreases in their job performance. Similar results were found for the flight attendants in Chen and Chen (2014), since overloading or emotional demands decreased their judgment related to safety behavior. Likewise, for telecommunications employees, sufficient job resources will enhance their job performance, but high level of job demands will result in a decrease in job performance. Hence, the following hypotheses are postulated:

H_7: Job demands have a direct and negative impact on job performance.
H_8: Job resources have a direct and positive impact on job performance.

Previous studies have examined the linkage of employee job burnout and job performance across a call center of a large Dutch telecom company (Bakker et al., 2003), three oilfield companies in China (Li et al., 2013), and business services, government, and health care sectors in the Netherlands (Bakker et al., 2004), where a negative relationship between the two was found (i.e., high levels of job burnout were found to lead to poor job performance). For example, in the study of Li et al. (2013), crude oil production workers who experienced high levels of job burnout were found to fail to participate in safety prevention activities and possibly increased the rates of injuries and accidents. In telecommunications, employees who feel stressed and frustrated with their tasks are not willing to focus on their duties and experience lowered job performance (i.e., making wrong judgments when engaged in their projects). Hence, the following hypothesis is postulated:

H_9: Job burnout has a negative impact on job performance.

Previous studies have examined the linkage between emotion regulation and job performance across teachers in three secondary schools in Kent, the U.K. (Brackett et al., 2010) and food service employees at nine different locations of the same restaurant franchise (Sy, Tram, & O'Hara, 2006), and a positive relationship between the two was found (i.e., employees with better ability to control their emotions would nurture positive interactions between colleagues, foster more cooperation and coordination, and have better performance). For example, in the study of Brackett et al. (2010), teachers who maintained desirable emotions and reduced or modified unwanted emotions were able to be more effective in achieving academic goals and maintaining good classroom management and discipline practices. In telecommunications, no job can be finished by any single person and must use teamwork where employees have to work with their colleagues and supervisors when doing their jobs. Employees with high ability to regulate their emotions can get along with their colleagues and supervisors, cooperate and coordinate with them well, and thus, effectively contribute to their own performance. Hence, the following hypothesis is postulated:

H_{10}: Emotion regulation has a positive impact on job performance.

Previous studies have examined the linkage of job engagement and job performance across blue collar workers in three mechanic factories, health professionals in four hospitals in China (Hu et al., 2011), and teachers from the Department of Education in Helsinki, Finland (Hakanen et al., 2006), and a positive relationship between two was found (i.e., employees who were content and enthusiastic with their jobs and found their work worthy were found to be able to successfully complete their tasks and achieve their work goals). For example, in the study of Hakanen et al. (2006), teachers who had passion and endeavored to create innovative teaching methods and take good care of students were able to build a good learning environment and increase students' interest in learning. Thus, student learning was improved. In telecommunications, employees who engage in their duties (e.g., viewing their jobs as opportunities to grow) are able to achieve their goals and enhance their job performance simultaneously (e.g., achieving the objectives of their jobs in terms of revenues/customers). Hence, the following hypothesis is postulated:

H_{11}: Job engagement has a positive impact on job performance.

According to the previous discussion, direct relationships between job demands/resources and job performance have been found (Bakker et al., 2004; Chen & Chen, 2014). Being overloaded work and experiencing high emotional demands result in negative relationships and limit effectiveness and safety behavior, but sufficient job

autonomy and professional development facilitate working skills and lead to avoidance of injuries and accidents. Also, emotion regulation has a direct impact on job performance (Brackett et al., 2010; Sy et al., 2006). Employees with better ability to control their emotions will nurture positive interactions between colleagues, foster more cooperation and coordination, and facilitate their own job performance. Significant relationships between job demands/resources and emotion regulation (Brackett et al., 2010; Lopes et al., 2004) have been found. Being overloaded with work or experiencing high levels of job complexity decrease employees' capability of regulating their emotions, but employees with sufficient support and better social interaction are likely to have the ability to control their emotions. In this study, by utilizing the JD-R model, it was proposed that job demands and job resources are related to emotion regulation (hypotheses 3 and 4) and job performance (hypotheses 7 and 8) and that emotion regulation is related to job performance (Hypothesis 10). Hence, emotion regulation may be connected to job demands, and job resources may be connected to job performance, and it is assumed that emotion regulation plays mediating roles between job demands and job performance and between job resources and job performance, respectively. In telecommunications corporations, by being confronted with various job demands and job resources daily, employees have to learn how to control their emotions when dealing with incidents. Through adjusting their emotions, they are able to experience enhanced performance. Therefore, the following hypotheses are postulated:

H_{12a}: Emotion regulation mediates the relationship between job demands and job performance.

H_{12b}: Emotion regulation mediates the relationship between job resources and job performance.

Chapter Four

Research Model and Design

In accordance with the above discussion of the theoretical background and the literature review, the research model is proposed in this chapter. The measurement of all the constructs is conducted sequentially. Then, the sampling method used for data collection is described. Finally, the analysis procedure for the model is briefly explained.

4.1 Research Model

Based on the theoretical background, the proposed research model constructed for the study is depicted in Figure 1. The interrelationships between each construct in the model are addressed below. Job demands positively affect job burnout but negatively influence emotion regulation. Job resources positively affect job engagement and emotion regulation. Emotion regulation positively affects job engagement but negatively affects job burnout. Job performance is negatively linked to job demands and job burnout but positively linked to job resources, job engagement, and emotion regulation. In addition, emotion regulation is used as a mediator to link the relationship between job characteristics and job performance, and a mediation analysis is further conducted to determine whether job demands and job resources have an effect on job performance via emotion regulation.

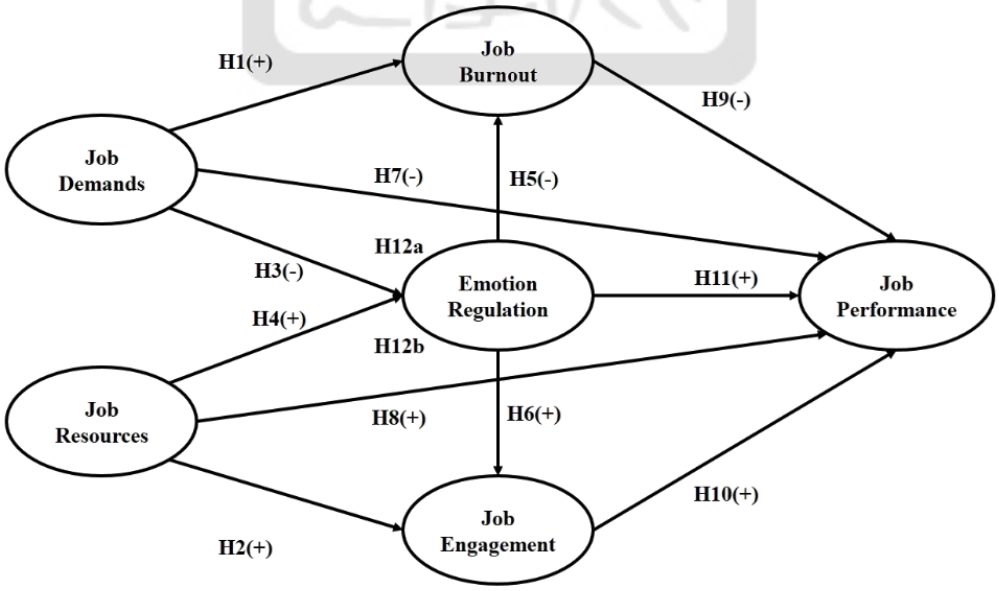

Figure 1 Proposed research model

4.2 Measurement Development

The proposed research model includes six constructs that are well-founded in the JD-R model. The structure of the questionnaire is organized into the following seven parts: In the beginning, a brief explanation of the research objective is provided, and job demands and job resources are introduced to the respondents in the form of words and pictures. Part 1 to part 6 evaluate the respondent's job demands, job resources, degree of job burnout, job engagement, job performance, and emotion regulation, respectively. All the above items are measured with a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). Finally, part 7 surveys the respondents' demographic characteristics on a nominal scale, including gender, age, education, department in company, job title, years of tenure at the company, and which company the respondents work for. The measurements of the constructs are summarized as follows:

Job Demands

Job demands (JD) are measured by seven items chosen and adapted from Babakus et al. (2009), Li et al. (2013), Hakanen et al. (2006), Elst et al. (2016), Bakker et al. (2003), Chen and Chen (2014), Kimber and Gardner (2016), Bakker et al. (2004), and Pejtersen, Kristensen, Borg, and Bjorner (2010). Respondents are asked to rate each of the following seven questions: "It often seems like I have too much work for one person to do;" "My work requires working very hard;" "I do not have enough time to perform my tasks;" "I am often under pressure from unfinished work tasks;" "Waiting on work from other people or departments often slows me down on my job;" "My work demands that I am good at coming up with new ideas;" and "I have to keep my eyes on lots of things while I am working."

Job Resources

Job resources (JR) are measured by nine items chosen and adapted from Babakus et al. (2009), Li et al. (2013), Hakanen et al. (2006), Elst et al. (2016), Kimber and Gardner (2016), Molino et al. (2016), Bakker et al. (2004), and Pejtersen et al. (2010). Respondents are asked to rate the following nine questions: "My boss is concerned about the welfare of those under him/her; "My boss is willing to listen to work-related problems;" "My boss can be relied on when things get difficult at work;" "The people I work with encourage each other to work together;" "People I work with are helpful in getting the job done." "I can ask my colleagues for help if necessary;" "There is a possibility of learning new things through my work;" "At this company, training

programs are consistently evaluated;" and "At this company, training programs focus on how to improve service quality."

Job Burnout

Job burnout (JB) is measured by seven items chosen and adapted from Babakus et al. (2009), Hakanen et al. (2006), Molino et al. (2016), Bakker et al. (2004), and Maslach and Jackson (1981). Respondents are asked to rate the following seven questions: "I feel used up at the end of the workday;" "There are days when I feel tired before I arrive at work;" "I feel fatigued when I get up in the morning and have to face another day on the job;" "I doubt the significance of my work;" "Working with people all day is really a strain for me;" "I feel I have become uncaring toward people since I took this job;" and "It happens more and more often that I talk about my work in a negative way."

Job Engagement

Job engagement (JE) is measured by seven items chosen and adapted from Hakanen et al. (2006), Elst et al. (2016), Bakker et al. (2003), Kimber and Gardner (2016), and Schaufeli and Bakker (2004). Respondents are asked to rate the following seven questions: "I am enthusiastic about my work;" "I find the work that I do full of meaning and purpose;" "At my work, I feel bursting with energy;" "I can continue working for very long periods at a time;" "When I am working, I forget everything else around me;" "Time flies when I am working;" and "It is difficult to detach myself from my job."

Job Performance

Job performance (JP) is measured by six items chosen and adapted from Babakus et al. (2009), Hur et al. (2015), and Mulki et al. (2015). Respondents are asked to rate the following six questions: "My performance is in the top 10%;" "I achieve the objectives of the job;" "I am good at my job;" "I get better tips than most of the others;" "I manage my work time better than most;" and "I consistently deliver better quality service than others."

Emotion Regulation

Emotion Regulation (ER) is measured by seven items chosen and adapted from Hur et al. (2015), Martínez-Íñigo and Totterdell (2016), Brotheridge and Gandey (2002), Wong and Law (2002), and Mulki et al. (2015). Respondents are asked to rate the following seven questions: "I just pretend to have the emotions I need to display for my

job;" "I show feelings to people I work with that are different from what I feel inside;" "I resist expressing my true feelings;" "To be effective in my job, I display the emotions required, even though they do not agree with my true feelings;" "I am able to control my temper and handle difficulties rationally;" "I am quite capable of controlling my own emotions;" and "I can always calm down quickly when I am very angry;"

The definitions of the constructs, questionnaire items, and reference sources are compiled in Table 1. All measurement items in English and Chinese are listed in Appendices A and B.

Table 1 Definition and Measurement of the Variables

Construct	Definition	Scale Sources	Items
Job Demands (JD)	Job demands refer to the physical, social, or organizational aspects of the job that require sustained physical and/or mental effort and are therefore associated with specific physiological and psychological costs.	● Demerouti et al. (2001) ● Bakker et al. (2003) ● Bakker et al. (2004) ● Akkermans et al. (2013)	JD1-JD7
Job Resources (JR)	Job resources are the physical, psychological, social, or organizational aspects of the job that either reduce the associated physiological and psychological costs, are functional in terms of achieving work goals, or stimulate personal growth, learning, and development.	● Demerouti et al. (2001) ● Bakker et al. (2003) ● Bakker et al. (2004) ● Akkermans et al. (2013)	JR1-JR9
Job burnout (JB)	Job burnout refers to an extreme form of fatigue as a consequence of prolonged and intense physical, affective, and cognitive strain caused by exposure to specific working conditions; emotional exhaustion refers to the feelings of being overextended and exhausted by the emotional demands of one's work, and depersonalization is characterized as a detached and cynical response to the recipients of one's service or care.	● Maslach et al. (1997) ● Demerouti et al. (2001) ● Bakker et al. (2004) ● Hakanen et al. (2006)	JB1-JB7
Job Engagement (JE)	Job engagement refers to a person's enthusiasm and involvement in his or her job; vigor refers to a high level of energy and mental resilience while working and the willingness to invest effort in one's work; dedication refers to a sense of significance, enthusiasm, inspiration, pride, and challenge, and absorption refers to being fully concentrated and happily engrossed in one's work, where time passes quickly, and one has difficulties with detaching oneself from work.	● Schaufeli et al. (2006) ● Hakanen et al. (2006) ● Maslach et al. (2001) ● Akkermans et al. (2013)	JE1-JE7
Emotion Regulation (ER)	Emotion regulation refers to the capability of a person to regulate his or her own emotional states (i.e., maintaining desirable emotions, reducing or modifying unwanted emotions) in order to manage his/her behavior.	● Gross (2002) ● Grandey et al. (2004) ● Brackett et al. (2010) ● Mulki et al. (2015)	ER1-ER7
Job Performance (JP)	Job performance refers to the behavior in which a person is able to successfully accomplish the task/goal assigned to him/her, is subject to the normal constraints related to the reasonable utilization of available resources and maintains a consistent level of performance on the job.	● Jamal (1984) ● Babakus et al. (2009) ● Bakker et al. (2004) ● Kahya (2007)	JP1-JP6

4.3 Data Collection and Sampling

The objective of this study is to investigate the linkages between job demands and job resources to job performance via emotion regulation. The research objects are mobile telecommunications employees in Taiwan. The size of the workforce is approximately 38,000, with 22,282 employees (59%) in CHT (CHT, 2017), 6,593 employees (18%) in FET (FET, 2017), 5,524 employees (14%) in TWM (TWM, 2017), 1,500 employees (4%) in Asia Pacific Telecom (Asia Pacific Telecom, 2017), and 2,000 employees (5%) in Taiwan Star Telecom (Taiwan Star Telecom, 2017), respectively. As for the relationship between the sample size and total population, several minimum sample sizes have been suggested in the literature. Krejcie and Morgan (1970) suggested that the ideal sample size should be at least 380 for a large study population, and Streiner (1994) suggested that the minimum sample sizes of a study should be at least five times the number of items used in the study. However, Gagne and Hancock (2006) proposed that the estimated sample size should follow the quantities of collected data in previous similar studies. In particular, the sample sizes used in the JD-R models ranges from 146 to 761 with an average of 392 samples (Bakker et al., 2004; Hakanen et al., 2006; Akkermans et al., 2013; Kimber & Gardner, 2016; Schaufeli & Bakker, 2004; Bakker et al., 2003; Babakus et al., 2009; Li et al., 2013; Hu et al., 2011; Elst et al., 2016). Based on the above criteria, the minimum acceptable sample size in this study would be 146. In this study, questionnaires were mailed to the personnel departments of the NCC and five mobile telecommunications companies to distribute questionnaires to employees of the companies. Taking into consideration the possibility of invalid samples and the response rate, 300 questionnaires were distributed. To enhance the respondents' willingness to fill out the questionnaire, a packet of cookies and coffee was given as a gesture of the research team's gratitude during data collection (February 2017 to April 2017).

4.4 Analysis Procedure

SPSS 20.0 and AMOS 24.0 were employed to analyze the collected data and further test the hypotheses. The data analysis process was as follows: A descriptive statistics analysis was employed to provide a basic summary of the sample data through analyzing the demographic information of the respondents. Subsequently, the mean and standard deviation of the items in the constructs were examined to classify the respondents' attitudes (the extent to which they agreed/disagreed) toward each item. Some studies have used a confirmatory factor analysis (CFA) to test their hypotheses (Li et al., 2013; Jourdain & Chênevert, 2010; Elst et al., 2016; Demerouti et al., 2001; Chen & Chen, 2014). Based on Chen and Chen's (2014) suggestions, a CFA approach was used as a statistical tool to confirm whether latent variables and underlying items were consistent with the hypotheses based on theories or previous analytical research. In this study, the hypotheses in the

research model were derived and developed from prior related studies, and thus, a CFA was used to examine the model.

There are two steps to conducting a CFA: analyzing model fits and testing of validity and reliability. Several common indices, such as Chi-square, normed Chi-square index (NCI), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA) were adopted to determine the model fits (Hair, Black, Babin, & Anderson, 2010). After checking the model fits, reliability and validity measures were then conducted. Composite reliability (CR) was measured to identify the latent variable's internal consistency, and convergent validity was used to test whether the measure was able to represent what the construct was supposed to. In contrast to convergent validity, discriminant validity was used to test whether two latent variables were uncorrelated by comparing the square root of the AVE for each construct and the correlations between the latent variables.

Finally, structural equation modeling (SEM) was applied to confirm and simultaneously examine the hypothetical multiple dependence interrelationships among job demands, job resources, job burnout, job engagement, job performance, and emotion regulation. The analytical results were improved since the model incorporated latent variables accounting for measurement error (Hair et al., 2010). The main purpose of the SEM analysis was to determine the extent to which the proposed model was supported by sample data, and thus, multiple regression equations were used to estimate a series of interrelated dependent relationships simultaneously in order to provide a hypothesized model test to identify their degree of consistency (Wisner, 2003). The measurement model fitting the criteria during the CFA process were adopted again to test the structural model. Further, the mediation effect of emotion regulation between job characteristics (i.e., job demands and job resources) and job performance was tested by the method proposed by Baron and Kenny (1986).

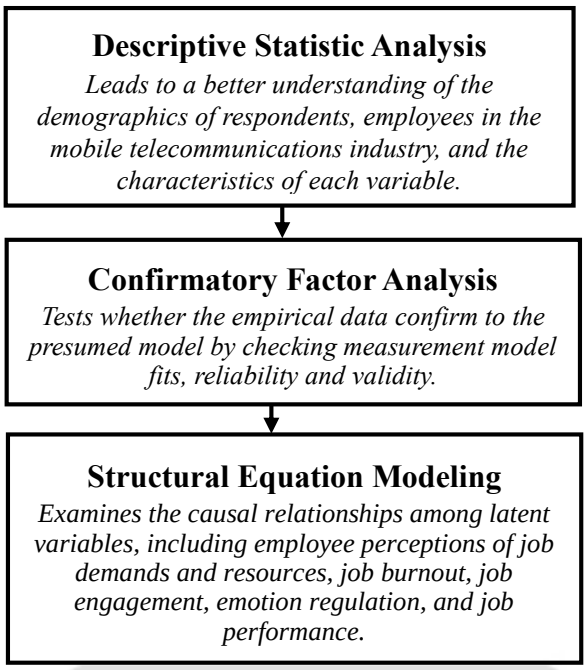

Figure 2 Analytical procedure

Chapter Five

Empirical Results

In this chapter, the collected data are examined and analyzed through using the research procedure proposed in the previous chapter. First, the characteristics of the respondents and the means and standard deviations of the items among the constructs are presented in the descriptive statistics. A confirmatory factor analysis (CFA) is then conducted to test whether the proposed theoretical hypotheses fits the empirical data. Subsequently, structural equation modeling (SEM) is applied to test the causal model and to understand the relationships between the constructs. Finally, a mediation analysis is conducted to examine the mediating role of emotion regulation on the relationship between job demands and job performance and the relationship between job resources and job performance.

5.1 Descriptive Statistics Analysis

The research objects were the employees in all five major mobile telecommunications companies in Taiwan: CHT, FET, Taiwan Mobile, Asia Pacific Telecom, and Taiwan Star Telecom. The questionnaires were collected through interview survey/mail distribution to their personnel departments and the NCC asking that it be delivered to the employees. The respondents were assured anonymity so they would truthfully fill out a 5-minute 43-item questionnaire. A gift including a dessert packet, tissue paper, and stationery was also given to the respondents to express gratitude. A total of 315 questionnaires were collected during a 3-month time period from February to April 2017. After deleting invalid samples (e.g., incomplete questionnaires, all items filled with the same answers), 252 effective samples were collected (i.e., effective sample rate = 80%).

5.1.1 Respondent Profile

The descriptive statistics for the respondents' demographic characteristics are summarized in Table 2. Of the 252 qualified respondents, 166 (65.9%) were males, and 86 (34.1%) were females. The ages of employees ranged from 51 and above (28.6%), followed by 41 to 50 (27.4%), 31 to 40 (23.8%), 21 to 30 (19.8%), and under 20 (0.4%). The levels of education were Bachelor's degree (69.8%), Master's and above (21.8%), and senior high school (8.3%). More than a half of the respondents worked in the equipment department (60.3%), followed by the marketing department (21.4%), other department (11.9%), the financial accounting department (4.8%), and the human resources and legal department (1.6%). The job titles of the respondents included staff (37.7%), others (36.9%), sales

representative (9.1%), manager/assistant manager (6.7%), section manager/supervisor (6.0%), customer service staff (3.2%), and director (0.4%). The years that employees had worked in their companies ranged from 5 years and under (30.2%), followed by above 25 years (24.2%), 16-20 years (14.7%), 11-15 years (14.3%), 6-10 years (10.7%), and 21-25 years (6%). Finally, the company of the respondents was CHT (49.6%), followed by FET (25.8%), Taiwan Mobile (15.1%), T STAR (6.3%) and Asia Pacific Telecom (3.2%).

Table 2 Demographic characteristics

	Frequency	Percentage
Gender		
Male	166	65.9
Female	86	34.1
Age		
Under 20	1	0.4
21-30	50	19.8
31-40	60	23.8
41-50	69	27.4
Above 51	72	28.6
Education		
Elementary school	0	0
Junior high school	0	0
Senior high school	21	8.3
Bachelor's degree	176	69.8
Graduate school and above	55	21.8
Department		
Equipment unit	152	60.3
Marketing unit	54	21.4
HR & legal unit	4	1.6
Financial accounting unit	12	4.8
Other unit	30	11.9

	Frequency	Percentage
Job title		
Vice general manager and above	0	0
Director	1	0.4
Manager/Assistant manager	17	6.7
Section manager/Supervisor	15	6.0
Staff	95	37.7
Sales representative	23	9.1
Customer service staff	8	3.2
Other	93	36.9
Years of tenure in company		
5 years and under	76	30.2
6-10 years	27	10.7
11-15 years	36	14.3
16-20 years	37	14.7
21-25 years	15	6.0
Above 25 years	61	24.2
Telecom operator		
CHT	125	49.6
FET	65	25.8
Taiwan Mobile	38	15.1
T STAR	16	6.3
Asia Pacific Telecom	8	3.2

5.1.2 Mean and Standard Deviation of Items

The model constructs included 7 items for job demands (JD), 9 items for job resources (JR), 7 items for job burnout (JB), 7 items for job engagement (JE), 6 items for job performance (JP), and 7 items for emotion regulation (ER). Table 3 summarizes the mean and standard deviations of the questionnaire items on a 5-point Likert scale. Among all the items in the model constructs, the highest mean was 4.10 (JR6), and the lowest mean was 2.63 (JB6). Further, every model construct had a mean of 3 and above. The means of the items in job resources was 3.84, followed by job performance (3.73), job engagement (3.71), emotion regulation (3.68), the job demands construct (3.64), and job burnout (3.08).

Table 3 Mean and standard deviation of the items among constructs

Construct	Item	Item content	Mean	SD
Job Demands (JD) (3.64)	JD1	It often seems like I have too much work for one person to do.	3.49	0.890
	JD2	My work requires working very hard.	3.92	0.698
	JD3	I do not have enough time to perform my task.	3.21	0.986
	JD4	I am often under pressure from unfinished work tasks.	3.74	0.908
	JD5	Waiting on work from other people or departments often slows me down on my job.	3.62	0.886
	JD6	My work demands that I am good at coming up with new ideas.	3.49	0.858
	JD7	I have to keep my eyes on lots of things while I am working.	3.98	0.691
Job Resources (JR) (3.84)	JR1	My boss is concerned about the welfare of those under him/her.	3.55	0.804
	JR2	My boss is willing to listen to work-related problems.	3.81	0.801
	JR3	My boss can be relied on when things get difficult at work.	3.74	0.880
	JR4	The people I work with encourage each other to work together.	3.80	0.738
	JR5	People I work with are helpful in getting the job done.	3.96	0.688
	JR6	I can ask my colleagues for help if necessary.	4.10	0.658
	JR7	There is a possibility of learning new things through my work.	3.99	0.686
	JR8	At this company, training programs are consistently evaluated.	3.77	0.790
	JR9	At this company, training programs focus on how to improve service quality.	3.86	0.775
Job Burnout (JB) (3.08)	JB1	I feel used up at the end of the workday.	3.77	0.829
	JB2	There are days when I feel tired before I arrive at work.	3.48	0.946
	JB3	I feel fatigued when I get up in the morning and have to face another day on the job.	3.23	0.942
	JB4	I doubt the significance of my work.	2.98	0.996
	JB5	Working with people all day is really a strain for me.	2.64	0.932
	JB6	I feel I have become uncaring toward people since I took this job.	2.63	1.004
	JB7	It happens more and more often that I talk about my work in a negative way.	2.85	1.012
Job Engagement (JE) (3.71)	JE1	I am enthusiastic about my work.	3.72	0.776
	JE2	I find the work that I do full of meaning and purpose.	3.73	0.776
	JE3	At my work, I feel bursting with energy.	3.76	0.720
	JE4	I can continue working for very long periods at a time.	3.70	0.826
	JE5	When I am working, I forget everything else around me.	3.67	0.826
	JE6	Time flies when I am working.	4.03	0.655
	JE7	It is difficult to detach myself from my job.	3.33	0.812
Job Performance (JP) (3.73)	JP1	My performance is in the top 10%.	3.44	0.789
	JP2	I achieve the objectives of the job.	3.79	0.596
	JP3	I am good at my job.	3.81	0.665
	JP4	I get better tips than most of the others.	3.79	0.687
	JP5	I manage my work time better than most.	3.77	0.656
	JP6	I consistently deliver better quality service than others.	3.77	0.688
Emotion Regulation (ER) (3.68)	ER1	I just pretend to have the emotions I need to display for my job.	3.72	0.645
	ER2	I show feelings to people I work with that are different from what I feel inside.	3.64	0.708
	ER3	I resist expressing my true feelings.	3.67	0.714
	ER4	To be effective in my job, I display the emotions required, even though they do not agree with my true feelings.	3.50	0.806
	ER5	I am able to control my temper and handle difficulties rationally.	3.88	0.647
	ER6	I am quite capable of controlling my own emotions.	3.71	0.698
	ER7	I can always calm down quickly when I am very angry.	3.62	0.761

5.1.3 Analysis of Variance Analysis

An analysis of variance analysis (ANOVA) was applied to examine the differences among the demographic characteristics toward the scale of a given variable (i.e., job demands, job resources, job burnout, job engagement, job performance, and emotion regulation) by utilizing SPSS 20.0 statistical tools. The examined demographic characteristics included age, education, department, job title, years of tenure in company, and telecom operators. Before conducting the ANOVA analysis, the assumption of homogeneity of variance had to be satisfied. The Levene's F is widely used to test the equality of variances for a variable calculated for two or more groups (Brown & Forsythe, 1974). The p-value should be less than 0.05 to reject the null hypothesis, indicating that the variances are unequal. However, if the p-value should exceed 0.05 to accept the null hypothesis, the variances should be treated as equal. The variances in job demands were found to be equal on the scale of education, department, job title, years of tenure in company, and telecom operators, but they were found to be unequal on the scale of age (see Table 4). The variances in job resources were found to be equal on the scale of age, education, department, job title, and years of tenure in company, but were found to be unequal on the scale of telecom operators (see Table 5). The variances in job burnout were found to be equal on the scale of education, department, job title, and telecom operators, but were found to be unequal on the scale of age and years of tenure in company (see Table 6). The variances in job engagement were found to be equal on the scale of education, department, job title, years of tenure in company, and telecom operators, but were found to be unequal on the scale of age (see Table 7). The variances in job performance were found to be equal on the all scales of age, education, department, job title, years of tenure in company, and telecom operators (see Table 8). The variances in emotion regulation were found to be equal on the scale of education, job title, years of tenure in company, and telecom operators, but were found to be unequal on the scale of age and department (see Table 9).

Table 4 Test of homogeneity of demographic characteristics for job demands

Scale	*F*	*p*
Age	3.733	0.025*
Education	0.187	0.830
Department	1.729	0.180
Job title	0.727	0.484
Years of tenure in company	1.743	0.177
Telecom operators	1.448	0.219

*Reject null hypothesis

Table 5 Test of homogeneity of demographic characteristics for job resources

Scale	*F*	*p*
Age	2.927	0.055
Education	0.423	0.656
Department	0.403	0.669
Job title	1.719	0.181
Years of tenure in company	0.508	0.602
Telecom operators	4.096	0.003*

*Reject null hypothesis

Table 6 Test of homogeneity of demographic characteristics for job burnout

Scale	*F*	*p*
Age	4.508	0.012*
Education	3.015	0.051
Department	0.274	0.760
Job title	1.084	0.340
Years of tenure in company	3.320	0.038*
Telecom operators	0.965	0.427

*Reject null hypothesis

Table 7 Test of homogeneity of demographic characteristics for job engagement

Scale	*F*	*p*
Age	6.164	0.002*
Education	0.342	0.711
Department	0.384	0.682
Job title	1.198	0.304
Years of tenure in company	1.314	0.271
Telecom operators	1.782	0.133

*Reject null hypothesis

Table 8 Test of homogeneity of demographic characteristics for job performance

Scale	*F*	*p*
Age	1.207	0.301
Education	0.338	0.713
Department	0.643	0.526
Job title	1.863	0.157
Years of tenure in company	0.203	0.817
Telecom operators	2.045	0.089

*Reject null hypothesis

Table 9 Test of homogeneity of demographic characteristics for emotion regulation

Scale	*F*	*p*
Age	3.357	0.036*
Education	0.458	0.633
Department	3.393	0.035*
Job title	2.292	0.103
Years of tenure in company	2.657	0.072
Telecom operators	1.440	0.221

*Reject null hypothesis

Next, post-hoc analyses were used to examine the scales of the demographic characteristics in which the scales with equal variances were tested with the Scheffe Test, and the scales with unequal variances were tested using the Games-Howell and Welch Test (Algina, Oshima, & Lin, 1994). The post hoc analysis for job demands revealed there were apparent differences ($p < 0.05$) found in the scale of job title, but no difference ($p > 0.05$) in the scale of age, education, department, years of tenure in company, and telecom operators (see Table 10 and Table 11). It was found that the respondents who worked as staff, sales representative, and customer service staff (i.e., the front-line employees) had higher levels of job demands. The post hoc analysis for job resources revealed there were apparent differences ($p < 0.05$) found in the scale of age and years of tenure in company, but no difference ($p > 0.05$) was found in the scale of education, department, job title, and telecom operators (see Table 12 and Table 13). This implied that the respondents who were 30 years old and below and 50 years old and above who had stayed at their company for over 21 years had more job resources. The post hoc analysis for job burnout revealed there were apparent differences ($p < 0.05$) found in the scale of education and job title, but no difference ($p > 0.05$) found in the scale of age, department, years of tenure in company, and telecom operators (see Table 14 and Table 15). This indicated that respondents with lower levels of education and working as staff, sales representative, and customer service staff were encountering higher levels of job burnout. As for job engagement, the post hoc analysis revealed there were apparent differences ($p < 0.05$) found in the scale of age, education, department, and years of tenure in company, but no difference ($p > 0.05$) was found in the scale of job title and telecom operators (see Table 16 and Table 17). This revealed that respondents who were 50 years old and above, with lower levels of education, worked in equipment units, and had stayed with their company for over 21 years were more involved in their jobs. The post hoc analysis for job performance revealed there were apparent differences ($p < 0.05$) found in the scale of age, and years of tenure in company, but no difference ($p > 0.05$) was found in the scale of education, department, job title, and telecom operators (see Table 18). This indicated that respondents who were 50 years old and above and had stayed with their company for over 21 years tended to have better performance. In the end, the post hoc analysis for emotion regulation revealed there were apparent differences ($p < 0.05$) found in the scale of education and job title, but no difference ($p > 0.05$) was found in the scale of age, department, years of tenure in company, and telecom operators (see Table 19 and Table 20). It was found that the respondents with lower levels of education had better control of their emotions than those with higher levels of education. Also, the respondents who worked as staff, sales representatives, and customer service staff tended to better regulate their emotions.

Table 10 ANOVA results for job demands (Welch)

Level	Mean	SD	*F* (Welch)	*p* (Welch)	Post hoc (Games-Howell)
Age					
1. 30 and below	3.611	0.6679	0.634	0.531	
2. 31-50	3.609	0.4801			
3. 50 and above	3.699	0.6639			

Table 11 ANOVA results for job demands (Scheffe)

Level	Mean	SD	*F*	*p*	Post hoc (Scheffe)
Education					
1. Senior high school	3.754	0.6159	1.815	0.165	
2. University	3.660	0.5916			
3. Master and above	3.513	0.5136			
Department					
1. Equipment unit	3.611	0.5660	0.644	0.526	
2. Marketing unit	3.714	0.6848			
3. HR legal, financial accounting, and other unit	3.630	0.4678			
Job title					
1. Section manager/Supervisor and above	3.585	0.5152	5.017	0.007	2>3
2. Staff/Sales representative/Customer service	3.749	0.6070			
3. Others	3.506	0.5380			
Years of tenure in company					
1. Under 10 years	3.610	0.5656	0.766	0.466	
2. 11-20 years	3.603	0.5279			
3. Over 21 years	3.705	0.6446			
Telecom operators					
1. CHT	3.597	0.6081	0.683	0.604	
2. FET	3.624	0.5655			
3. Taiwan Mobile	3.748	0.5966			
4. T STAR	3.652	0.4872			
5. Asia Pacific Telecom	3.819	0.2386			

Table 12 ANOVA results for job resources (Welch)

Level	Mean	SD	*F* (Welch)	*p* (Welch)	Post hoc (Games-Howell)
Telecom operators					
1. CHT	3.883	0.5605	4.096	0.003	
2. FET	3.698	0.4487			
3. Taiwan Mobile	4.101	0.6977			
4. T STAR	3.680	0.4312			
5. Asia Pacific Telecom	3.503	0.3312			

Table 13 ANOVA results for job resources (Scheffe)

Level	Mean	SD	*F*	*p*	Post hoc (Scheffe)
Age					
1. 30 and below	4.020	0.6202	6.493	0.002	1>2, 3>2
2. 31-50	3.722	0.4824			
3. 50 and above	3.923	0.5984			
Education					
1. Senior high school	3.921	0.5937	0.847	0.430	
2. University	3.859	0.5766			
3. Master and above	3.761	0.4903			
Department					
1. Equipment unit	3.806	0.5581	1.992	0.139	
2. Marketing unit	3.976	0.5946			
3. HR legal, financial accounting, and other unit	3.805	0.5029			
Job title					
1. Section manager/Supervisor and above	3.806	0.4573	0.848	0.429	
2. Staff/Sales representative/Customer service	3.889	0.6025			
3. Others	3.795	0.5349			
Years of tenure in company					
1. Under 10 years	3.883	0.5869	4.034	0.019	3>2
2. 11-20 years	3.692	0.4947			
3. Over 21 years	3.935	0.5611			

Table 14 ANOVA results for job burnout (Welch)

Level	Mean	SD	*F* (Welch)	*p* (Welch)	Post hoc (Games-Howell)
Age					
1. 30 and below	3.092	0.7917	0.238	0.788	
2. 31-50	3.051	0.6154			
3. 50 and above	3.123	0.8462			
Years of tenure in company					
1. Under 10 years	3.123	0.6988	0.890	0.412	
2. 11-20 years	2.986	0.6209			
3. Over 21 years	3.116	0.8466			

Table 15 ANOVA results for job burnout (Scheffe)

Level	Mean	SD	*F*	*p*	Post hoc (Scheffe)
Education					
1. Senior high school	3.258	0.9291	4.570	0.011	2>3
2. University	3.138	0.7244			
3. Master and above	2.828	0.5822			
Department					
1. Equipment unit	3.086	0.7498	0.566	0.568	
2. Marketing unit	3.007	0.7123			
3. HR legal, financial accounting, and other unit	3.168	0.6490			
Job title					
1. Section manager/Supervisor and above	2.769	0.5672	4.723	0.010	2>1
2. Staff/Sales representative/Customer service	3.191	0.7809			
3. Others	3.045	0.6681			
Telecom operators					
1. CHT	3.037	0.7688	1.709	0.148	
2. FET	3.134	0.6465			
3. Taiwan Mobile	3.067	0.7542			
4. T STAR	2.947	0.6457			
5. Asia Pacific Telecom	3.678	0.4414			

Table 16 ANOVA results for job engagement (Welch)

Level	Mean	SD	*F* (Welch)	*p* (Welch)	Post hoc (Games-Howell)
Age					
1. 30 and below	3.564	0.6077	9.843	0.000	3>1, 3>2
2. 31-50	3.624	0.4418			
3. 50 and above	3.936	0.6535			

Table 17 ANOVA results for job engagement (Scheffe)

Level	Mean	SD	*F*	*p*	Post hoc (Scheffe)
Education					
1. Senior high school	4.102	0.6028	5.963	0.003	1>2, 1>3
2. University	3.680	0.5562			
3. Master and above	3.634	0.5357			
Department					
1. Equipment unit	3.771	0.5516	4.513	0.012	1>3
2. Marketing unit	3.684	0.5816			
3. HR legal, financial accounting, and other unit	3.473	0.5563			
Job title					
1. Section manager/Supervisor and above	3.671	0.5476	2.352	0.097	
2. Staff/Sales representative/Customer service	3.781	0.6164			
3. Others	3.617	0.4908			
Years of tenure in company					
1. Under 10 years	3.594	0.5082	11.569	0.000	3>1, 3>2
2. 11-20 years	3.602	0.5202			
3. Over 21 years	3.957	0.6102			
Telecom operators					
1. CHT	3.771	0.6072	2.039	0.089	
2. FET	3.556	0.4797			
3. Taiwan Mobile	3.676	0.5956			
4. T STAR	3.741	0.5198			
5. Asia Pacific Telecom	3.965	0.2405			

Table 18 ANOVA results for job performance (Scheffe)

Level	Mean	SD	*F*	*p*	Post hoc (Scheffe)
Age					
1. 30 and below	3.516	0.5912	7.613	0.001	3>1
2. 31-50	3.720	0.4798			
3. 50 and above	3.886	0.5476			
Education					
1. Senior high school	3.937	0.5750	3.552	0.030	
2. University	3.673	0.5356			
3. Master and above	3.830	0.5062			
Department					
1. Equipment unit	3.769	0.5268	2.496	0.084	
2. Marketing unit	3.737	0.5793			
3. HR legal, financial accounting, and other unit	3.555	0.5021			
Job title					
1. Section manager/Supervisor and above	3.772	0.5620	0.459	0.632	
2. Staff/Sales representative/Customer service	3.748	0.5736			
3. Others	3.688	0.4812			
Years of tenure in company					
1. Under 10 years	3.883	0.5869	4.034	0.019	3>1, 3>2
2. 11-20 years	3.692	0.4947			
3. Over 21 years	3.935	0.5611			
Telecom operators					
1. CHT	3.824	0.5077	2.686	0.032	
2. FET	3.574	0.5631			
3. Taiwan Mobile	3.654	0.5526			
4. T STAR	3.812	0.6173			
5. Asia Pacific Telecom	3.689	0.2412			

Table 19 ANOVA results for emotion regulation (Welch)

Level	Mean	SD	*F* (Welch)	*p* (Welch)	Post hoc (Games-Howell)
Age					
1. 30 and below	3.781	0.5450	3.392	0.035	
2. 31-50	3.600	0.4055			
3. 50 and above	3.735	0.5352			
Department					
1. Equipment unit	3.668	0.4508	0.931	0.396	
2. Marketing unit	3.748	0.6156			
3. HR legal, financial accounting, and other unit	3.616	0.3790			

Table 20 ANOVA results for emotion regulation (Scheffe)

Level	Mean	SD	*F*	*p*	Post hoc (Scheffe)
Education					
1. Senior high school	3.947	0.5918	4.053	0.019	1>2, 1>3
2. University	3.668	0.4737			
3. Master and above	3.603	0.4327			
Job title					
1. Section manager/Supervisor and above	3.497	0.3318	8.435	0.000	2>1, 2>3
2. Staff/Sales representative/Customer service	3.797	0.5073			
3. Others	3.582	0.4536			
Years of tenure in company					
1. Under 10 years	3.709	0.4874	3.272	0.040	
2. 11-20 years	3.560	0.3859			
3. Over 21 years	3.748	0.5393			
Telecom operators					
1. CHT	3.671	0.4951	0.438	0.781	
2. FET	3.653	0.4339			
3. Taiwan Mobile	3.748	0.5866			
4. T STAR	3.606	0.3886			
5. Asia Pacific Telecom	3.786	0.2413			

5.2 Confirmatory Factor Analysis

AMOS 24.0 was used to conduct a CFA on the latent variables and observed items for job demands, job resources, job burnout, job engagement, job performance, and emotion regulation (see Figure 3).

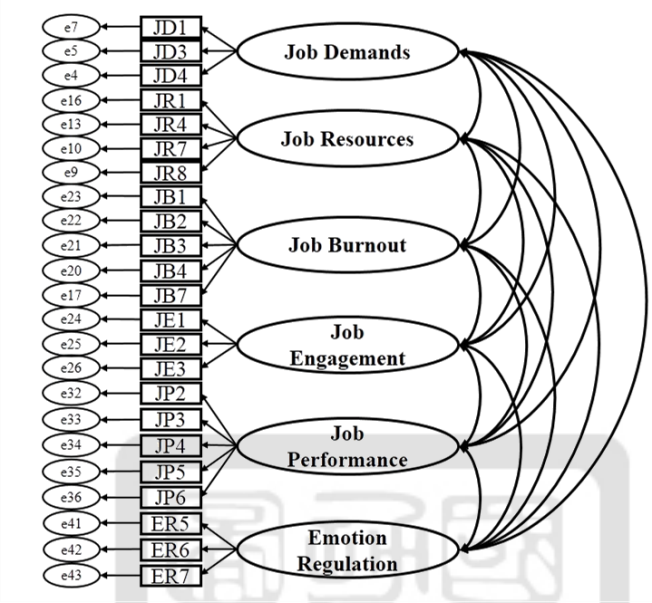

Figure 3 Confirmatory factor analysis model

The measurement items were developed and used from the theoretical insights based on related literature. To ensure the reliability of all the scales, the standard of the Cronbach's alpha for each factor is suggested to be higher than the acceptable threshold of 0.7, and each factor loading item should be greater than 0.5 (Hair et al., 2010). Of all the constructs, job demands (0.807), job resources (0.895), job burnout (0.879), job engagement (0.857), job performance (0.878), and emotion regulation (0.801) exhibited acceptable alpha values. A CFA was conducted to analyze the relationships between constructs using several criteria such as Chi-square, goodness of fit index (GFI), adjusted goodness of fit index (AGFI), comparative fit index (CFI), and the root mean square error of approximation (RMSEA). The GFI examines the ratio of variance and covariance accounted for by the presumed model and observed data, and the AGFI, another index similar to the GFI, further adjusts the GFI according to degrees of freedom (Jöreskog & Sörbom, 1984). The GFI and AGFI scales range from 0 to 1. It is suggested that the threshold for GFI and AGFI be above 0.85 and 0.8, respectively (Seyal, Rahman, & Rahim, 2002). The CFI is an incremental fix index for which the values range between 0 and 1. It is suggested that they be above 0.9 in order to reach acceptable model fit (Hu & Bentler, 1999; Hair et al., 2010). Finally, the RMSEA estimates the error of approximation, taking degrees of freedom and sample size into account, in which the index avoids the effect of model complexity and sample size. The

acceptable value below 0.08 for the RMSEA is considered a good fit (Fan, Thompson, & Wang, 1999; Hooper, Coughlan, & Mullen, 2008).

In this study, the original model exhibited some problems of inappropriate model fit (The Chi-square/df (2.862); the GFI (0.664), and the AGFI (0.623); the CFI (0.731), and the RMSEA (0.086)). Diagnostic cues suggested by modification indices (MIs) were conducted to modify and improve the model fit. MIs were used to estimate error term correlations and correlational relationships between constructs that might not have been initially specified in the CFA model in order to decrease their negative effect on the estimated path significance (Hair et al., 2010). Of all 43 items in the original model, 20 items (JD2, JD5, JD6, JD7, JR2, JR3, JR5, JR6, JR9, JB5, JB6, JE4, JE5, JE6, JE7, JP1, ER1, ER2, ER3, and ER4) were eventually eliminated. After elimination of the invalid items, the measurement model showed appropriateness of model fit. A summary for the model fits of the CFA estimates in the final model is provided in Table 21. Note that the p-value did not surpass a value of 0.05; however, previous studies (Bollen, 1989; Hair et al., 2010) indicate that the p-value is sensitive to sample size and suggest using the Chi-square/df instead in such cases. The Chi-square/df (1.784) was within the acceptable interval below 3. The GFI (0.889) and AGFI (0.858) were higher than the suggested thresholds of 0.85 and 0.8, respectively. Likewise, the CFI (0.94) was above 0.9, and the RMSEA (0.056) was lower than 0.08. Overall, the final model had a good fit.

Table 21 Model fit of CFA estimates

Fit measures	Results	Threshold	Resources
p-value	0	> 0.05	Barrett (2007)
Chi-square/*df*	1.784	< 3	Hair et al. (2010)
GFI	0.889	> 0.85	Seyal et al. (2002)
AGFI	0.858	> 0.8	Sharma (1996)
CFI	0.94	> 0.9	Hu and Bentler (1999)
RMSEA	0.056	< 0.08	Fan et al. (1999)

After completing the model fit indices, the next step in the CFA was to verify the reliability and validity of the model. Reliability as measured by composite reliability (CR) identifies the internal consistency of the latent variables. Based on previous studies (Mallat, Rossi, Tuunainen, & Öörni, 2009), CR scores above 0.7 are considered to be acceptable. The CR scores for all constructs ranged from 0.786 to 0.879, as shown in Table 22, and they were all higher than the suggested level of 0.7, revealing great reliability and internal consistency for all constructs. The average variance extracted (AVE) was calculated to evaluate the convergent validity of the final model, where the threshold is suggested to be above 0.5 with a value lower than the CR score (Fornell & Larcker, 1981). It can be observed in Table 22 that all of the AVE values were higher than 0.5, ranging from 0.503 to

0.708, and all the AVE scores were lower than the CR values of the corresponding constructs. Next, discriminant validity was used to confirm that no item from one construct correlated more strongly with an item from another construct. This was examined by comparing the square root of the AVE for each construct and the correlations between the latent variables (Gefen, Straub, & Boudreau, 2000). As shown in Table 23, the square roots of the AVE ranged from 0.709 to 0.841 (displayed on a diagonal of a correlation matrix), which were greater than the correlations between the latent variables in the corresponding rows and columns (as displayed on the off-diagonal). In sum, the measurement model showed good convergent validity and discriminant validity. Therefore, it was appropriate to conduct SEM for the purpose of testing the proposed hypotheses.

Table 22 Convergent validity estimates

Construct	Item	Standardized factor loading	CR	AVE
Job Demands	JD1	0.749	0.786	0.551
	JD3	0.751		
	JD4	0.727		
Job Resources	JR1	0.597	0.800	0.503
	JR4	0.672		
	JR7	0.789		
	JR8	0.762		
Job Burnout	JB1	0.634	0.853	0.543
	JB2	0.840		
	JB3	0.886		
	JB4	0.612		
	JB7	0.67		
Job Engagement	JE1	0.871	0.879	0.708
	JE2	0.850		
	JE3	0.802		
Job Performance	JP2	0.667	0.877	0.588
	JP3	0.723		
	JP4	0.808		
	JP5	0.804		
	JP6	0.821		
Emotion Regulation	ER5	0.811	0.847	0.650
	ER6	0.873		
	ER7	0.729		

Table 23 Discriminant validity

Construct	JP	JD	JR	JB	JE	ER
Job Performance (JP)	**0.767**					
Job Demands (JD)	0.025	**0.742**				
Job Resources (JR)	0.350	0.076	**0.709**			
Job Burnout (JB)	-0.215	0.621	-0.148	**0.737**		
Job Engagement (JE)	0.519	0.134	0.577	-0.290	**0.841**	
Emotion Regulation (ER)	0.421	0.184	0.473	0.005	0.446	**0.806**

Note: Diagonal elements represent the square root of average variance extracted (AVE) by each construct (in bold), and off-diagonal elements are correlations between latent variables.

5.3 Structural Equation Modeling

A structural equation model (SEM) was conducted to analyze the overall fit of the final model and the causal relationships between the constructs in the research model. The fit indices of the final model are shown in Table 24. The standardized path coefficients and t-values are shown in Figure 4 and Table 25. Even though the p-value (0) did not meet the recommended score of 0.05, the alternative Chi-square/df (1.914) had a score for the suggested threshold below 3. The model also had good fit for GFI (0.878), AGFI (0.847), CFI (0.929), and RMSEA (0.06). The t-values of the paths provide evidence as to whether or not the parameters are significantly different from zero, where t-values higher than 1.96 are considered to be significant (Jöreskog & Sörbom, 1984).

Table 24 Model fit of SEM estimates

Fit measure	Result	Threshold
p-value	0	> 0.05
Chi-square/*df*	1.914	< 3
Goodness-of-fit (GFI)	0.878	> 0.85
Adjusted GFI (AGFI)	0.847	> 0.8
Comparative Fit Index (CFI)	0.929	> 0.9
Root Mean Square Error of Approximation (RMSEA)	0.06	< 0.08

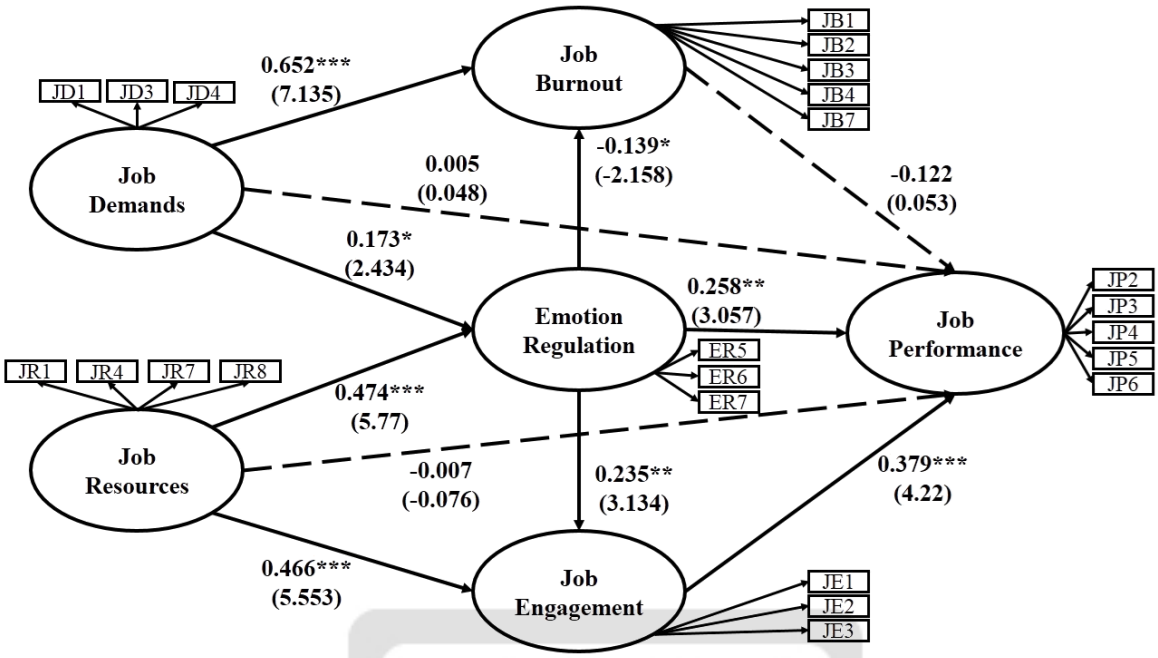

Figure 4 Path analysis with standardized path coefficients and t-value

Note: ***p< .001, **p< .01, *p< .05; the values in the brackets represent t-value

Table 25 Standardized path coefficients and significance of path

Path	Standardized coefficient	Standard deviation	*t*-value	*p*-value
H_1: Job Demands → Job Burnout	0.652	0.093	7.135	***
H_2: Job Resources → Job Engagement	0.466	0.114	5.553	***
H_3: Job Demands → Emotion Regulation	0.173	0.06	2.434	*
H_4: Job Resources → Emotion Regulation	0.474	0.093	5.77	***
H_5: Emotion Regulation → Job Burnout	-0.139	0.078	-2.158	*
H_6: Emotion Regulation → Job Engagement	0.235	0.09	3.134	**
H_7: Job Demands → Job Performance	0.005	0.058	0.048	0.962
H_8: Job Resources → Job Performance	-0.007	0.072	-0.076	0.939
H_9: Job Burnout → Job Performance	-0.122	0.053	-1.341	0.18
H_{10}: Emotion Regulation → Job Performance	0.258	0.06	3.057	**
H_{11}: Job Engagement → Job Performance	0.379	0.053	4.22	***

Note: ***p< .001, **p< .01, *p< .05

Based on the SEM results, job demands were found to be significantly positively related to job burnout (H_1: γ = 0.652, t = 7.135). The result was consistent with studies indicating that job demands result in job burnout in industrial work, construction, trade, government, and educational institutions (Bakker et al., 2004; Demerouti et al., 2001;

Hakanen et al., 2006). In the telecommunications industry, profitable services have been gradually eroded by OTT applications. Facing such difficult challenges, telecom operators have had to develop effective strategies to increase their revenues; hence, employees have been asked to do more and have even expanded their work shifts to get things done. These extra demands put enormous pressure on these employees, making them feel used up and tired. In particular, employees with high job demands are more likely experience job burnout. Hence, the positive linkage of job demands to job burnout was supported.

Job resources were found to be significantly positively related to job engagement (H_2: $\gamma = 0.466$, $t = 5.553$). The result was consistent with studies indicating that job resources can foster employee engagement in companies with different disciplines, including insurance companies, occupational health and safety services, pension fund companies, education departments, mechanic factories, and hospitals (Schaufeli & Bakker, 2004; Hakanen et al., 2006; Hu et al., 2011). Telecommunications companies offer their employees career development opportunities (e.g., skill and training programs, language courses), health promotion workshops (e.g., yoga classes and meditation workshops), and life supports (e.g., unpaid leave and flexible work shifts) in order to help them maintain a proper work-life balance. These employees obtain sufficient assistance and support from their colleagues and supervisors, and frequent feedback on group/personal tasks encourage them to better perform their jobs or improve on their drawbacks. As a consequence, they devote themselves to doing their jobs. Hence, the positive linkage of job resources to job engagement was supported.

Surprisingly, job demands were found to be significantly positively related to emotion regulation (H_3: $\gamma = 0.173$, $t = 2.434$). The result was inconsistent with the hypothesis of a negative linkage made in this study. In fact, Grandey, Foo, Groth, and Goodwin (2012) found by collecting the data from health care providers with patient contact at a large metropolitan hospital in Australia, that medical workers experiencing more mistreatment by patients are more likely to manage their emotions with patients while investigating the impact of patient-instigated mistreatment on emotion regulation. In many cases, some patients were picky about the treatment they received from health care professionals or took impolite and unfriendly attitudes while talking to them. These professionals learned to handle these patients and had some tips to deal with this type of situation. Likewise, facing severe competition within the industry and threatened by service application providers (e.g., OTT service providers), telecommunications operators have no choice but to come up with some effective and profitable business strategies to avoid being dump pipes. In addition to their routine work, employees will be assigned more tasks and additional assignments by their supervisors. With these extra burdens, employees will eventually acquire sufficient work ability and the emotion regulation capability required to get through such difficulties.

Hence, job demands were found to have a direct and positive impact on emotion regulation, and as a result, the hypothesized negative relationship between job demands and emotion regulation was not supported.

Job resources were found to be significantly positively related to emotion regulation (H_4: $\gamma = 0.474$, $t = 5.77$). The result was consistent with studies indicating that job resources have positive influences on emotion regulation across three secondary schools in Kent, the U.K. (Brackett et al., 2010) and the University of New Hampshire, U.S.A. (Lopes et al., 2004). These studies revealed that teachers with sufficient support from their principals (e.g., arranging teacher-training program focusing on emotion regulation skills, intervening in problem-solving among teachers and parents) and students with better social interaction (e.g., being accepted by others, having secure attachments) were likely to have the ability to control their emotions. In telecommunications, employees have a channel through which to express their feelings and regulate their emotions to get through difficulties when the assistance and support (e.g., arranging psychological counseling) from their supervisors and colleagues are sufficient. As a consequence, the positive linkage of job resources to emotion regulation was supported.

Emotion regulation was found to be significantly negatively related to job burnout (H_5: $\gamma = -0.139$, $t = -2.158$). The result was consistent with studies indicating that emotion regulation negatively affected job burnout across six schools in Hangzhou, China and foreign language institutes in Mashhad, Iran (Cheung & Lun, 2015; Ghanizadeh & Royaei, 2015). Teachers with high capability of controlling their emotions (e.g., avoiding certain individuals and situations, practicing relaxation techniques, distracting attention away from certain aspects of a situation) were found to be able to deal with their stress properly. In telecommunications, employees find ways to relieve their stress by themselves by attending emotion regulation courses held by the company, by making appointments with psychological counselors, by decorating office tables with some comforting objects (e.g., cute animal pictures, small potted plants), or going outside to get some fresh air in order to avoid being stressed or feeling frustrated over a long period of time. Hence, the negative linkage of emotion regulation to job burnout was supported.

Emotion regulation was found to be significantly positively related to job engagement (H_6: $\gamma = 0.235$, $t = 3.134$). The result was consistent with studies indicating that emotion regulation was positively associated with job engagement across police officers in Australia (Brunetto et al., 2012) and first-line service (e.g., hotels, shops, banks, hospitals, beauty and hair businesses) employees in Israel (Yagil, 2012). With the control of the emotion, they were found to be able to adopt empathetic views, remind themselves of the meaning of their jobs, and recall positive experiences, so that they were not only devote to their duties but also viewed their work as a commitment to their communities. Likewise,

telecommunications employees with the ability to control their emotions can put themselves in others' shoes and remind themselves of the purpose of their work. Therefore, they devote themselves to their duties accordingly. Hence, the linkage of emotion regulation to job burnout was supported.

Next, job demands (job resources) were not found to be significantly negatively (positively) related to job performance (H_7: $\gamma = 0.005$, $t = 0.048$; H_8: $\gamma = -0.007$, $t = -0.076$). The results were inconsistent with the hypotheses made in this study. In fact, Babakus et al. (2009) collected data from frontline employees of 50 branches of a large bank in New Zealand and found that job demands were primarily responsible for job burnout (i.e., work overload induced negative emotions and reduced motivation to work) that led to negative job performance. In telecommunications, a direct impact of job demands and job resources on job performance was not found but instead they might influence job performance indirectly. For example, employees under work overload and time urgency pressure feel stressed and frustrated, so they may rush their work without thorough consideration (e.g., setting up base stations by skipping standard application processes), which results in poor job performance. Likewise, employees with sufficient support from supervisors and colleagues are willing to be devoted to their work, which in turn leads to enhancement of job performance. In this research framework, job demands and job resources were modeled as extrinsic variables that directly affected employee performance; however, intrinsic variables (e.g., job burnout, job engagement, and emotion regulation) were found to primarily influence performance. Hence, the linkages between job characteristics (i.e., job demands, job resources) and job performance were not supported.

Job burnout was not found to be significantly negatively related to job performance (H_9: $\gamma = -0.122$, $t = 0.053$). The result was inconsistent with the results of previous studies that have identified a significant and negative relationship between job burnout and job performance across the call center of a large Dutch telecom company (Bakker et al., 2003), three oilfield companies in China (Li et al., 2013), and the business services, government, and health care sectors in the Netherlands (Bakker et al., 2004). In these studies, employee performance was measured by their supervisors/customers (e.g., reviews from customers) or their practical performance (e.g., the quantities and quality of products they made, attainment of their job objectives, times at which injuries occurred, duration of absenteeism). Further, works showing high levels of job burnout found to lead to improper job performance where an employee skipped some required steps in a procedure or made a wrong decision, etc. In this study, due to limitations related to objective data availability, performance was measured by a participant self-evaluation, which may have produced incorrect evaluations.[1] Likewise, telecommunications employees have to do self-

[1] Beyer (1990) found that at the University of Oregon, U.S., male (female) students tended to overestimate (underestimate) their performance.

evaluations of their tasks annually before their supervisors assess their performance. Generally, employees with high levels of job burnout lose their willingness to work, which negatively affects their job performance; however, it is reasonable that employees may tend to overestimate their performance to obtain job promotions or salary bonuses even if they are suffering high levels of job burnout. Hence, the negative linkage of job burnout to job performance was not supported.

Emotion regulation was found to be significantly positively related to job performance (H_{10}: $\gamma = 0.258$, $t = 3.057$). The result was consistent with studies indicating that emotion regulation is positively associated with job performance across teachers in three secondary schools in Kent, the U.K. (Brackett et al., 2010) and food service employees at nine different locations of the same restaurant franchise (Sy et al., 2006). These studies revealed that employees with better ability to control their emotions nurtured positive interactions between colleagues, fostered more cooperation and coordination, and facilitated their performance and that teachers with high emotion regulation ability effectively deal with students' problems and create a relaxing classroom atmosphere. In telecommunications, no job can be finished by any single person, so employees must engage in teamwork and must work with their colleagues and supervisors when doing their jobs. Employees with high ability to regulate their emotions can get along with their colleagues and supervisors, cooperate and coordinate with them well, and thus, enhance their own performance. Hence, the positive linkage of emotion regulation to job performance was supported.

Job engagement was found to be significantly positively related to job performance (H_{11}: $\gamma = 0.379$, $t = 4.22$). The result was consistent with studies indicating that job engagement enhanced employees' job performance across blue collar workers in three mechanic factories, health professionals in four hospitals in China (Hu et al., 2011), and teachers in the Department of Education in Helsinki, Finland (Hakanen et al., 2006). These employees with high job engagement (e.g., who were content and enthusiastic about their jobs and find their work to be rewarding) were found to be able to successfully complete their tasks and achieve their work goals (e.g., completing jobs in an effective way or developing interesting and suitable teaching styles). In telecommunications, employees engage in their duties (e.g., viewing their jobs as opportunities to grow) in order to achieve their goals and enhance their job performance simultaneously (e.g., achieving the objectives of their jobs in terms of revenues/customers). As a consequence, the positive linkage of job engagement to job performance was supported.

5.4 Mediation Analysis

This study put forward that emotion regulation was the mediating variable between job characteristics (i.e., job demands and job resources) and job performance. The method

of testing the existence of a mediation variable was proposed by Baron and Kenny (1986) in which a variable can be verified as a mediator when it meets the following conditions: (a) the independent variable must have significant relation with the mediator; (b) the mediator must have significant relation with the dependent variable, and (c) the independent variable must have significant relation with the dependent variable. In a case when any of these three conditions are not met, no mediation occurs. If these three conditions are met, the relationship between the independent variable and dependent variable and the relationship between the mediator and dependent variable should be tested simultaneously. There were two circumstances of complete mediation and partial mediation. Complete mediation occurs when the mediator completely explains the relationship between the independent variable and dependent variable (i.e., the relationship between the mediator and dependent variable is significant, but the relationships between the independent variable and dependent variable are non-significant). On the other hand, partial mediation occurs when there is still some relationship between the independent variable and dependent variable (i.e., the above two relationships are significant at the same time).

The procedures used to verify the mediation role of emotion regulation on the relationship between job demands and job performance utilized the SPSS 20.0 statistical tool. In step 1, the association between job demands and emotion regulation was found to be significant, in which the standardized regression coefficients was 0.362 at a significance of 0.000, indicating that job demands was significantly related to emotion regulation. In step 2, the association between emotion regulation and job performance was found to be significant, in which the standardized regression coefficient was 0.403 at a significance of 0.000, indicating that emotion regulation was significantly related to job performance. In step 3, the association between job demands and job performance was found to be significant, in which the standardized regression coefficients was 0.187 at a significance of 0.003, indicating that job demands was significantly related to job performance. To determine whether emotion regulation was a partial mediator or complete mediator, the relationship between job demands and job performance and the relationship between emotion regulation and job performance were tested simultaneously. The association between job demands and job performance was found to be insignificant, in which the standardized regression coefficients was 0.047 at a significance of 0.447. The association between emotion regulation and job performance was found to be significant, in which the standardized regression coefficients was 0.386 at a significance of 0.000. Hence, it was verified that emotion regulation was a complete mediator between job demands and job performance (see Table 26).

Table 26 The complete mediation of emotion regulation on the relationship between job demands and job performance

Path	Standardized regression coefficients	*p*-value
JD → ER	0.362	***
ER → JP	0.403	***
JD → JP	0.187	**
JD → JP	0.047	0.447
ER → JP	0.386	***

Note: ***p< .001, **p< .01, *p< .05

The same procedure procedures were used to verify the mediation role of emotion regulation on the relationship between job resources and job performance. In step 1, the association between job resources and emotion regulation was found to be significant, where the standardized regression coefficient was 0.396 at a significance of 0.000, indicating that job resources were significantly related to emotion regulation. In step 2, the association between emotion regulation and job performance was found to be significant, and the standardized regression coefficient was 0.403 at a significance of 0.000, indicating that emotion regulation was significantly related to job performance. In step 3, the association between job resources and job performance was found to be significant, and the standardized regression coefficient was 0.304 at a significance of 0.000, indicating that job resources were significantly related to job performance. To determine whether emotion regulation was a partial mediator or complete mediator, the relationship between job resources and job performance and the relationship between emotion regulation and job performance were tested simultaneously. The association between job resources and job performance was found to be significant, and the standardized regression coefficient was 0.171 at a significance of 0.006. Likewise, the association between emotion regulation and job performance was found to be significant, and the standardized regression coefficient was 0.335 at a significance of 0.000. Consequently, it was shown that emotion regulation is a partial mediator between job resources and job performance (see Table 27).

Table 27 The partial mediation of emotion regulation on the relationship between job resources and job performance

Path	Standardized regression coefficients	*p*-value
JR → ER	0.396	***
ER → JP	0.403	***
JR → JP	0.304	***
JR → JP	0.171	**
ER → JP	0.335	***

Note: ***p< .001, **p< .01, *p< .05

Chapter Six

Conclusion and Discussion

6.1 Summary of the Results

This study investigated, based on the job demands-resources model, the causal relationships among job demands, job resources, job burnout, job engagement, emotion regulation, and job performance in Taiwan's telecommunications industry. The results can be summarized as follows: The ANOVA results revealed there to be significant relationships among demographic characteristics (e.g., age, education, department, job title, and years of tenure at a company), job demands, job resources, job burnout, job engagement, emotion regulation, and job performance. Respondents who worked as staff, sales representatives, or customer service staff (i.e., the frontline employees) had higher levels of job demands and tended to suffer higher levels of job burnout but to better regulate their emotions. However, employees who were 50 years old and above or who had stayed with the company for over 21 years had more job resources and tended to have better performance. The underlying constructs showed good discriminant and convergent validity as evidenced by the reliability and validity tests, suggesting the feasibility of the questionnaire items with regard to being adapted in further examination of SEM modeling. It was found that job demands positively influenced job burnout; job resources positively influenced job engagement and emotion regulation; job engagement positively influenced job performance; and emotion regulation positively influenced job engagement and job performance but negatively influenced job burnout. However, job demands positively influenced emotion regulation unlike the hypothesized negative linkage. Also, the influences of job demands on job performance, job resources on job performance, and job burnout on job performance were found to be non-significant. In particular, the comparison of the standardized path coefficients revealed that job resources (total effect = 0.299) had the strongest impact on job performance, followed by emotion regulation (0.258) and job demands (0.044). Finally, the complete mediating role of emotion regulation between job demands and job performance and the partial mediating role of emotion regulation between job resources and job performance were verified. This demonstrated that job performance was not only influenced by job characteristics in the workplace but also by employees' ability to regulate their emotions. Hence, the employees with high job demands and/or with sufficient job resources can better regulate their emotions and thus perform better at their jobs.

Several contributions of this study have been added to the literature. This study is the first one, to the best of the author's knowledge, to investigate the factors influencing

employees' job performance in the telecommunications industry using the JD-R model. The major stream of the JD-R model studies has concentrated on the impacts of external factors in the workplace (e.g., job demands and job resources) on employee attitudes and behavior (Bakker et al., 2004; Hakanen et al., 2006; Hu et al, 2011; Li et al., 2013; Bakker et al., 2003; Jourdain & Chênevert, 2010). However, internal factors (e.g., emotion regulation) have been neglected in the JD-R studies. Also, emotion regulation has been regarded as an exogenous variable affecting employees' interpersonal conflict, job performance, emotional exhaustion, and occupational well-being in Mulki et al. (2015), Martínez-Íñigo and Totterdell (2016), Hur et al. (2015), Brotheridge and Grandey (2002), and Ghanizadeh and Royaei (2015). Likewise, the existence of the factors influencing emotion regulation in complex workplaces has been ignored in the literature. Further, how the role of internal factors affects employee attitudes and behavior in workplace remains unresolved. To fill this gap in the literature, the JD-R model was constructed with emotion regulation to investigate the causal relationships among job demands, job resources, emotion regulation, and employee attitudes and behavior. External factors in the workplace (e.g., job demands and job resources) were found to have impacts on internal factors (e.g., emotion regulation), which in turn affected attitudes and behavior. In the end, the mediating roles of emotion regulation between job characteristics and job performance in the JD-R model were also verified.

6.2 Managerial Implications

Some managerial suggestions drawn from the results are thus provided to the telecommunications industry to enhance employees' job performance. The ANOVA results showed that employees serving as staff, sales representatives, and customer service representatives tended to have high level of job demands but still had the ability to regulate their emotions. These frontline employees are valuable assets to companies and directly deliver customers services. Hence, in order to reduce employee workloads and avoid job burnout, telecommunications companies may consider moderate reduction in working hours and provide customers with self-service interactive multimedia equipment (e.g., kiosks for auto payment and information). Also, emotion regulation training courses (e.g., workshop, yoga courses, and counseling) could be offered to these employees to help them control their emotions in their workplaces. Another ANOVA result showed that employees who were 50 years old and above and stayed in their company for over 21 years, had more job resources, and tended to exhibit better performance. According to the National Development Council (2016), by 2061, the labor force in Taiwan will shrink to only half of what it was in 2015. Employees with extensive experience and knowledge are important to companies since the difficulty related to hiring qualified employees will gradually increase.

As a result, companies may offer postponed retirement packages to retain these senior employees and allow them to guide junior employees.

Further, the standardized path estimate results in the SEM model revealed that job resources, emotion regulation, and job demands affected job performance, and in particular, job resources had the strongest impact on job performance. The top priority for telecommunications companies is to periodically offer employees training courses in technical, managerial, and marketing to offer them learning opportunities and enhance their professional skills. Also, family day and sport competition activities may be held to build teamwork spirit in the workplace. Although appropriate job demands made the employees examined in this study perform better, high job demands (e.g., work overload and long work shift) made them felt stressed and lowered their work efficiency in the long term (Babakus et al., 2009; Li et al., 2013; Bakker et al., 2004). As a result, companies should periodically evaluate employees' job demands and make suitable adjustments to release them from their extra job demands by providing them with a comfortable and friendly work environment. Based on the results of the SEM and mediating analysis, emotion regulation was affected by job demands and job resources and mediated both the relationship between job demands and job performance and the relationship between job resources and job performance. To increase employees' ability to regulate their emotions, companies should periodically rotate their jobs and allow them flexible choices of work place/time so as to provide them with learning opportunities and challenges at work and help them maintain their work/life balance. In the end, when making decisions related to hiring new employees, their ability to regulate their emotions as well as their professional skills/experiences should be equally important. Emotion regulation training courses (e.g., emotion mediation workshop, yoga courses, and counseling) should be consistently offered in companies to help employees go through emotional ups and downs.

6.3 Limitations and Future Research

Although this research obtained effective results and implications, there were some limitations. The sample collected in this analysis was restricted to one geographical region (i.e., Taiwan). However, country and company cultural differences (e.g., whether a company is foreign or local) may have effects on company culture, and thus different results might be obtained for the relationships among job demands, job resources, emotion regulation, job burnout, job engagement, and job performance. For example, employees in western countries such as America tend to be relatively low context in which they are inclined to express their opinion directly and have a low power distance index (PDI) in which they reflect more egalitarian views in their companies (Cateora, Gilly, Graham, & Money, 2016). On the other hand, employees in eastern countries such as Japan are likely to be high context in which employees take accountability for who said it, when it was said,

and how it was said, and have a high PDI in which their supervisors are entitled to privileges. The direct way to express opinions and comments in western countries can be viewed as obtaining assistance from supervisors or engaging in discussion with colleagues, but in eastern countries, it can be considered to be criticism from supervisors and colleagues. Hence, to appropriately reflect the cultural differences within companies, future studies may consider constructs related to, for example, department climate and team climate.

Safety issues are critical to the operations of oilfield companies (Li et al., 2013) and airlines (Chen & Chen, 2014) according to the JD-R model. The studies revealed job demands to be negatively related to employee safety behavior, while job resources were positively related to such behavior. In particular, safety issues in telecommunications industry have been neglected in the literature. The companies provide safety training and allow their supervisors to monitor the entire process and offer detailed safety guidelines to make sure that employees will follow the procedures and avoid being injured and having accidents. On the other hand, when natural disasters (e.g., typhoon or earthquakes) occur, companies have to secure the communication network and quickly respond to post-disaster reconstruction requirements. Also, there have been numerous protests against base stations around residential neighborhoods claiming that base stations potentially harm residents' health and drive down their property values. Occasionally, irrational and aggressive methods (e.g., shouting at the employees, throwing hell money and eggs) have been used to express their disagreement and thus, endangered the employees who dealt with these situations. Hence, future research can investigate, based on the JD-R model, how job demands and job resources affect employees' safety behavior (i.e., safety compliance and safety participation) and how safety climate (i.e., safety policy and safety training) affects job demands and job resources in the telecommunications industry.

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Appendix A: Items in Questionnaire

The following 43 questions are used to collect data in this study and measured using a 5-point Likert scale.

Part 1 Job Demands (7 Items)

JD1	It often seems like I have too much work for one person to do.
JD2	My work requires working very hard.
JD3	I do not have enough time to perform my tasks.
JD4	I am often under pressure from unfinished work tasks.
JD5	Waiting on work from other people or departments often slows me down on my job.
JD6	My work demands that I am good at coming up with new ideas.
JD7	I have to keep my eyes on lots of things while I am working.

Part 2 Job Resources (9 Items)

JR1	My boss is concerned about the welfare of those under him/her.
JR2	My boss is willing to listen to work-related problems.
JR3	My boss can be relied on when things get difficult at work.
JR4	The people I work with encourage each other to work together.
JR5	People I work with are helpful in getting the job done.
JR6	I can ask my colleagues for help if necessary.
JR7	There is a possibility of learning new things through my work.
JR8	At this company, training programs are consistently evaluated.
JR9	At this company, training programs focus on how to improve service quality.

Part 3 Job Burnout (7 Items)

JB1	I feel used up at the end of the workday.
JB2	There are days when I feel tired before I arrive at work.
JB3	I feel fatigued when I get up in the morning and have to face another day on the job.
JB4	I doubt the significance of my work.
JB5	Working with people all day is really a strain for me.
JB6	I feel I have become uncaring toward people since I took this job.
JB7	It happens more and more often that I talk about my work in a negative way.

Part 4 Job Engagement (7 Items)

JE1	I am enthusiastic about my work.
JE2	I find the work that I do full of meaning and purpose.
JE3	At my work, I feel bursting with energy.
JE4	I can continue working for very long periods at a time.
JE5	When I am working, I forget everything else around me.
JE6	Time flies when I am working.
JE7	It is difficult to detach myself from my job.

Part 5 Job Performance (6 Items)

JP1	My performance is in the top 10%.
JP2	I achieve the objectives of the job.
JP3	I am good at my job.
JP4	I get better tips than most of the others.
JP5	I manage my work time better than most.
JP6	I consistently deliver better quality service than others.

Part 6 Emotion Regulation (7 Items)

ER1	I just pretend to have the emotions I need to display for my job.
ER2	I show feelings to people I work with that are different from what I feel inside.
ER3	I resist expressing my true feelings.
ER4	To be effective in my job, I display the emotions required even though they do not agree with my true feelings.
ER5	I am able to control my temper and handle difficulties rationally.
ER6	I am quite capable of controlling my own emotions.
ER7	I can always calm down quickly when I am very angry.

Appendix B: Items in Chinese Questionnaire

親愛的受訪者，您好：

感謝您於百忙之中抽空填寫此問卷。這份問卷是研究「**探討電信產業中工作要求與工作資源對員工態度與行為的影響：以情緒管理為中介及干擾變數**」。本問卷大約需要花費您 5 分鐘的時間，煩請撥冗填寫，您的寶貴意見將使本研究更有價值，懇請您表達真實的想法與意見，協助完成此研究調查。

本問卷是匿名填寫並且內容不牽涉您個人的私密資料，所有調查結果僅供學術研究使用，任何資料不對外公開，敬請安心作答。在此謹對您的熱心協助，致上最誠摯的謝意。

敬祝 萬事如意 身體健康

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以下為工作要求、工作資源的介紹，請閱讀後再進行問卷填寫，謝謝！

「**工作要求**」是指在工作中必須完成的事物，或者需要持續消耗能量、資源或力量的工作，包含生理的、社會的以及組織層面的部分，和生理及心理的消耗有關，當員工為了達成組織的要求而付出很多的努力，卻尚未從中有適當的休息與調適時間，工作要求就會變成工作中的壓力來源，若工作要求已超過員工的適應能力時，可能會引起倦怠。

「**工作資源**」是指在工作中能實現個人基本需要的因素，包含在工作中的生理、社會、組織層面中個人可以掌握以及面對壓力的因素與條件，可與工作要求或相關的身心消耗抗衡，幫助達成工作目標以及刺激個人成長、學習與發展。

第一部分：下列是有關**工作要求**的問項，一共有 7 題，請依照您個人的想法在適當的□內打「ˇ」。	非常不同意	不同意	普通	同意	非常同意
1.我的工作量是超過一個人所能負荷的	□	□	□	□	□
2.我的工作是需要非常努力地去做	□	□	□	□	□
3.因為工作流程設計的關係，使我沒有足夠時間去完成我的工作	□	□	□	□	□
4.我經常對未完成工作感到有壓力	□	□	□	□	□
5.我的工作進度會因為其他人或部門的關係而被拖延	□	□	□	□	□
6.我的工作是需要去構想出一些新的創意	□	□	□	□	□
7.當在工作的時候，我需要同時注意許多件性質不同的事情	□	□	□	□	□
第二部分：下列是有關於**工作資源**的問項，一共有 9 題，請依照您個人的想法在適當的□內打「ˇ」。	非常不同意	不同意	普通	同意	非常同意
1.我的上司重視他/她下屬的福利(獎勵、年終獎金)	□	□	□	□	□
2.我的上司願意傾聽有關工作上的相關問題	□	□	□	□	□
3.在工作上遇到困難時，我的上司是可以依靠的	□	□	□	□	□
4.我的同事都會鼓勵大家一起努力工作	□	□	□	□	□
5.我的同事對於工作的完成是有幫助的	□	□	□	□	□
6.在有需要的時候，我是可以尋求同事的協助	□	□	□	□	□
7.我是可以透過工作學習到新的事物	□	□	□	□	□
8.本公司的訓練課程有持續地評估改進	□	□	□	□	□
9.本公司訓練課程的目的是在於如何提升員工的工作/專業能力	□	□	□	□	□
第三部分：下列是有關於**工作倦怠**的問項，一共有 7 題，請依照您個人的想法在適當的□內打「ˇ」。	非常不同意	不同意	普通	同意	非常同意
1.經過一天的工作，我會覺得筋疲力盡	□	□	□	□	□
2.曾經有些日子，在抵達公司之前我會感到厭倦	□	□	□	□	□
3.在早上醒來，我會覺得疲憊並想到還要面對一天的工作	□	□	□	□	□
4.我懷疑我工作的重要性	□	□	□	□	□
5.跟其他人工作一整天會讓我覺得焦慮	□	□	□	□	□
6.自從我接受現在的職務之後，我變得不太在乎其他人的感受	□	□	□	□	□

7.以負面方式談及我的工作變得越來越頻繁了	□	□	□	□	□
第四部分：下列是有關於**工作投入**的問項，一共有 7 題，請依照您個人的想法在適當的□內打「ˇ」。	非常不同意	不同意	普通	同意	非常同意
1.我熱愛我的工作	□	□	□	□	□
2.我做的工作是非常有意義且目標明確	□	□	□	□	□
3.在我工作的時候，我是充滿精力	□	□	□	□	□
4.我可以一次連續工作到忘記時間	□	□	□	□	□
5.在我工作的時候，我會忽略掉周遭的事物	□	□	□	□	□
6.在我工作的時候，時間是過得很快	□	□	□	□	□
7.要使我從工作的思緒中抽離出來是困難的	□	□	□	□	□
第五部分：下列是有關於**工作表現**的問項，一共有 6 題，請依照您個人的想法在適當的□內打「ˇ」。	非常不同意	不同意	普通	同意	非常同意
1.我的工作表現是排名在前 10%	□	□	□	□	□
2.我能達成公司所制定的工作目標	□	□	□	□	□
3.我擅長做我自己的這份工作	□	□	□	□	□
4.比起大多數同事而言，我是有較好的工作訣竅/解決工作上問題的方法	□	□	□	□	□
5.相對其他同事而言，我的工作時間掌控是比較好	□	□	□	□	□
6.比起其他同事而言，我持續地提供較好的工作品質	□	□	□	□	□
第六部分：下列是有關於**情緒管理**的問項，一共有 7 題，請依照您個人的想法在適當的□內打「ˇ」。	非常不同意	不同意	普通	同意	非常同意
1.有時候，在工作上我會表現出適時的情緒(例如：達到預計目標的決心)	□	□	□	□	□
2.在面對同事或上司時，有時候我會表現出不同於內心的感受/想法	□	□	□	□	□
3.有時候我會忍住表達內心的真實感受	□	□	□	□	□
4.有時候為求工作效率，我會表現出該有的情緒，即使這些情緒跟我內心的真實感受是相違背的	□	□	□	□	□
5.我是可以控制我的脾氣並且理性地處理所面對的問題	□	□	□	□	□
6.控制自己的情緒我是相當在行的	□	□	□	□	□
7.即使當非常生氣的時候，我總是可以很快地平復心情	□	□	□	□	□

第七部份：下列是有關您個人的基本資料，請在適當的□內打「ˇ」。

1.請問您的性別為： □ 男 □ 女

2.請問您的年齡為：

□ 20 歲以下 □ 21-30 歲 □ 31-40 歲 □ 41-50 歲 □ 51 歲以上

3.請問您的最高學歷為：

□ 國小 □ 國中 □ 高中(職) □ 大學/專科 □ 研究所以上

4.請問您目前的職務類別為：

□ 設備工務單位 □ 行銷業務單位 □ 人資法務單位 □ 財務會計單位 □ 其他單位：_____

5.請問您目前的職稱為：

□ 副總經理以上 □ 協理 □ 經理/副理 □ 課長/主任 □ 辦事員

□ 業務代表 □ 客服人員 □ 其他（請說明）：_____

6.請問您在目前的公司服務幾年：

□ 5 年以內 □ 6~10 年 □ 11~15 年 □ 16~20 年 □ 21~25 年 □ 25 年以上

7.請問您目前在哪一家公司就職：

□ 中華電信 □ 遠傳電信 □ 台灣大哥大 □ 台灣之星 □ 亞太電信

問卷到此結束，煩請再次檢查是否有漏填答案，非常感謝您的幫忙！