

A Self-Regulation Model of Zhong Yong Thinking and Employee Adaptive Performance

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ABSTRACT Indigenous Chinese management research has attracted much academic attention in recent years. This study examines the mechanism through which Zhong Yong thinking influences employee adaptive performance from a self-regulation perspective. Using two-wave data of 361 subordinates in 62 teams from Chinese firms, job complexity was found to moderate the direct effect of Zhong Yong thinking on cognitive adaptability and emotional control, and the indirect effect on adaptive performance (via cognitive adaptability and emotional control). The direct and indirect effects of Zhong Yong thinking were found to be stronger with a higher level of job complexity. The study explores an important Chinese indigenous construct and its association with adaptive performance, and adds value to the indigenous management literature.

KEYWORDS adaptive performance, cognitive adaptability, emotional control, job complexity, Zhong Yong thinking

INTRODUCTION

The past decade has witnessed an increase in research into indigenous Chinese management (Jia, You, & Du, 2012; Li, Leung, Chen, & Luo, 2012; Li, Sekiguchi, & Zhou, 2016; Tsui, 2009). One of the promising research streams is to take Chinese indigenous constructs as points of departure to describe how individual outcomes of interest are embedded in their cultural environment (Bond & Muethel, 2012). Studies have been developed by researchers using indigenous constructs such as *guanxi* (e.g., Xin & Pearce, 1996), network capitalism (e.g., Boisot & Child, 1996), a Yin-Yang frame (e.g., Fang, 2012), and paternalistic leadership (e.g., Farh & Cheng, 2000). Zhong Yong thinking (the Doctrine of Mean, 中庸思维) is another such construct that reflects the thinking of Confucian heritage cultures. Zhong Yong thinking refers to thinking over an issue from multi-perspectives, giving careful consideration to different views, and then making behavioral decisions for the sake of both oneself and the general good (Wu & Lin, 2005). Zhong Yong

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thinking warrants further academic attention, as effectively coping with today's changing and uncertain environment requires adaptive thinking processes.

Zhong Yong thinking is metacognitive in nature (Yang, 2010). Metacognition involves skills of planning, monitoring, and evaluating progress during task completion (Schraw & Moshman, 1995). Research suggests that metacognition can strongly affect adaptive performance (Bell & Kozlowski, 2008; Ford, Smith, Weissbein, Gully, & Salas, 1998; Keith & Frese, 2005). As new problems and unexpected events frequently arise, employees must be increasingly able to adapt and adaptive performance has become an important work role requirement. Adaptive performance refers to the degree to which individuals cope with, respond to, and/or support changes, which results in more effective contributions as individuals, team members, or organization members (Griffin, Neal, & Parker, 2007). Zhong Yong thinking is assumed to use metacognitive strategies and skills (Chiu, 2000; Wu & Lin, 2005; Yang, 2010), which contribute to the adaptable functioning of an individual (Earley & Ang, 2003; Schraw & Dennison, 1994). Further, Zhong Yong thinking is culturally induced. Chinese people have been found to have a stronger tendency to engage in Zhong Yong thinking than westerners (such as those in the US) when attempting to make sense of the world, and when making decisions and taking action (Huang, 1996; Peng & Nisbett, 1999).

The relationship between Zhong Yong metacognitive processes and behavior has been investigated (Chiu, 2000; Huang, Lin, & Yang, 2012; Wu & Lin, 2005), and the results suggest that those with high levels of Zhong Yong thinking tend to use a more global and flexible information processing strategy when interacting with the external world (Chang & Yang, 2014). Metacognition is involved in adaptive performance, so examining culturally characteristic metacognition can reveal how employees in a given culture attempt to achieve adaptive performance. In this research, we aim to extend the studies on Zhong Yong thinking by examining how it affects adaptive performance, and thus provide an insightful understanding of how employees in Confucian heritage cultures respond to changing environments.

The self-regulation perspective provides a general theoretical framework through which Zhong Yong thinking can be seen to influence employee adaptive performance. Self-regulation (e.g., Chen, Thomas, & Wallace, 2005) processes 'enable an individual to guide his/her goal-directed activities over time and across changing circumstances', including the 'modulation of thought, affect, behavior, or attention' (Karoly, 1993: 25). We argue that Zhong Yong thinking stimulates the self-regulation of cognition (e.g., cognitive adaptability) and of affect (e.g. emotional control), which contribute to adaptive performance. From a cognitive perspective, adapting to novel and dynamic situations requires individuals to frequently learn new working methods or to effectively solve new and unfamiliar problems. Cognitively oriented factors can facilitate learning and skill acquisition and are therefore likely to be important predictors of adaptive performance (Pulakos, Arad, Donovan, & Plamondon, 2000). Scholars (e.g., Jundt, Shoss, & Huang, 2015) call

for examining more cognitive factors in facilitating adaptive performance, and we explore cognitive adaptability in linking Zhong Yong thinking with adaptive performance in this study.

From the affective perspective, research suggests that negative emotions are detrimental to adaptive performance, as they are likely to disrupt attention and effort (Kanfer, Ackerman, & Heggstad, 1996), and these emotions may often accompany changes at work (Hobfoll, 2011). Self-regulation, in terms of emotional control, can support learning and performance (e.g., Bell & Kozlowski, 2008). We argue that Zhong Yong thinking exerts emotional control, enabling individuals to learn and perform by reducing negative emotions when encountering negative feedback or unexpected situations. We therefore expect Zhong Yong thinking to influence adaptive performance through emotional control.

Previous work has suggested that to better understand employee problem-solving ability, it is important to examine the nature of a job in concert with the nature of the employee who is performing the work (Shalley, Gilson, & Blum, 2009). The level of self-regulation required in a job may be inherently dependent upon the job in question, such as the level of its complexity. Job complexity can be defined as the physical and mental demands placed upon an employee (London & Klimoski, 1975). Complex jobs are stressful and require more intricate thought processes and more flexibility (Campbell, 1988; Farr, 1990). Stressors of difficult problems, new requirements, and conflicts provide cues for activating self-regulation responses, which therefore provide opportunities for triggering Zhong Yong thinking. We suggest that Zhong Yong thinking is a latent mental model activated by cues provided by job complexity. Therefore, employees in more complex jobs are more likely to draw on the internal attributes of Zhong Yong thinking, such as cognitive adaptability and emotional control, than those in less complex jobs, to enhance their adaptive performance.

The purpose of the study is thus to investigate the main effects of Zhong Yong thinking on adaptive performance, and to ascertain why and when the effects occur. Taking a self-regulation perspective, we explore the mediating effects of cognitive adaptability and emotional control and the moderating role of job complexity in their relationship. The study makes three contributions to the literature. First, we introduce Zhong Yong thinking to the study of adaptive performance. A greater level of metacognitive awareness enables an employee to be more adaptive in a changing decision context (Haynie & Shepherd, 2009). This study situates metacognitive awareness in a cultural context and is one of the first to examine the role of Zhong Yong thinking in enhancing adaptive performance. Second, few studies have explored how employees adapt and what processes they must engage in to do so (Jundt et al., 2015). Jundt et al. (2015) suggest that research is needed to understand these processes and identify whether they can explain the relationships between the various 'boxes' of adaptive performance predictors. We take a self-regulation perspective and provide a more complete understanding of the psychological mechanisms underlying metacognition and adaptive performance.

Third, job and situational contexts are rarely considered in adaptive performance studies, and scholars (e.g., Jundt et al., 2015) have called for these to be addressed in future research. We examine how Zhong Yong thinking affects adaptive processes in the context of job complexity. We are able to gain more insight into the condition in which self-regulation may play a great role in adaptive performance.

THEORETICAL BACKGROUND AND HYPOTHESES

Conceptualizing Zhong Yong Thinking

Zhong Yong thinking is a unique metacognitive-level practical thinking system that monitors daily activities (Yang, 2010). Previous research has provided important insight in how Zhong Yong thinking influences the life norms, meanings, and coping behaviors of people in the Chinese societies (see Chiu, 2000; Huang, Lin, & Yang, 2012). Wu and Lin (2005) examine Zhong Yong thinking from a decision-making style perspective, and propose and measure three principles: weigh and balance (in planning), integrate (in deciding courses of action), and seek harmony (in implementing decisions). Wu and Lin (2005) suggest that these principles may help define Zhong Yong thinking. ‘Weighing and balancing’ refers to how individuals recognize the dialectical relationships between contradictory elements and appreciate that these elements can achieve dynamic equilibrium through a mutually complementing and promoting process. Thus, it is important to consider both contradictory sides, take multiple perspectives over the same issue, listen to the different possible views, and consider a wide range of alternatives so they can adjust to the dynamic situation. ‘Integrating’ refers to how individuals should consider the needs and values of others, and try to build consensus. In conflicts, it is important to achieve a balance between one’s own opinion and those of others, to be able to modify thinking after considering the viewpoints of others, and to try to integrate one’s own views into those of others. Individuals should be flexible and open-minded when discussing problems, and seek solutions that are acceptable to all. By ‘seeking harmony’, individuals develop harmonious relationships with others. A harmonious relationship is regarded as a condition for maintaining the order of the universe and for things to be full of life. It is important to listen to and consider others’ viewpoints and opinions and alter one’s own when appropriate. A harmonious relationship also demands a thorough understanding of the others’ behavior and a careful tailoring of one’s own behavior. Harmony is an ideal state for relationships and a means of dealing with conflict relationships, with the aim of avoiding extreme reactions. In Zhong Yong thinking, it is recognized that things will develop in the opposite direction when they become extreme, and that individuals should look for ways to make contradictory factors compatible through mutual promotion (Chiu, 2000).

Research has found that Zhong Yong thinking is more likely to be used in Chinese societies to make sense of the external world, and is more likely to

influence individuals' judgments and their adaptive performance (Huang, 1996; Li, 1990; Peng & Nibett, 1999; Zheng, Li, & Chiu, 1999). The value of Zhong Yong thinking for life adaptability is, however, yet to be explored in the workplace.

Zhong Yong Thinking and Adaptive Performance

Adaptive performance entails problem-solving, flexibility, and coping processes associated with task-relevant changes (Jundt et al., 2015). We argue that the metacognitive skills involved in Zhong Yong thinking will positively influence adaptive performance. First, Zhong Yong thinking recognizes the importance of harmonious interpersonal relationships (Chiu, 2000; Wu & Lin, 2005). By using the strategies such as being flexible and open-minded, and seeking to build consensus when faced with conflicting views, Zhong Yong thinking seeks to develop effective relationships with very different people, and working effectively with colleagues. Second, Zhong Yong thinking is highly aware of the dialectical relationships between contradictory elements (Qian, 1989). When faced with problems, individuals can focus on taking multi-perspectives and thinking of wide-ranging possibilities (Wu & Lin, 2005). Through searching for more effective approaches toward problems, Zhong Yong thinking helps generate new ideas regarding using resources available to do the job and encourages learning new knowledge and skills for improving work performance deficiencies. Third, Zhong Yong thinking embraces the idea that life is a continuous evolutionary development process, and that it is important to readily and easily make a change in response to unpredictable or unexpected circumstances (Zheng, Li, & Chiu, 1999). Zhong Yong thinking therefore facilitates adjusting plans, goals, or actions to deal with changing situations in the workplace.

Accordingly, we propose that Zhong Yong thinking influences individuals' ability to identify alternative cognitive strategies in light of changing environments. With Zhong Yong thinking, employees are able to devise effective thinking, planning, and problem-solving strategies, and are thus able to adapt in complex and uncertain situations. Thus, we suggest the following hypothesis:

Hypothesis 1: Zhong Yong thinking will be positively related to adaptive performance.

The Mediating Role of Cognitive Adaptability

Cognitive adaptability is defined as the ability to effectively and appropriately change decision policies (i.e., to learn) when given feedback (inputs) from the environmental context in which cognitive processing is embedded (Haynie, Shepherd, & Patzelt, 2012). Jundt and colleagues (2015) suggest that cognitive adaptability represents the individual propensity to engage in problem-solving, flexibility, and coping, which are required in adaptive performance. Cognitive adaptability is positively linked to adaptive performance when it is associated

with task-relevant changes. In today's organizations, employees are faced with increasingly more task-relevant changes and are required to use their cognitive adaptability more often than before, to interpret the environment, create decision alternatives, and decide on the most appropriate choice when addressing a new situation. We therefore assume that cognitive adaptability has a direct effect on adaptive performance. Adaptive performance has been found to depend on the ability to identify alternative cognitive strategies in light of changing environments (Glasspool & Fox, 2005; Higham & Gerrard, 2005; Siggelkow & Rivkin, 2005).

Metacognition implies that individuals exert self-regulatory control over their cognition (Ford, Smith, Weissbein, Gully, & Salas, 1998), and higher metacognition has been found to positively influence adaptability (the degree to which trainees can adapt newly acquired knowledge and skills in a changed task environment) in training literature (Bell & Kozlowski, 2008). Zhong Yong thinking has implicit metacognitive characteristics (Chiu, 2000) that result in propensities to engage in problem-solving, flexibility, and coping. First, Zhong Yong thinking does not encourage spontaneous decision, but carefully considers the available cues by 'taking different perspectives' and 'weighing and balancing', and seeks wide-ranging possibilities. Zhong Yong thinking places importance on understanding new situations and is committed to problem-solving. Second, Zhong Yong thinking recognizes the importance of the following processes in addressing conflict and new situations: building consensus, striking a balance between other's opinions and one's own, and modifying thinking after considering the viewpoints of others (Peng & Nisbett, 1999). Thus, it encourages the individual's propensities to engage in flexibility and coping. We suggest that Zhong Yong thinking promotes cognitive adaptability that leads to effective adaptive performance.

Hypothesis 2: Cognitive adaptability will mediate the relationship between Zhong Yong thinking and adaptive performance.

The Mediating Role of Emotional Control

Emotional control is a skill involving 'the use of self-regulatory processes to keep performance anxiety and other negative emotional reactions (e.g., worry) at bay during task engagement' (Kanfer et al., 1996: 186). As changing environments involve challenges or threats related to both positive and negative experiences, emotional control acts as a critical mechanism linking Zhong Yong thinking and adaptive performance outcomes.

Changes at work, as noted, are often accompanied with the threat of resource loss (Niessen & Jimmieson, 2016), which evokes negative emotions (Hobfoll, 2011). Zhong Yong thinking encourages individuals to reframe or reappraise a problem (Li, 1990; Qian, 1985), which in turn enhances the ability to reduce unpleasant feelings. In Zhong Yong thinking, life wellbeing and harmony are sought as ideals in life (Chiu, 2000). Emotion-driven judgment and behavior can undermine

harmony (should be prevented and modified before they arise) (e.g., Chiu, 1991; Leung, 1987). Thus, Zhong Yong thinking exerts its emotional control by reducing, as well as actively modifying in advance, negative emotions.

Emotional control can further help improve employee adaptive performance. Changes at work evoke negative emotions that divert attentional resources to the self and away from the task at hand (Kanfer & Ackerman, 1989; Kanfer et al., 1996), and are thus detrimental to adaptive performance. Consistent with its definition, emotional control helps reduce work stress when faced with stressful circumstances. Employees with high levels of emotional control can better regulate their emotions to reduce worries, anxieties, and other unpleasant feelings, and can further prevent or correct various emotion-driven judgments and behaviors that can undermine performance (e.g., Schwarz, 1990; Seo & Barrett, 2007). Researchers have also found that emotional control processes can be beneficial when individuals reappraise or modify the emotional event before emotions unfold, rather than suppress them after they appear (Richards & Gross, 2000). Modifying emotions in advance can put individuals in the mood required to keep on track. Thus, emotional control is important, in that individuals adopt a positive perspective and are prepared to handle their negative emotional reactions before the negative emotions arise.

Several studies have shown that employees' emotional control is related to their adaptive performance (Blume, Ford, Baldwin, & Huang, 2010; Fugate et al., 2008; Judge et al., 1999). For example, Keith and Frese (2005) found that emotion-control activities during transfer episodes have a positive effect on adaptive transfer performance. In all, emotional control can help employees cope with and adapt to changing and difficult situations through demonstrating higher adaptive performance.

Hypothesis 3: Emotional control will mediate the relationship between Zhong Yong thinking and adaptive performance.

The Moderating Role of Job Complexity

Examining the nature of a job alongside the nature of the individual performing the work has been found to be important when investigating employee problem-solving ability (Shalley, Gilson, & Blum, 2009). The level of job complexity will inherently determine the level of self-regulation required. Today's job designers believe that a relatively high level of job complexity can increase work interest and the motivation to learn, and strongly advocate job enlargement and enrichment as methods of increasing job complexity. However, job complexity has also been demonstrated to provoke stress when at high levels (Xie & Johns, 1995). Schaubroeck, Ganster, and Kemmerer (1994) identified two stressors: mental demands and people complexity. Mental demands involve concentration, problem solving, and attention to information. People complexity relates to interactions

with others. These stressors have inherently diverse dimensions and encourage employees to consider the available knowledge from different perspectives and weigh and balance the benefits and costs in processing information. Thus, complex jobs may not only require more intricate cognitive strategies to cope with problem-solving (Campbell, 1988; Farr, 1990), but also require a more emotion-oriented coping strategy to cope with the stress.

High job complexity imposes high demands on employees' self-regulation ability. Coping with job challenges provides cues for activating self-regulation responses, which therefore provides opportunities for triggering Zhong Yong thinking. Success in meeting the complex demands of a job requires and indicates a high self-regulation ability, as expressed in Zhong Yong thinking, and also provides a strong motivational force to use Zhong Yong thinking in similar situations. This thinking-activation process is essentially parallel to trait activation theory (Tett & Burnett, 2003). Trait activation is the process by which individuals express their traits when presented with trait-relevant situational cues (Tett & Burnett, 2003). We suggest that Zhong Yong thinking is a latent mental model activated by stressful demands involved in job complexity. To be responsive to job complexity, those with Zhong Yong thinking take action to detect challenging cues in the job environment, anticipate constraints and conflicts, and actively set scenario plans to overcome difficulties.

The notion that job complexity can create demands that activate cognitive responses is supported by research evidence that general cognitive ability is more strongly related to performance in complex and novel tasks than in those that are simple and routine (Hartigan & Wigdor, 1989; Hunter & Hunter, 1984). Consistently, when the task context requires adaptability due to unforeseen change, better cognitive ability is, in general, found to be more beneficial for decision-making performance (Le Pine, Colquitt, & Erez, 2000). Thus, we hypothesize:

Hypothesis 4: Job complexity will moderate the relationship between Zhong Yong thinking and cognitive adaptability, such that the relationship will be stronger at a higher level of job complexity.

Hypothesis 5: Job complexity will moderate the relationship between Zhong Yong thinking and emotional control, such that the relationship will be stronger at a higher level of job complexity.

An Integrated Model

Hypotheses 2 and 3 suggest that cognitive adaptability and emotional control mediate the relationship between Zhong Yong thinking and adaptive performance. Hypotheses 4 and 5 suggest that job complexity moderates the relationship between Zhong Yong thinking and the two mediators (cognitive adaptability and emotional control). Based on these hypotheses, we propose that job complexity moderates these mediated relationships, so that the indirect effect of Zhong Yong thinking on adaptive performance (via cognitive adaptability and emotional

control) tends to be stronger at a higher level of job complexity. Thus, based on the mediation and moderation hypotheses, we propose an integrated conditional indirect effect as follows:

Hypothesis 6: Job complexity will moderate the indirect effect of Zhong Yong thinking on adaptive performance via cognitive adaptability, such that the indirect effect will be stronger at a higher level of job complexity.

Hypothesis 7: Job complexity will moderate the indirect effect of Zhong Yong thinking on adaptive performance via emotional control, such that the indirect effect will be stronger at a higher level of job complexity.

METHOD

Data Collection and Sample

Data were collected from multiple manufacturing firms in a southern and an eastern city of China. With the support of general managers of each firm, questionnaires were distributed to 30 groups in the southern city and 50 groups in the eastern city by two research teams with the assistance of HR departments. These groups represented the smallest functional unit in the organization, and subordinates reported directly to the same supervisor, and did not change in size and composition during the research period (Van Der Vegt & Janssen, 2003). The research teams randomly selected six subordinates of each supervisor within the group to participate in the study, representing a supervisor – subordinate ratio of 1:6. To ensure confidentiality, they distributed questionnaires with a code known only to themselves and the supervisors to match supervisor and subordinate responses in the sample of southern city. In the sample of eastern city, the second research team relied on online survey system and participants could fill up the questionnaire online. Participants in these firms were employees engaging in marketing, service, R&D, and technology, which demanded adaptability to properly fulfill their task in the changing and uncertain environment. For example, salespersons created several scenarios for different market situations, and they were encouraged to use a wide variety of selling approaches. Subordinates were requested to report their Zhong Yong thinking, emotional control, cognitive adaptability, job complexity, and demographic characteristics. In the first sample, after one week of questionnaire distribution, the research team got the questionnaires back. In the second sample, the research team offered each subordinate a password in order that each of them could fill up the e-questionnaire through online survey system, financially supported by one of authors' organization. One month later, both research teams offered the name lists of subordinates to the 80 supervisors in these firms, and each supervisor provided an evaluation of the six respondents' adaptive performance in his or her group. In the cover letter of supervisor and subordinate questionnaires, participants

were fully informed that their responses would be kept confidential and that their participation was voluntary.

In total, 480 subordinate questionnaires and 80 supervisor questionnaires were distributed. In the two waves of data collection, some subordinates or supervisors did not return the questionnaire or complete the entire questionnaire, which reduced the sample size. Non-participation, missing data, and removing one outlier reduced the total sample to 361 subordinates in 62 teams, representing 75 percent participation rate. We combined the samples of two cities and tested their equivalence. Following Murray and Gerhart (1998), we tested for systematic differences in variable variances (e.g., employee gender, age, Zhong Yong thinking, and adaptive performance) between the two samples. A significant F-statistic would have indicated unequal variance by two samples. However, the calculated statistic indicated no difference ($p > 0.10$) between the two samples. Thus it was appropriate to combine them.

Among the 361 subordinates, 41% of respondents were female and had attained an average of 13.68 years (s.d. = 2.89) of education. Respondents reported a mean age of 28.06 years (s.d. = 6.14), a mean organizational tenure of 4.31 years (s.d. = 4.40). They had average dyadic tenure of 2.51 years with their supervisors. They worked for 50.66 hours per week (s.d. = 10.27). Among the 62 supervisors, 43.5% of respondents were female and had attained an average of 13.97 years (s.d. = 2.40) of education. Respondents reported a mean age of 35.16 years (s.d. = 5.56), a mean organizational tenure of 10.96 years (s.d. = 5.03). They held a supervisory position for 7.55 years (s.d. = 3.59).

Measures

The survey instrument (except Zhong Yong thinking) was originally constructed in English but translated into Chinese following recommended back translation procedures (Brislin, 1981). Unless otherwise indicated, the items had five Likert-type response options from 1 (strongly disagree) to 5 (strongly agree). Complete items of all the measures can be found in the appendix.

Zhong Yong thinking. Zhong Yong thinking was measured with Wu and Lin's (2005) thirteen-item scale. Sample items are 'I can take into account conflicting opinions in the discussion' (weigh and balance), 'I attempt to find out the opinions accepted by all parties when there are conflicting opinions' (integration), and 'While making my decisions, I usually adjust my method of expression for the sake of the harmony of the whole' (harmony). The scale's $\alpha = 0.72$.

Cognitive adaptability. We use a ten-item scale adapted from Haynie and Shepherd (2009). One sample item is 'I think about how others may react to my actions'. The scale's $\alpha = 0.80$.

Emotional control. We measure emotional control with the four-item scale used by Porath and Bateman (2006), originally developed by Kuhl (1985). One sample item is 'I manage my moods so that I can handle difficulties rationally'. The scale's $\alpha = 0.74$.

Job complexity. We measure job complexity with the three-item scale developed by Shaw and Gupta (2004). One sample item is: 'My job is very complex'. The scale's $\alpha = 0.71$.

Adaptive performance. We use Griffin, Neal, & Parker's (2007) nine-item scale to measure adaptive performance. One sample item is '(the subordinate) adapted well to changes in core tasks'. The scale's $\alpha = 0.85$.

Control variable. We control for employee education level, which has been found to be significantly related to employee adaptive performance (e.g., O'Connell, McNeely, & Hall, 2008).

Data Analysis

Because of the nested nature of our data (i.e., 62 supervisors rated adaptive performance of 361 subordinates), nonindependence would be a concern. As a proof of nonindependence, $F(61, 299) = 8.76, p < 0.001$. Traditionally, researchers tended to apply hierarchical linear modeling (HLM) analyses to adjust the potential nonindependence issue of employee outcomes rated by the same supervisor (Raudenbush & Bryk, 2002). We used a design-based modeling approach that 'takes the multilevel data or dependency into account by adjusting for parameter estimate standard errors based on the sampling design' (Wu & Kwok, 2012: 17) (TYPE = COMPLEX, ESTIMATOR = MLR in Mplus). We employ this design-based modeling approach for our study because it handles nonindependence data structures when mechanisms at a single level (i.e., employee level in this study) are examined (Wu & Kwok, 2012).

Following Wu, Liu, Kwan, and Lee (2016), we first consider only the mediation model and then test an integrated moderated mediation model, both of which are estimated with the global scores of our research variables.

RESULTS

Measurement Issues

We conducted a CFA to test the construct distinctiveness of the five variables in the study (Zhong Yong thinking, cognitive adaptability, emotional control, job complexity, and adaptive performance). For Zhong Yong thinking and adaptive performance, we use their three dimensions as indicators of each variable. For

Table 1. Comparisons of measurement models

| <i>Models</i> | χ^2 | df | $\Delta\chi^2$ | <i>RMSEA</i> | <i>CFI</i> | <i>TLI</i> |
|---|----------|----|----------------|--------------|------------|------------|
| Hypothesized 5-factor model | 196.35 | 67 | | 0.073 | 0.92 | 0.90 |
| M1 4-factor model (combine zhong and cognitive) | 318.69 | 71 | 122.34** | 0.098 | 0.86 | 0.81 |
| M2 4-factor model (combine zhong and emotion) | 338.54 | 71 | 142.19** | 0.102 | 0.84 | 0.80 |
| M3 4-factor model (combine zhong and complex) | 364.21 | 71 | 167.86** | 0.107 | 0.83 | 0.78 |
| M4 4-factor model (combine zhong and adaptive) | 510.43 | 71 | 314.08** | 0.131 | 0.74 | 0.67 |
| M5 4-factor model (combine cognitive and emotion) | 295.73 | 71 | 99.38** | 0.094 | 0.87 | 0.83 |
| M6: 4-factor model (combine cognitive and adaptive) | 456.22 | 71 | 259.87** | 0.123 | 0.77 | 0.71 |
| M7: 4-factor model (combine emotion and adaptive) | 468.71 | 71 | 272.46** | 0.125 | 0.77 | 0.70 |
| M8: 1-factor model | 814.87 | 77 | 618.52** | 0.163 | 0.57 | 0.49 |

Notes: Zhong = Zhong Yong thinking, cognitive = cognitive adaptability, emotion = emotional control, complex = job complexity, adaptive = adaptive performance; N= 361; *** $p < 0.01$

job complexity, we used their specific items to form the factors. We reduced the number of items by creating three indicators for cognitive adaptability and two indicators for emotional control, following procedures suggested or used by previous researchers (Bagozzi & Heatherton, 1994; Brooke, Russell, & Price, 1988). We compared the hypothesized 5-factor model to a series of nested 4-factor models and a 1-factor model. The fit indices indicated that our hypothesized 5-factor model fit the data best ($\chi^2 = 196.35$, $df = 67$, $RMSEA = 0.073$, $CFI = 0.92$, $TLI = 0.90$). Chi-square differences of the alternative models with the hypothesized model were all significant respectively. The result is presented in Table 1.

Another test of the distinctiveness of Zhong Yong thinking and cognitive adaptability involved comparing the correlations between each of these variables with adaptive performance. Evidence for discriminant validity would be established if the two correlations were unequal (Wang, Law, Hackett, Wang, & Chen, 2005). Using the online utilizer (Lee & Preacher, 2013), the z-score for the difference between the Zhong Yong thinking—adaptive performance correlation and the cognitive adaptability—adaptive performance correlation was 2.89 ($p < 0.01$, two-tailed). Thus, we conclude that Zhong Yong thinking and cognitive adaptability are distinct.

Descriptive Statistics and Zero-Order Analysis

Descriptive statistics for and correlations among the study variables are presented in Table 2.

Table 2. Descriptive statistics and zero-order correlations

| | <i>Mean</i> | <i>SD</i> | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>5</i> | <i>6</i> |
|---------------------------|-------------|-----------|----------|----------|----------|----------|----------|----------|
| 1. Education | 13.68 | 2.89 | | | | | | |
| 2. Zhong Yong thinking | 4.01 | 0.39 | -0.20** | (0.72) | | | | |
| 3. Cognitive adaptability | 3.71 | 0.51 | -0.22** | 0.35** | (0.80) | | | |
| 4. Emotional control | 3.74 | 0.60 | -0.24** | 0.37** | 0.56** | (0.74) | | |
| 5. Job complexity | 3.36 | 0.81 | -0.15** | 0.15** | 0.33** | 0.43** | (0.71) | |
| 6. Adaptive performance | 3.70 | 0.53 | -0.04 | 0.08 | 0.25** | 0.23** | 0.20** | (0.85) |

Notes: N = 361; * $p < 0.05$; ** $p < 0.01$

Hypotheses Test of Mediation Model

Before testing the mediation model, we specified the main effect of Zhong Yong thinking on employee adaptive performance. The result of Mplus did not provide support for the main effect of Zhong Yong thinking on adaptive performance ($B = 0.10$, $SE = 0.08$, ns.). H1 was not supported. To test the mediation model of hypothesis 2, we specified the indirect effects of Zhong Yong thinking on adaptive performance via cognitive adaptability and emotional control. It is a saturated model that has a perfect fit with zero degrees of freedom (MLR- $\chi^2(0) = 0$, CFI = 1.00, TLI = 1.00; RMSEA = 0.00; SRMR = 0.00). Result shows that Zhong Yong thinking was positively related to cognitive adaptability ($B = 0.42$, $SE = 0.09$, $p < 0.001$) and emotional control ($B = 0.52$, $SE = 0.10$, $p < 0.001$). Cognitive adaptability and emotional control were positively related to adaptive performance ($B = 0.20$, $SE = 0.10$, $p < 0.05$ for the former; $B = 0.13$, $SE = 0.05$, $p < 0.05$ for the latter). Results of indirect effect suggest that both cognitive adaptability and emotional control mediate the relationship between Zhong Yong thinking and adaptive performance (indirect effect = 0.08, $SE = 0.04$, $p = 0.043$, 95% CI [0.003, 0.165] for the former; indirect effect = 0.07, $SE = 0.03$, $p = 0.023$, 95% CI [0.01, 0.12] for the latter). Thus, H2 and H3 were supported.

Hypotheses Test of Moderated Mediation Model

In the second model (see unstandardized estimates in Table 3), we additionally included job complexity as a moderator and introduced an interaction effect between Zhong Yong thinking and job complexity to predict cognitive adaptability and emotional control. The rest of the specification in the model is exactly the same as that in the first model. The moderated mediation model fit well (MLR- $\chi^2(2) = 4.44$, RMSEA = 0.058; SRMR = 0.018, CFI = 0.99, TLI = 0.91). In order to ensure that the model with an interaction effect was better than the model without it, we compared the second model with a model that constrained the interaction effect as 0 (MLR- $\chi^2(4) = 28.67$, RMSEA = 0.131; SRMR = 0.038; CFI = 0.92, TLI = 0.71). We also set Estimator =MLMV for the purpose of

Table 3. Unstandardized estimates (standard error) of the moderated mediation path

| | <i>Cognitive adaptability</i> | <i>Emotional control</i> | <i>Adaptive performance</i> |
|--|-------------------------------|--------------------------|-----------------------------|
| Control variable | | | |
| Education | -0.02 (0.01) | -0.03* (0.01) | 0.01 (0.02) |
| Independent variable | | | |
| Zhong Yong thinking | 0.34*** (0.07) | 0.43*** (0.08) | -0.05 (0.07) |
| Moderator | | | |
| Job complexity | 0.14*** (0.04) | 0.24*** (0.04) | |
| Interaction effect (1 st stage) | | | |
| Zhong Yong thinking * Job complexity | 0.31*** (0.07) | 0.23* (0.10) | |
| Mediator (1) | | | 0.20* (0.10) |
| Cognitive adaptability | | | |
| Mediator (2) | | | |
| Emotional control | | | 0.13* (0.05) |
| R ² | 0.25 | 0.31 | 0.08 |

Notes: N = 361; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 4. Comparison of moderated indirect effect

| <i>Mediator</i> | <i>Pattern</i> | <i>Indirect effect</i> | <i>SE</i> | <i>p</i> | <i>95% CI</i> |
|------------------------|---------------------|------------------------|-----------|----------|-----------------------|
| Cognitive adaptability | low job complexity | 0.02 | 0.02 | 0.366 | -0.02 TO 0.06 |
| | High job complexity | 0.12 | 0.06 | 0.035 | 0.01 TO 0.23 |
| | Difference | 0.10 | 0.05 | 0.056 | 0.01 TO 0.19 (90% CI) |
| Emotional control | Low job complexity | 0.03 | 0.02 | 0.144 | -0.01 TO 0.07 |
| | High job complexity | 0.08 | 0.03 | 0.011 | 0.02 TO 0.14 |
| | Difference | 0.05 | 0.02 | 0.041 | 0.01 TO 0.09 (90% CI) |

Note: n = 361

comparing two models. The result of a chi-square difference test was significant ($\Delta\text{MLR-}\chi^2 = 18.27$, $df = 2$, $p < 0.001$), suggesting that the moderated mediation model was better than the mediation model.

Table 3 presents unstandardized estimates of the model. In this model, we found a positive interaction effect between Zhong Yong thinking and job complexity in predicting cognitive adaptability ($B = 0.31$, $SE = 0.07$, $p < 0.001$) and emotional control ($B = 0.23$, $SE = 0.10$, $p < 0.05$). Figure 1 displays the interaction plot based on values plus and minus one standard deviation from the means of the moderating variable (i.e., job complexity) (Cohen, Cohen, West, & Aiken, 2003). The plot in Figure 1(a) shows that Zhong Yong thinking had a positive association with cognitive adaptability when job complexity was high ($B = 0.58$, $SE = 0.08$, $p = 0.000$, 95% CI [0.42 TO 0.75]), but this association was not significant when job complexity was low ($B = 0.09$, $SE = 0.10$, $p = 0.359$, 95% CI [-0.10 TO 0.27]), supporting H4. The plot in Figure 1(b) shows that Zhong Yong thinking had stronger association with emotional control when job complexity was high ($B = 0.61$, $SE = 0.09$, $p = 0.000$, 95% CI [0.43 TO 0.80])

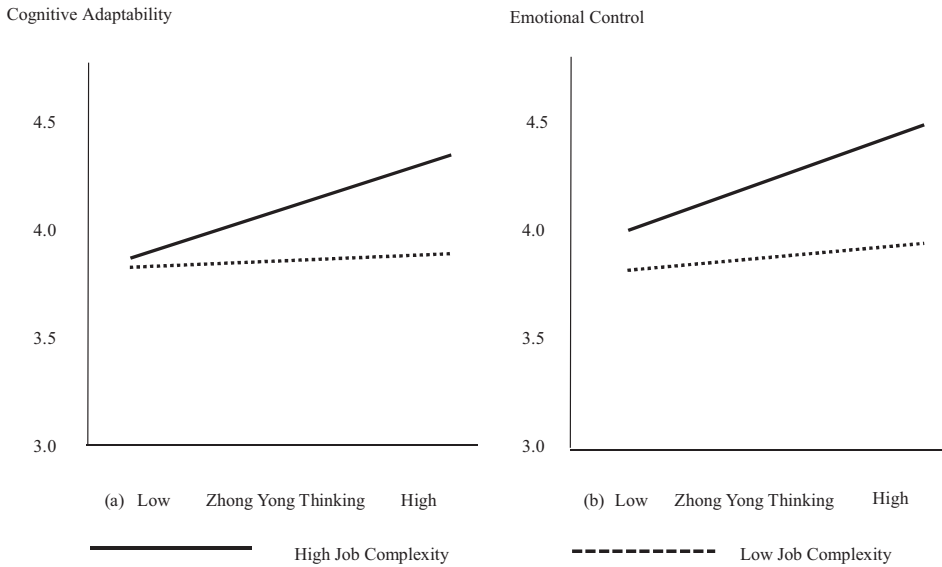


Figure 1. Moderating effect of job complexity on Zhong Yong thinking–cognitive adaptability relationship (Figure 1a) and on Zhong Yong thinking–emotional control relationship (Figure 1b).

than when job complexity was low ($B = 0.24$, $SE = 0.11$, $p = 0.027$, 95% CI [0.03 TO 0.45]), supporting H5.

We further compare the conditional indirect effect of Zhong Yong thinking. The indirect effect of Zhong Yong thinking on adaptive performance via cognitive adaptability was stronger when job complexity was high (indirect effect = 0.12, $SE = 0.06$, $p = 0.035$, 95% CI [0.01 TO 0.23]) than when job complexity was low (indirect effect = 0.02, $SE = 0.02$, $p = 0.366$, 95% CI [-0.02 TO 0.06]). Their difference was significant at 90% CI (difference of indirect effect = 0.10, $SE = 0.05$, 90% CI [0.01 TO 0.19]). Similarly, the indirect effect of Zhong Yong thinking on adaptive performance via emotional control was stronger when job complexity was high (indirect effect = 0.08, $SE = 0.03$, $p = 0.011$, 95% CI [0.02 TO 0.14]) than when job complexity was low (indirect effect = 0.03, $SE = 0.02$, $p = 0.144$, 95% CI [-0.01 TO 0.07]). Their difference was significant at 90% CI (difference of indirect effect = 0.05, $SE = 0.02$, 90% CI [0.01 TO 0.09]). In fact, when an indirect effect is moderated (in the first-stage in this study), any two conditional indirect effects estimated at different values of the moderator are significantly different from each other (Hayes, 2015).

Since the choice of one standard deviation above and below mean for the moderator values was arbitrary (Preacher, Curran, & Bauer, 2006), we used the Johnson-Newman technique to explore the nature of the moderating effect with regard to Hypotheses 6 and 7. We plot the upper and lower limits of a 95% CI for the conditional indirect effects via cognitive adaptability and emotional control separately and without taking non-independence into account for convenience of plotting. Figure 2(a) shows that Zhong Yong thinking has positive indirect effect

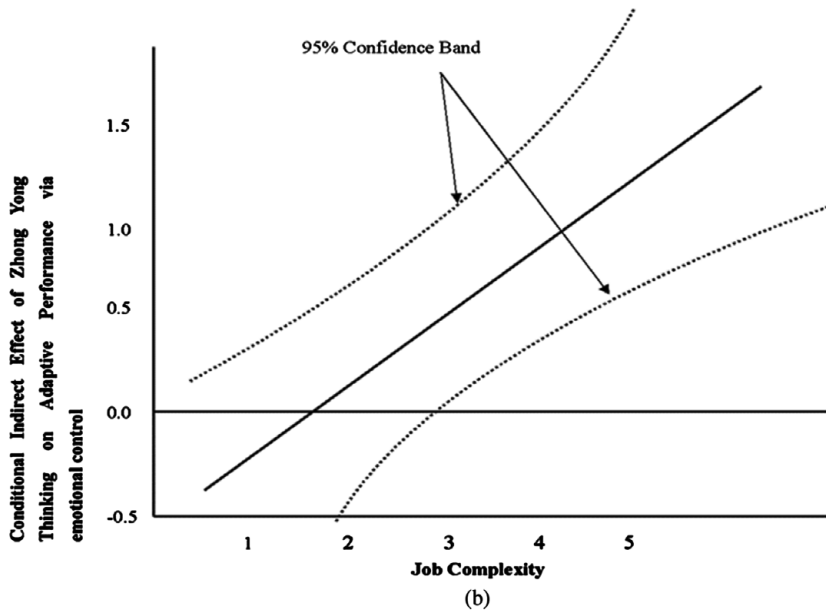
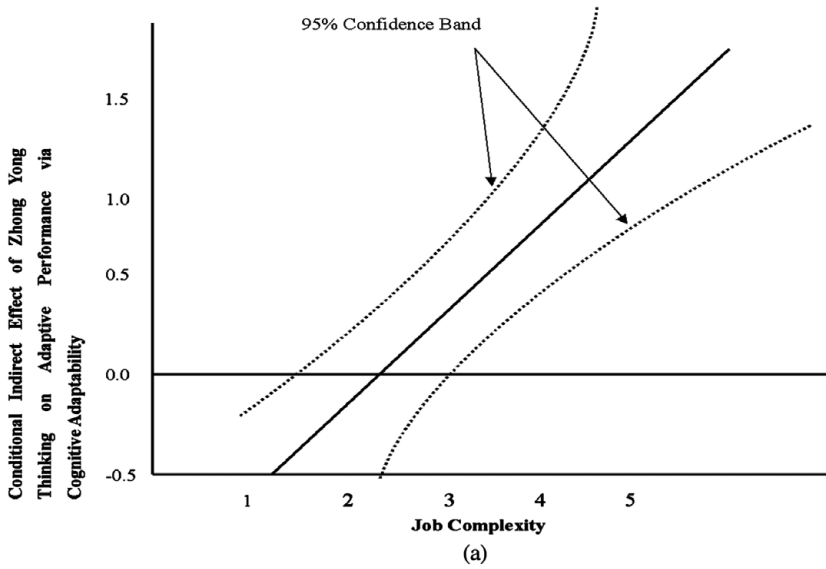


Figure 2. (a) The conditional indirect effect of Zhong Yong thinking on adaptive performance via cognitive adaptability, with bias-corrected bootstrap confidence intervals. (b) The conditional indirect effect of Zhong Yong thinking on adaptive performance via emotional control, with bias-corrected bootstrap confidence intervals.

on adaptive performance via cognitive adaptability when job complexity is greater than 2.9. Figure 2(b) reveals that when job complexity is greater than 2.7, Zhong Yong thinking has positive indirect effect on adaptive performance via emotional control. The two plots provide further support for Hypotheses 6 and 7 respectively.

DISCUSSION

Contributions and Implications

Our study has five theoretical contributions and implications. First, it is one of the first empirical studies to examine the effect of Zhong Yong thinking on employees' adaptive performance. From the perspective of Zhong Yong thinking, we described how Chinese employees' adaptive performance is embedded in their cultural environment. Past indigenous Chinese management research on constructs such as *guanxi* (e.g., Xin & Pearce, 1996), and the ying-yang frame (e.g., Fang, 2012) has been valuable in explaining the thinking in Confucian heritage cultures. However, Zhong Yong thinking represents the cultural thinking itself that involves skills of planning, monitoring, and evaluating in the decision-making process. The metacognitive skills contained in Zhong Yong thinking contribute to the individual's adaptable functioning in the changing environment. Our findings are consistent with the view that Zhong Yong thinking is metacognitive in nature, and that metacognition can have a strong effect on adaptive performance (Bell & Kozlowski, 2008; Ford, Smith, Weissbein, Gully, & Salas, 1998; Keith & Frese, 2005). Our research on Zhong Yong thinking therefore adds to the body of indigenous Chinese management research, particularly in exploring its effect on employees' adaptive behaviors.

Second, our study contributes to both Zhong Yong thinking and adaptive performance literatures by examining the mediating mechanism through which Zhong Yong thinking influences adaptive performance. Our finding suggests that Zhong Yong thinking influences adaptive performance via two forms of self-regulation (cognitive adaptability and emotional control). In view of cognitive relevant activities, prior studies suggest that employees who access metacognitive processes are more adaptable given dynamic and uncertain contexts (Earley & Ang, 2003), which can translate into superior performance (Garner & Alexander, 1989). Our study supports this argument. In the face of dynamic and uncertain contexts, Zhong Yong thinking demonstrates a unique decision-making style that contributes to the individual's judgment and adaptive performance. Our study shows that such metacognitive process promoted by Zhong Yong thinking increases cognitive adaptability and therefore, provides useful insight into metacognitive ability for adaptive performance. We thus answered the research call for examining cognitive factors in facilitating adaptive performance (e.g., Jundt et al., 2015). Previous research on emotional control suggested that, to the extent that employees remain focused on goal pursuit, undistracted by negative events, their performance is unlikely to be negatively affected by the emotional episode (e.g., Bandura, 1997). Our results are consistent with this view. Zhong Yong thinking guides employees in managing their emotions, relations, and conflicts, which prevents the disruptive effects of negative emotions during change. Previous research on emotion regulation strategies have suggested that emotions can be regulated by a cognitive reappraisal of the situation, which occurs early in the emotion generative process

(Gross, 2001). Correspondingly, Zhong Yong thinking encourages employees to reframe problems positively and to modify negative emotions before they arise in the face of uncertain situations. This thinking style is able to reduce evaluative tension caused by changing situations, and formulates positive emotional reactions to change.

Third, the study highlights the moderating effects of job complexity on invoking the activation of Zhong Yong thinking. Job complexity was found to moderate the direct effect of Zhong Yong thinking on cognitive adaptability and emotional control, and the indirect effect on adaptive performance (via cognitive adaptability and emotional control). When job complexity is high, Zhong Yong thinking is more effective in cognitive and affective self-regulation, which in turn translates into good adaptive performance. Our findings suggest that Zhong Yong thinking is often relevant to complicated and less easy-to-define situations that require high levels of self-regulation in cognition and emotion. Our results also correspond to the research argument that complex jobs require more intricate thought processes and more flexibility (Campbell, 1988; Farr, 1990).

Fourth, we do not find a direct relation between Zhong Yong thinking and adaptive performance. One possible explanation is that Zhong Yong thinking is an implicit individual cognitive process, and its activation depends on situational specificity. Zhong Yong thinking corresponds to situations that require a high level of self-regulation, enabling the individual to respond appropriately according to the cues of the situation. With no relevant situation, it is possible that the link between Zhong Yong thinking and adaptive performance is weakened.

Fifth, our study suggests medium effect sizes of main relations in our research model. According to Bosco, Aquinis, Singh, Field, and Pierce (2015), medium effect sizes involving behaviors (cognitive adaptability – adaptive performance and emotional control – adaptive performance in our study) are between roughly $|r| = 0.10$ and 0.25 , while for relations not involving behaviors (Zhong Yong thinking – cognitive adaptability and Zhong Yong thinking – emotional control in our study), medium effect sizes are between roughly $|r| = 0.20$ and 0.40 . The medium level of correlational effect sizes should cause scholars' and practitioners' attention to outcomes of Zhong Yong thinking and antecedents of adaptive performance in their research or practice. For example, practitioners seeking to effect desired adaptive performance outcomes should give special attention to enhancing employees' cognitive adaptability and emotional control.

Limitations and Directions for Future Research

In this study we demonstrate Zhong Yong thinking as unique, in that its thinking system covers a broad range (from ultimate goal pursuit, through decision-making, to concrete behavioral skills and tactics), and also its main principles are mainly directed by a particular life philosophy—harmony. However, from the perspective

of decision-making styles, Zhong Yong thinking also includes the characteristics of dialectic, holistic, and balanced thinking, such as ‘take two sides to an issue’, ‘weigh and balance’, ‘integration’, and ‘avoid extremes’. A limitation of this study is that it fails to demonstrate an incremental effect of Zhong Yong thinking on adaptive performance beyond other thinking styles, such as dialectic, holistic, and balanced thinking. Future research is required to control for other thinking styles while examining the effect of Zhong Yong thinking.

Adaptive behavior is aimed at coping with, responding to, and/or supporting changes, which results in a more effective contribution to the work role. This requires testing adaptive performance in workplaces characterized by changes and uncertainties. In manufacturing firms, employees engaging in marketing, service, R&D, and technology increasingly face changes and need to be adaptable to properly fulfill their tasks. In future research, testing samples from higher hierarchical positions that demand more cognitive abilities when facing a changing environment can be considered.

Organizations not only seek to stimulate adaptive behavior among their employees, but also increasingly expect employees to engage in proactive behavior; an anticipatory, self-initiated action aimed at improving current circumstances (Crant, 2000; Grant & Ashford, 2008; Griffin et al., 2007). There is growing interest in how proactivity is motivated. Zhong Yong thinking improves cognitive adaptability, which enables people to engage in broadening their roles in spite of impediments or resistance that may arise. Cognitive adaptability can contribute to the ‘can do’ motivation underlying proactive behavior. Future research can test the possible relationship between Zhong Yong thinking and proactive behavior, to increase our understanding of the role of Zhong Yong thinking in the workplace.

CONCLUSION

In a rapidly changing and uncertain environment, employee adaptive performance becomes a critical requirement in work role performance. Taking a self-regulation perspective, the study attempts to understand why and how employees with Zhong Yong thinking engage in adaptive behavior. We find that job complexity moderates the effect of Zhong Yong thinking on cognitive adaptability and emotional control. Further, the indirect effect of Zhong Yong thinking on adaptive performance (via cognitive adaptability and emotional control) is stronger at higher levels of job complexity. Our study sets the stage for further research on Zhong Yong thinking and adaptive performance.

NOTE

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APPENDIX**Zhong Yong thinking** (13-item scale developed by Wu & Lin, 2005)

Weigh and balance

- (1) I can take into account conflicting opinions in the discussion.
- (2) I am used to considering the same thing from different perspectives.
- (3) I can listen to all the opinions when decisions are made.
- (4) I can consider all the possibilities when making decisions.

Integration

- (5) I attempt to find out the opinions accepted by all parties when there are conflicting opinions.
- (6) I attempt to find a balance between my opinions and those of others.
- (7) I can adjust my original idea after considering others' opinions.
- (8) I anticipate I will acquire common views from discussion.
- (9) I attempt to compromise my own opinions from those of others.

Harmony

- (10) I usually tactfully express opinions that may cause conflicts.
- (11) While deciding on opinions, I attempt to enable the minority to accept opinions of the majority harmoniously.
- (12) I usually consider the harmony of the whole when deciding on opinions.
- (13) While making my decisions, I usually adjust my method of expression for the sake of the harmony of the whole.

中庸 Chinese

- (1) 意见讨论时, 我会兼顾相互争执的意见。
- (2) 我习惯从多方面的角度来思考同一件事情。
- (3) 在意见表决时, 我会听取所有的意见。
- (4) 做决定时, 我会考量各种可能的状况。
- (5) 我会试着在意见争执的场合中, 找出让大家都能够接受意见。
- (6) 我会试着在自己与他人的意见中, 找到一个平衡点。
- (7) 我会在考虑他人的意见后, 调整我原来的想法。
- (8) 我期待在讨论的过程中, 可以获得具有共识的结论。
- (9) 我会试着将自己的意见融入到他人的想法中。
- (10) 我通常会以委婉的方式表达具有冲突的意见。
- (11) 意见决定时, 我会试着以和谐的方式让少数人接受多数的意见。
- (12) 我在决定意见时, 通常会考量整体气氛的和谐性。
- (13) 做决定时, 我通常会为了顾及整体的和谐, 而调整自己表达方式。

Cognitive adaptability (10-item scale adapted from Haynie & Shepherd, 2009)

- (1) I set specific goals before I begin a task
- (2) I ask myself how well I've accomplished my goals once I've finished.
- (3) I think of several ways to solve a problem and choose the best one.
- (4) I think about how others may react to my actions
- (5) I challenge my own assumptions about a task before I begin.
- (6) I use different strategies depending on the situation
- (7) I ask myself if I have considered all the options when solving a problem
- (8) I ask myself if there was an easier way to do things after I finish a task.
- (9) I stop and go back over information that is not clear
- (10) I am aware of what strategies I use when engaged in a given task

Emotional control (4-item scale used by Porath & Bateman, 2006; originally developed by Kuhl, 1985).

- (1) I manage my moods so that I can handle difficulties rationally
- (2) I put myself in the mood I need in order to keep on track
- (3) When difficulties arose, I purposely continued to focus myself on the task
- (4) When difficulties arose, I calmly considered how I could continue the task.

Job complexity (3-item scale developed by Shaw & Gupta, 2004)

- (1) My job is very complex.
- (2) My job requires a lot of skill.
- (3) My job is such that it takes a long time to learn the skills required to do the job well.

Adaptive performance (9-item scale developed by Griffin, Neal, & Parker, 2007)

- (1) Adapted well to changes in core tasks
- (2) Coped with changes to the way you have to do your core tasks
- (3) Learned new skills to help you adapt to changes in your core tasks
- (4) Dealt effectively with changes affecting your work unit (e.g., new members)
- (5) Learnt new skills or taken on new roles to cope with changes in the way your unit works
- (6) Responded constructively to changes in the way your team works
- (7) Responded flexibly to overall changes in the organization (e.g., changes in management)
- (8) Coped with changes in the way the organization operates
- (9) Learnt skills or acquired information that helped you adjust to overall changes in the organization

REFERENCES

- Bagozzi, R. P., & Heatherton, T. F. 1994. A general approach to representing multifaceted personality constructs: Application to state self-esteem. *Structural Equation Modeling*, 1: 35–67.
- Bandura, A. 1997. *Self-efficacy: The exercise of control*. San Francisco: Freeman.
- Bell, B., & Kozlowski, S. W. J. 2008. Active learning: Effects of core training design elements on self-regulatory processes, learning, and adaptability. *Journal of Applied Psychology*, 93: 296–316.
- Blum, B. D., Ford, J. K., Baldwin, T. T., & Huang, J. L. 2010. Transfer of training: A meta-analytic review. *Journal of Management*, 36(4): 1065–1105.
- Boisot, M., & Child, J. 1996. From fiefs to clans and network capitalism: Explaining China's emerging economic order. *Administrative Science Quarterly*, 41(4): 600–628.
- Bond, M. H., & Muethel, M. 2012. Doing better research on organizational behavior in Chinese cultural settings: Suggestions from the notebooks of two fellow-travellers. *Management and Organization Review*, 8(2): 455–475.
- Bosco, F. A., Aguinis, H., Singh, K., Field, J. G., & Pierce, G. A. 2015. Correlational effect size benchmarks. *Journal of Applied Psychology*, 100(2): 431–449.
- Brislin, R. W. 1981. Translation and content analysis of oral and written material. In H. C. Triandis & J. W. Berry (Eds.), *Methodology: Handbook of cross-cultural psychology* (Vol. 2): 389–444. Boston, MA: Allyn & Bacon.
- Brooke, P. P., Russell, D. W., & Price, J. L. 1988. Discriminant validation of measures of job satisfaction, job involvement and organization commitment. *Journal of Applied Psychology*, 73: 139–145.
- Campbell, D. J. 1988. Task complexity: A review and analysis. *The Academy of Management Review*, 13: 40–52.
- Chang, T. Y., & Yang, C. T. 2014. Individual differences in Zhong-Yong tendency and processing capacity. *Frontier in Psychology*, 5: 1–11.

- Chen, G., Thomas, B., & Wallace, J. C. 2005. A multilevel examination of the relationships among training outcomes, mediating regulatory processes, and adaptive performance. *Journal of Applied Psychology*, 90: 827–841.
- Chiu, C-Y. 1991. Response to injustice in Chinese popular sayings and among Hong Kong college students. *Journal of Social Psychology*, 131: 655–665.
- Chiu, C-Y. 2000. Assessment of Zhong-Yong thinking. *Hong Kong Journal of Social Sciences*, 18(1): 33–55. (in Chinese).
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. 2003. *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Hillsdale: Erlbaum.
- Crant, J. M. 2000. Proactive behavior in organizations. *Journal of Management*, 26: 435–462.
- Earley, P. C., & Ang, S. 2003. *Cultural intelligence: Individual interactions across cultures*. Palo Alto, CA: Stanford University Press.
- Fang, T. 2012. Yin Yang: A new perspective on culture. *Management and Organization Review*, 8(1): 25–50.
- Farh, J. L., & Cheng, B. S. 2000. A cultural analysis of paternalistic leadership in Chinese organizations. In J. T. Li, A. S. Tsui, & E. Weldon (Eds.), *Measurement and organizations in the Chinese context*: 84–127. London: Macmillan.
- Farr, J. L. 1990. Facilitating individual role innovation. In M. A. West & J. L. Farr (Eds.), *Innovation and creativity at work: Psychological and organizational strategies*: 207–230. Chichester: Wiley.
- Ford, J. K., Smith, E. M., Weissbein, D. A., Gully, S. M., & Salas, E. 1998. Relationships of goal orientation, metacognitive activity, and practice strategies with learning outcomes and transfer. *Journal of Applied Psychology*, 83: 218–233.
- Fugate, M., Kinicki, A. J., & Prussia, G. P. 2008. Employee coping with organizational change: An examination of alternative theoretical perspectives and models. *Personnel Psychology*, 61: 1–36.
- Garner, R., & Alexander, P. 1989. Metacognition: Answered and unanswered questions. *Educational Psychologist*, 24(2): 143–158.
- Glasspool, D., & Fox, J. 2005. Knowledge, argument and meta-cognition in routine decision-making. In T. Betsch & S. Haberstroh (Eds.), *The routines of decision making*: 343–358. Hillsdale, NJ: Lawrence Erlbaum.
- Grant, A. M., & Ashford, S. J. 2008. The dynamics of proactivity at work: Lessons from feedback-seeking and organizational citizenship behavior research. In B. M. Staw & R. M. Sutton (Eds.), *Research in organizational behavior* (Vol. 28): 3–34. Amsterdam: Elsevier.
- Griffin, M. A., Neal, A., & Parker, S. K. 2007. A new model of work role performance and positive behavior in uncertain and interdependent contexts. *Academy of Management Journal*, 50: 327–347.
- Gross, J. J. 2001. Emotion regulation in adulthood: Timing is everything. *Current Directions in Psychological Science*, 10(6): 214–219.
- Hartigan, J. A., & Wigdor, A. 1989. Fairness in employment testing. *Science*, 245(4913): 14–14.
- Hayes, A. F. 2015. An index and test of linear moderated mediation. *Multivariate Behavioral Research*, 50: 1–22.
- Haynie, J. M., & Shepherd, D. A. 2009. A measure of adaptive cognition for entrepreneurship research. *Entrepreneurship Theory and Practice*, 33(3): 695–714.
- Haynie, J. M., Shepherd, D. A., & Patzelt, H. 2012. Cognitive adaptability and an entrepreneurial task: The role of metacognitive ability and feedback. *Entrepreneurship Theory and Practice*, 36: 237–265.
- Higham, P., & Gerrard, C. 2005. Not all errors are created equal: Metacognition and changing answers on multiple choice tests. *Canadian Journal of Experimental Psychology*, 59: 28–34.
- Hobfoll, S. 2011. Conservation of resource caravans and engaged settings. *Journal of Occupational and Organizational Psychology*, 84: 116–122.
- Huang, C.-L., Lin, Y.-C., & Yang, C.-F. 2012. Revision of the Zhong Yong belief-value scale. *Indigenous Psychological Research of Chinese Society (in Chinese)*, 38: 3–41.
- Huang, L. L. 1996. The Chinese people's perspective on harmony and conflict. *Indigenous Psychological Research*, 9: 47–71.
- Hunter, J. E., & Hunter, R. F. 1984. Validity and utility of alternative predictors of job performance. *Psychological Bulletin*, 96: 72–98.

- Jia, L., You, S., & Du, Y. 2012. Chinese context and theoretical contributions to management and organization research: A three-decade review. *Management and Organizational Review*, 8(1): 173–209.
- Judge, T. A., Thoresen, C. J., Pucik, V., & Welbourne, T. M. 1999. Managerial coping with organizational change: A dispositional perspective. *Journal of Applied Psychology*, 84(1): 107–122.
- Jundt, D. K., Shoss, M. K., & Huang, J. L. 2015. Individual adaptive performance in organizations: A review. *Journal of Organizational Behavior*, 36(S1): S53–S71.
- Kanfer, R., & Ackerman, P. 1989. Motivation and cognitive abilities: An integrative/aptitude-treatment interaction approach to skill acquisition. *Journal of Applied Psychology*, 74(4): 657–690.
- Kanfer, R., Ackerman, P. L., & Heggestad, E. D. 1996. Motivational skills and self-regulation in learning: A trait perspective. *Learning and Individual Differences*, 8: 185–209.
- Karoly, P. 1993. Mechanisms of self-regulation: A systems view. *Annual Review of Psychology*, 44: 23–52.
- Keith, N., & Frese, M. 2005. Self-regulation in error management training: Emotion control and metacognition as mediators of performance effects. *Journal of Applied Psychology*, 90(4): 677–691.
- Kuhl, J. 1985. Volitional mediators of cognition-behavior consistency: Self-regulatory processes and action versus state orientation. In J. Kuhl & J. Beckmann (Eds.), *Action control: From cognition to behavior*: 100–128. Berlin: Springer-Verlag.
- Lee, I. A., & Preacher, K. J. 2013, September. *Calculation for the test of the difference between two dependent correlations with one variable in common* [Computer software]. Available from URL: <http://quantpsy.org>
- Le Pine, J. A., Colquitt, J. A., & Erez, A. 2000. Adaptability to changing task contexts: Effects of general cognitive ability, conscientiousness, and openness to experience. *Personnel Psychology*, 53(3): 563–593.
- Leung, K. 1987. Some determinants of reactions to procedural models for conflict resolution: A cross-national study. *Journal of Personality and Social Psychology*, 53(5): 898–908.
- Li, P. P., Leung, K., Chen, C. C., & Luo, J.-D. 2012. Indigenous research on Chinese management: What and how. *Management and Organizational Review*, 8(1): 7–24.
- Li, P. P., Sekiguchi, T., & Zhou, K. 2016. The emerging research on indigenous management in Asia. *Asia Pacific Journal of Management*, 33(3): 583–594.
- Li, Y. Y. 1990. *In search of equilibrium and harmony: On the basic value orientation of traditional Chinese peasant*. Paper presented at the international symposium on the study of East Asian societies. Tokyo, Japan.
- London, M., & Klimoski, R. J. 1975. A study of perceived job complexity. *Personnel Psychology*, 28(1): 45–56.
- Murray, B., & Gerhart, B. 1998. An empirical analysis of a skill-based pay program and plant performance outcomes. *Academy of Management Journal*, 41(1): 68–78.
- Niessen, C., & Jimmieson, N. L. 2016. Threat of resource loss: The role of self-regulation in adaptive task performance. *Journal of Applied Psychology*, 101(3): 450–462.
- O’Connell, D. J., McNeely, E., & Hall, D. T. 2008. Unpacking personality adaptability at work. *Journal of Leadership & Organizational Studies*, 14(3): 248–259.
- Peng, K. P., & Nisbett, R. E. 1999. Culture, dialectics, and reasoning about contradiction. *American Psychologist*, 54(9): 741–754.
- Porath, C., & Bateman, T. 2006. Self-regulation: From goal orientation to job performance. *Journal of Applied Psychology*, 91(1): 185–192.
- Preacher, K. J., Curran, P. J., & Bauer, D. J. 2006. Computational tools for probing interactions in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics*, 31: 437–448.
- Pulakos, E. D., Arad, S., Donovan, M., & Plamondon, K. E. 2000. Adaptability in the workplace: Development of a taxonomy of adaptive performance. *Journal of Applied Psychology*, 85(4): 612–624.
- Qian, M. 1985. *Twelve lectures on Chinese culture*. Taiwan: Dongda Press.
- Qian, X. 1989. Differentiation of Confucius yi and li, and li and yu and their implication in modern times. In *Confucius Thought and Future Society*. Shanghai People’s Press.

- Raudenbush, S. W., & Bryk, A. S. 2002. *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.
- Richards, J. M., & Gross, J. J. 2000. Emotion regulation and memory: The cognitive costs of keeping one's cool. *Journal of Personality and Social Psychology*, 79(3): 410–424.
- Schaubroeck, J., Ganster, D. C., & Kemmerer, B. E. 1994. Job complexity, 'Type A' behavior, and cardiovascular disorder: A prospective study. *Academy of Management Journal*, 37(2): 426–439.
- Schraw, G., & Dennison, R. 1994. Assessing metacognitive awareness. *Contemporary Educational Psychology*, 19(4): 460–475.
- Schraw, G., & Moshman, D. 1995. Metacognitive theories. *Educational Psychology Review*, 7(4): 351–371.
- Schwarz, N. 1990. Feelings as information: Informational and motivational functions of affective states. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior*: 527–561. New York: Guilford.
- Seo, M., & Barrett, L. F. 2007. Being emotional during decision making – good or bad? An empirical investigation. *Academy of Management Journal*, 50(4): 923–940.
- Shalley, C. E., Gilson, L. C., & Blum, T. C. 2009. Interactive effects of growth need strength, work context, and job complexity on self-reported creative performance. *Academy of Management Journal*, 52(3): 489–505.
- Shaw, J. D., & Gupta, N. 2004. Job complexity, performance, and well-being: When does supplies-values fit matter? *Personnel Psychology*, 57(4): 847–879.
- Siggelkow, N., & Rivkin, J. W. 2005. Speed and search: Designing organizations for turbulence and complexity. *Organization Science*, 16(2): 101–123.
- Tett, R. P., & Burnett, D. D. 2003. A personality trait-based interactionist model of job performance. *Journal of Applied Psychology*, 88(3): 500–517.
- Tsui, A. S. 2009. Autonomy of inquiry: Shaping the future of emerging scientific communities. *Management and Organization Review*, 5(1): 1–14.
- Van der Vegt, G. S., & Janssen, O. 2003. Joint impact of interdependence and group diversity on innovation. *Journal of Management*, 29(5): 729–751.
- Wang, H., Law, K., Hackett, R. D., Wang, D., Chen, Z. X. 2005. Leader-member exchange as a mediator of the relationship between transformational leadership and followers' performance and organizational citizenship behavior. *Academy of Management Journal*, 48(3): 420–432.
- Wu, J.-Y., & Kwok, O.-M. 2012. Using SEM to analyze complex survey data: A comparison between design-based single-level and model-based multilevel approaches. *Structural Equation Modeling*, 19(1): 16–35.
- Wu, C. H., & Lin, Y. C. 2005. Development of a Zhong Yong thinking style scale. *Indigenous Psychology Research (Taiwan)*, 24: 247–300.
- Wu, C.-H., Liu, J., Kwan, H. K., & Lee, C. 2016. Why and when workplace ostracism inhibits organizational citizenship behaviors: An organizational identification perspective. *Journal of Applied Psychology*, 101(3): 362–378.
- Xie, J. L., & Johns, G. 1995. Job scope and stress: Can job scope be too high? *Academy of Management Journal*, 38(5): 1288–1309.
- Xin, K. R., & Pearce, J. L. 1996. *Guanxi*: Connections as substitutes for formal institutional support. *Academy of Management Journal*, 39(6): 1641–1658.
- Yang, Z. F. 2010. The initial development of exploratory research in Zhong Yong practical thinking system. *Indigenous Psychology Research (Taiwan)*, 34.
- Zheng, S. Y., Li, X. L., & Chiu, C.-Y. 1999. Dialectical thinking and modern life. *Hong Kong Journal of Social Sciences* (in Chinese), 15: 1–25.

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