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Transformational Leadership and Employee Well-Being: The Mediating Role of Trust in the Leader and Self-Efficacy

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Abstract

Although transformational leadership (TL) is considered a kind of positive leadership, which can elevate followers in the long term, the mechanism of how TL influences employee well-being remains a relatively untouched area. Based on survey data collected from 745 employees from the People's Republic of China (Beijing, n= 297; Hong Kong, n= 448), results revealed that employees' trust in the leader and self-efficacy partially mediated the influence of TL on job satisfaction, and fully mediated the influence of TL on perceived work stress and stress symptoms. Implications of these findings for research and practice are discussed.

Bien que le leadership transformationnnel (TL) soit considéré comme une sorte de leadership positif qui peut faire progresser les suiveurs sur le long terme, le mécanisme par lequel TL contribue à leur bien être reste relativement inexploré. Les résultats basés sur des données collectées auprès d'un échantillon de 745 employés de la République Populaire de Chine (Beijin, n = 297; Hong Kong, n = 448), montrent que la confiance des suiveurs dans le leader et l'auto-efficacité sont en partie dus à l'influence du TL sur la satisfaction au travail et sont entièrement dus à l'influence du TL sur le stress perçu au travail et les symptômes de stress. Les implications de ces résultats pour la recherche et la pratique sont discutées.

INTRODUCTION

Employee well-being is an important research topic for both employees and employers, not only because of the happy/productive employee thesis (Wright & Staw, 1999), but also because stress in the workplace has negative consequences for employees, such as frustration, depression, anxiety, and many physical problems, including cardiovascular disease and high blood pressure among individuals (e.g. Siu, Lu, & Spector, 2007). Some employers in Western societies have taken increasing interest in enhancing and maintaining employee well-being, and some employees are even willing to take pay cuts in order to be healthier and happier (Warr, 1999).

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The issue of employee well-being is also important in the Chinese context. With the globalisation of the world economy, and the rapid development of the Southeast Asian economies, there are increasing numbers of multinational companies investing more and more into the People's Republic of China (PRC). Hence, together with the fact that the PRC has entered the World Trade Organization (WTO), market competition becomes more intense than before. Not surprisingly, all of these transformations bring with them lots of stress. Therefore, employees in China are becoming more exposed to stressful industrialised work situations (Siu, Lu, & Cheng, 2003; Siu, Spector, Cooper, & Lu, 2005; Siu, Spector, Cooper, Lu, & Yu, 2002). This problem is probably particularly significant in Beijing and Hong Kong. According to a recent survey of white-collar employees' job stress in Beijing, 41.1 per cent of respondents suffered from high stress levels, and 61.4 per cent of respondents reported that they felt job burnout (Horizon Group, 2003). On the other hand, Hong Kong is among the most stressful places in which to work, second to the United Kingdom (People Management, 2004).

Prior research has proved that employee well-being is affected not only by the physical work environment, but also by the psychosocial work environment (e.g. Gilbreath & Benson, 2004). As summarised by Sparks, Faragher, and Cooper (2001), management style is one of the four main psychosocial work environment issues that are of current concern for employee well-being and occupational health in the 21st-century workplace. The focus has been on supervisors because they can be a major influence on employees' work lives, positively or negatively, since supervisors have a large impact on work demands, control, and social support (e.g. Gilbreath & Benson, 2004; Harris & Kacmar, 2006).

Furthermore, in line with the development of positive psychology (e.g. Peterson, 2006; Seligman & Csikszentmihalyi, 2000; Snyder & Lopez, 2002), there has been more emphasis on healthy work which implies promotion of both psychological and physical well-being (Seligman, 2008; Turner, Barling, & Zacharatos, 2002). Specifically, a body of knowledge about positive leadership is advocated (Sivanathan, Arnold, Turner, & Barling, 2004; Turner et al., 2002). It is argued that positive leadership, which comprises positive attitudes of passion, skills, and confidence to inspire followers, has the potential to elevate followers in the long term in areas such as trust, commitment, and well-being. The closest leadership style to positive leadership is transformational leadership (TL), since Bass (1985) defined TL in terms of the leader's motivational and elevating effect on followers.

Confirming this positive leadership thesis, researchers have established associations between TL and employee well-being based on research done in Western societies (e.g. Arnold, Turner, Barling, Kelloway, & McKee, 2007; Densten, 2005; Seltzer, Numerof, & Bass, 1989; Sivanathan et al., 2004). However, research on the relationship between TL and employee well-being is rare in Chinese

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societies, and research examining the psychological mechanism of this relationship is even rarer.

The purpose of the current study is to bridge the gap in this knowledge by investigating the relationship between TL and employee well-being in two Chinese societies and exploring further the underlying mechanism. Specifically, we intend to examine the role of employees' trust in the leader and self-efficacy as a link between TL and employee well-being. As noted by Piccolo and Colquitt (2006), possibly the most significant process of the transformational approach is to emphasise the mediating role of followers' attitudes toward both their leaders and themselves. Early studies have suggested that trust in the leader and self-efficacy are two significant mediators between TL and followers' outcomes (e.g. Pillai, Schriesheim, & Williams, 1999; Pillai & Williams, 2004; Podsakoff, MacKenzie, Moorman, & Fetter, 1990). Yet not many studies have explicitly included employee well-being as an outcome. Following this point, we use trust in the leader and self-efficacy to reflect followers' attitudes toward their leaders and followers' attitudes toward themselves, respectively, and posit them as mediators between TL and employee well-being.

THEORY AND HYPOTHESES

Employee Well-Being

Well-being is a broad concept, and has been used in a variety of ways, covering different dimensions and degrees of scope. As suggested by Warr (2006), experience of well-being may be viewed simply in terms of feeling good or feeling bad. Positive and negative aspects of well-being are believed to be two related but also independent constructs (Karademas, 2007). In line with the literature on well-being, employee well-being is also an ambiguous concept. Traditionally, employee well-being has been studied using the construct of job satisfaction, which is defined as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (Locke, 1976, p. 1300). Warr (1987) categorised those concepts such as job satisfaction, job-related tension, job-related depression, job-related burnout, and morale as employee well-being. Danna and Griffin (1999) further proposed that employee well-being comprises "the combination of such mental/psychological indicators as affect, frustration, and anxiety and such physical/physiological indicators as blood pressure, heart condition, and general physical health" (p. 359). Recently, social well-being, which refers to the quality of one's relationship with other people and communities, is also proposed as one aspect of well-being (Keyes, 1998). While psychological well-being and physiological well-being are individually focused, social well-being focuses on interpersonal and social interactions (Bradbury & Lichtenstein, 2000). Although more differentiated accounts are often desirable, affective well-being, which refers to an individual's feelings and arousal (Warr, 1987), is the core aspect of employee well-being, since the literature usually construes well-being as a primarily affective state (Diener, Suh, Lucas, & Smith, 1999). According to the framework of psychological and physiological well-being, affective well-being comes under the umbrella of

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psychological well-being. Many earlier studies measured employee well-being based on affective well-being only (van Horn, Taris, Schaufeli, & Schreurs, 2004). In the current study, we focus on three aspects of individual employees' well-being: positive affective well-being (job satisfaction), negative affective well-being (perceived work stress), and physiological well-being (stress symptoms). Many Chinese studies have taken these to be indicators of employee well-being (e.g. Siu et al., 2007; Siu et al., 2005).

Transformational Leadership and Employee Well-Being

According to Bass (1985, 1998), TL has been developed to describe four types of leader behaviors. Specifically, transformational leaders behave in charismatic ways that inspire followers to identify with them (“Idealised Influence”). They inspire followers to higher goals, to achieve more than they originally thought they could accomplish (“Inspirational Motivation”). They challenge employees to try out new behaviors, or to seek new solutions to solve old problems (“Intellectual Stimulation”). They show their concern for their employees' individual needs for growth and development (“Individualised Consideration”). Further to Bass's contributions to the development of TL theory, many other researchers have also tried to explore the nature and components of TL (e.g. Alban-Metcalfe & Alimo-Metcalfe, 2000; Carless, Wearing, & Mann, 2000). In our context, the most relevant development is the TL scale that Li and Shi (2005) developed based on Bass's (1985) work by qualitative and quantitative approaches in Chinese societies. It comprises four dimensions: charisma, morale building, inspirational motivation, and individualised consideration. Although this scale is different from the frequently used the Multifactor Leadership Questionnaire (MLQ; Bass & Avolio, 1996), it holds all the core characteristics of the construction of the MLQ except for intellectual stimulation. Inspirational motivation and individualised consideration have similar characters to those of the MLQ; morale building plus charisma equate with the idealised influence of MLQ.

Theoretically, some features of the transformational pattern have been proposed relating to employee well-being. For example, individual consideration from a transformational leader is reflected in the leader's behaviors showing concern for followers' needs and feelings. This kind of transformational leader behavior could be associated with favorable affective responses, such as job satisfaction (Butler, Cantrell, & Flick, 1999). Inspirational motivation could increase followers' task clarity and eliminate uncertainty and ambiguity by providing a frame of reference for describing expected performance, which in turn are related to lower levels of perceived work stress and less stress symptoms (Turner et al., 2002). Empirically, previous studies have demonstrated associations between TL and employee well-being (e.g. Arnold et al., 2007; Densten, 2005; Seltzer et al., 1989; Sivanathan et al., 2004). For example, as early as 1990, Podsakoff et al. demonstrated that transformational leader behaviors influenced employees' job satisfaction, and this has been confirmed by Fuller, Patterson, Hester, and Stringer's (1996) meta-analysis. However, very little work has been done on the relationship between TL and perceived work stress, and on that between

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TL and stress symptoms. One of the very few studies was conducted by Seltzer et al. (1989) who carried out research among 277 MBA students who hold full-time jobs, and found that symptoms of stress and burnout could be attributed to the lack of TL. In other words, TL can reduce subordinates' stress symptoms and job burnout. Recently, using a sample of 480 senior managers from an Australian law-enforcement organisation, Densten (2005) drew similar conclusions.

Based on the previous literature reviewed, we therefore hypothesise that:
Hypothesis 1a: TL is positively related to job satisfaction.
Hypothesis 1b: TL is negatively related to perceived work stress.
Hypothesis 1c: TL is negatively related to stress symptoms.

Because many scholars advocate that the most significant process of the transformational approach is to emphasise the mediating role of followers' attitudes toward both their leaders and themselves (e.g. Piccolo & Colquitt, 2006), we expect that the influence of TL on employee well-being can be indirect, being mediated through trust in the leader and self-efficacy.

The Mediating Role of Trust in the Leader

In a recent meta-analysis of trust in leadership, Dirks and Ferrin (2002) asserted that there are two major perspectives in the literature on the nature of trust: one is the character-based perspective, and the other is the relationship-based perspective. Since its publication in 1995, the construct of trust developed by Mayer, Davis, and Schoorman (1995) has been widely accepted and adopted in organisational research (Schoorman, Mayer, & Davis, 2007). In this model, trust is defined as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer et al., 1995, p. 712). Extending this to the leader–follower relationship, trust in the leader can be viewed as the willingness of followers to be vulnerable to their leaders. Mayer et al. (1995) further asserted that the antecedents to trust include perceptions of the trustee's ability, integrity, and benevolence toward the trustor in the workplace. This kind of perspective which focuses on the followers' perception of their leaders' characters and its influence on followers' sense of vulnerabilities can be implied as the character-based perspective. From the relationship-based perspective, trust is treated as a result of the social exchange process, which goes beyond standard economic exchange and develops the perception of mutual obligations (Brower, Schoorman, & Hwee Hoon, 2000). Extending this to the leader–follower relationship, trust in the leader can be viewed as the obligation of the followers to be vulnerable to their leaders. Leaders' care and consideration are the main antecedents of this obligation (Dirks & Ferrin, 2002). Although these two kinds of perspective have different theoretical backgrounds, both have a common conceptual core that trust in the leader is a kind of positive perception or belief that followers are "willing/obligated to be vulnerable" to their leaders. This conceptual core is also the most commonly

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adopted operational definition for the measurement of trust.

Trust in the leader has been a significant outcome built by effective leadership, especially in the field of TL (e.g. Casimir, Waldman, Bartram, & Yang, 2006; Jung & Avolio, 2000; Pillai et al., 1999; Podsakoff et al., 1990). Yukl (1999) argued that one of the key reasons why TL works is followers' trust and respect. It is obvious that the characteristics of TL are parallels to the antecedents of trust in the leader from both perspectives summarised above, such as integrity, benevolence, care, and consideration. There are also a number of empirical studies suggesting a positive relationship between TL and trust in the leader. For instance, Podsakoff et al. (1990) reported a direct link between TL and trust in the leader, in which trust in the leader was conceptualised as faith in and loyalty to the leader. Expanding Podsakoff et al.'s (1990) work, Jung and Avolio (2000) posited that TL may gain followers' trust by acting as role models in the process of developing a shared vision, and also by demonstrating individualised consideration for followers' needs and the capability to achieve the vision. Pillai et al. (1999) found that TL may build followers' trust by establishing a social exchange relationship between leaders and followers. Summarising 13 empirical studies, Dirks and Ferrin's (2002) meta-analysis showed that the correlation between TL and trust is .72. Taken together, we expect that TL has a positive impact on followers' trust in the leader.
Hypothesis 2: TL is positively related to trust in the leader.

Both of the two major perspectives on the nature of trust suggest that trust in the leader exerts positive effects on employee well-being. Using the logic behind the character-based perspective, followers are more likely to feel safe and comfortable if they believe that their leaders have ability, integrity, and benevolence (Mayer et al., 1995), because leaders are responsible for many activities that have a significant impact on followers' job satisfaction, such as performance evaluations, pay, promotion, and training (Rich, 1997). In contrast, when followers believe that their leaders cannot be trusted, they are likely to feel psychologically distressed, which in turn influences employee well-being (Dirks & Ferrin, 2002). On the other hand, from the relationship-based perspective, followers are also more likely to feel safe and comfortable if they believe their leaders give them care and consideration. The implication of the above explanations is that trust in the leader is associated with higher levels of job satisfaction, and lower levels of perceived work stress and less stress symptoms. In Dirks and Ferrin's (2002) meta-analysis, combining 19 related studies, the correlation between trust in direct leader and job satisfaction is strong (r= .55).

Based on previous literature, we therefore hypothesise that:
Hypothesis 3a: Trust in the leader is positively related to job satisfaction.
Hypothesis 3b: Trust in the leader is negatively related to perceived work stress.
Hypothesis 3c: Trust in the leader is negatively related to stress symptoms.

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Taking Hypothesis 2 and Hypotheses 3a to 3c together, and based on early studies that have suggested trust in the leader to be a significant mediator between TL and followers' outcomes (e.g. Pillai et al., 1999; Podsakoff et al., 1990), we therefore hypothesise that:
Hypothesis 4a: Trust in the leader is a mediator between TL and job satisfaction.
Hypothesis 4b: Trust in the leader is a mediator between TL and perceived work stress.
Hypothesis 4c: Trust in the leader is a mediator between TL and stress symptoms.

The Mediating Role of Self-Efficacy

In Bandura's (1997) social cognitive theory, self-efficacy is defined as “an individual's beliefs in one's capabilities to organise and execute the course of action required to produce given attainments” (p. 3). Four main sources of influence are used in the development of self-efficacy, including enactive mastery (successful accomplishments), modeling (vicarious experiences provided by social models), verbal/social persuasion, and psychological arousal. These determinants are parallels to many of the qualities of TL, especially role modeling, verbal/social persuasion, and psychological arousal, which are also core characteristics of TL (Yukl, 1999). It is logical that TL can enhance followers' self-efficacy. For example, Podsakoff et al. (1990) suggested that a transformational leader influences followers' self-efficacy by role modeling appropriate behaviors, because followers identify with such a leader and this identification facilitates them to engage in observational learning. Empirical findings confirm this theoretical speculation. In a laboratory simulation study, Kirkpatrick and Locke (1996) found that the quality of the leader's vision and vision implementation, categorised as core components of TL, is instrumental in increasing self-efficacy, which in turn affects performance. Based on the survey data in fire service organisations from the US, Pillai and Williams (2004) also found that TL was positively related to self-efficacy. We therefore hypothesise that:
Hypothesis 5: TL is positively related to self-efficacy.

Although self-efficacy does not alter people's capabilities, it affects the sense of mastery and control over their environment and influences the choices people make, the effort they expend, how long they persevere in the face of challenge, and the degree of anxiety or confidence they bring to the task at hand (Bandura, 1997; Lazarus & Folkman, 1984). Judge, Locke, and Durham (1997) argued that self-efficacy could affect job satisfaction through its association with practical success on the job. Because individuals with high self-efficacy deal more effectively with difficulties and persist in the face of failure, they are more likely to achieve expected outcomes and thus derive satisfaction from their jobs. Another way in which self-efficacy may impact employee well-being is through approaches to coping (Jex, Bliese, Buzzell, & Primeau, 2001). It has been shown that individuals with low self-efficacy tend to use more emotion-focused coping as opposed to problem-focused coping. In Semmer's (2003) review, people who have the tendency to employ problem-focused coping tend to report less physical and psychological stress symptoms. Nearly all previous studies have shown that high self-efficacy is related to better health outcomes and well-being, whereas low self-efficacy

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is related to depression, job dissatisfaction, and burnout (e.g. Bandura, 1997; Judge & Bono, 2001; Schyns & von Collani, 2002; Siu et al., 2007). Based on previous discussions, we posit that:
Hypothesis 6a: Self-efficacy is positively related to job satisfaction.
Hypothesis 6b: Self-efficacy is negatively related to perceived work stress.
Hypothesis 6c: Self-efficacy is negatively related to stress symptoms.

Taking Hypothesis 5 and Hypotheses 6a to 6c together, and based on early studies that have suggested self-efficacy to be a significant mediator between TL and followers' outcomes (e.g. Pillai & Williams, 2004), we therefore hypothesise that:
Hypothesis 7a: Self-efficacy is a mediator between TL and job satisfaction.
Hypothesis 7b: Self-efficacy is a mediator between TL and perceived work stress.
Hypothesis 7c: Self-efficacy is a mediator between TL and stress symptoms.

METHOD

A self-administered survey method using structured questions was adopted to collect data from employees in Beijing and Hong Kong.

Sample and Procedures

The data collection was conducted from March to December 2006. The authors organised several free half-day workshops on stress management in Beijing and Hong Kong. First, HR managers in many organisations were informed by email or fax that there were free workshops on stress management, and their employees could attend voluntarily. Then, employees signed up for the half-day workshops and attended the workshop voluntarily. Questionnaires were administered to respondents before the workshops. The completed questionnaires were returned immediately on site. Participants were corporate employees from various industries in the public and private sectors, including personal care services, health care services, power technicians, correctional services, the construction industry, telecoms, and IT industries.

For the sample recruited in Beijing, a total of 320 questionnaires were distributed, and 297 valid questionnaires were returned, making a response rate of 92.81 per cent. Participants ranged in age from 18 years to 67 years,1 with an average age of 35.78 (SD= 9.91). They had worked, on average, for 6.96 years (SD= 8.50) with their companies and 4.35 years (SD= 5.27) with their current supervisors. For the sample recruited in Hong Kong, a total of 480 questionnaires were distributed, and 448 valid questionnaires were returned, making a response rate of 93.33 per cent. Participants ranged in age from 21 years to 61 years, with an average age of 37.25 (SD= 9.47). They had worked, on average, for 8.75 years (SD= 7.56) with their companies and 4.06 years (SD= 3.96) with their current supervisors. Table 1 summarises the demographic profiles of the two samples.

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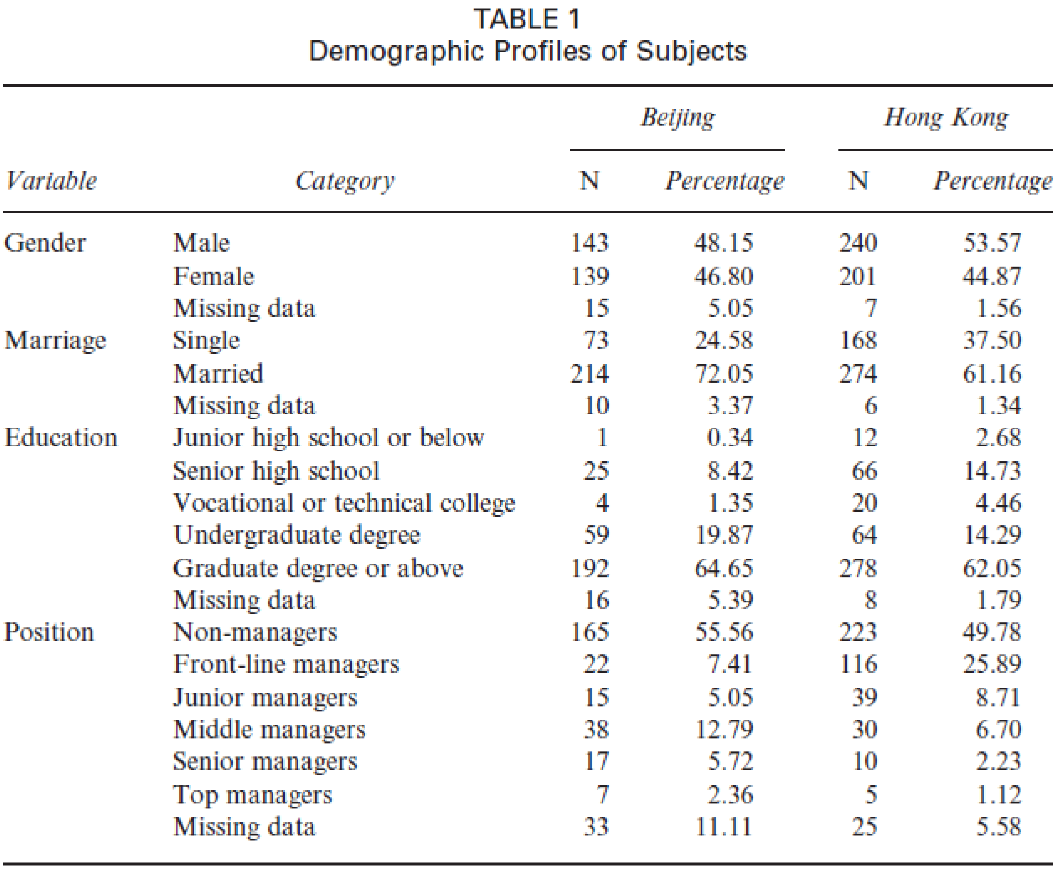

TABLE 1
Demographic Profiles of Subjects

		Beijing		*Hong Kong*	
Variable	*Category*	N	*Percentage*	N	*Percentage*
Gender	Male	143	48.15	240	53.57
	Female	139	46.80	201	44.87
	Missing data	15	5.05	7	1.56
Marriage	Single	73	24.58	168	37.50
	Married	214	72.05	274	61.16
	Missing data	10	3.37	6	1.34
Education	Junior high school or below	1	0.34	12	2.68
	Senior high school	25	8.42	66	14.73
	Vocational or technical college	4	1.35	20	4.46
	Undergraduate degree	59	19.87	64	14.29
	Graduate degree or above	192	64.65	278	62.05
	Missing data	16	5.39	8	1.79
Position	Non-managers	165	55.56	223	49.78
	Front-line managers	22	7.41	116	25.89
	Junior managers	15	5.05	39	8.71
	Middle managers	38	12.79	30	6.70
	Senior managers	17	5.72	10	2.23
	Top managers	7	2.36	5	1.12
	Missing data	33	11.11	25	5.58

Measures

Most of the measures, except for “trust in the leader”, have been used in China before. The measure of trust in the leader was translated into Chinese based on standard translation and back-translation procedures. In order to ensure that the questionnaire was not lengthy, selected items from job satisfaction, perceived work stress, and stress symptoms scales were used.2 Unless otherwise noted, response options for all items used a 6-point scale, ranging from 1 (strongly disagree) to 6 (strongly agree).

Transformational Leadership. Since this research was conducted within the Chinese context, we used Li and Shi's (2005) 26-item scale, which was developed for Chinese societies based on Bass's conceptualisation of TL. Employees indicated the extent to which they agreed with the statements about their immediate supervisor's behaviors. Four dimensions were measured, including charisma, morale building, inspirational motivation, and individual consideration. Importantly, this scale has been widely used in Chinese societies, and its reliability and validity have been empirically demonstrated (e.g. Li, Meng, & Shi, 2007; Li, Tian, & Shi, 2006; Wu, Huang, Xu, Yan, & Shi, 2007). The full list of items in this scale can be found in the Appendix.

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In order to examine the construct validity of the transformational leadership measure in the current study, we conducted a confirmatory factor analysis (CFA). Three fit indices, namely the comparative fit index (CFI), the Tucker-Lewis index (TLI) and the root-mean-square error of approximation (RMSEA), were inspected. The results of the CFA showed an acceptable fit to a four-factor model (for the Beijing sample, $\chi2[293]$= 871.46, CFI = 0.93, TLI = 0.92, RMSEA = 0.07; for the Hong Kong sample, $\chi2[293]$= 969.19, CFI = 0.91, TLI = 0.90, RMSEA = 0.08).

Although there are recommendations to operate TL as a group-level variable (e.g. Purvanova, Bono, & Dzieweczynski, 2006), because the hypotheses were devised at the individual level, dictated by the mediating and outcome variables (Piccolo & Colquitt, 2006), TL was thus also measured at the individual level in this study. Consistent with prior studies, the four dimensions of TL were highly correlated in our data, ranging from 0.76 to 0.84, with an average correlation of 0.79. Further, prior studies have shown that a single higher order TL construct adequately captured the variance in the sub-dimensions of TL (e.g. Judge & Bono, 2000), and that the sub-dimensions did not exhibit discriminant validity in predicting outcomes (e.g. Bycio, Hackett, & Allen, 1995), so we combined the items to form a single TL factor. The Cronbach's alpha of this scale was 0.99 for the Beijing sample, 0.97 for the Hong Kong sample, and 0.98 for the combined sample.

Trust in the Leader. We selected and revised three general items from Dirks and Ferrin's (2002) work to measure trust in the leader. Two sample items were, “I have complete faith in the integrity of my immediate supervisor” and “I feel confident that my immediate supervisor treats me fairly”. The Cronbach's alpha of this scale was 0.77 for the Hong Kong sample, and 0.78 for the Beijing sample and for the combined sample. Because there were only three items, CFA was not feasible.

Self-Efficacy. This variable was measured by Schwarzer, Bassler, Kwiatek, Schroder, and Zhang's (1997) 10-item General Self-Efficacy Scale. Sample items were, “I can always manage to solve difficult problems if I try hard enough” and “No matter what comes my way, I'm usually able to handle it”. The results of CFA showed an acceptable fit to a one-factor model (for the Beijing sample, $\chi2[35]$= 129.53, CFI = 0.92, TLI = 0.90, RMSEA = 0.08; for the Hong Kong sample, $\chi2[35]$= 100.35, CFI = 0.94, TLI = 0.93, RMSEA = 0.06). The Cronbach's alpha of this scale was 0.81 for the Beijing sample, the Hong Kong sample, and the combined sample.

Job Satisfaction. We used two items developed by Cammann, Fichman, Jenkins, and Klesh (1979) to measure job satisfaction. A sample item was, “All in all, I am satisfied with my job”. The Cronbach's alpha of this scale was 0.91 for the Beijing sample, 0.89 for the Hong Kong sample, and 0.90 for the combined sample.

Perceived Work Stress. We selected two items from prior studies (Siu et al., 2007; Siu, Spector, &

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Cooper, 2006) to measure perceived work stress. A sample item was "I usually feel that I am under a lot of pressure". The Cronbach's alpha of this scale was 0.82 for the Beijing sample, the Hong Kong sample, and the combined sample.

Stress Symptoms. We selected six items from ASSET, an Organisational Stress Screening Tool (Cartwright & Cooper, 2002) to measure stress symptoms. The items were symptoms of stress-induced ill-health such as headache and constant tiredness. Each item was rated on a 6-point scale ranging from 1 (never) to 6 (frequently). The results of CFA showed an acceptable fit to a one-factor model (for the Beijing sample, $\chi 2[9]= 25.07$, CFI = 0.91, TLI = 0.90, RMSEA = 0.09; for the Hong Kong sample, $\chi 2[9]= 35.91$, CFI = 0.93, TLI = 0.91, RMSEA = 0.09). The Cronbach's alpha of this scale was 0.88 for the Beijing sample, the Hong Kong sample, and the combined sample.

RESULTS

Due to the fact that there were only small proportions of missing values on variables (ranging from 0.13% to 1.07%), we replaced the missing values with series means, and conducted analyses with all the cases.

We first conducted the data analysis on the Beijing sample and the Hong Kong sample separately. These analyses yielded similar results; therefore, we report only the results in the combined sample.

Preliminary Analyses

Measurement Model. In order to examine the distinctiveness of the study variables, we conducted CFA to compare the fit of our hypothesised measurement model to a number of nested plausible alternative models. Because of the length of the transformational leadership scale, the four facet scores were used as manifest indicators ("parceling"; Kishton & Widaman, 1994) of the latent TL factor. The same strategy was also applied to the self-efficacy scale, which was parceled as five indicators, and each indicator included two items which were randomly selected. Table 2 presents the results of the CFA that examined the distinctiveness of the study variables.

As shown in Table 2, the fit indices revealed that the hypothesised six-factor measurement model was a better fit than any of the alternative nested models, indicating support for the distinctiveness of the constructs in the study.

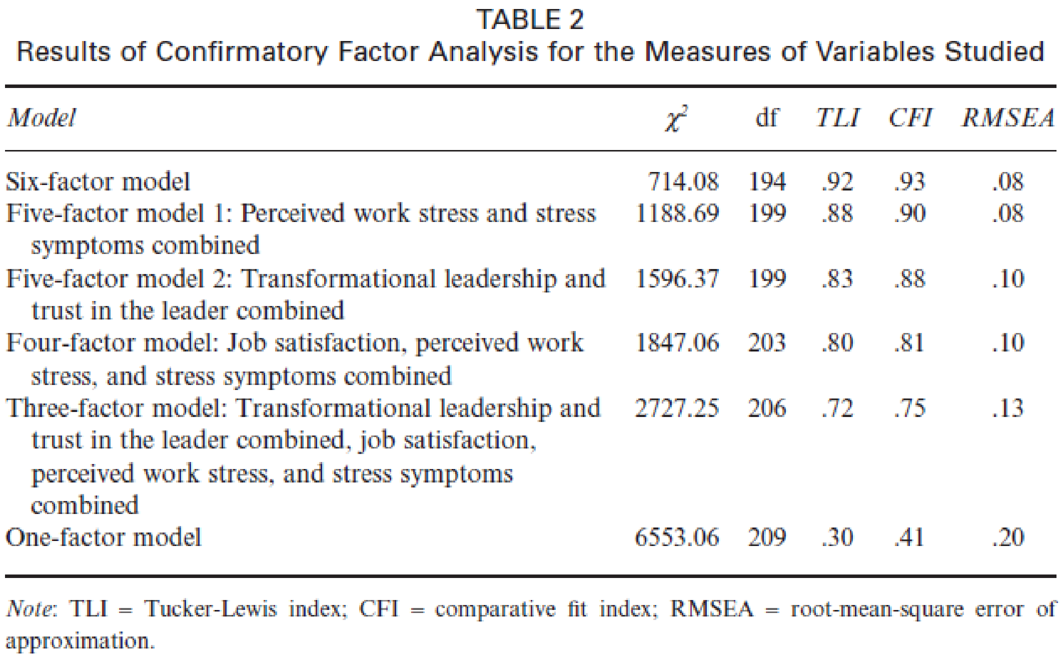

TABLE 2
Results of Confirmatory Factor Analysis for the Measures of Variables Studied

Model	χ^2	df	*TLI*	*CFI*	*RMSEA*
Six-factor model	714.08	194	.92	.93	.08
Five-factor model 1: Perceived work stress and stress symptoms combined	1188.69	199	.88	.90	.08
Five-factor model 2: Transformational leadership and trust in the leader combined	1596.37	199	.83	.88	.10
Four-factor model: Job satisfaction, perceived work stress, and stress symptoms combined	1847.06	203	.80	.81	.10
Three-factor model: Transformational leadership and trust in the leader combined, job satisfaction, perceived work stress, and stress symptoms combined	2727.25	206	.72	.75	.13
One-factor model	6553.06	209	.30	.41	.20

Note: TLI = Tucker-Lewis index; CFI = comparative fit index; RMSEA = root-mean-square error of approximation.

Measurement Equivalence. As suggested by Jöreskog (1971), in the next step of the analysis, the six-factor measurement model was evaluated for metric invariance across the Beijing sample and the Hong Kong sample. In the unconstrained model, each indicator was allowed to load only on its factor as shown in the six-factor measurement model, but the factor loadings and covariances were allowed to vary between the Beijing sample and the Hong Kong sample. With an equality constraint imposed on the factor loadings between the two samples, the constrained model was estimated and compared with the unconstrained model. An insignificant change in the chi-square statistic (Δχ2) was considered as evidence for metric invariance given that the CFI, TLI, and RMSEA displayed an acceptable overall model fit. The fit indices revealed measurement equivalence given that both the constrained model (χ2[404]= 1022.60, CFI = .93, TLI = .92, RMSEA = .07) and the unconstrained model (χ2[388]= 997.84, CFI = .93, TLI = .92, RMSEA = .07) were acceptable, with an insignificant change in chi-square (Δχ2 (16) = 24.76, $p > .05$).

Common Method/Source. Because we collected the data from the same participants at the same time, we determined the extent of method variance in the present study. We used Harman's one-factor test to address the potential common method/source bias (Podsakoff, MacKenzie, Jeong-Yeon, & Podsakoff, 2003). The basic assumption of this technique is that if a substantial amount of common method/source bias exists, either (a) a single factor will emerge from the factor analysis, or (b) a general factor will account for the majority of the covariance among the measures. Specifically, we conducted an exploratory factor analysis using a principal components extraction and a varimax rotation on the scales that we used. Results indicated the presence of six factors with the first factor explaining only 24.23 per cent of the variance while the six factors in total explained 71.93 per cent of the variance. Although this procedure did not completely rule out the possibility of same source bias, it is suggested that common method/source bias was not a serious problem in this study. The fact that none of the fit indices for the single-factor measurement model approached acceptable levels (see Table 2) was also a strong support.

Descriptive Statistics. Table 3 presents the means, standard deviations, and correlations among variables.

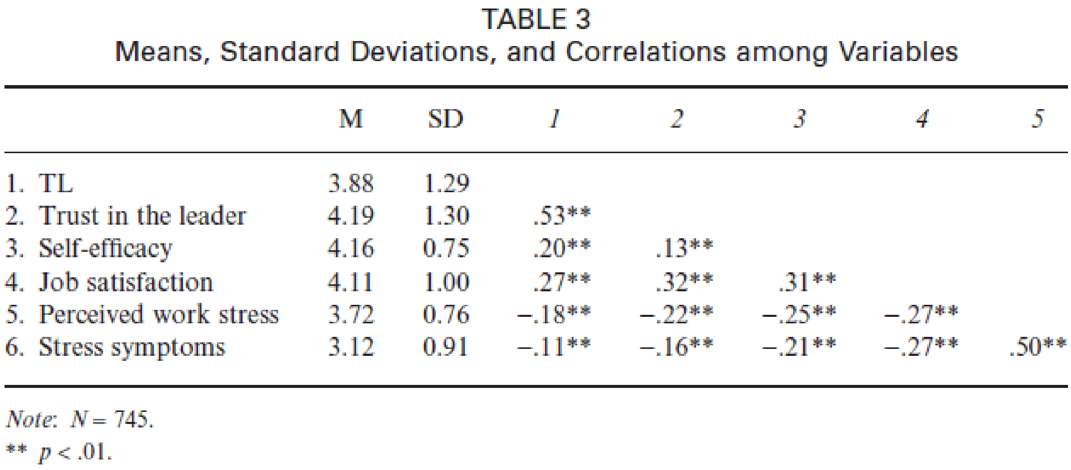

TABLE 3
Means, Standard Deviations, and Correlations among Variables

	M	SD	*1*	*2*	*3*	*4*	*5*
1. TL	3.88	1.29					
2. Trust in the leader	4.19	1.30	.53**				
3. Self-efficacy	4.16	0.75	.20**	.13**			
4. Job satisfaction	4.11	1.00	.27**	.32**	.31**		
5. Perceived work stress	3.72	0.76	−.18**	−.22**	−.25**	−.27**	
6. Stress symptoms	3.12	0.91	−.11**	−.16**	−.21**	−.27**	.50**

Note: $N = 745$.
** $p < .01$.

Tests of Hypotheses

The correlations between TL and job satisfaction (r= .27, p < .01), perceived work stress (r=−.18, p < .01), and stress symptoms (r=−.11, p < .01) provided preliminary evidence to support Hypotheses 1a to 1c. Supporting Hypotheses 2 and 5, TL had positive correlations with both trust in the leader (r= .53, p < .01) and self-efficacy (r= .20, p < .01). As is also evident from Table 3, both trust in the leader and self-efficacy were significantly related to the three indicators of employee well-being. Thus, Hypotheses 3a to 3c and 6a to 6c were preliminarily supported.

Hypotheses 4a to 4c and 7a to 7c were tested through a series of nested models comparisons.

Model 1 represents a fully mediated model. We specified paths from TL to trust in the leader and self-efficacy, and from both trust in the leader and self-efficacy to job satisfaction, perceived work stress, and stress symptoms. All fit indices showed a good fit (χ2[198]= 722.75, CFI = 0.95, TLI = 0.95, RMSEA = 0.06).

Based on Model 1, we drew Model 2 by adding direct paths from TL to job satisfaction, perceived work stress, and stress symptoms. Although Model 2 had a good fit (χ2[195]= 714.52, CFI = 0.95, TLI = 0.95, RMSEA = 0.06), the paths from TL to perceived work stress and stress symptoms were not significant. So we tested Model 3 based on Model 2 by deleting direct paths from TL to perceived work stress and stress symptoms (χ2[197]= 715.55, CFI = 0.95, TLI = 0.95, RMSEA = 0.06). The difference between chi-squares was significant for Model 1 compared with Model 3 (Δχ2 (1) = 7.20, p < .01). These results suggested that Model 3 best fit our data.

Because of the significant correlation between trust in the leader and self-efficacy (see Table 3), we set Model 4 based on Model 3, which allowed the disturbance terms for trust in the leader and self-efficacy to covary in order to provide a noncausal association between the two. Although all fit indices showed a good fit of Model 4 (χ2[196]= 715.07, CFI = 0.95, TLI = 0.95, RMSEA = 0.06), the correlation between the disturbance terms for trust in the leader and self-efficacy was not significant, and the difference between chi-squares was also not significant for Model 4 compared with Model 3 (Δχ2 (1) = 0.48, p > .10).

In summary, the results of model comparisons showed that Model 3 best fit our data.3Figure 1 shows the path coefficients of Model 3. According to Figure 1, it was obvious that Hypotheses 4b, 4c, 7b, and 7c were fully supported. However, Hypotheses 4a and 7a were only partially supported, since trust in the leader and self-efficacy partially mediated the relationship between TL and job satisfaction. Besides, Hypotheses 2, 3a to 3c, 5 and 6a to 6c were all fully supported.

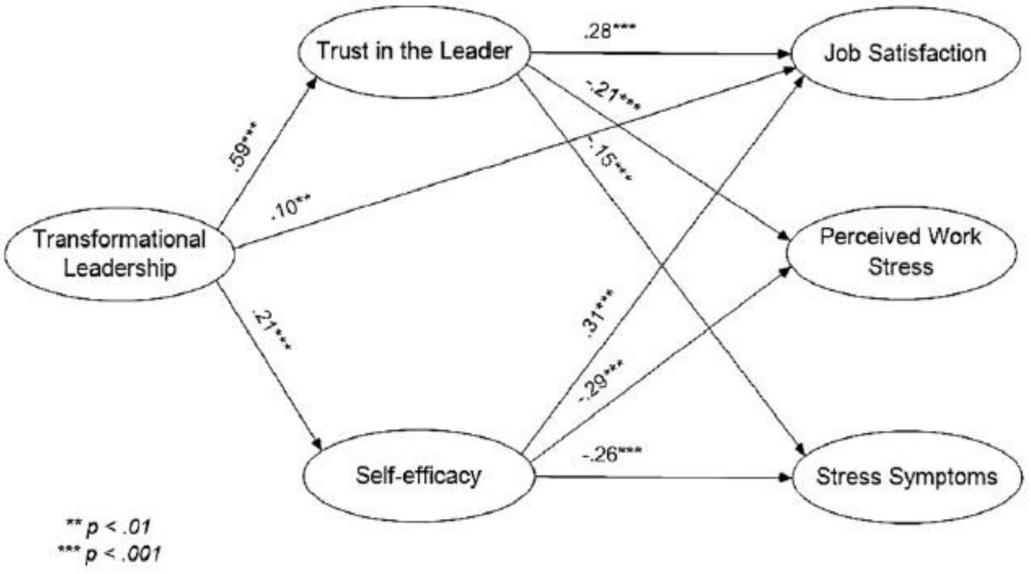

FIGURE 1. Results of structural equation modeling.

DISCUSSION

The purpose of this study was to examine the relationship between TL and employee well-being in Chinese societies and to investigate the mediating role of trust and self-efficacy between TL and employee well-being. The results of this study revealed that in addition to job satisfaction, TL was related to perceived work stress and stress symptoms and to trust in the leader and self-efficacy.

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Furthermore, trust in the leader and self-efficacy were related to the three aspects of employee well-being and fully mediated the influence of TL on perceived work stress and stress symptoms, except in the case of job satisfaction, where mediation was partial. Thus, our results have confirmed the significant relationship between TL and employee well-being in Chinese societies and extended the literature by demonstrating the importance of trust in the leader and self-efficacy in the processes from TL to employee well-being.

Contrary to the hypothesised indirect effect of TL on job satisfaction, our results indicated that TL had both direct and indirect effects on job satisfaction. We try to offer explanations as follows. In this study, job satisfaction was conceptualised in terms of general job satisfaction, which refers to the aggregated appraisal of one's job and job experiences. Theoretically, job satisfaction can be separated into several components, such as satisfaction with task, supervisor, co-workers, pay, and promotion. Because the supervisor's transformational behaviors pertain directly to the supervisor, and therefore to followers' satisfaction with the supervisor, it is reasonable that TL has a direct effect on satisfaction with the supervisor (one component of job satisfaction). In contrast, satisfaction with other facets of the job may not pertain directly to the supervisor. However, TL can exert influence indirectly through other variables, such as self-efficacy. Hence, TL can have both direct and indirect effects on job satisfaction.

Implications of Findings

First, our results provide more understanding of the outcomes of TL. Most previous studies have focused on the link between TL and performance, which has already been well documented. It has been objected that TL is biased toward favoring some stakeholders (top management, owners, and customers) at the expense of employees, since it emphasises the role of leadership in increasing task motivation and performance (Stevens, D'Intino, & Victor, 1995). On the other hand, with the emergence and development of positive psychology, some scholars have proposed that TL is one kind of positive leadership and they have tried to highlight outcomes other than just performance, such as well-being (Roberts, 2006). Nevertheless this area of research has received comparatively less attention. Our research was intended to fill this gap, and our results indicate that TL has positive effects on employee well-being, which supports and adds to the range of positive outcomes associated with TL.

Second, although the relationship between TL and employee well-being has been confirmed in Western societies, this kind of research is rare in Chinese societies. Importantly, Chinese societies, which score high on collectivism and power distance, are significantly different from Western societies (Hofstede, 1980). Scholars and practitioners cannot simply assume that TL, which is effective in Western societies, can be automatically transferred to Chinese societies. In particular, it seems that TL is not compatible with Chinese culture, since collectivistic or hierarchical societies are

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more likely to generate top-down and relatively autocratic leadership practices (Walumbwa, Wang, Lawler, & Shi, 2004). The leader as "boss" rather than "coach" may readily transfer even to countries that put much store by hierarchy (Pillai, Scandura, & Williams, 1999). The current study corroborates and extends to Chinese societies the findings in Western societies on the relationship between TL and employee well-being, providing support for the successful transfer of TL to Chinese societies. In other words, we can tentatively conclude that TL is functionally and equally influential in both Western and Chinese societies.

Third, although TL is considered a kind of positive leadership, the processes through which TL influences employee well-being remain unclear (Sivanathan et al., 2004). Our research is a step forward in uncovering the possible underlying processes. Specifically, we found that trust in the leader and self-efficacy partially or fully mediated the relations between TL and employee well-being. Actually, taking into account Yukl's (1999) criticism that "the theory (TL) would be stronger if the essential influence processes were identified more clearly", many studies have begun to focus on the processes of TL. Previous studies have demonstrated the mediating role of followers' attitudes toward their leaders and followers' attitudes toward themselves (Piccolo & Colquitt, 2006). Our results corroborate these findings and reveal further underlying mechanisms.

Fourth, our findings that TL has both direct and indirect effects on employee well-being have practical implications for leadership development programs. Organisations can benefit greatly by providing TL training to their supervisors and managers to enhance followers' trust in the leader and self-efficacy, which in turn enhance employee well-being. Employees can also benefit from their supervisors' transformational behaviors. Such training may be conducted through the use of goal-setting interventions (Barling, Weber, & Kelloway, 1996). As advocated by Piccolo and Colquitt (2006), building a TL component into the yearly developmental assessments (e.g. managerial skills surveys, 360-degree feedback instruments) that leaders fill out, to make the improvement of transformational behaviors more continuous, is a future direction for both Western and Chinese societies.

Limitations and Future Research

Despite the contributions of this study, it is not without limitations. First, our data were collected from a cross-sectional survey of two samples of Chinese employees, making it difficult to draw confident causal conclusions. There may also be other explanations that should be explored in future research. For example, perhaps self-efficacy is positively related to a perception of TL because employees with high self-efficacy see themselves as being similar to their leaders and thus tend to perceive transformational behaviors in their leaders (Schyns, 2001). Therefore, experimental and longitudinal research in the laboratory or in the field is needed to ascertain the causal nature of the proposed model. Second, our data were collected from the same source such that the common method/source bias may be an issue. However, we have demonstrated that it is not a serious problem in the current study. Potential rating biases could be reduced in future research by collecting data from different sources with different methods. For example, future research should use objective measures of employee well-being outcomes, such as recorded sick days or physiological indicators. Besides, leaders' behaviors should be rated by several followers. Third, although we have controlled for several demographic and contextual variables, another confounding variable that needs to be controlled is employees' performance. The research findings would be stronger if the relationships still hold after controlling for performance data.

Furthermore, because the current study was conducted in Chinese societies, we selected Li and Shi's (2005) transformational leadership questionnaire, which was developed within the Chinese context. However, Li and Shi (2005) found that some patterns of transformational leader behaviors that emerged in Western societies did not appear in Chinese societies, and these patterns were therefore not included in their transformational leadership questionnaire; for example, high performance expectations as emphasised by Podsakoff et al.'s (1990) study, and intellectual stimulation as part of the MLQ. Nevertheless, Podsakoff et al. (1990) suggested that leaders could overemphasise high performance expectations and thereby promote followers' anxiety. Further, Butler et al. (1999) found an inverted-U relationship between intellectual stimulation and satisfaction with supervisor. Future research should further explore whether these dimensions of TL are suitable to Chinese societies, and whether they account for the same variance in employee well-being. In addition, future research should continue to explore the influence processes of TL on employee well-being. To date, no research explicitly includes social well-being as the outcome focus.

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Footnotes

1 The young participants around 18 years of age were interns from technical colleges. The old participants over 60 years of age were re-employed experts after retirement. Because they had been working in the workplace for a long time and had contracts with organisations, we kept them in the sample.

2 We selected items according to item–total correlation shown in previous studies conducted by ourselves. The criterion was that the item–total correlation was more than 0.60.

3 We first conducted nested models comparisons in each separate sample, and Model 3 was always the best choice. Because we reported the analysis in the combined sample, the ratios of $\chi2$ to the degree of freedom were a bit high. In each separate sample, these ratios were not so high. Taking Model 3 as an example, the ratios of $\chi2$ to the degree of freedom for the Beijing sample ($\chi2[197]$= 489.58, CFI = .94, TLI = .93, RMSEA = .07) and the Hong Kong sample ($\chi2[197]$= 496.54, CFI = .95, TLI = .95, RMSEA = .06) were both around 2.5.

Appendix

Transformational Leadership Scale: definition and full items (in English)

Morale building. Behave in ways that gain respect, trust, and confidence of others and transmit a strong sense of mission to them.

1 My immediate supervisor follows rules with justice, neither corrupt nor for self-interest.
2 My immediate supervisor works hard before relaxing.
3 My immediate supervisor tries his/her best at work regardless of personal gain or loss.
4 My immediate supervisor goes beyond self-interest for the benefit of the department/unit or the organisation.
5 My immediate supervisor places the benefits of the group or organisation above that of him/herself.
6 My immediate supervisor does not take the achievements of other people as his/her own.

7 My immediate supervisor shares happiness and woe with his/her subordinates.
8 My immediate supervisor never makes things hard for his/her subordinates and never retaliates against his/her subordinates by abusing his/her power.

Inspirational motivation. Provide meaning and challenge to others' work, communicate a vision with fluency and confidence, increase others' optimism and enthusiasm, and give pep talks to energise others.

9 My immediate supervisor helps his/her subordinates know the prospects of the organisation/department.
10 My immediate supervisor helps his/her subordinates understand the management philosophy, visions, and mission of the organisation/department.
11 My immediate supervisor explains to his/her subordinates the long-term meaning of their work.
12 My immediate supervisor portrays an attractive prospect to his/her subordinates.
13 My immediate supervisor gives clear goals and directions to his/her subordinates.
14 My immediate supervisor often analyses the impact of their effort on the goals of the organisation/department with his/her subordinates.

Individualised consideration. Pay special attention to each individual's needs and abilities for achievement and growth by acting as coach or mentor, and make each individual feel valued.

15 My immediate supervisor shows concerns for his/her subordinates' personal situations.
16 My immediate supervisor would like to help his/her subordinates with their problems in life and family.
17 My immediate supervisor often communicates with his/her subordinates to understand their work situations, personal life, and their families.
18 My immediate supervisor coaches his/her subordinates with patience.
19 My immediate supervisor shows concern for his/her subordinates' work, life, and personal growth and sincerely gives suggestions for their development.
20 My immediate supervisor tries his/her best to help facilitate the employees to develop and exert their strengths.

Charisma. Possess outstanding abilities, behave in ways that construct an image of competence, and increase others' faith in them as leaders.

21 My immediate supervisor is an expert in his/her work domain.
22 My immediate supervisor is open-minded and innovative.
23 My immediate supervisor loves his/her work, with strong enterprise and gumption.

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24 My immediate supervisor shows high commitment to his/her work and keeps high levels of passion.

25 My immediate supervisor keeps learning for self-enhancement.

26 My immediate supervisor is good at and never hesitates to take actions when dealing with tough problems.