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Integrating Leader Fairness and Leader-Member Exchange in Predicting Work Engagement: A Contingency Approach

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by

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Abstract

Growing research attention has been devoted to understanding the implications of work engagement with an emphasis on its motivational mechanism linking its antecedents to consequences. Findings from such research efforts could inform intervention efforts. Integrating organizational justice theories within the leadership framework, this study examined the effects of supervisory interactional justice and supervisory procedural justice on subordinates' work engagement. Based on survey responses from 352 Chinese employees collected at two time points with three months in-between, moderated regression analyses were conducted to test hypotheses that there is a direct positive effect of supervisory interactional justice and supervisory procedural justice on subordinate's work engagement respectively, and that leader-member exchange (LMX) quality moderates the justice-engagement relationships. Specifically, the supervisory interactional justice-engagement relationship was expected to be stronger for subordinates with high LMX quality, and the supervisory procedural justice-engagement relationship was expected to be stronger for subordinates with low LMX quality.

The results showed that both supervisory interactional justice and supervisory procedural justice significantly correlated with subordinate-reported work engagement measured three months later. However, the results did not support the proposed main and interactive effect hypotheses after adding control variables. Supplemental analysis results demonstrated that supervisory interactional justice and supervisory procedural justice had significant indirect effects on work engagement through LMX quality. Further, POS was

found to moderate the indirect effects of supervisory interactional justice. But POS was not a moderator for supervisory procedural justice. Moreover, emotional labor job type interacted with supervisory interactional justice in predicting vigor, such that supervisory interactional justice was significantly and negatively related to vigor when higher emotional labor is involved. In conclusion, the findings of the current study contribute to work engagement, leader fairness and social exchange theory literature and provide important theoretical and practical implications for future research in the field of work engagement and leader fairness.

To Luke and Brad

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I. Introduction

Work engagement has been conceived as a distinct construct that reflects how employees invest their full selves–physically, cognitively and emotionally–in work roles in organizations (Kahn, 1990). Consistent with the seminal conceptualization by Kahn (1990) to empirically gauge the latent work engagement construct, Schaufeli, Salanova, Gonzalez-Roma, and Bakker (2002) introduced the operational definition of work engagement as "a positive, fulfilling, work-related state of mind characterized by vigor, dedication, and absorption" (p. 74). Specifically, vigor refers to high energy level combined with persistent effort that is invested in role performance, even in adverse situations where performance is challenged. Dedication is characterized by feelings of inspiration, significance, and pride in performing one's work role. Finally, absorption is a state of being fully concentrated and happily immersed in work such that one has difficulty detaching from that work role (Schaufeli et al., 2002). Based on this knowledge of work engagement, I endorse work engagement as a role-based motivational construct in that it captures the depth with which one engrosses him/herself in the work role by physically, emotionally, and cognitively engaging in the context of role performance (Kahn, 1990; Rich, Lepine, & Crawford, 2010).

Indeed, researchers have acknowledged that work engagement is an important stand-alone motivational construct with value-added predictive power over and above

other well-established motivational constructs such as job satisfaction, organizational commitment (Christian, Garza, & Slaughter, 2011), job involvement, and intrinsic motivation (Rich et al., 2010). Furthermore, engagement is found to predict an array of organizational outcomes with various important implications for both individual employees and their organizations, such as in-role and extra-role performance (see review by Christian et al., 2011; Rich et al., 2010), service climate (Salanova, Agut, & Peiro, 2005), work-family interference (Halbesleben, Harvey, & Bolino, 2009), and business-unit-level outcomes, i.e., organizational profit and sales, customer ratings, accidents, and turnover (Harter, Schmidt, & Hayes, 2002). However, despite the explosive progress in engagement-related research in the last 5 years, there are gaps that remain and have important implications for the future of work engagement research. One of these gaps concerns the leader's influence on subordinates' work engagement and its contingencies in shaping different levels of engagement among subordinates (Bakker, Albrecht, & Leiter, 2011), such as the impact of fairness associated to leadership processes on work engagement (van Knippenberg, De Cremer, & van Knippenberg, 2007). Indeed, these issues have received scant theoretical and empirical attention in the growing body of engagement literature. According to the most comprehensive meta-analytic review by Christian and his colleagues (2011), very few studies focus specifically on the effects of various aspects of leadership and the role of fairness on work engagement (for two exceptions, see Inoue et al. 2010 and Saks, 2006). They also noted that leadership was only weakly related to work engagement when effects of other factors were taken into account, and in turn called for investigation of moderating effects of leadership on work

engagement in advancing our understanding of engagement as a work motivational concept.

In this study, I attempt to fill the aforementioned gap as follows: First of all, a time-lagged survey procedure was employed to examine relationships between antecedents measured at time 1 and work engagement measured at time 2 three months later. This design goes beyond the majority of the past literature on work engagement that used cross-sectional designs, and it contributes to my confidence in examining the proposed relationships. Second, to broaden the scope of antecedents of work engagement, two lines of important and interrelated leader influence variables are included as predictors of subordinate-reported work engagement over 3 months: leader fairness in the forms of supervisory interactional justice and supervisory procedural justice (Byrne, 1999) and social exchange-based leadership dyad quality (LMX; Graen & Uhil-Bien, 1995). Third, by using hierarchical moderated regression analysis (HMRA; Cohen, Cohen, West, & Aiken, 2003), the interactive effects of these two types of leader fairness and LMX are examined for their effects on work engagement. The proposed conceptual model is shown in Figure 1.

Therefore, the present study attempts to advance research on the leader's influence on subordinates' work engagement by building and testing a model that integrates leader fairness and LMX quality in the prediction of work engagement. Specifically, I test whether the effects of leader fairness on work engagement are contingent on LMX quality, based on a time-lagged field design and an employee sample

from China. By doing so, I attempt to make three contributions to the literature. First, this study adds to the growing body of work engagement literature by examining the social relational antecedents and the organizational justice antecedents of subordinates' work engagement based on a leadership process framework. Second, this study fills a gap in the leader fairness literature by empirically investigating the roles of supervisory interactional justice and supervisory procedural justice in relating to work motivation in general and to work engagement in particular (van Knippenberg et al., 2007). Third, the study makes a contribution to the LMX theory literature by integrating a justice perspective in examining its influence on subordinates' motivational outcome (i.e., work engagement). Although both justice researchers and LMX theory researchers have suggested that justice concerns are salient due to differential treatment inherent in LMX theory (Erdogan & Bauer, 2010; Sanchez & Byrne, 2004; Scandura, 1999), more research attention is needed to address the unclear relationship between LMX and organizational justice.

Next, I will review the related theoretical perspectives and develop my model and hypotheses in detail.

Work Engagement as a Role-Based Work Motivation Construct

Beyond setting the conceptual foundation of work engagement, Kahn's (1990) theoretical framework proposed the three psychological conditions that generally contribute to the self-in-role experience (engaged or disengaged) across role situations and individuals: Meaningfulness, psychological safety, and psychological availability.

More importantly, Kahn (1990) concluded that engagement varies as a function of the interplay of perceptions in regard to these three terms: Feelings of meaningfulness in terms of benefits associated with effort invested in role behavior; feelings of psychological safety indicated by perceiving a threat-free social context for the performance of work roles; and feelings of availability or confidence in terms of possessing resources for the employment and expression of one's preferred self during role performance. His notion acknowledged the important distal influence of the work environment (e.g., core job characteristics, social relational factors) one is situated in for promoting the aforementioned three conditions. Moreover, empirically such environmental antecedents aligned with the three psychological conditions to predict work engagement have been identified (Maslach, Schaufeli, & Leiter, 2001; May, Gilson, & Harter, 2004; Rich et al., 2010). Although we still know little about the primacy and saliency of each of the three conditions in the emergence of work engagement, they are valid basic mechanisms and involved jointly and simultaneously in shaping engagement within an individual and across individuals (Kahn, 1990; May et al., 2004). Therefore, they represent some of the most proximal causes of engagement compared to other more distal causes such as job characteristics, and social-emotional environmental and dispositional factors (Diefendorff & Chandler, 2011). However, there may be many other still-unexamined factors such as the distal causes or proximal causes from the within or between individual levels, or the upper levels (e.g., human resources management practice and polices, the national culture characteristics, to name a few) using an open systems perspective (Katz & Kahn, 1978). To extend this line of research in advancing

the theorizing of work engagement, it is theoretically and practically more important to go beyond the identification of discrete determinants of work engagement and investigate the boundary conditions for the effects of determinants–that is, to use a contingency approach.

Leader Fairness

Leadership is a vital process in organizations. The essential definition of leadership refers to the influence of a leader over his or her subordinates in motivating and enabling them to perform tasks and contribute toward the effectiveness and success of their organizations (Wexley & Yukel, 1975). The core question about how leadership effectively influences others in the workplace has been approached in various ways, but has not yet been examined in all important aspects. One missing aspect of leadership is fairness, because a) fairness is a value in and of itself (Turillo, Folger, Lavelle, Umphress, & Gee, 2002), and people respond more positively if they feel they have been treated fairly (e.g., Greenberg, 1990; Lind & Tyler, 1988; Konovsky, 2000); b) the fairness of the outcomes, the procedures through which the outcomes are distributed and the treatments associated with leaders should be a key concern to subordinates since the leader's position has legitimate authority and control over organizational rewards and punishment decisions. In recognition of the fact that leadership fairness is important, growing attention (albeit limited) has been devoted to the role of fairness in leadership effectiveness in both empirical and conceptual studies (e.g., Colquitt & Greenberg, 2003; van Knippenberg et al. 2007; Piccolo, Bardes, Mayer & Judge, 2008; Scandura, 1999).

Following this line of inquiry, I propose two dimensions of a leader fairness model in the current study by rooting it in the extensive literature on organizational justice perceptions (i.e., perceived fairness in the workplace) which has accumulated in the past four decades.

Justice researchers have identified four types of justice perceptions: Distributive, procedural, informational, and interpersonal (Colquitt, 2001). Based on equity theory (Adams, 1965), distributive justice refers to the perception of the fairness of outcomes. Equity theory suggests that the individual utilizes the comparison of input-output ratios of himself or herself compared to others to judge the fairness of the outcome distribution. For example, when employees working as a sales group believe that the allocation of rewards (e.g., in the form of bonus derived from their total sale revenue as a group) is equitable based on individual performance and other factors such as responsibilities, experience, job stress and efforts among all employees serving the same job role, they would feel that they receive the rewards they deserve and are not being disadvantaged. If a distribution outcome is perceived not to be in favor of the individual concerned, perception of a lack of fairness is elicited. Considering the possible attributional sources of the perception of distributive justice or injustice relating to the accountability judgment in this sales group bonus distribution example, there are many forces that jointly and indiscriminately influence the distributional outcomes in general circumstances. Examples include the economic inequity among the sales territories they are assigned, the inequality in the macro-level reward and recognition system of their organization, the

supervisor who is responsible for observing and appraising individual performance that factor into the bonus distribution decisions, and the individual differences in terms of employees' education and skill levels, to name a few. Therefore, when there is a distributional injustice perception, it is not clear who or what is most directly to blame. Although it is possible the supervisor could have rewarded subordinates by applying the resources at his or her disposal, such as providing praise and coaching during the period of performance, the supervisor's ability to influence the distributional outcomes is less definitive and limited by those upper-level factors, for example, by guidelines or rules set by the organization. In a nutshell, distributive justice is of the highest attribution ambiguity in terms of accountability among all forms of (in)justice (Folger & Cronpanzano, 1998).

Procedural justice refers to perceptions of fairness of the procedures or means enacted to make distributional decisions (Thibaut & Walker, 1975). According to Leventhal, Karuza, and Fry (1980), just procedures conform to six rules: Consistency, freedom from bias, accuracy, ability to be corrected, representativeness of all concerns, and ethicality. Perceptions of procedural justice tend to refer to the fairness of procedures established by the organization (Colquitt, 2001). However, research has shown that the supervisor is an important perceived source of procedural justice in addition to organizations and coworkers (Byrne, 1999; Rupp & Cropanzano, 2002).

Interpersonal justice refers to perceptions of the dignity and respect with which one is treated during the enactment of procedures (Bies & Moag, 1986; Colquitt, 2001). Informational justice refers to the perception of whether an individual has been provided

with sufficient information about a procedure by decision-maker (Greenburg, 1990; Colquitt, 2001). Although evidence shows that interpersonal justice and informational justice are separate constructs (Colquitt, 2001), most research in this field thus far has treated interpersonal and informational justice as a single form: Interactional justice, which is a concept originally proposed by Bies and Moag (1986). Perceptions of both interpersonal and informational justice have an obvious referent: Supervisors, since they are most likely to administer interpersonal treatment and information delivery during the decision-making process (Folger & Cropanzano, 1998). In contrast to the accountability judgment situation of distributional injustice, when interactional injustice occurs (e.g., the instance of interpersonal insensitivity, dishonest treatment, insulting), the inference of such harmful intention is clear and direct, because the person who acts in that way is the only source to be held accountable (Folger & Cronpanzano, 1998).

In the consideration of applying organizational justice theory to leadership, a meaningful distinction could be made between perceptions of interactional justice (the combination of interpersonal and informational justice) and the two earlier, established justice perceptions: Distributive justice and procedural justice. The difference lies in the relevance of the supervisor figure as a referent source to the different justice perceptions, such that the supervisor serves as the dominant source of interactional justice perceptions, but only one of several perceived sources of procedural justice perception and not a direct source for distributive justice perception. Specifically, interactional justice and procedural justice perceptions are subject to supervisor figures as the agents of leadership influence which leads to the fairness judgments among subordinates. Therefore, two

types of organizational justice concepts–supervisory procedural justice and supervisory interactional justice–are adopted in this study with regard to leader fairness.

A decade ago, meta-analytic reviews of the organizational justice literature (Cohen-Charash & Spector, 2001; Colquitt, Conlon, Wesson, Porter, & Ng, 2001) concluded that all fairness judgments (distributive, procedural, and interactional) made by employees regardless of the mix of referents used (organization, top management, department, direct supervisor, one or more of the above) are significantly associated with positive employee reactions, such as employee attitudes toward their organizations (e.g., affective commitment), their jobs (e.g. job satisfaction) and their supervisors (e.g. trust and satisfaction with the supervisor), and work-oriented behaviors (e.g., motivation, task performance, organizational citizenship behaviors and withdrawal). Moreover, fairness judgments have been shown to be linked to social and relational processes (e.g. trust and cooperation) in the workplace through self-regulatory mechanisms (e.g., self-identity, self-concept) at both explicit and implicit levels (Johnson, Selenta & Lord, 2006; Johnson & Lord, 2010). Such a perspective highlights the important role of justice perceptions in the context of leadership research and organizational justice research within a network-based social exchange system in the workplace. Regarding the consequences of leader fairness, such attitudinal, behavioral, and relational implications drawn from the larger body of the organizational justice literature should be expected in the same manner, especially on supervisor-focused outcomes (Cohen-Charash & Spector, 2001; Colquitt, Conlon, Wesson, Porter, & Ng, 2001). The rationale behind this assertion is that the leader fairness judgments proposed here are more elaborated constructs with the specific

referent of supervisors which differ from traditional procedural justice and interactional justice constructs. According to Brunswik's Lens Model (1952), the consonance between the predictor and the criterion based on their relevance enhances predictive utility, in this case by using matched predictors (i.e., supervisory fairness) and outcomes (i.e., supervisory-targeted role-related behaviors) as the basis of specific targets. In a similar vein, I expect supervisory interactional justice to be a better predictor than supervisory procedural justice in predicting supervisor-targeted outcomes since for the judgment of supervisory interactional justice, the supervisor appears to be the direct and sole enactor of fair interpersonal treatment (mono-focal in nature), whereas supervisory procedural justice judgments can be made about the actions of both organizational systems and supervisors in their administration of those system-defined procedures (bi-focal in nature; Byrne, 1999; Folger & Cropanzano, 1998; Rupp & Cropanzano, 2002).

Indeed, a line of research has demonstrated such differential effects of interactional justice and procedural justice on the supervisor vs. organization-targeted outcomes. In the studies conducted by Malatesta and Byrne (1997) and Masterson, Lewis, Goldman, and Taylor (2000), interactional justice was the better predictor of organizational citizenship behaviors beneficial to the supervisor (OCBS), while procedural justice was the better predictor of organizational citizenship behaviors beneficial to the organization (OCBO) and turnover intentions. Importantly, Cropanzano et al. (2002) replicated the findings in relation to extra-role behaviors (OCBS vs. OCBO) by Masterson et al. (2000) and found that supervisory-focused interactional justice was also a better predictor of job performance (in-role behavior) than was organizationally-

focused procedural justice. Furthermore, findings from the empirical study conducted by Rupp and Cropanzano (2002) advanced the notion that compared to supervisory procedural justice, supervisory interactional justice accounted for more variance in both in-role behavior and extra-role behavior across two foci (supervisory targeted and organizationally targeted).

Such a pattern of findings highlights the pivotal role of the direct supervisor and the virtue of fair interpersonal treatment emanating from such a role in eliciting subordinates' positive reactions in terms of work-relevant behaviors. From a role-based perspective, consistent with the suggestion by Folger and Cropanzano (1998), the findings demonstrated here converge on a notion that interactional justice should affect both in-role and extra-role behaviors in relation to the supervisor (Masterson et al., 2000; Rupp & Cropanzano, 2002). But the effect of procedural justice or injustice is only carried out on extra-role behaviors in relation to the organization to which they belong.

The Linkage of Leader Fairness and Work Engagement

In the previous subsection, the benefits of employees' favorable perceptions of interactional justice and procedural justice were briefly reviewed in terms of empirical evidence in support of organizational justice judgments shaping employees' experiences, such as feelings, attitudes, and behaviors in their work life. Fruitful theoretical work from the field of organizational justice research also has been done to answer the question about how such beneficial effects take place. Informed by these organizational justice theories, next I articulate my expectation of the relationship between leader fairness

(supervisory interactional justice and supervisory procedural justice) and work engagement.

A common theme that I can draw from various theories in explaining the effect of organizational justice is that perceptions of fairness are important determinants of employees' judgments about the social aspects of their work environment. According to the group value model (Lind & Tuyler, 1988; Thibaut & Walker, 1975), fair procedures and interpersonal treatment delivered with dignity and respect by a trustworthy authority figure (in the case of this study, it is the supervisor) communicate socially meaningful information of one's status and value within the group to the receivers (the subordinates). In other words, justice judgments in relation to procedures and interactional treatments could determine one's subsequent judgment of interpersonal relationship quality within a group and with his or her supervisor. Further, such positive relational judgment promotes one' social identity and value to the group, and leads to higher commitment to goals set by the group or the supervisor as the group leader. There was evidence that feelings of enhanced group membership associated with high procedural and interactional justice judgments in turn partially mediate the relationship between the relational judgments and group-oriented behaviors (Huo, Smith, Tyler, & Lind, 1996). In the context of this study linking leader fairness and work engagement through the aforementioned social-identity mechanism, fair perceptions of procedures and interactional treatments enacted by the supervisor could enhance the subordinate's experience of meaningfulness in the process of carrying out his or her role (i.e., with the supervisor as the role sender; Katz & Kahn, 1978). This is accomplished through enhanced identification with or commitment to the

supervisor as a particular authority figure. This increased experience of meaningfulness thus leads to the experience of higher engagement (Kahn, 1999; May et al., 2004; Rich et al., 2010). In contrast, if one perceives the procedure administered by the supervisor as unfair, or interpersonal treatments by the supervisor as showing lack of respect, the subordinate's sense of self-worth, social identity, and place within the group will all suffer. Such disconnected feelings between one's self and others in the work environment will likely prevent the subordinate from experiencing meaningfulness, let alone experiencing engagement.

Uncertainty management theory (Lind & van den Bos, 2002; van den Bos & Lind, 2002) is another useful organizational justice theory in linking fairness perception and work engagement. It is the successor of fairness heuristic theory (Lind, 2001; van den Bos, Lind, & Wilke, 2001), which explicates how fairness evaluations are formed, in that fairness judgments are argued to form via limited information available to employees and subsequently to be used as heuristics or cognitive shortcuts to guide individual behaviors in response to those (in)justice perceptions. According to uncertainty management theory, fairness judgments help to address the perceived uncertainty in the work environment. Because employees often face the situations which require that they cede to authority in exchange for inclusion in a social unit or the security of social identity, they are often in need of information to evaluate the trustworthiness of authority figures. In searching for information to evaluate the trustworthiness of authority figures, the judgments associated with procedures and interpersonal treatments enacted by the supervisor serve as heuristic cues to reduce the uncertainty about the situation. In the context of predicting

engagement, high fairness perceptions associated with procedures and treatments delivered by supervisors help to reduce the environmental uncertainty and help to promote a predictable and trustable social environment around the on-going interactions between supervisors and subordinates. Less environmental uncertainty along with a predictable and trustable social environment conceivably promote the psychological safety experienced by employees, and lead to higher levels of engagement (Kahn, 1999; May et al., 2004; Rich et al., 2010). In the opposite situation, when unfair procedures and treatments are perceived, subordinates respond with withdrawing themselves from high-level role performance, as well as becoming involved in conflicts with others at work, along with negative emotions, as documented by Cohen-Charash and Spector (2001). Extreme forms of adverse reactions to injustice such as behavior deviance (e.g., retaliation, theft) could result too (Greenberg, 1993; Skarlicki & Folger, 1997). Especially, higher levels of deviance were shown among subordinates whose supervisors' management style promoted uncertainty. Therefore, when psychological safety is absent as a result of the unfair treatments, work engagement suffers.

According to the instrumental model of justice (Tyler, 1987), high judgments of procedural justice are driven by high control of the process, in that maximized favorability of outcome could be achieved, and vice versa. Therefore, fair procedures allow employees to perceive a stronger sense of control over the allocation of rewards and punishments. The satisfied need for control could promote motivation (e.g., Bandura, 2001) as well as confidence and availability in performing roles well. Therefore, engagement could be promoted when the judgment of procedural fairness is present.

In summary, the three mechanisms I draw from organizational justice theories could work as factors that underlie the potential effects of leader fairness on work engagement individually and/or simultaneously or interconnectedly. Consequently, the two dimensions of leader fairness reported by subordinates (i.e., supervisory interactional and procedural justice) have the potential to promote their work engagement levels through a supportive social environment that possibly contributes to individual experience of meaningfulness, feeling psychologically safe and available in one's role performance. Therefore:

Hypothesis 1: Supervisory interactional justice will positively predict work engagement.

Hypothesis 2: Supervisory procedural justice will positively predict work engagement.

Leader-Member Exchange and Organizational Justice

One prominent theory in the leadership and organizational behavior literatures that examines how leaders influence member behaviors is the LMX theory, in which the basic unit of analysis and focus is interpersonal processes between dyadic individuals, specifically, leaders and individual subordinates. The LMX theory is rooted in social exchange theory (Blau, 1964; Gerstner & Day, 1997) and role-making theory (Katz & Kahn, 1978). According to the LMX theory, each dyadic relationship between a supervisor and his/her subordinate is varied in quality resulting from the role-making

process, and there is mutual influence between the supervisor and the subordinate. Based on the norm of reciprocity, there is a perceived obligation for both sides of the dyad to reciprocate in high-quality relationships during a social exchange process (Blau, 1964; Gouldner, 1960). High-quality LMX relationships are characterized by reciprocal exchange of social resources such as access, communication, trust, professional respect, affection, and loyalty between the supervisor and the subordinate (Cropanzano & Mitchell, 2005). Low-quality LMX relationships are characterized by a more "economic", transactional exchange (Blau, 1964), one based solely on the employment contract. Such relationships are restricted to the exchange of materials necessary for basic completion of work. A good deal of empirical research has demonstrated that LMX quality has significant influence on members' attitudinal outcomes (such as organizational commitment, satisfaction with supervision) and behavioral outcomes (such as job performance, organizational citizenship behavior, turnover intentions; Gerstner & Day, 1997; Ilies, Nahrgang, & Morgeson, 2007). Moreover, LMX was demonstrated to frequently play a mediating role between antecedents (i.e. focusing on leader's or member's behavioral and perceptional variables or their relationship characteristics) and member's outcomes (See review by Dulebohn, Bommer, Liden, Brouer & Ferris, 2011). Therefore, it is fair to say that LMX quality is a central defining element of organizational leadership processes in the context of predicting members' work motivation.

The key difference between LMX theory and other leadership theories is the indication that interpersonal relationship differentiation occurs as a way of leadership

(Graen & Cashman, 1975). However, the idea that some subordinates are treated better than others is inconsistent with norms of equality. Thus, a way to extend LMX theory has been argued to reinvestigate the role of LMX quality from an organizational justice perspective (Cropanzano & Mitchell, 2005; see review, Scandura, 1999; Sanchez & Byrne, 2004). Along this line of inquiry, a growing body of research has supported the meaningful relationships between LMX quality and fairness perceptions, in particular interactional and procedural justice, in association to individual and organizational work outcomes through social exchange mechanism (Aryee, Budhwar & Chen, 2002; Cropanzano, Prehar & Chen, 2002; Ishak & Alam, 2009; Masterson, et al., 2000; Moorman, Blackely, & Niehoff, 1998). In general, the positive effects of interactional and procedural justice are robust across criteria and often realized through social exchange processes (LMX quality as mediator; e.g., Akremi, Vandenberghe & Camerman, 2010; Masterson, et al., 2000; Rupp & Cropanzan, 2002; Sparr & Sonnentag, 2008). In addition, LMX quality has been argued and found as a moderator to qualify the relationships between fairness perceptions and outcome variables (Johnson, Truxillo, Erdogan, Bauer, & Hammer, 2009; Piccolo et al., 2008). Interestingly, the moderating effects of LMX quality from the two studies cited were opposite to each other. Johnson and his colleagues (2009) found that the beneficial effects of two types of fairness perceptions regarding the organization and the department on task performance and OCBO respectively diminished when LMX quality was high. However, the individual targeted OCB (OCBI) was better predicted by LMX quality, not by any of the justice predictors or their interactions with LMX. In contrast, Piccolo and his colleagues (2008)

found that high quality LMX accentuated the associations between procedural justice/interactional justice and a set of organizational outcomes indicating how one relates to the organization (i.e., felt obligation to the organization, withdrawal intentions, and OCBs [a combination of OCBO and OCBI]). Closely examining the predictor-criterion relationships documented in the two studies in which LMX quality has been modeled as moderator (Johnson et al., 2009; Piccolo et al., 2008) and the study by Rupp and Cronpanzano (2002), it seems that the justice perceptions operate at different levels (i.e., supervisory targeted vs. departmentally targeted vs. organizationally targeted) to influence the individually targeted and the organizationally targeted outcomes in different ways. Moreover, it appears that a high relational quality with the supervisor, which could be indicated by LMX quality (Johnson et al., 2009) or by procedural justice/interpersonal justice emanating from the supervisor (Rupp & Cropanzano, 2002) is the necessary predictor of individually targeted behaviors, such as the OCBI in Johnson et al.'s (2009) study and the OCBs in Rupp and Cropanzano's (2002) study. Up to this point, it is important to note that the relationship of LMX quality and organizational justice is complex; carefully matching the predictor and the outcome on the basis of targets could be useful to advancing our understanding of such an unclear relationship.

The Interactive Effects of LMX and Leader Fairness on Work Engagement

Although the literatures on LMX theory and organizational justice have developed relatively independently, there is a common ground for the two fields: Social relational quality as a form of social influence. Social influence is a critical element in the

work environment and shapes employees' work motivation as an external proximal factor (Diefendorff & Chandler, 2011) because that having positive social interactions and being accepted by others are very important human needs (Deci & Ryan, 2000; Maslow, 1954). In particular, the authority figures as special others in the workplace act to influence individual motivation more directly and significantly because they control the organizational resources of rewards and manners of punishments. In that sense, the leader fairness and LMX quality examined in this study could be functionally equivalent. This is the assumption on which I base my arguments about the moderating role of LMX quality on the effects of supervisory interactional justice and supervisory procedural justice on work engagement.

Differential LMX quality is mutually perceived by the two parties of a dyad (the supervisor and the subordinate) through a negotiated, interactive role-making process at workplace (Graen & Uhl-Bien, 1995). Empirical studies continue to document more benefits for subordinates who possess high quality LMX with their supervisors. For example, Lagace, Castleberry, and Ridnour (1993) found employees holding sales positions were more intrinsically and extrinsically motivated when their LMX quality was high, while they were exposed to more role-related stress (role overload, role insufficiency, role ambiguity and conflict) when their LMX quality was low, because employees with higher quality LMX receive more attention and support from the direct supervisors than their counterparts (Cropanzano & Mitchell, 2005). In contrast, employees with lower LMX quality are more likely to file grievances (Cleyman, Jex, &

Love, 1995) because their interactions with supervisors were characterized by ineffectiveness, low trust, and poor communication (Dirks & Ferrin, 2002; Fairhurst & Chandler, 1989). Therefore, no matter how they perceive the interactional fairness of their supervisors' treatments, subordinates with high quality LMX are expected to engage more in their work role than their counterparts (subordinates with low quality LMX) because by obeying the norm of reciprocity in social exchange (Blau, 1964), subordinates with high quality LMX should reciprocate the high quality treatment by their supervisors by obligatedly engaging in more positive role-taking behavior, as well as manifesting greater work engagement.

In contrast to the LMX interaction as a continued process, the fairness judgment of supervisory interactional justice is an evaluation of the quality of treatment in terms of how much dignity, consideration, and respect has been shown by the supervisor against a standard defined by the subordinate. Since research has shown that the salience of justice concern among individuals could vary based on both individual differences and contextual factors (Truxillo, Steiner, & Gilliland, 2004; Schmitt & Doerfel, 1999), it is conceivable that leader fairness judgments on the part of the subordinate could be seen within the context of an enduring LMX relationship between the supervisor and the subordinate. Next I will compare the potentially different effect of supervisory interactional justice on work engagement for subordinates within a high quality LMX context and for subordinates within a low quality LMX context.

When subordinates have high quality LMX and also report high supervisory interactional justice, the positive effects of interactional justice judgment and the advantage of high-quality LMX are functionally complementary and compatible. I expect that this group of subordinates would report the highest level of engagement because high quality LMX and high supervisory interactional justice additively promote the presence of high work engagement. However, if subordinates with high quality LMX perceive unfair treatments (e.g., disrespectful, dishonest) from their supervisors, the discrepancy in unmet expectations in terms of how one should be treated by the supervisor is more salient since the original expectation should be for a high standard based on existing high-quality LMX. Also, they face the conflicting signals of relationship quality with their supervisors, a negative one from mistreatment and a positive one from high-quality LMX, which could add to their feelings of uncertainty and impair their trust of the supervisor. In response to the expectation discrepancy, increased uncertainty and lower trust of and commitment to the supervisor, they engage in emotional and cognitive coping, and as a result withdraw from full personal engagement in role behavior since they could not experience meaningfulness, psychological safety and availability as well as before. Therefore I expect that for subordinates with high quality LMX, their work engagement levels decrease (vs. increase) as their perceptions of interactional justice about their supervisors are lower (vs. higher).

For the subordinates who have low quality LMX, if they are treated by supervisors with high consideration and respect and in turn report high supervisory

interactional justice, the positive effect derived from just treatments should offset the consequence of the low-quality LMX situation. That is, because of supervisory respect and consideration subordinates with low quality LMX gain self-esteem, increased commitment to the supervisor, and increased positive emotional reactions as well. In support of this notion, I agree with Colquitt's (2008) comment with respect to uncertainties about the security of one's job in a weak economy, "Fairness is valued because it helps individuals maintain a positive state of mind and helps them feel secure about at least some aspects of working life." (p.77). By contrast, if subordinates with low quality LMX perceive that the treatments by their supervisor are not fair, even though their expectation of their supervisors in general is based on economic transaction terms, they have to cope with the violation of justice in some way, such as through negative emotional responses (e.g., anger, frustration; Bies & Moag, 1986; Weiss & Cropanzano, 1996), and/or attribution processing to ascertain the accountability of the justice violation for the sake of the sense of control in the future (Folger & Cropanzano, 1998). All those responses are distraction factors that prevent them from fully personally engaging in work roles. Taking the chronic stresses or problems they might have in the low-quality LMX situation into consideration, they are the type of employees that suffer most from socially stressful distractions compared to those subordinates with high-quality LMX, and subordinates with low LMX quality but with high supervisory interactional justice. Therefore, I expected that subordinates with low-quality LMX and low supervisory interactional justice would report the lowest levels of work engagement. In other words, work engagement levels for subordinates with low quality of LMX increase (vs.

decrease) as their perceptions of interactional justice about their supervisors are higher (vs. lower).

Whether subordinates are in a high or a low LMX quality context, subordinates' work engagement levels seem to be positively associated with supervisory interactional justice because of the buffering effect between high (vs. low) LMX quality and low (vs. high) supervisory interactional justice; however, their effect sizes in terms of buffering could be different. I expected that high-quality LMX would buffer the negative effect of supervisory interactional injustice on work engagement more effectively than supervisory interactional justice would buffer the negative effect of low LMX quality, or the positive slope of supervisory interactional justice-work engagement relationship would be bigger for subordinates with higher LMX quality than that for subordinates with lower LMX quality. The rationale for emphasizing such an expectation is that subordinates armed with high LMX quality could have more control of their environment in terms of social relationships, and be more confident in a positive return from the social interactions at their work place in the long run. In addition, they might more effectively cope with the violation of interpersonal justice due to more beneficial resources (both instrumental and socioeconomic) derived from high-quality LMX with their direct supervisor (Cronpanzano & Mitchell, 2005). Therefore, I hypothesize:

Hypothesis 3: LMX quality moderates the relationship of supervisory interactional justice with work engagement, such that the relationship is stronger (vs. weaker) when LMX quality is higher (vs. lower).

The important difference between supervisory procedural justice and supervisory interactional justice lies on the different degrees of control or freedom that the supervisors have when administrating a formal procedure prescribed by higher level systems or rules vs. the delivery of a quality interpersonal treatment and communication during the justice event. Supervisory procedural justice emphasizes the structural aspect of the procedural justice and conveys less interpersonal relation information than supervisory interactional justice (Bies & Moag, 1986). The role of supervisors serving as the face of the organization to administer formal procedures for decision-making is less important than the justice quality of formal procedures per se when subordinates are making judgments of supervisory procedural justice. A subordinate's LMX quality with the supervisor defines the context for him or her to react to justice or injustice regarding to procedures in various ways.

In general, procedural justice or injustice could be attributed to two sources: The organization as a whole and the supervisor as the agent of the organization. However, subordinates with high-quality LMX are more likely to attribute procedural injustice to the organization instead of to the supervisor (cf. supervisory interactional justice). Also, because high-quality LMX ensures an effective work relationship and positive connection between the subordinate and the supervisor, the absence of supervisory procedural justice doesn't necessarily impair one's self-esteem in the group, one's commitment to the supervisor and confidence in having a safe social environment. In other words, high-quality LMX could effectively offset the negative effect of supervisory procedural

injustice. Therefore, I expect that levels of work engagement of subordinates with high-quality LMX are not a function of their perceptions of supervisory procedural justice.

In contrast, when subordinates have low-quality LMX, the absence of high-quality LMX for this group of subordinates makes them more sensitive to supervisory procedural justice as uncertainty management theory has shown (Lind & van den Bos, 2002; van den Bos & Lind, 2002). Procedural justice could be interpreted by this group of subordinates as the key focus of their relationship to the organization and the supervisors. Therefore, the absence of high LMX quality makes the effect of procedural justice or injustice more salient to this group of subordinates. In this respect, I expected that supervisory procedural justice would be positively predictive of work engagement when LMX quality is low.

Hypothesis 4: LMX quality moderates the relationship of supervisory procedural justice with work engagement, such that the relationship is stronger (vs. weaker) when LMX quality is lower (vs. higher).

If *Hypothesis 4* is supported, the study could provide empirical evidence to support the uncertainty management theory.

II. Method

Participants and Procedure

An employee sample of 352 participants was recruited from all work groups within 15 departments which belonged to three branches of a national bank located in Beijing, Shanghai and Shenzhen–three major cities in Northern, Eastern and Southern China. Each work group had a group leader. At time 1 of the data collection, survey packages along with a cover letter assuring confidentiality and voluntary participation were distributed to all work groups in the three branches (approximately 49 groups including 64 supervisors and 389 subordinates) by their respective Human Resource Department staffs. Among them, 52 supervisors (81%) and 300 subordinates (77%) belonging to 42 work groups returned their surveys. We surveyed all the Time 1 participants again three months later (Time 2). Among them, all 52 supervisors and 300 subordinates from the 42 work groups returned their surveys. The final sample consisted of 52 supervisors and 300 subordinates. On average there were 8 members in each work group. On average, participants were 31.66 years old (SD=5.19) with 4.64 years of organizational tenure (SD = 4.48) and 2.73 years in their current job position (SD = 2.34). Sixty-five percent of them were male. Among 294 participants who reported their highest degree earned, 94% had a bachelor's degree or above, and the average years of education was 16.31 years (SD = 1.48). Among the supervisors, 67% were male. Supervisors had an average age of 37 years old, 9 years organizational tenure and 3 years in current job position, with 83% (31 out of 37 who reported) holding at least a bachelor's degree.

Participants' job titles ranged from first-line customer service representatives to software programmers or engineers to managers at junior and senior levels.

The data collection included two waves of administration at two time points with 3 months in between. In the first wave, participants completed a questionnaire of demographic and predictor measures. All participants responded to the three measures referring to their immediate supervisors (i.e., supervisory interactional justice, supervisory procedural justice, and LMX) no matter whether they were supervisors or subordinates in the dyads. Thus I used all participants' responses in the data analyses despite the fact that some of them were supervisors as well as subordinates. Three months after the first wave, participants responded to a second set of questionnaires including work engagement as the key outcome measure. Three-hundred and twenty-three out of 352 participants responded to the second wave survey.

Measures

Previously established and validated English versions of scales were used as the base of focal measures in this study. Following the commonly used translation-back translation procedure (Van de Vijver & Leung, 1997), Chinese versions of these scales were established and used to construct the final questionnaires for participants.

Supervisory interactional justice (SIJ). Supervisory interactional justice was measured at time 1 using 9 items adapted from the procedural justice scale reported in Niehoff and Moorman (1993) to assess the degree to which subordinates felt their needs were considered, and adequate explanations were provided by their supervisors for job

decisions that concerned subordinates. A sample item is: "When making decisions about my job, my supervisor offers explanations that make sense to me." Participants were instructed to rate all items on a 7-point Likert scale with 1 as *Strongly Disagree* and 7 as *Strongly Agree*. Cronbach's alpha for this scale was .97. A confirmatory factor analysis (CFA) of the 9-item measurement model run with maximum likelihood estimation by using Mplus 5.21 (Muthén & Muthén, 2002) generated a group of overall model fit indices: root mean square error of approximation (RMSEA) = .16; standardized root mean square residual (SRMR) = .03; comparative fit index (CFI) = .93; Tucker-Lewis index (TLI) = .91; χ^2/df = 10.49. By convention, RMSEA smaller than .10, SRMR equal to or smaller than .05, CFI and TLI equal to or greater than .09 indicates an acceptable model fit. Hu and Bentler (1999) recommended a combined cutoff criterion for good model fit of CFI greater than .95 and SRMR smaller than .09 and suggested that small decrements in either index can be compensated for by improvements in the other. Here, although RMSEA was greater than .10, it does not necessarily means poor model fit because Chen, Curran, Bollen, Kirby and Paxton (2008) has demonstrated that there was little empirical support for the use of .05 or any other value as universal cutoff values for RMSEA to determine adequate model fit in isolation. Although the ratio of chi-square value and degrees of freedom was greater than 3 (the cutoff value by convention), according to Marsh and Hocevar (1985) ratios as low as 2 or as high as 5 indicate reasonable model fit. Therefore, most fit indices of the 9-item measurement model exceeded the criteria of acceptable model adequacy and indicated adequate model fit to the observed covariance matrix.

Supervisory procedural justice (SPJ). Supervisory procedural justice was measured at time 1 using 6 items adapted from the procedural justice scale reported in Niehoff and Moorman (1993) to assess the degree to which job decisions related to subordinates are made by their supervisors using procedures with manners that insure the gathering of accurate and unbiased information, employee voice, and an appeals process. A sample item is: "Job decisions are made by my supervisor in an unbiased manner." Participants were instructed to rate all items on a 7-point Likert scale with 1 as *Strongly Disagree* and 7 as *Strongly Agree*. Cronbach's alpha for this scale was .91. A CFA of 6-item measurement model was run. The results suggested a good model fit (RMSEA = .14; SRMR = .03; CFI = .96; TLI = .94; $\chi^2/df = 3.91$).

Leader-member exchange (LMX). LMX was measured at time 1 from subordinates to assess individual perceptions of exchange relationship quality with the group leader. The 8-item LMX measure developed by Bauer and Green (1996) was used. Example items include "Regardless of how much power he/she has built into his/her position, my supervisor would be personally inclined to use his/her power to help me solve problems in my work." and "I would characterize the working relationship I have with my manager as extremely effective." Participants were instructed to rate all items on a 7-point Likert scale with 1 as *Strongly Disagree* and 7 as *Strongly Agree*. Cronbach's alpha for this scale was .90 in the current sample. A CFA of 8-item measurement model was run. Fit statistics suggested an excellent model fit (RMSEA = .07; SRMR = .03; CFI = .98; TLI = .97; $\chi^2/df = 1.91$).

Work engagement (WE). Work engagement was assessed with the 17-item Utrecht Work Engagement Scale (UWES; Schaufeli & Bakker, 2003) at time 2, which was designed to measure three subdimensions (vigor, dedication, and absorption). All items used a 7-point Likert scale ranging from 0 (*never*) to 6 (*always*). A sample item for *vigor* is: "At my work, I feel bursting with energy;" one for *dedication* is: "I find the work that I do full of meaning and purpose;" one for *absorption* is: "Time flies when I'm working."

This scale has become the most widely used measure of work engagement given its adequate reliability and validity. In particular, it has been validated in several countries, including China (Bakker, Schaufeli, Leiter, & Taris, 2008; Zhang & Gan, 2005). Furthermore, a number of longitudinal studies have provided evidence that work engagement measured by UWES remains relatively stable over one to three years' duration (e.g., Mauno, Kinnumen, & Ruokoolainen, 2007; Schaufeli, Bakker, & Salanova, 2006; Seppala et al., 2009).

Although three subdimensions of this work engagement scale were identified in the original scale validation study (Schaufeli & Bakker, 2003), various recent studies have found that a one-dimension structure fits better than a three-dimension one (e.g., Seppala et al., 2009; Shimazu et al., 2008; Sonnentag, 2003). To confirm the factor structure of the Chinese version of measure in the current sample, two CFA models were run respectively: model 1 specified three subdimensions (vigor, dedication, and absorption) as separate factors, model 2 specified work engagement as a general second-

order factor underlying the three subdimensions. The two models achieved equally good model fit: RMSEA = .09; SRMR = .04; CFI = .94; TLI = .92; $\chi^2/df = 2.45$. Since the second-order factor loadings of the three subdimensions were all positive, equally strong and statistically significant (ranging from .97 to 1.00), I endorsed the existence of the second-order factor as fitting into the latent model of a multidimensional construct conceptualized by Law, Wong, and Mobile (1998). Such a structure was also consistent with the prior empirical finding on the measurement structure of the UWES based on another Chinese employee sample (Liao, Yang, Wang, Drown & Shi, in press). In the following hypothesis testing, the overall work engagement scale scores rather than the three subdimensional scores were used as the dependent variable. However, since the three subdimensions of work engagement would be different forms in manifesting the latent construct (Law et al., 1998), they were used as dependent variables in supplemental analyses as an effort to pinpoint the potential differential effects of the predictors. Cronbach's alpha of the overall scale was .95 in the current sample. For the subscales of absorption, dedication and vigor, Crobach's alpha was .87, .87 and .85 respectively,

Control variables. To avoid potential confounding effects on focal variables included in this study, in hypothesis testing I controlled for demographic variables (i.e., age, gender, years of education) and other attribute variables such as team membership[1],

[1] There were 42 work groups in the current sample. 41 dummy variables for group 1 to group 41 were created and entered in the hierarchical moderated regression models as control variables.

job function[2], organizational tenure and years in current job position and job role (supervisors vs. subordinates).

Perceived organizational support (POS–employees' perceptions of how much the organization cares about their well-being; Eisenberger, Huntington, Hutchinson, & Sowa, 1986) was found closely related to LMX quality in predicting employee attitudes and behaviors (Settoon, Bennett, & Liden, 1996). More importantly, POS was found to be significantly predictive of work engagement over and above the effect of LMX quality on work engagement (Liao et al., in press). Therefore it was treated as a control variable in the hypothesis testing.

Perceived organizational support (POS). Seven items from the Survey of Perceived Organizational Support (SPOS) were used to measure POS (Eisenberger, Huntington, Hutchinson, & Sowa, 1986). The Chinese version of this scale was used and shown to be reliable in the prior literature (e.g., Nixon, Yang, Spector, & Zhang, 2011). Participants were instructed to respond to the items on a 7-point Likert scale with 1 as *Strongly Disagree* and 7 as *Strongly Agree.* A sample item is: "The organization really cares about my well-being." A CFA of 7-item measurement model was run. Results indicated a poor model fit (e.g., RMSEA = .29; SRMR = .14; CFI = .66; TLI = .49). A two-factor model was run accordingly in which three negatively worded items loaded on

[2] To create a dummy variable of job function, job titles such as customer service representative and teller were grouped into high emotional labor occupations, the rest of job titles such as programmer and engineers were group into low emotional labor occupations. The dummy variable of job function was created and entered in the hierarchical moderated regression models as a control variable.

factor 1 and the rest 4 items loaded on factor 2. Results suggested a good model fit (RMSEA = .12; SRMR = .04; CFI = .95; TLI = .92; $\chi^2/df = 5.62$). As Spector, Van Katwyk, Brannick and Chen (1997) indicated that negatively worded items elicited a different subject response pattern and such subject response pattern actually produced artifactual factor. Therefore, I excluded the three negatively worded items from the POS scale. The final scale consisted of 4 positively worded items. The Cronbach's alpha for the 4-item scale was .86.

All scales and items included in this study are exhibited in Appendix.

Data Analysis

Construct discriminant validity. Two competing CFA models were run to assess the factorial structure of the two constructs of leader fairness: One-factor model vs. two-factor model, in which items of SIJ and SPJ loaded onto one factor (the one-factor model) vs. onto two separate factors respectively (the two-factor model). The two-factor model outperformed the one-factor model and showed an excellent model fit to the observed covariance matrix (RMSEA = .09; SRMR = .03; CFI = .97; TLI = .95; $\chi^2/df = 2.15$). Furthermore, in order to confirm the convergent and discriminant validity of SIJ and SPJ in a more rigorous way, I calculated the average variance extracted (AVE) for the two constructs and compared whether the squared inter-construct correlation for the pair of constructs is greater than the AVE figure of each construct (Fornell & Larcker, 1981). According to Fornell and Larcker (1981), evidence for convergent validity is provided if AVE is greater than .50. The AVE for SIJ and SPJ were both

greater than .5 (AVE = .88 for SIJ; AVE = .70 for SPJ). In addition, the two AVE figures were greater than or close to squared inter-construct correlation (r^2 =.74), providing additional support for discriminant validity of the two constructs. Therefore, I concluded that SIJ and SPJ could be discriminated from each other in the current sample.

A set of nested CFA models were run to assess the discriminant validity of the four antecedents in the study (i.e., SIJ, SPJ, LMX and POS). The hypothesized four-factor model (items of SIJ, SPJ, LMX and POS loaded onto separate 4 factors) had an adequate model fit to data: RMSEA = .09; SRMR = .04; CFI = .90; TLI = .88; χ^2/df = 3.65, which was significantly better than plausible three-, two- and one-factor models (See the fit statistics in Table 1). Consistent with the study design, the supported four-factor model reflected the hypothesized approach, fit the data well and was most parsimonious.

Group-level property checking. My data were obtained from employees nested in group settings such that multiple subordinates rated their justice judgments and LMX quality in relation to one supervisor (average number of ratings was 8.27). I wanted to check for the possible presence of group-level effects based on a bottom-up composition process (Bliess, 2000)–in other words, justification of the aggregation of individual level ratings to the group level to create an aggregate construct that is related to and also different from the construct at the individual level. I followed Klein et al.'s (2000) recommendation on the construct validity related to the bottom-up process and calculated aggregation statistics by using a procedure provided by Biemann, Cole, and Voelpel (2012). The results are shown in Table 2. According to Klein et al. (2000), aggregation

is justifiable if r_{wg} for a group is greater than .70, ICC(1) is significant as indicated by the F-test statistics, and ICC(2) is equal or greater than .70. Results shown in Table 2 tell a mixed story. All r_{wg}(avg) (i.e., the average of r_{wg} across all 42 groups in the current sample) are higher than .70, all ICC(1)s are statistically significant, while no ICC(2) is higher than .70.

The ICC(2) scores short of .70 suggest that the group means are insufficiently reliable (Bliess, 2000). The small mean sample size for each group (M = 8.27) may not be sufficient to generate reliable aggregate scores at group level. In addition, informed by the power analysis on multi-level design by using Optimal Design (Raudenbush, Spybrook, Congdon, Liu, Martinez, Bloom, & Hill, 2011), the potential power based on my dataset (42 groups and on average 8 members per group) could achieve the .8 level when the effect size is as high as .45 (see details in Figure 2). Since there is no evidence to support the construct validity of aggregate justice perceptions at work group level based on bottom-up process, I conceded that the current dataset would not be suitable for multilevel modeling such that fairness perceptions operated at both individual level and work group level and their cross-level interactions are included in model specification. Hereafter my focal model testing was focused on the individual level with team membership effect incorporated in statistical model as a control variable to rule out the potential confounding group-level effect.

Hierarchical moderated regression modeling. Hierarchical moderated regression models were run for testing focal hypotheses by following these steps: Step 1, enter control variables; Step 2, enter centered main effects of predictors, i.e., SIJ and SPJ,

and LMX quality; Step 3, enter two interaction items, i.e., the product of SIJ and LMX quality, and the product of SPJ and LMX quality. When significant, interaction effects were plotted by using values that are one standard deviation above and below the scale mean of the moderator. The simple slope test was conducted thereafter using the procedure provided by Preacher, Curran and Bauer (2006).

Models using the three subdimensions of work engagement (i.e., absorption, dedication, and vigor) as dependent variables were tested as well.

Supplemental analysis to test the mediating role of LMX underlying the leader fairness–work engagement relations. In the past literature, LMX quality has been modeled as a mediator underlying the influence of justice on work-related outcomes (e.g., Masterson, et al., 2000; Cropanzano et al., 2002). A bootstrap-based procedure by Preacher and Hays (2004) was employed to test the indirect effects of leader fairness (SIJ and SPJ respectively) on work engagement via LMX quality. Nevertheless, going beyond the simple mediation model, a moderated mediation model was tested by using an SPSS macro provided by Preacher, Rucker, and Hayes (2007), in which POS was modeled as moderator to moderate the strength of indirect effect of SIJ/SPJ on work engagement via LMX quality. The term of moderated mediation, alternatively known as conditional indirect effect, is defined by Preacher, Ruck, and Hayes (2007) as the possibility of a statistically significant indirect effect being contingent on the value of the proposed moderator. Concerning the role of POS proposed in the moderated mediation model, it is expected to moderate the positive relationship between SIJ/SPJ and work engagement. If such a moderation hypothesis is supported, one could infer that the strength of the

predictive validity of leader fairness (indirect effect in nature) on work engagement through the intervening of LMX quality is conditional on the value of the moderator (POS).

The moderating role of POS on important employee outcomes such as organizational commitment, in-role and extra-role performance, well-being, and safety behaviors are well documented in the literature (see reviews, Baran, Shanock, & Miller, 2012; Rhoades & Eisenberger 2002). In the context of the current study, I expected POS to moderate the indirect effect of leader fairness on work engagement through LMX quality in that the proposed relation is stronger when POS is higher. The theoretical explanation is that high POS provides beneficial resources for subordinates to either utilize motivators or cope with stressors at workplace in a better way (Cropanzano & Mitchell, 2005), and in turn enable those subordinates to have enhanced skills or abilities and positive experiences such as feeling affect towards the organization and having good moods. That makes employees with high POS become more attractive and efficient partners in social exchange processes, not only in the early stage of establishing LMX with their immediate supervisors, but also during the daily interactions between the leader-member dyads. Therefore, high POS may help the translation of the positive effects of leader fairness to LMX, and in turn to work engagement.

Supplemental analysis to test the interaction effects of leader fairness and emotional labor job type. There was an important distinction that should be made among occupations of the participants in this study. Jobs such as customer service representatives in call centers and tellers at bank counters could be grouped into the first

job type that requires high emotional labor (i.e., emotion regulation such as the effort, planning and control to display certain emotions is required in role performance to achieve organizational objectives; Morris & Feldman, 1996). Other jobs such as software programmers and engineers could be grouped into the second job type that requires low emotional labor, since those jobs mainly deal with non-human being objects, for instance computers. It is plausible that such difference in job characteristics could interact with leader fairness in influencing work engagement since the job demands and resources for jobs requiring high emotional labor were distinct from those requiring low emotional labor as the job demands-resources (JD-R) model predicted (Mauno et al., 2007). I created a dummy variable of high emotional labor vs. low emotional labor occupations to reflect such a contrast in participants' job characteristics. Moreover, the emotional labor job type classification was tested as a job characteristics moderator to qualify the relationship between leader fairness and work engagement by following the same steps described in the aforementioned subsection of hierarchical moderated regression modeling. I expected that SIJ and SPJ would act as forms of job resource, which would buffer the negative effect of emotional labor on work engagement (Mauno et al., 2007). Therefore, the positive relationships of tow forms of leader fairness and work engagement would be stronger (vs. weaker) when employees' work roles involve with lower (vs. higher) emotional labor.

III. Results

Table 3 presents the means, standard deviations, reliability estimates, and correlations among all study variables. Consistent with *Hypothesis 1* and *Hypothesis 2*, SIJ and SPJ, as measured in Time 1, was significantly correlated with work engagement measured in Time 2 (for SIJ, $r = .29$, $p < .01$; for SPJ, $r = .29$. $p < .01$).

Interestingly, SIJ and SPJ were correlated with LMX quality at similar levels and as high as .67 and .68. According to the recent meta-analytic review by Dulebohn et al. (2011), the average relationship between procedural justice and distributive justice perceptions and LMX quality were in the range of .4 to .5. However, those justice perceptions were not specifically referring to the supervisor figure. In this study, as SIJ, SPJ and LMX are all referring to the same target, that is the immediate supervisor, it is conceivable that the matched operationalization of these constructs gave rise to the observed stronger relationships between them. In support of this inference, in Dulebohn et al.'s (2011) review, the strengths of the average relationships between LMX and all constructs with leader or supervisor as specific referent (i.e., satisfaction with supervisor, empowerment, leader trust and transformational leadership) were in the range of .67 to .73.

Nevertheless, SIJ and SPJ were highly correlated with POS as well (.56). The magnitudes of the relationships were consistent with the meta-analytic review by Rhoades and Eisenberger (2002). As a control variable in the proposed model, the effect of POS must be pretty powerful since by itself POS accounts for about 20% variance.

Testing the Main Effects of Leader Fairness

The main effects of leader fairness (SIJ and SPJ) in predicting subordinates' work engagement levels were tested via estimating hierarchical moderated regression models based on the SPSS package. Table 4 shows the standardized regression weights. Specifically, as shown in model 1 the main effect of neither SIJ nor SPJ on work engagement was significant after controlling for POS and LMX (for SIJ, B = -.03, p = *ns.*; for SPJ, B = .04, p = *ns.*). Meanwhile, the two social exchange quality variables (i.e., POS and LMX) were significantly predictive of work engagement after controlling for SIJ and SPJ (for POS, B =.28, $p < .001$; for LMX, B = .20, $p < .01$). A same pattern of the results were found when testing SIJ and SPJ along with their interaction terms as separate predictors (see model 2 and 3 in table 4). Therefore, these findings did not provide support for *Hypotheses 1* or *2*.

When using the three subdimensions of work engagement as dependent variables, the same result patterns as the one when using the overall work engagement scores as the dependent variable occurred (see model 4, 5 and 6 in table 4).

When excluding POS from the two regression models with SIJ and SPJ along with their interaction terms as separate predictors, SIJ and SPJ was found to be significantly predictive of work engagement after controlling for LMX quality (for SIJ, B = .14, p = .05; for SPJ, B = .17, $p < .05$). However, the effects were not significant when they were tested simultaneously.

However, at the subdimensional level, when SIJ and SPJ along with their interaction terms as separate predictors and POS was not controlled for, SIJ was predictive of absorption and dedication, but not of vigor (for absorption, B = .14, p = .05; for dedication, B = .16, $p < .05$; for vigor, B = .11, $p = ns$). SPJ was predictive of absorption and vigor, but not of dedication (for absorption, B = .18, $p < .05$; for vigor, B = .17, $p < .05$; for dedication, B = .15, $p = ns.$). But the effects were not significant when they were tested simultaneously. Such findings somehow demonstrate the potentially differential effects of SIJ and SPJ on work engagement at subdimensional level.

Testing the Justice×LMX Interactions

The proposed moderating effects of LMX quality on the leader fairness-work engagement relationships were tested in the same HMRA model for the main effect testing as shown in Table 4. Specifically, in model 1 the two interaction terms were not significant (for SIJ×LMX, B = .00, $p = ns.$; for SPJ×LMX, B = .08, $p = ns.$). Such results did not support *Hypothesis 3 or 4* either.

When the POS effect was not controlled for, the two interaction terms (SIJ by LMX and SPJ by LMX) were non-significant no matter whether they were tested simultaneously or separately. No significant interaction effect was found at the subdimensional level of work engagement either.

Testing the Mediating Role of LMX Quality Underlying Leader Fairness-Work Engagement Relationships

Since all focal hypotheses were not supported based on the current sample, supplementary analyses focusing the mediating role of LMX quality in linking SIJ or SPJ and work engagement were conducted.

Test of mediation models. Baron and Kenny's (1986) multistep test and Sobel test (1982) are two commonly used approaches to detect mediation effect. However, methodologists have recognized potential shortcomings associated with both approaches. Contrary to Baron and Kenny's causal precondition for step 1, a significant total effect of the independent variable on the dependent variable is not necessary when additional links or competing causes are taken into account (e.g., Kenny, Kashy, & Bolger, 1998; MacKinnon, Krull, & Lockwood, 2000). Regarding the Sobel approach, concern lies in its unsafe assumption of the normality of the indirect effect *ab*. However such an assumption often does not hold even when *ab* is the product of two continuing variables (Edwards & Lambert, 2007). To overcome disadvantages of the two conventional approaches, as argued by Preacher and Hayes (2004), a formal significance test approach by using bootstrapped confidence intervals (CIs) is recommended because it addresses mediation and avoids power problem introduced by asymmetric and other non-normal sampling distributions of an indirect effect more directly, especially in samples with small to moderate sizes (MacKinnon, Lockwood, & Williams, 2004).

Following Preacher and Hayes's method (2004), I was able to test the mediation model in which the indirect effect *ab* was estimated with a normal theory approach (i.e., the Sobel test) and a bootstrap approach to obtain CIs. Nevertheless, the multistep

procedure described by Baron and Kenny was also incorporated in the same test. Table 5a and 5b present the results of the two mediation models with SIJ and SPJ as predictor respectively. When using SIJ as predictor (see Table 5a), SIJ was positively predictive of LMX quality, which was indicated by a significant unstandardized regression coefficient (b=0.59, p <.001). Also, the positive relationship between LMX quality and work engagement controlling for SIJ was significant (b =0.21, p <.01). And finally, SIJ was found to have an indirect effect on work engagement; the indirect effect was positive and significant by assuming a normal distribution of the indirect effect (indirect effect = 0.13, Sobel z =3.00, p <.001). Bootstrap results confirmed the result from the Sobel test with bootstrapped 95% CIs around the indirect effect not containing zero (0.04, 0.22).

A similar result pattern was found within the model using SPJ as predictor (see Table 5b). SPJ was positively predictive of LMX quality (b = 0.64, p <.001). Moreover, the relationship between LMX quality and work engagement controlling for SPJ was significant (b = 0.21, p <.001). The indirect effect of SPJ on work engagement was significant by Sobel test (indirect effect = 0.13, Sobel z =2.92, p < .001). The bootstrap result was in agreement with that of the Sobel test, with bootstrapped 95% CIs around the indirect effect not containing zero (0.05, 0.23).

Test of the moderated mediation models. Figure 3**,** Table 6a and 6b present the results of the moderated mediation models with POS as the moderator of the indirect effects of SIJ and SPJ respectively. Results indicated that the interaction term of SIJ by POS on work engagement was significant (B = 0.06, p <.05). Moreover, simple slope test

results indicated the slope of the relationship between SIJ and LMX quality was relatively stronger for employees with high POS (simple slope = 0.63, $p < .00$), whereas the slope was relatively weaker for employees with low POS (simple slope = 0.48, $p < .00$). Figure 4 was generated to illustrate such a moderation effect.

To further examine how the strength of indirect effect of SIJ on work engagement are qualified by the SIJ by POS interaction, the conditional indirect effect of LMX quality was computed by Preacher et al.'s (2007) moderated mediation macro at three values of POS (see middle of Table 6a): the mean (4.343), one standard deviation above the mean (5.553), and one standard deviation below the mean (3.134). Normal-theory tests indicated two of the three conditional indirect effects (based on moderator values at the mean and at +1 standard deviation) for work engagement were significantly different from zero ($p<.05$). Thus, the indirect and positive effect of SIJ on work engagement through LMX quality was observed when employees have moderate to high POS, but not present when employees have low POS. Preacher, Ruck and Hays' (2007) moderated mediation macro also computed conditional indirect effects at various values of the moderator that fall within the range of the data (see the lower half of Table 6a).

With regard to SPJ (see Table 6b), results indicated that the interaction of SPJ by POS was not significant (B = .03, $p = ns$.).

Testing the Justice×Emotional Labor Job Type Interactions

The proposed moderating effects of emotional labor job type on the leader fairness-work engagement relationships were tested by model 1 to model 4 as shown in Table 7. The interaction of SIJ/SPJ and emotional labor job type were not significantly predictive of the overall work engagement (for SIJ×emotional labor job type, B = -.14, p = *ns*; for SPJ×emotional labor job type, B = -.05, p = *ns*). However, at subdimensional level, the interaction term of SIJ and emotional labor job type was significantly but negatively related to vigor as shown in model 4 (B = -.25, $p < .05$), which was not consistent with the prediction of JD-R model (Mauno et al., 2007). I plotted the moderating effect and conducted simple slope test (Preacher, Curran & Bauer, 2006). The slope of the negative association between SIJ and vigor was significant for employees with high emotional labor required in their work roles (simple slope = -.47, $p < .05$), whereas the slope was not significant for employees with low emotional labor required in their work roles (simple slope = 0.05, p = *ns*.). Figure 5 illustrates such a moderation effect.

IV. Discussion

To the best of my knowledge, this research was among the first attempts to explore the influences of leader fairness in the forms of SIJ and SPJ on subordinates' work engagement levels by developing and testing a two-dimensional leader fairness model. Moreover, LMX quality was examined as a moderator and a mediator of the leader fairness effects on work engagement. Furthermore, POS was examined as a moderator of the observed indirect effects of leader fairness to work engagement via LMX quality. Finally, emotional labor job type was examined as a job characteristics moderator to the leader fairness-work engagement relationships. Thus, this study integrated three lines of extensive literature (i.e., LMX theory, POS theory, and organizational justice) in predicting work engagement, which fills the gap that researchers from both domains have mutually recognized (van Knippenberg et al., 2007; Scandura, 1999; Sanchez & Byrne, 2004). The findings of my study, which were based on field data from a non-western culture and at multiple time points (over a three month period), contribute to the existing literature in three ways. First, the two dimensions of leader fairness (SIJ and SPJ) influence work engagement in a rather indirect way. Although correlational analysis (Table 3) showed that employees' SIJ/SPJ was significantly and positively associated with their work engagement levels, such main effects diminished when effects of two forms of social exchange relationships were taken into account (i.e., LMX and POS; see Table 4). Therefore, *Hypothesis 1* and *2* about the main effects of leader fairness on work engagement were supported at the correlational

level but not supported after controlling for POS and LMX. Since organizational justice and LMX have been referred to be somewhat magic predictors in terms of their efficacy in predicting a broad array of outcomes in the organizational behavior literature, the lack of significance of the leader fairness main effect and interactive effect with LMX might be simply because that their effects canceled out each other when I included all of them into one regression model.

Meanwhile, the mediating roles of LMX in linking SIJ and SPJ to work engagement respectively were underscored. These findings provide support to the conceptual model of LMX proposed by Dulebohn et al. (2011), in that they endorsed and demonstrated the central role of LMX in explaining the ultimate relationship between antecedents and outcomes, and the dominant influence of leader behavior in determining the quality of LMX relationship of the exchange dyads. Going beyond the framework of Dulebohn et al. (2011), the observed indirect effects of SIJ and SPJ in this study provided evidence to support the idea that leader fairness is another important line of leader influence which exerts impact on the subordinate's assessment of LMX relationship quality proximally and on motivational outcome (i.e., work engagement in this study) ultimately. In particular, leader fairness serves as a more distal influence of work engagement, and LMX relationship quality serves as the proximal mediator which accounts for the leader fairness effects on work engagement.

Second, the moderated mediation analyses demonstrated the moderation effect of POS on the indirect effect of SIJ, and thus partially played the missing role of social relational context in the proposed theory of work engagement. Consistent with my

proposition of treating social exchange relationship variables as the context factors for the effect of leader fairness, I found that LMX relationship quality mediates the effect of SIJ on work engagement only for subordinates who have medium to high levels of POS. Further, results showed that high POS accelerated the relationship between SIJ, LMX, and work engagement. This study therefore extends the existing finding that another vertical social exchange relationship quality (i.e., POS) serves as a moderator to qualify the motivational impact of LMX quality on work engagement, which characterizes the social relational context where SIJ's indirect effect takes place (e.g., Masterson et al., 2000).

By contrast, POS was not a significant moderator for the effect of SPJ on work engagement via LMX. As discussed in the introduction section, procedural justice was a better predictor of organizationally targeted outcomes. Theoretically since supervisory procedural justice is operationalized to capture the structure aspect of fair procedure and the personalized aspect of leadership, it is expected to be predictive of both categories of outcomes (organization-targeted and supervisor or job targeted). One possible explanation could be drawn from inconclusive results of previous field studies that examined SPJ-outcome relationships. For example, Liao and Rupp (2005) found that SPJ contributed to both commitment/satisfaction with supervisor and with the organization. But Miller's (1989) study showed SPJ only related to job satisfaction and leadership satisfaction, but unrelated to organizational commitment and turnover intentions. And some studies, such as Leung, Wang, and Smith (2001) found that leader procedural fairness did not predict job satisfaction, commitment, leadership satisfaction, or turnover

intentions. Here the lack of support of the interaction between SPJ and POS may be due to the lack of consistency in the effects of SPJ on organization-targeted outcomes. Other contextual factors such as organizational climate and national culture characteristics may account for SPJ's susceptibility to differences in POS when work engagement is being predicted. Another possible explanation for the nonsignificant SPJ by POS interaction effect is simply because of the strong main effect of POS on LMX and on work engagement.

In summary, POS proved itself an interesting variable in this study. The observed robust effect of POS on work engagement was over and above the effects of SIJ and SPJ. A similar pattern was documented in a previous study based on a Chinese employee sample and in the context of predicting work engagement (Liao et al., in press). Cole, Schaninger, and Harris (2002)'s network-based social exchange theory provides one possible explanation. According to Cole et al. (2002), organizational culture characteristics, such as people orientation or emphasizing high homogeneity among employees, gives rise to the more salient effect of POS on employee outcomes. Similar to the employee sample in a study by Liao et al. (in press); the employee sample in this study was from a prestigious Chinese organization with a long history and mature culture, such as people orientation. Therefore, the cultural characteristics of the studied organization may account for the strong relationship observed between POS and work engagement. Indeed, a smaller subset of studies regarding cultural values provides initial evidence of relevant moderators of the relationships between POS and its outcomes (Farh, Hackett, & Liang, 2007). POS theory per se provides another explanation. According to

the review by Rhoades and Eisenberger (2002), organizational procedural justice–with a fair procedure element (i.e., voice) and an interactional element (i.e., dignified and respectful treatment)–and supervisor support are two of the basic antecedents of POS. It is conceivable that the SIJ and SPJ represent the combination of the two lines of influences in the emergence of high POS. That might explain why the three variables share a significant amount of variance in the current dataset. However, I acknowledge that the plausible explanations discussed above warrant future examination.

Third, my results do not support the moderation hypotheses of LMX quality on links between SIJ, SPJ, and work engagement based on the assumption that leader fairness and LMX quality are functionally equivalent in the context of predicting work engagement. Instead, results show that LMX mediated the effects of SIJ and SPJ on work engagement. This finding may suggest that LMX quality functions differently from SIJ and SPJ in relation to work engagement. LMX quality might become the consequence of SIJ and SPJ because subordinates appear to process leader fairness perceptions in terms of the relevance of social exchange quality based on the principles of social exchange theory.

These findings are also consistent with the prediction of agent-dominance model of justice (Fassina, Jones, & Uggerslev, 2008). Both supervisory interactional justice (agent as the mono-focus) and supervisory procedural justice (agent and system as the bi-foci) were found influential on work engagement through LMX, an agent-focused social exchange mechanism in predicting supervisor- and job role-directed outcome.

Fourth, the study underscored the potentially important role of emotional labor on moderating the relationship of SIJ and vigor, a subdimension of work engagement. Counter-intuitively, SIJ was found to be negatively related to vigor in high emotional labor jobs. By definition, vigor mainly concerns high levels of energy and mental resilience while working, which are manifested as the energy aspects of high work engagement (Schaufeli et al., 2002). It has been conceptualized as the polar opposite dimension of exhaustion, a subdimension of burnout (Schaufeli & Bakker, 2004). Presumably, the effect of emotional labor on vigor is detrimental because the frequency and the emotional intensity of face-to-face interactions with clients are associated with higher levels of emotional exhaustion (e.g., Morris and Feldman, 1996). Results of this study actually demonstrated such detrimental effect of emotional labor on vigor as shown in Figure 5, in that the vigor levels for employees who were not involved with high emotional labor were generally higher than those were involved with high emotional labor. Contrary to what I expected, the presumed buffering effect of SIJ was not present. It did not counter but augmented the effect of emotional labor. As shown in Figure 5, for employees involved with high emotional labor, high SIJ seemed to hinder their vigor levels. Although this effect may have been caused by some unknown job characteristics that covaried with emotional labor, a theoretical explanation for the effect of SIJ could come from the encounter perspective of justice (Bies, 2005). The encounter perspective concerns how people perceive the fairness of the day-to-day interpersonal treatment they experience from organizational authorities, which is often not tied to any specific events involving allocation decisions (Bies, 2005). Compared to SPJ which by definition is more

related to resource allocation contexts, SIJ is more related to everyday encounters with the immediate supervisors. Possibly, when possessing high SIJ, workers involved with high emotional labor also tend to experience more face-to-face interactions or more frequently and closely interact with their supervisors, in turn, experiencing a higher sense of obligation to comply with emotional display rules and actually adhere to them. They might feel more compelled to display positive emotions, doing so with effort, and also feel compelled to suppress negative emotions in encounters with supervisors as well as with customers. That could increase their emotional charge in addition to emotional labor related to their roles in customer service. Over time, they may be overwhelmed by the large amount of emotional labor and become exhausted. The speculation warrants further investigation in future research, for example a qualitative perspective can be incorporated into future studies to test the specific mechanisms.

In the following section, I will discuss the theoretical and practical implications of the current study.

Theoretical Implications

I believe the supported moderated mediation model of leader fairness and the empirical findings in relation to work engagement offer a framework for future inquiry that could advance the theoretical development for leader fairness and work engagement. As a start, the study found indirect effects of SIJ and SPJ on work engagement. Such findings expand the framework of work engagement proposed by Christian and colleagues (2011) by including leader fairness as antecedents and documenting their effects and the underlying mechanism as well.

Nevertheless, this study demonstrates that LMX quality is a central mechanism that links relational types of justice, that is, the two forms of leader fairness (SIJ and SPJ) in this study, to work engagement and therefore suggests that LMX theory as a relational influence of leadership processing is proved a fruitful mediator. Therefore, the implementation of justice theories in studying work engagement with the consideration of other leadership influences such as LMX quality could lead to better understanding of justice-related phenomena, in particular the impact of leader fairness. Along with this line of thinking, future research should examine the relationships between leader fairness and other aspects of leadership that can further our understanding of the process through which leader fairness affects employee motivation, for instance, leader contingent reward/punishment behavior, ethical leadership, abusive leadership, transformational and transactional leadership style.

In addition, future research on the link between leader fairness and work engagement could adopt a psychological mediational focus. Although I developed the hypotheses about the effects of leader fairness on work engagement based on the conceptual "bridges" of three key psychological conditions (Kahn, 1990), the current study did not model and test these conditions. A psychological mediational approach could examine more specific relationships between leader fairness and the three conditions relevant to work engagement. SIJ and SPJ may relate to the three conditions in different ways and in turn reveal their different and unique effects, and the underlying processes. For instance, since the judgment of SIJ and SPJ involve processing attribution information, such as "who" and "what" to blame, it will be informative to examine how

differently employees interpret and assign meanings to fair or unfair judgments of SIJ and SPJ in relation to psychological meaningfulness, safety, and availability.

Results of the moderated mediation have underscored the importance of incorporating employees' social exchange context when one examines the links between leader fairness and work engagement. The notion is in line with Christan et al.'s (2011) call for future work engagement research on the effects of job characteristics, including the social contextual elements, to facilitate job design.

Again, the supported moderating effect of emotional labor job type on SIJ and vigor relationship echoes the plea of Christan et al. (2011) for future engagement research to take into account the job characteristics, for instance task-related accountability and resources.

Finally, the differential effects of SIJ and SPJ on work engagement seem to manifest at the subdimensional level, as SIJ and SPJ were related to different subdimensions of work engagement when POS was not controlled for, and SIJ interacted with emotional labor job type in predicting vigor. It was proved useful to examine the two forms of leader fairness in relation to work engagement at the subdimensional level. The high correlations among the three subdimensions of work engagement and two forms of leader fairness ($r > .83$, see table 3) indicated significant overlap in their construct space. Based on that, some researchers might argue that the theoretical distinctions between them could be redundant. Therefore, there is no need to use SIJ and SPIJ as separate predictors, or to analyze justice-engagement relationship at the subdimensional level. In this study, the differential effects of SIJ and SPJ on the three subdimensions of

work engagement were underscored. Thus, this study contributes to the literature by demonstrating that the effect differences of SIJ and SPJ in predicting work engagement at the subdimensional level were not statistically trivial, which enrich our understanding of the two global constructs and their relationship in a more subtle way.

Practical Implications

The findings of this study have direct implications for managerial practices in terms of enhancing employee work engagement. First, these findings suggest emphasizing the integration of the relational types of organizational justice (SIJ and SPJ) and social exchange process as possible foci in designing intervention strategies and procedures to encourage work engagement. In addition to traditional job design-oriented approaches and personnel selection procedures (Christian et al., 2011; Inceoglu, & Warr, 2011), both of which tend to prepare a more engaged workforce through more structural top-down interventions, the work engagement levels of an existing workforce could also be enhanced through a social relational approach and a justice approach. Job redesign, training and coaching efforts could be focused on how to improve a set of social relational aspects of work life on a daily basis, such as leader fairness, POS, constructive leader-member relationship and respectful interpersonal treatments among employees and their supervisors. Such a social environment–oriented intervention approach has concrete implications for managerial practices since managers often do not have the opportunity to select all their employees on the basis of personality or alter the job characteristics inherent in an established job system. Enhancing the quality of the social exchange

relationships of those employees with their supervisors and the organization, and/or addressing the leader fairness issues is a more realistic option for influencing subordinates' work engagement than those traditional approaches such as job design or personnel selection. Knowledge about the indirect effects of leader fairness through LMX quality and its interaction with POS and emotional labor job type in predicting work engagement could also provide insights into the implication of individualized engagement supportive management, such as responding to employees' special needs (e.g., justice needs, emotional needs), helping them to manage weakness and implementing strength-based task assignments in order to allow employees to have more opportunities to utilize their strengths (relational resources or other resources) in individual tasks or in cooperation with other coworkers.

Limitations and Future Directions

My research design has limitations that could be addressed in future research. First, the study sample was limited to employees from a single organization, although they were located in different areas in China and occupied jobs of different functions. To what extent the findings obtained from this study could be replicated in other employees or other industries, is unknown. Future research should further examine the generalizability of the results from the current study to samples drawn from multiple organizations, and/or other industries, and/or other cultural backgrounds. For example, LMX and fair treatment as ways of people management skills may be valued more by supervisors and subordinates from China, who are imprinted by the value of both

collectivism and Confucian culture, than employees from other cultures (Hofstede & Bond, 1988). Theoretically, it is possible that the observed indirect effects of leader fairness through LMX and the interactions with POS could be culturally specific. In this regard, further scrutiny is merited. Moreover, the integration of factors from multiple levels into the current model could prove useful in future research (e.g., team orientation as an organizational culture level factor; Erdogan, Liden, & Kraimer, 2006).

Second, the results of the current study may be subject to bias due to a common response style because all data were measured by self-report (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003). Fortunately, this concern is somewhat alleviated by the use of a time-lagged design and the focus on moderation effects over main effects. As Evans's (1985) Monte Carlo study illustrated, the observation of a significant interaction was not a function of systematic correlated error. Therefore, in this study a detection of a significant interactive effect is less likely to be an artifactual interaction caused by same-source bias. However, since this study did not use a longitudinal or quasi-experimental design, I acknowledge that in this study the assessment of causality direction between the predictors, mediator, moderator, and outcome is not possible. Thus, the findings will be moot where causal directions are concerned. For example, it is possible that reverse or reciprocal causality is an alternative explanation for the relations between engagement and other variables examined in this study. To advance the theoretical development of the work engagement, the use of longitudinal designs would be important. Such designs should simultaneously incorporate performance and well-being as outcomes of work engagement while examining its antecedents and mediators from at least three time

points, so that both the formation and the change of work engagement could be better understood.

Third, further exploration of the possible antecedents of work engagement in general is needed. Research on other motivational relevant predictors, such as job-related self-efficacy and self-regulatory and other leadership factors, such as transformational leadership, also may prove useful. Another variable that should be investigated further is distributive justice in relation to work engagement since it is one of the three classic components in the three factor model of organizational justice and has the longest history of study in the field. The addition of research on the relationship of distributive justice and work engagement will contribute to a more comprehensive depiction of the complex relationship between justice and work engagement.

Finally, I would like to recognize the limitation related to the measurement of my focal constructs. Some of the constructs did not have consistently good model fit indices, for example, the RMSEAs for SIJ and SPJ scales were greater than the cutoff point of .10, while other fit indices were good. However, supplementary CFAs by paneling pairs of items under the same dimension suggested that those problematic fit indices could all be improved to meet the good fit criteria. The unsatisfactory fit indices found in the initial CFAs might be due to some overlap in item content. Such findings gave rise to my confidence of the reliability of all scales used in this study.

In summary, using a time-lagged research design and an employee sample, basing the study on a leadership framework that integrates leader fairness and LMX theory and POS theory, the current study reveals how procedural and interactional aspects of fair

acting by supervisors have an influence on subordinates to engage more or less in their work roles through one form of social exchanges (i.e., LMX). Further, the study suggests that the influence of supervisory interactional justice is conditioned on the levels of POS those subordinates possess, which is another part of the social exchange network where subordinates are embedded. The present study suggests the usefulness of this approach to understanding the influence and value of constructive supervisor-subordinate relationship. Given the increasing demand for engaged employees, it is crucial that researchers continue to develop theories that capture the facilitators of work engagement to inform how to build an engagement-supportive work environment and leadership style. This study provides some theoretical ideas and suggestions to that end.

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Appendix A: Assessment Items

Supervisory interactional justice scale

1 = Strongly disagree

2 = Moderately disagree

3 = Slightly disagree

4 = Neutral

5 = Slightly agree

6 = Moderately agree

7 = Strongly agree

1. When decisions are made about my job, my supervisor treats me with kindness and consideration. 当做出与我工作有关的决定时，我的上司总会尽量考虑周全。
2. When decisions are made about my job, my supervisor treats me with respect and dignity. 当做出与我工作有关的决定时，我的上司会尊重我的意愿。
3. When decisions are made about my job, supervisor is sensitive to my personal needs. 当做出与我工作有关的决定时，我的上司会留心我的个人需求。
4. When decisions are made about my job, my supervisor deals with me in a truthful manner. 当做出与我工作有关的决定时，我的上司会真诚地对待我。
5. When decisions are made about my job, my supervisor shows concern for my rights as an employee. 当做出与我工作有关的决定时，我的上司会考虑我作为一名员工的权利。
6. Concerning decisions made about my job, my supervisor discusses the implications of the decisions with me. 当做出与我工作有关的决定时，我的上司会与我讨论他/她决定对我的影响。
7. My supervisor offers adequate justification for decisions made about my job. 当做出与我工作有关的决定时，我的上司会提供充分的解释说明。
8. When making decisions about my job, my supervisor offers explanations that make sense to me. 当做出与我工作有关的决定时，我的上司提供我能接受的解释。
9. My supervisor explains very clearly any decision made about my job. 我的上司清楚地解释与我工作有关的决定。

Supervisory procedural justice scale

1 = Strongly disagree

2 = Moderately disagree

3 = Slightly disagree

4 = Neutral

5 = Slightly agree

6 = Moderately agree

7 = Strongly agree

1. Job decisions are made by my supervisor in an unbiased manner. 我的上司不会以偏颇的方式做决定。
2. My supervisor makes sure that all employee concerns are heard before job decisions are made. 我的上司确保在做决定之前了解所有员工的想法。
3. To make job decisions, my supervisor collects accurate and complete information. 我的上司收集准确、完全的信息以便做决定。
4. My supervisor clarifies decisions and provides additional information when requested by employees. 只要员工要求，我的上司会澄清他/她的决定，并提供更多信息。
5. All job decisions made by my supervisor are applied consistently across all affected employees. 我上司在决策过程中对所有的员工都一视同仁。
6. Employees are allowed to challenge or appeal job decisions made by my supervisor. 我们普通员工可以质疑上司的决策。

Leader – member exchange scale

1 = Strongly disagree

2 = Moderately disagree

3 = Slightly disagree

4 = Neutral

5 = Slightly agree

6 = Moderately agree

7 = Strongly agree

1. Regardless of how much power he/she has built into his/her position, my supervisor would be personally inclined to use his/her power to help me solve problems in my work. 无论他/她有多大的权力，我的上司会用她的权力帮我解决工作中的难题。

2. I can count on my supervisor to “bail me out,” even at his or her own expense, when I really need it. 使有损于他/她的个人利益，当我的确需要的时候，我可以依靠我的上司帮我度过难关。
3. My supervisor understands my problems and needs. 我的上司理解我的困难和需求。
4. My supervisor recognizes my potential. 我的上司认可我的潜力。
5. My supervisor has enough confidence in me that he/she would defend and justify my decisions if I were not present to do so. 即使我不在场，我的上司也会对我有足够的信心并为我的决定辩护。
6. I usually know where I stand with my manager. 我通常知道我与我的上司关系如何。
7. I usually know how satisfied my manager is with me. 我通常知道我的上司对我有多满意。
8. I would characterize the working relationship I have with my manager as extremely effective. 我认为我跟上司有高效的工作关系。

Perceived organizational support s scale

1 = Strongly disagree

2 = Moderately disagree

3 = Slightly disagree

4 = Neutral

5 = Slightly agree

6 = Moderately agree

7 = Strongly agree

1. The organization really cares about my well-being. 公司（单位）确实关心我的福利。
2. The organization strongly considers my goals and values. *公司（单位）非常关注我的目标和价值观。
3. The organization would ignore any complaint from me. *公司（单位）会忽视我的任何抱怨。
4. The organization disregards my best interests when it makes decisions that affect me. *当公司（单位）做与我有关的决定时，不会考虑我的最大利益。
5. The organization shows very little concern for me. *公司（单位）很少关心我。

6. Help is available from the organization when I have a problem. 当我遇到问题的时候，可以向公司（单位）求助。
7. The organization cares about my opinions. 公司（单位）关心我的想法。

Work engagement scale

0 = Never

1 = Almost never (A few times a year or less)

2 = Rarely (Once a month or less)

3 = Sometimes (A few times a month)

4 = Often (Once a week)

5 = Very often (A few times a week)

6 = Always (Every day)

1. At my work, I feel bursting with energy. 在工作中，我感到自己迸发出能量。
2. I find the work that I do full of meaning and purpose. 我觉得我所从事的做功目的明确，且很有意义。
3. Time flies when I'm working. 当我工作时，时间总是过得飞快。
4. At my job, I feel strong and vigorous. 工作时，我感到自己强大并且充满活力。
5. I am enthusiastic about my job. 我对工作富有热情。
6. When I am working, I forget everything else around me. 当我工作时，我忘记了周围的一切事情。
7. My job inspires me. 工作激发了我的灵感。
8. When I get up in the morning, I feel like going to work. 早上一起床，我就想要去工作。
9. I feel happy when I am working intensely. 当工作紧张的时候，我会感到快乐。
10. I am proud on the work that I do. 我为自己所从事的工作感到自豪。
11. I am immersed in my work. 我沉浸于我的工作当中。
12. I can continue working for very long periods at a time. 我可以一次连续工作很长时间。
13. To me, my job is challenging. 对我来说，我的工作是具有挑战性的。
14. I get carried away when I’m working. 我在工作时会达到忘我的境界。

15. At my job, I am very resilient, mentally. 工作时，即使感到精神疲劳，我也能够很快的恢复。
16. It is difficult to detach myself from my job. 我感觉到自己离不开工作。
17. At my work I always persevere, even when things do not go well. 在工作中，即使事情进展不顺利，我也总能够契而不舍。

Appendix B: Tables and Figures

Table 1

Comparison of Alternative Measurement Models

	Model	*RMSEA*	*SRMR*	*CFI*	*TLI*	χ^2/df	$\Delta\chi^2/\Delta df$	
1	**One-Factor Model** (All items of LMX, POS, SPJ & SIJ load on one factor)	0.14	0.08	0.76	0.74	7.02		
2	**Two-Factor Model** (Items of POS load on factor1; Items of LMX, SPJ & SIJ load on factor 2)	0.13	0.07	0.80	0.78	6.11	300.47	compared to model 1
3	**Two-Factor Model** (Items of LMX load on factor1; Items of POS, SPJ & SIJ load on factor 2)	0.12	0.06	0.83	0.81	5.32	557.10	compared to model 1
4	**Three-Factor Model** (Items of POS & SPJ loaded on factor 1 & factor 2 respectively; Items of SIJ & LMX load on factor 3)	0.12	0.07	0.82	0.81	5.47	-19.12	compared to model 3
5	**Three-Factor Model** (Items of POS & LMX load on factor1 & factor 2 respectively; Items of SPJ & SIJ load on factor 3)	0.11	0.05	0.86	0.85	4.41	202.85	compared to model 3
6	**Four-Factor Model** (Items of POS, LMX, SPJ & SIJ load on factor1, factor 2, factor 3 & factor 4 respectively)	0.09	0.04	0.90	0.88	3.65	124.91	compared to model 5

Note. *df* = degrees of freedom; *CFI* = comparative fit index; *TLI* = Tucker-Lewis index; *RMSEA* = root mean squared error of approximation; *SRMR* = standardized root mean square residual. POS = perceived organizational support; SIJ = supervisory interactional justice; SPJ= supervisory procedural justice; LMX = leader-member exchange;

Table 2

Aggregation Statistics to Work Group Level

Variables	F ratio	ICC(1)	ICC(2)	R_{wg}(avg)
1. SIJ	2.51 ***	0.15	0.60	0.90
2. SPJ	2.70 ***	0.17	0.63	0.88
3. LMX	1.77 **	0.08	0.43	0.87
4. POS	1.69 **	0.09	0.41	0.77
5. WE	2.06 ***	0.12	0.51	0.92

Note. ICC = interclass correlation coefficient; Rwg = within-group interrater reliability; avg = average. ** p <.01. *** p <.001.

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Table 3

Means, Standard Deviations, Correlations, and Cronbach's Alphas

Variables	Mean	*SD*	Range	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Job function[a]	0.19	0.39	0-1	N/A														
2. Age	31.66	5.19	24-48	0.02	N/A													
3. Gender[b]	0.65	0.48	0-1	-0.32 **	0.07	N/A												
4. Years of education	16.31	1.48	6-19	-0.36 **	0	0.01	N/A											
5. Years in current position	2.74	2.34	0.5-17	0.37 **	0.36 **	-0.2 **	-0.2 **	N/A										
6. Organizational tenure	4.64	4.48	0.5-26	0.35 **	0.66 **	-0.1	-0.2 **	0.6 **	N/A									
7. Role[c]	0.15	0.36	0-1	0.06	0.43 **	0.02	-0.1	0.04	0.41 **	N/A								
8. POS	4.33	1.20	1-7	-0.07	-0.1	-0.1	0.02	-0.02	-0.1 *	-0.1	(0.86)							
9. SIJ	5.12	1.18	1-7	-0.22 **	-0.1	0.02	0.07	-0.17 **	-0.1 *	0.16 **	0.56 **	(0.97)						
10. SPJ	4.99	1.13	1-7	-0.19 **	-0.1	0.04	0.01	-0.18 **	-0.1 *	0.18 **	0.56 **	0.86 **	(0.91)					
11. LMX	4.80	1.08	1.63-7	-0.19 **	0.08	0.04	0.06	-0.06	0	0.31 **	0.41 **	0.68 **	0.67 **	(0.90)				
12. WE	3.47	1.04	0.71-6	-0.19 **	0.1	0.13 *	0.06	-0.12 *	-0.1	0.1	0.37 **	0.29 **	0.29 **	0.31 **	(0.95)			
13. WE-Absorption	3.43	1.13	0-6	-0.21 **	0.1	0.12 *	0.08	-0.11 *	0	0.09	0.34 **	0.27 **	0.27 **	0.29 **	0.96 **	(0.87)		
14. WE-Dedication	3.49	1.09	0.4-6	-0.16 **	0.08	0.12 *	0.02	-0.12 *	-0.1	0.12 *	0.38 **	0.31 **	0.29 **	0.32 **	0.94 **	0.83 **	(0.87)	
15. WE-Vigor	3.49	1.06	0.5-6	-0.18 **	0.09	0.14 *	0.05	-0.1	-0.1	0.08	0.34 **	0.26 **	0.28 **	0.29 **	0.96 **	0.88 **	0.87 **	(0.86)

Note. Cronbach's alpha is presented in parentheses on the diagonal. POS = perceived organizational support; SIJ = supervisory interactional justice; SPJ= supervisory procedural justice; LMX = leader-member exchange; WE = work engagement.

[a]Job function: 1 = high emotional labor occupations, 0 = low emotional labor occupations. [b]Gender: 1 = male, 0 = female. [c] Role 1 = manager/supervisor, 0 = subordinate.

* $p < .05$, ** $p < .01$.

Table 4

HMRA Results: Main and Interactive Effects of Leader Fairness on Work Engagement

	Work Engagement (Time 2)											
	Model 1			Model 2[a]			Model 3[a]			Model 4-6[d]		
Predictors (Time 1)[b,c]	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Absorption	Dedication	Vigor
Age	0.20 *	0.20 *	0.20 *	0.20 *	0.20 *	0.20 *	0.20 *	0.20 *	0.20 *	0.21 *	0.19 *	0.17 *
Gender	0.03	0.03	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.00	0.04	0.04
Years of education	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	-0.05	0.00
Years in current position	-0.06	-0.08	-0.07	-0.06	-0.08	-0.07	-0.06	-0.08	-0.07	-0.06	-0.07	-0.07
Organizational tenure	-0.13	-0.11	-0.12	-0.13	-0.11	-0.11	-0.13	-0.11	-0.12	-0.08	-0.18	-0.09
Role	0.11	0.04	0.04	0.11	0.04	0.04	0.11	0.04	0.04	0.01	0.08	0.02
POS	0.35 ***	0.28 ***	0.28 ***	0.35 ***	0.29 ***	0.28 ***	0.35 ***	0.28 ***	0.27 ***	0.25 ***	0.29 ***	0.26 ***
SIJ		-0.04	-0.03		-0.03	-0.01				-0.02	0.04	-0.10
SPJ		0.02	0.04					-0.01	0.01	0.04	-0.04	0.09
LMX		0.19 *	0.20 **		0.19 **	0.20 **		0.19 *	0.19 **	0.20 **	0.19 *	0.17 *
SIJ * LMX			0.00			0.07				0.07	-0.04	-0.04
SPJ * LMX			0.08						0.08	0.02	0.10	0.11
R^2	.36	.38	.39	.36	.38	.39	.36	.38	.39	.39	.37	.35
ΔR^2	.36	.02	.00	.36	.02	.00	.36	.02	.00	.01	.00	.00
ΔF	3.24 ***	2.83 **	.99	3.24 ***	4.24 **	1.71	3.24 ***	4.18 **	2.03	1.29	.67	.88
	(48,274)	(3, 271)	(2,269)	(48,274)	(2, 272)	(1,271)	(48,274)	(2, 272)	(1,271)	(2, 269)	(2, 269)	(2, 269)
F value	3.24 ***	3.28 ***	3.19 ***	3.24 ***	3.36 ***	3.33 ***	3.24 ***	3.35 ***	3.34 ***	3.22 ***	2.98 ***	2.39 ***
	(48, 274)	(51, 271)	(53, 269)	(48, 274)	(50, 272)	(51, 271)	(48, 274)	(50, 272)	(51, 271)	(53, 269)	(53, 269)	(53, 269)

Note. Data are standardized regression weights. POS = perceived organizational support. LMX = leader-member exchange. SIJ = supervisory interactional justice. SPJ = supervisory procedural justice.

[a] Model 2 and 3 are supplementary analyses to show main and interactive effects of the two dimensions of leader fairness on work engagement stay non-significant no matter they are tested simultaneously or separately.

[b] 41 dummy variables of team memberships were entered. For the sake of brevity, their standardized regression weights were not displayed in this table.

[c] Job function of the classification of high vs. low emotional labor occupations was included in the model but automatically excluded by SPSS because that its tolerance reached the limitation of .00, which indicated colinearity.

[d] The three subdimensions of work engagement are dependent variables for model 4, 5 and 6 respectively; data shown are standardized regression weights for the step 3 only.

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

Table 5a

Mediation Model: SIJ -> LMX ->WE

Regression Result for LMX Quality as Mediator between SIJ and WE

Variable			B	SE	t	p
		Direct and total effect				
WE on SIJ			0.27	0.05	5.46	0.000
LMX on SIJ			0.59	0.04	15.31	0.000
WE on LMX controlling for SIJ			0.21	0.07	3.07	0.002
WE on SIJ controlling for LMX			0.13	0.06	2.21	0.028
	Value	SE	LL 95% CI	UL 95% CI	z	p
		Indirect effect and significance using normal distribution				
Sobel	0.13	0.04	0.04	0.21	3.00	0.002
	Mean	SE	LL 95% CI	UL 95% CI		
		Boostrap results of indirect effect				
Effect	0.13	0.05	0.04	0.22		

Note. n=323. Unstandardized regression coefficients are reported. Boostrap sample size = 3,000. LMX = leader-member exchange; SIJ = supervisory interactional justice; WE = work engagement; LL = lower limit; CI = confidence interval; UL = upper limit.

Table 5b

Mediation Model: SPJ -> LMX -> WE

Regression Result for LMX Quality as Mediator between SPJ and WE

Variable			B	SE	t	*p*
		Direct and total effect				
WE on SPJ			0.28	0.05	5.49	0.000
LMX on SPJ			0.64	0.04	16.07	0.000
WE on LMX controlling for SPJ			0.21	0.07	2.97	0.003
WE on SPJ controlling for LMX			0.14	0.06	2.15	0.032
	Value	SE	LL 95% CI	UL 95% CI	z	*p*
		Indirect effect and significance using normal distribution				
Sobel	0.13	0.05	0.04	0.22	2.92	0.003
	Mean	SE	LL 95% CI	UL 95% CI		
		Boostrap results of indirect effect				
Effect	0.13	0.05	0.05	0.23		

Note. n=323. Unstandardized regression coefficients are reported. Boostrap sample size = 3,000. LMX = leader-member exchange; SPJ = supervisory procedural justice; WE = work engagement; LL = lower limit; CI = confidence interval; UL = upper limit.

Table 6a

*Moderated Mediation Model: SIJ * POS -> LMX -> WE*

Regression result for conditional indirect effect

Predictor		B	SE	t	p
	LMX				
Constant		2.26	0.77	2.93	0.004
SIJ		0.27	0.10	2.64	0.009
POS		-0.23	0.13	-1.70	0.090
SIJ * POS		0.06	0.02	2.58	0.010
	Work engagement				
Constant		0.70	0.98	0.72	0.473
LMX		0.15	0.07	2.18	0.030
POS	Boot Indirect Effect		Boot SE	Boot z	Boot p
	Conditional indirect effect at POS = mean +/- 1 SD				
-1 SD (3.134)		0.07	0.04	1.96	0.050
mean (4.343)		0.09	0.04	2.00	0.046
+1 SD (5.553)		0.10	0.05	1.98	0.048
	Conditional indirect effect at range of values of POS				
1.000		0.0539	0.0326	1.6546	0.0980
1.300		0.0567	0.0329	1.7235	0.0848
1.600		0.0596	0.0334	1.7836	0.0745
1.900		0.0624	0.0340	1.8350	0.0665
2.200		0.0653	0.0348	1.8779	0.0604
2.500		0.0681	0.0356	1.9128	0.0558
2.800		0.0710	0.0366	1.9404	0.0523
3.100		0.0739	0.0377	1.9615	0.0498
3.400		0.0767	0.0388	1.9768	0.0481
3.700		0.0796	0.0400	1.9871	0.0469
4.000		0.0824	0.0414	1.9931	0.0463
4.300		0.0853	0.0427	1.9956	0.0460
4.600		0.0881	0.0442	1.9951	0.0460
4.900		0.0910	0.0457	1.9922	0.0463
5.200		0.0938	0.0472	1.9874	0.0469
5.500		0.0967	0.0488	1.9810	0.0476
5.800		0.0995	0.0504	1.9733	0.0485
6.100		0.1024	0.0521	1.9648	0.0494
6.400		0.1053	0.0538	1.9555	0.0498
6.700		0.1081	0.0556	1.9457	0.0499
7.000		0.1110	0.0573	1.9356	0.0429

Note. n=323. Unstandardized regression coefficients are reported. Boostrap sample size = 5,000. LMX = leader-member exchange; SIJ = supervisory interactional justice; POS = perceived organizational support.

Table 6b

*Moderated Mediation Model: SPJ * POS -> LMX -> WE*

Regression result for conditional indirect effect

Predictor		B	SE	t	p
	LMX				
Constant		1.15	0.82	1.41	0.159
SPJ		0.45	0.11	3.95	0.000
POS		-0.07	0.14	-0.50	0.615
SPJ * POS		0.03	0.03	1.12	0.265
	Work engagement				
Constant		1.30	1.03	1.26	0.208
LMX		0.15	0.07	2.11	0.035
POS	Boot Indirect Effect		Boot SE	Boot z	Boot p
	Conditional indirect effect at POS = mean +/- 1 SD				
-1 SD (3.134)		0.08	0.04	1.93	0.054
mean (4.343)		0.09	0.05	1.93	0.054
+1 SD (5.553)		0.09	0.05	1.90	0.057
	Conditional indirect effect at range of values of POS				
1.000		0.0728	0.0407	1.7899	0.0735
1.300		0.0742	0.0408	1.8197	0.0688
1.600		0.0756	0.0410	1.8460	0.0649
1.900		0.0771	0.0412	1.8687	0.0617
2.200		0.0785	0.0416	1.8878	0.0591
2.500		0.0799	0.0420	1.9034	0.0570
2.800		0.0813	0.0424	1.9155	0.0554
3.100		0.0827	0.0430	1.9243	0.0543
3.400		0.0841	0.0436	1.9301	0.0536
3.700		0.0855	0.0443	1.9330	0.0532
4.000		0.0870	0.0450	1.9333	0.0532
4.300		0.0884	0.0458	1.9312	0.0535
4.600		0.0898	0.0466	1.9269	0.0540
4.900		0.0912	0.0475	1.9208	0.0548
5.200		0.0926	0.0484	1.9129	0.0558
5.500		0.0940	0.0494	1.9037	0.0570
5.800		0.0954	0.0504	1.8932	0.0583
6.100		0.0968	0.0515	1.8816	0.0599
6.400		0.0983	0.0526	1.8692	0.0616
6.700		0.0997	0.0537	1.8561	0.0634
7.000		0.1011	0.0549	1.8424	0.0654

Note. n=323. Unstandardized regression coefficients are reported. Boostrap sample size = 5,000. LMX = leader-member exchange; SPJ = supervisory procedural justice; POS = perceived organizational support.

Table 7

HMRA Results: Interactive Effects of Leader Fairness and Emotional Labor Job Type on Work Engagement

	Work engagement (Time 2)			
Predictors (Time 1)[a,b]	Model 1 Overall	Model 2 Absorption	Model 3 Dedication	Model 4 Vigor
Age	0.19 *	0.20 *	0.18 *	0.16
Gender	0.04	0.00	0.05	0.06
Years of education	0.01	0.04	-0.04	0.02
Years in current position	-0.07	-0.07	-0.06	-0.06
Organizational tenure	-0.11	-0.07	-0.17	-0.09
Role	0.05	0.01	0.09	0.05
POS	0.31 ***	0.26 ***	0.32 ***	0.30 ***
LMX	0.18 *	0.19 *	0.18 *	0.15 *
SIJ	0.05	-0.01	0.11	0.06
SPJ	-0.04	0.03	-0.08	-0.06
SIJ * EL	-0.14	-0.05	-0.12	-0.25 *
SPJ * EL	0.05	-0.01	-0.03	0.17
R^2	.39	.39	.38	.36
F value	3.20 ***	3.22 ***	3.05 ***	2.84 ***
	(53, 269)	(53, 269)	(53, 269)	(53, 269)

Note. Data are standardized regression weights of the final step when interaction terms are entered. POS = perceived organizational support. LMX = leader-member exchange. SIJ = supervisory interactional justice. SPJ = supervisory procedural justice.

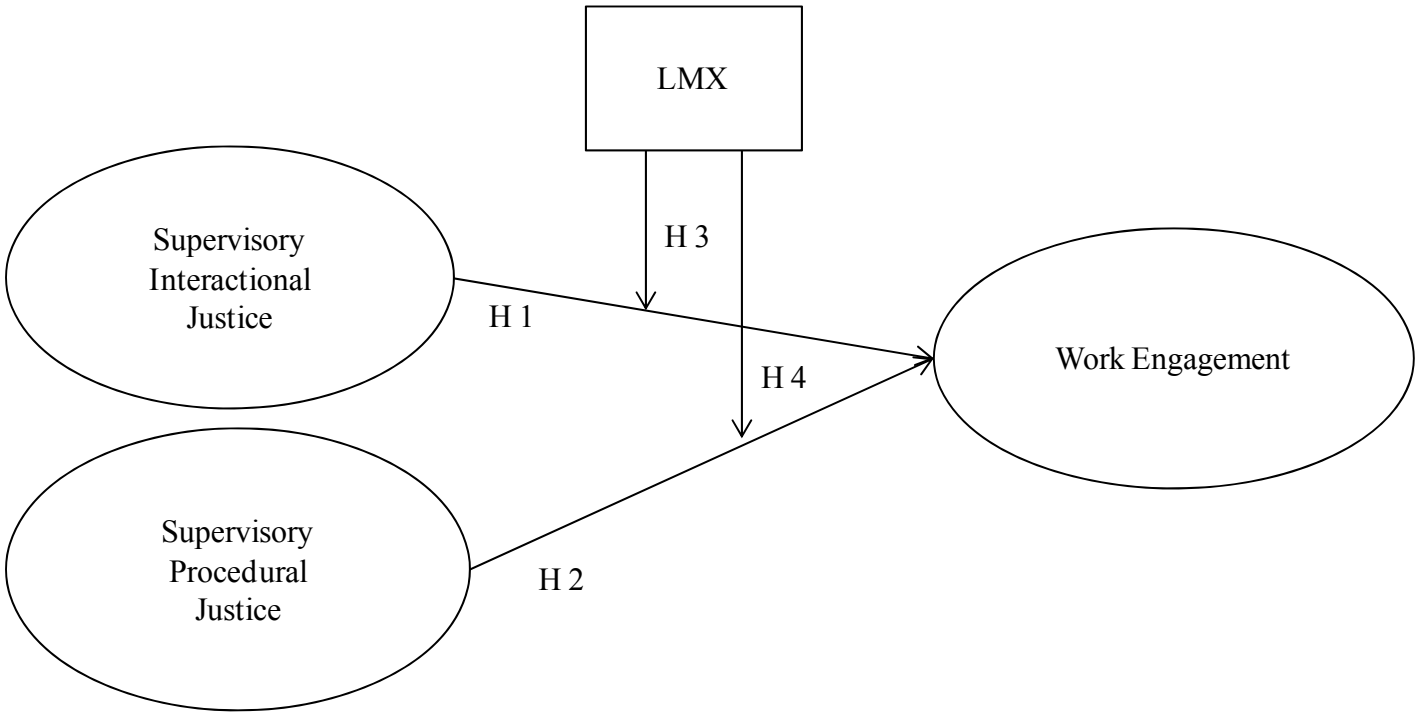
SIJ * EL = the interaction term of SIJ and emotional labor job type. SPJ * EL = the interaction term of SPJ and emotional labor job type.

[a] 41 dummy variables of team memberships were entered. For the sake of brevity, their standardized regression weights were not displayed in this table.

[b] Job function dummy variable (emotional labor job type) indicating the classification of high vs. low emotional labor occupations was included in the model but automatically excluded by SPSS because that its tolerance reached the limit of .00, which indicated colinearity.

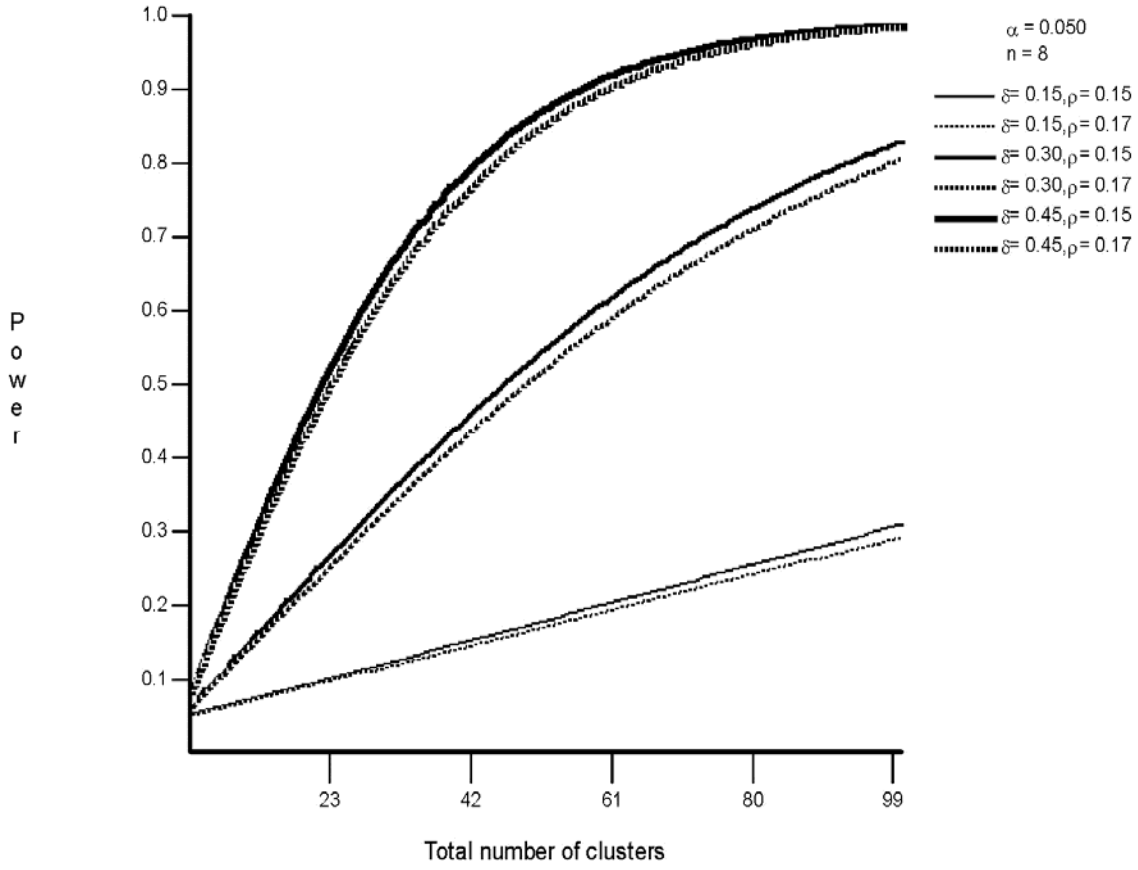
* p<.05, ** p<.01, *** p<.001.

Figure1. Conceptual Model



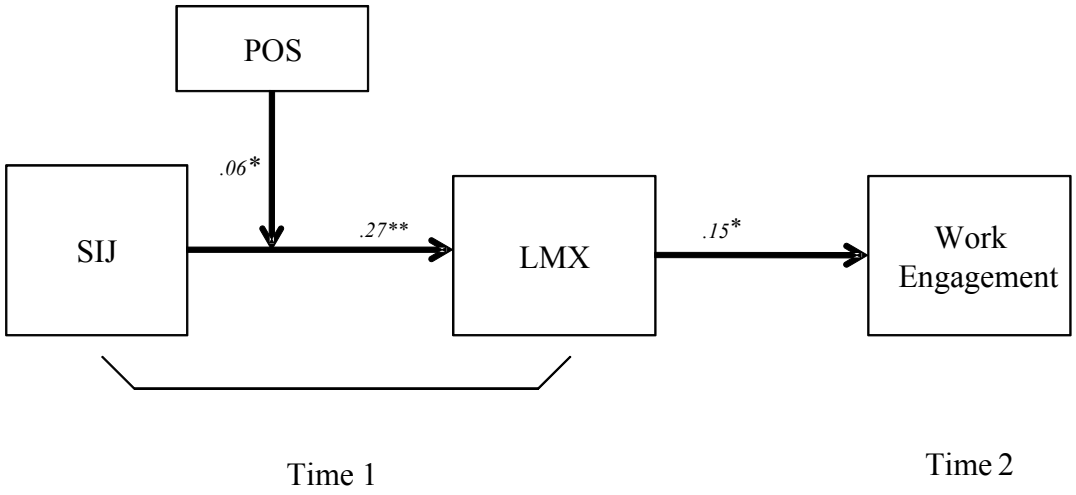
Note. LMX = Leader-member exchange.

Figure 2. Power Analysis of Hierarchical Linear Modeling



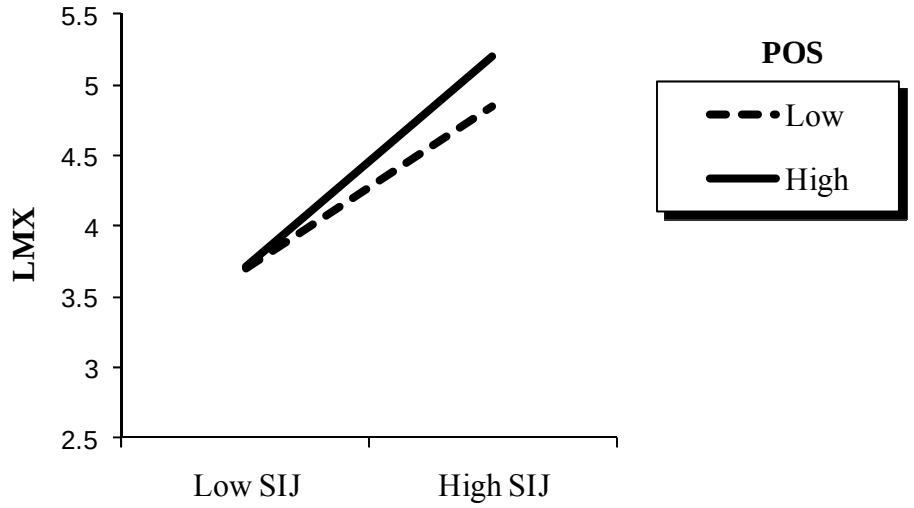
Note: α = the significance level of hypothesis test, n = the average sample size within groups (clusters), δ = the population effect size of leader fairness-outcome relationship, ρ = the Inter-Class Correlation (ICC) which is the ratio of between-group variance to the total variance.

Figure 3. The Supported Moderated Mediation Model



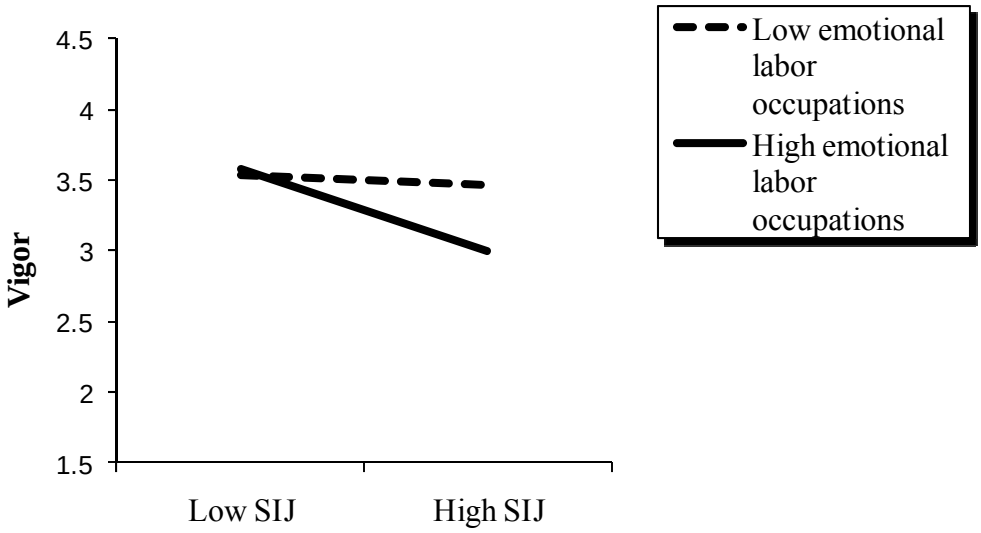
Note. POS = Perceived organizational support; SIJ = Supervisory interactional justice; LMX = Leader-member exchange. *p <.05; **p <.01.

Figure 4. The Interactive Effect of POS on the SIJ-LMX Relationship



Note: POS = Perceived organizational support; SIJ = Supervisory interactional justice; LMX = Leader-member exchange.

Figure 5. The Interactive Effect of Emotional Labor Job Type on the SIJ-Vigor Relationship



Note: SIJ = Supervisory interactional justice.