


Spring 2009

Organizational Justice Perceptions in China: Development of the Chinese Organizational Justice Scale

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**ORGANIZATIONAL JUSTICE PERCEPTIONS IN CHINA:
DEVELOPMENT OF THE CHINESE ORGANIZATIONAL JUSTICE SCALE**

by

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A Dissertation Submitted to the Faculty of
Old Dominion University in Partial Fulfillment of the
Requirement for the Degree of

DOCTOR OF PHILOSOPHY

INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY

OLD DOMINION UNIVERSITY
May, 2009

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ABSTRACT

ORGANIZATIONAL JUSTICE PERCEPTIONS IN CHINA: DEVELOPMENT OF THE CHINESE ORGANIZATIONAL JUSTICE SCALE

Katherine Mohler Fodchuk
Old Dominion University, 2009
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Research analyzing fairness perceptions within organizations has gained the attention of cross-cultural theorists as the criteria used to judge fairness varies across cultures. Review of the literature indicates that researchers use translated Western measures of organizational justice on Eastern samples despite evidence of cultural variation in justice criteria. This dissertation addresses some of the gaps in the current research by developing and validating an indigenous measure of Chinese organizational justice perceptions. A preliminary qualitative study revealed numerous justice rules used by Chinese employees to determine whether a workplace decision was fair. The qualitative results were used to develop the Chinese Organizational Justice Scale (COJS). The COJS and various outcome measures were administered to 307 Chinese employees.

The COJS revealed a five- factor model for Chinese organizational justice perceptions with distributive justice breaking into two factors. The five-factor COJS measurement model indicated excellent fit and psychometric properties and included factors of distributive justice west (equity-based distributions), distributive justice east (distributions based on need, *guanxi*, and nonperformance related equity criteria), procedural justice, informational justice, and interpersonal justice. Unique Chinese justice criteria were identified for distributive justice and procedural justice.

Distributive justice east and west factors were both positively related to pay satisfaction. Exploratory analyses indicated that distributive justice equity criteria commonly assessed in Western measures were dominant in predicting several additional outcomes including perceived organizational support, supervisor support, and altruism. Informational justice was negatively related to role ambiguity and positively related to perceived organizational support. Interpersonal justice was negatively related to perceived organizational support. Procedural justice was not related to any of the measured outcomes. These findings are discussed in relation to previous Chinese organizational justice research and possible shifting values in China that could be linked to competitive industries and a rapidly expanding market economy.

This dissertation is dedicated to my husband Amos Fodchuk. Amos's love, encouragement, selflessness, and support gave me the strength and resilience to work through the many difficult challenges of graduate school (and life in general) and become a stronger person. My greatest accomplishment is not this dissertation but the loving relationship and family we built together.

ACKNOWLEDGEMENTS

I would like to thank Donald Davis for his guidance and support during my studies at Old Dominion University. Don was instrumental in helping me build a valuable network of Chinese colleagues and friends. My travels to and research in China would not have been possible without his encouragement and assistance in finding grant funding. Having Don as a professor and mentor has led me to be a better writer, thinker, and scientist.

My Chinese colleagues deserve special recognition. I would like to thank Ying Liu for her devotion and intellectual contributions to this project. Ying has taught me much about the Chinese culture and what it means to be a committed and dedicated researcher. Her contributions, translations, and guidance made this study possible. Dr. Yan Gonggu of Beijing Normal University also deserves special recognition for his contributions to this work. For the summer of 2006, Dr. Yan and his graduate student team (Lixin Xu, Wei Rongjian, and Feng Paison) hosted me in Beijing and helped me collect and translate the mass of data resulting from the qualitative study. Dr. Yan also facilitated data collection for this dissertation through his contacts in Chinese industry. Finally, I would like to thank Dr. Lee Wang of Peking University for his assistance in facilitating data collection for the validation of the Chinese Organizational Justice Scale.

I would like to thank Dean Chris Platsoucas and the College of Science and the Dragus International Center for funding my travels to China.

Finally, Amos and Ansel, you make me realize what is important in life. Your love, laughter, support and friendship make me the luckiest mom and wife alive.

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INTRODUCTION

Farh, Cannella, and Lee (2006) described Chinese organizational research as “nascent” and called for theory-based research measures validated in the Chinese context (p. 302). These researchers contended that the validity transfer across cultures of objective measures (e.g., organization structure, performance) was less difficult than the validation of subjective measures of psychological constructs (e.g., organizational justice, affective commitment). Such psychological constructs are likely to be more heavily influenced by the cultural, social, and political context in which the organization is embedded and require different strategies in the development of construct measures (Farh et al., 2006; Van de Vijver & Hambleton, 1996).

Organizational justice, or perceptions of fairness within organizations, is a psychological construct that strongly influences many organizational outcomes. Such outcomes include, but are not limited to, increased employee commitment to an organization (Folger & Konovsky, 1989; Sweeney & McFarlin, 1993), job performance (Robbins, Summers, Miller, & Hendrix, 2000), acceptance of organizational change (Greenberg, 1994), and post-layoff actions of terminated employees (Lind, Greenberg, Scott, & Welchans, 2000). Research analyzing fairness perceptions within organizations has gained the attention of cross-cultural theorists because fairness appears to be a culturally universal construct, but the criteria used to judge fairness vary across cultures (Leung, Smith, Wang, & Sun, 1996; Leung, Su, & Morris, 2001).

Organizational justice measures for Western samples were developed based on theory, seminal research, and extensive validation (Colquitt, 2001; Colquitt & Shaw,

The model journal for this dissertation was *Journal of Applied Psychology*.

2005). Morris and Leung (2000) claim that, while the precision of organizational justice models for Western samples has increased significantly, less attention has been paid to developing measures that can accurately assess justice perceptions in non-Western cultures (e.g., Hundley & Kim, 1997; Leung & Bond, 1984; Leung et al., 1996; Leung, Su, & Morris, 2001). A limit to the validity of non-Western organizational justice research is the use of organizational justice measures that were originally developed using Western samples to test concepts of justice derived from Western cultures and must be translated from Western languages, especially English. Farh et al. (2006) warn that translating measures of psychological constructs for use in other cultures can be subject to errors such as semantic inequivalence, cultural biases, and omission of culture-specific dimensions.

Leung (2005) reviewed justice research across cultures and raised the issue that “when measures developed in one culture (typically the United States) are applied in other cultures (typically non-Western cultures), their reliability may be compromised” (p. 578). This calls into question the precision of using a Western-developed scale to measure perceptions and attitudes of Eastern individuals. Yet, a search of the justice literature revealed a number of studies that impose Western-developed measures of organizational justice on Chinese samples (e.g., Ang, Van Dyne, & Begley, 2003; Begley, Lee, Fang, & Li, 2002; Fahr, Earley, & Lin, 1997; Lam, Schaubroeck, & Aryee, 2002). My study addresses this shortcoming in the justice research by validating a model and measure of organizational justice that is sensitive to Chinese cultural differences.

Measurement Development and Validation

This study's purpose was to examine the theoretical dimensionality of organizational justice and test the construct validity of a new justice measure in China. I developed an *indirect measure* (Lind & Tyler, 1988) of organizational justice. An indirect measure taps fairness criteria (e.g., was the procedure consistently applied, was adequate explanation provided for the decision, was interpersonal treatment during decision making respectful) as opposed to a direct measure that assesses the degree to which something (e.g., performance evaluation, compensation allocation) is fair. I chose an indirect measure for two reasons: 1) indirect measures provide more information than direct measures because they indicate the specific favorable and unfavorable criteria, and 2) meta-analytic data reveal that indirect measures are more strongly correlated with outcome measures (Colquitt, Conlon, Wesson, Porter, & Ng, 2001).

I began with Colquitt's (2001) scale items as the foundation for my measure for several reasons. First, Colquitt developed his items using seminal works in the justice literature. His scale was then validated based on established organizational justice theoretical models. Second, open-ended questions in my qualitative study, described below, elicited responses indicating the Chinese also use the criteria tapped by Colquitt's scale when making justice judgments. Thus, this component of the scale measures the *etic*, or culture-general, components of organizational justice. Colquitt's items were also incorporated to allow researchers' comparisons of Chinese responses with existing research in the published literature. The qualitative research also uncovered *emic*, or culture-specific, criteria used in Chinese justice judgments, which I describe below.

Colquitt's (2001) organizational justice measure indicates a four-factor structure including distributive justice (fairness of the way outcomes are distributed), procedural justice (fairness of the procedures used to determine distributions), interpersonal justice (fairness of the interactions surrounding distributions), and informational justice (truthful communication of justification and explanation for distribution or decision). It should be noted, however, that this scale was developed using Western samples exclusively.

Developing a measure and establishing its construct validity is neither a one-time task nor single study procedure (Schwab, 1980). Three separate studies contributed to the development and validation of the Chinese Organizational Justice Scale (COJS). The first study involved both review of the organizational justice literature and a qualitative study to inform development of a preliminary set of quantitative items created to reflect the unique features of the Chinese context. I investigated whether existing dimensions of organization justice (i.e., those identified by Colquitt, 2001) were recognized in China and the extent to which unique and culture-specific (i.e., emic) dimensions of justice perceptions existed in China. Preliminary items were then developed based on the results of the qualitative study. The procedures and results from this qualitative study are described in more detail below. The second study tested the preliminary justice scale items with a small sample of Chinese employees. This sample was used to refine item wording and content. In my dissertation, the current study, I examined justice dimensions in relation to several associated outcomes to place them in a larger nomological network and establish predictive validity.

Study 1: Qualitative Study to Identify Features of Chinese Justice

To explore criteria used in Chinese justice judgments and inform development of scale items, I conducted a qualitative study examining 80 Chinese employees' responses to a 14-item open-ended questionnaire eliciting descriptions of critical incidents of injustice (see Appendix A). Below is a summary of this study's findings. A more detailed description of this study's method and results is included in Appendix B.

Questionnaire items were structured and responses were content analyzed using Leung and Tong's (2004) three-stage model for examining organizational justice perceptions across cultures. This model includes organizational justice criteria found in research examining both Western and non-Western samples. I developed the questionnaire items in English. Standard blind translation and back-translation procedures (Brislin, 1986) were used. In this procedure a translator adapts an item from the source language (English) to the target language (Chinese) and a second translator translates the adapted item from the target language back to the source language (Hambleton, 2005). Respondents were prompted to think of an unfair workplace decision that directly affected them and/or their colleague(s). Four questions elicited information about the decision; seven items tapped distributive, procedural, and interactional justice criteria and practices. Content analysis (conducted by me, Chinese graduate students, and a Chinese professor) of the codes revealed distinct categories corresponding to Leung and Tong's (2004) model and dimensions unique to the Chinese context. Participant responses for criteria used in distributive, procedural, and interactional justice judgments are listed in Appendix B.

Procedural justice responses pertaining to process and outcome control included 23 (of 44) comments referring to collective voice (i.e., group voice), which is discussed in Leung and Tong's framework but not assessed in Western measures of justice. This study also identified Chinese justice criteria not discussed in Leung and Tong's framework, specifically, *guanxi* and majority opinion. In the Chinese culture, *guanxi* defines what behavior is appropriate or warranted given a specific social relationship and its corresponding obligations and reciprocity norms (Chen, 1996). *Guanxi* was referenced 16 times in questions tapping distributive justice and interactional justice. The use of majority opinion typically referred to taking an employee vote to use as criteria in decision making. Majority opinion was referenced in all three types of justice.

Study 2: Pilot Test for Scale Development

I drafted items measuring criteria used in organizational justice judgments in English that were not covered by Colquitt's (2001) scale. Using Brislin's (1986) standard blind translation procedure, a Chinese psychology professor and a Chinese management professor converted the items to Chinese. Some of the new items were then revised in English based on feedback that translations were nonsensical in Chinese. These items were again translated into Chinese and back-translated to English to ensure equivalence. Two separate focus groups examined the resulting survey items. One group consisted of subject matter experts (i.e., Chinese I/O psychologists and consultants) and the second group consisted of laypersons. Some minor wording changes were made to some items (i.e., changing "this organization" to "our organization") based on feedback from these groups.

Results of this qualitative study indicated existence of similar criteria that are assessed in existing Western measures as well as criteria that are possibly unique to the Chinese cultural context. New items were written for dimensions where they were most frequently mentioned. The preliminary scale contained 52 items with 27 distributive justice items tapping equity, need, *guanxi*, and equality. It also included 13 items tapping procedural justice including criteria of process and outcome control (both collective and individual), accuracy of information, bias suppression, correctibility, ethicality, consistency, and majority opinion (i.e., voting). The remaining 12 items measured interactional justice criteria of polite, dignified and respectful treatment (i.e., interpersonal justice), truthful, timely, and specific justification (i.e., informational justice), and appropriate interactions based on *guanxi*.

I first pilot tested the original 52-item scale in order to determine whether items needed further revision and to eliminate those with low reliability. Using Robinson, Shaver, and Wrightsman's (1991) criteria for item selection and evaluation, I eliminated most items that had item-total correlations lower than .50. Before eliminating items with low item-total correlations, I also considered the emphasis placed on the criteria in the qualitative questionnaire (i.e., the number of times it was referenced), whether there were other items already measuring the justice criteria, and research findings in the Chinese context related to these criteria. For further information about the pilot study participants, procedure, and scale refinement process see Appendix C. Table 1 lists the retained items used to assess distributive, procedural, informational, and interpersonal justice.

Table 1

Retained Items for Chinese Organizational Justice Scale

Items	Justice Criteria
Distributive Justice	
Does your (outcome) reflect the effort you have put into your work?*	Equity (effort)
Is your (outcome) appropriate for the work you have completed?*	Equity (work)
Does your (outcome) reflect what you have contributed to the organization?*	Equity (contribution)
Is your (outcome) justified, given your performance?*	Equity (performance)
Is your (outcome) appropriate given your educational background?	Equity (education)
Is your (outcome) appropriate given your current abilities?	Equity (abilities)
Does your organization divide the (outcome) equally among employees?	Equality (equal division)
If the (outcome) cannot be divided equally, are employees compensated with some other type of (outcome)?	Equality (compensatory)
Does your (outcome) reflect your financial needs?	Need (personal financial)
Does your (outcome) reflect the organization's financial needs?	Need (organization financial)
Is your (outcome) appropriate given your professional development needs?	Need (personal growth)
Is your (outcome) appropriate given the development needs of the organization?	Need (organizational growth)
Does your (outcome) reflect the career development needs of all concerned?	Need (others growth)
Is your (outcome) justified given its impact on all concerned?	Need (of others)
Is your (outcome) justified given the needs of all concerned?	Need (of others)
Does your (outcome) meet your expectations about guanxi?	Guanxi
Does your (outcome) meet the expectations that others have for guanxi?	Guanxi

(Table continues)

Table 1 (continued).

Items	Justice Criteria
Procedural Justice	
Have you been able to express your views and feelings during those procedures?*	Process Control (individual)
Have those procedures allowed for organization members to collectively express their opinions?	Process Control (collective)
Have organization members collectively had the opportunity to express views and feelings during those procedures?	Process Control (collective)
Have you had influence over the (outcome) arrived at by those procedures?*	Outcome Control (individual)
Have those procedures been free of bias?*	Bias Suppression
Have those procedures been based on accurate information?*	Accuracy of Information
Have you been able to appeal the (outcome) arrived at by those procedures?*	Correctibility
Have those procedures allowed organization members to express their views through voting?	Voting
Have those procedures been based on the majority opinion of the organization's employees?	Voting
Have those procedures been influenced by a vote from the organization's members?	Voting
Have those procedures been applied consistently?*	Consistency
Interpersonal Justice	
Has (he/she) treated you in a polite manner?*	Polite
Has (he/she) treated you with dignity?*	Dignified
Has (he/she) refrained from improper remarks?*	Propriety
Has (he/she) treated you with respect?*	Respectful
Informational Justice	
Has (he/she) been candid in (his/her) communication with you?*	Truthful
Has (he/she) explained the procedures thoroughly?*	Explanation
Has he/she communicated details in a timely manner?*	Timely
Has (he/she) seemed to tailor (his/her) communications to individuals' specific needs?*	Tailored
Were (his/her) explanations regarding the procedures reasonable?*	Reasonable

Note. (Outcome) refers to a workplace outcome (e.g., pay, transfer, appraisal).

* Items developed by Colquitt (2001).

Study 3: Validation of Chinese Organizational Justice Scale

Development of the COJS had four goals: (1) identify justice criteria used by Chinese employees that generalize to other cultures; (2) identify justice criteria that are not included in Western measures and possibly unique to the Chinese; (3) assess the construct validity of the measurement model; and (4) demonstrate criterion validity between the four proposed dimensions of justice and related constructs – namely, pay and supervisor satisfaction, affective organizational commitment, perceived organizational support, role ambiguity, and altruistic helping behaviors. The qualitative study was conducted to address the first two goals. The pilot study provided the opportunity to refine items. In the current study, I assessed the construct and predictive validity of the COJS. The following is a brief description of the process I used.

Trochim (2006) explains construct validity is the approximate truth of the conclusion that an operationalization accurately reflects a theoretical construct. Other types of validity, including content and criterion, address this in different ways (Trochim, 2006). Generating quantitative justice items using established research in the justice literature and results from the qualitative analysis of critical incidents provided by Chinese employees helped ensure a degree of content validity. With content validity, I am checking the operationalization of organizational justice against the relevant content domain of the construct (Trochim, 2006). I proposed here to confirm the measurement model I have created and to assess the criterion validity of the measure. Demonstration of good fit of the measurement model provides evidence of construct validity. With criterion validity, I verified the performance of my operationalization of Chinese justice against specified outcome variables. Criterion validity is also an essential component of the

construct validation process (Nunnally, 1978). I examined predictive validity, a type of criterion validity, to determine the extent to which my operationalization of Chinese justice is able to predict important outcomes. Predictive validity establishes the operationalization's ability to predict an outcome it should theoretically predict (Trochim, 2006). Establishing predictive validity not only illustrates practical utility, it also positions items in a larger nomological network, lending further support to construct validity (Colquitt, 2001; Cronbach & Meehl, 1955).

To establish predictive validity, I selected outcome variables based on the following criteria used by Colquitt (2001), which include the following. First, the outcome variables should be appropriate for the study's setting. Second, in order to show agreement with previously published results and make a contribution to the literature, the outcome variables should be both widely researched and recently introduced. Third, outcomes should be applicable to both instrumental and relational models of justice (described below). A meta-analysis of 25 years of organizational justice research (Colquitt et al., 2001) and the study validating the organizational justice scale on which my study is based (Colquitt, 2001) guided identification of outcome variables for my study. I also used a fourth guideline to select outcome variables – justice research in the Chinese context. Prior to addressing organizational justice research in the Chinese context, I first briefly review organizational justice theories related to scale development.

Dimensions of Organizational Justice

Much of the debate surrounding how to measure organizational justice stems from whether it is best represented by one (organizational justice), two (distributive and procedural justice), three (distributive, procedural, and interactional justice), or four

factors (distributive, procedural, informational, and interpersonal justice). The core of this debate involves the evidence for construct discrimination among the different justice dimensions.

Three major organizational justice models were tested for their predictive ability in the meta-analysis conducted by Colquitt and his colleagues (2001). One model, the distributive dominance model (Leventhal, 1980) states that distributive and procedural justice comprise organizational justice and that distributive justice is dominant in determining general fairness judgments. In the second model, Sweeney and McFarlin (1993), tested what they termed the two-factor model and found that distributive justice has a stronger influence on more personal outcomes (e.g., pay satisfaction, perceptions of evaluation results), whereas procedural justice is more strongly related to organizational-level outcomes (e.g., organizational commitment, perceived organizational support).

The third model, termed the agent-system model, distinguishes different outcome relationships for interactional and procedural justice (Masterson, Lewis, Goldman, & Taylor, 2000). Like the two-factor model, the agent-system model demonstrates that procedural justice predicts organization or system-referenced outcomes, yet it also demonstrates that interactional justice predicts agent-referenced outcomes (e.g., supervisor satisfaction and citizenship behaviors performed toward individuals). Consideration of the above theory and findings in the justice literature is important to establish the dimensions of the existing construct and its predictive properties. As I examined this construct embedded in another culture, it is equally important to review organizational justice in the Chinese context.

Sufficient research in the Chinese context establishes distributive and procedural justice as separate dimensions (e.g., Begely, Lee, Fang, & Li, 2002; Begely, Lee, & Hui, 2006; Fong & Shaffer, 2003; Pillai, Williams, & Tan, 2001). Less research has examined interactional justice, and no Chinese research has examined informational and interpersonal justice. Research examining interactional justice in Chinese organizations (i.e., Farh, Earley, & Lin, 1997; Leung, Smith, Wang, & Sun, 1996) typically uses overlapping measures that contain both procedural and informational justice components.

Given the dearth of research on informational and interpersonal justice in China, I examined results from my qualitative and pilot studies to provide guidance for item development for the next stage of the research. These results indicated the existence of the four dimensions of justice in Chinese justice judgments. Qualitative questionnaire items posed broad questions concerning the respondent's interaction with the decision maker (see Appendix A). Of the questionnaire's 351 responses, 75 were coded as interactional justice. Within those 75 responses, 56 were clear references to informational justice and 19 to interpersonal justice criteria. Hypotheses concerning the relationships between organizational justice dimensions and outcomes depend upon factor analytic results supporting the predicted four-factor model.

Based on this evidence for distinct informational and interpersonal justice criteria used in Chinese judgments, I used the pilot study data to compare the reliability of interpersonal and informational justice combined into a single scale assessing interactional justice and also assessed as two distinct scales. Reliability for all 12 interactional justice items combined into a single scale indicated poor item-total correlations for the three informational justice items (below .50 cutoff); Cronbach's alpha

was .75. After separating items into two scales to assess informational and interpersonal justice, reliability was improved in that all five informational justice item-total correlations were above .50. Cronbach's alpha for the informational justice scale was .84. With the exception of one item dealing with propriety of the interpersonal interaction, all item-total correlations for interpersonal justice items ranged from .65 to .76. Cronbach's alpha for the interpersonal interaction scale was .82. These results indicate the presence of four factors in Chinese organizational justice judgments and lead to the following hypothesis.

Hypothesis 1: The four-factor model measuring Chinese organizational justice perceptions will fit the data best.

Structural Model

Much Chinese justice research uses outdated measures with overlapping organizational justice dimensions making it difficult to determine the effects of specific dimensions. I attempted to fill in these gaps by seeking outcome variables from a meta-analysis (Colquitt et al., 2001) and theoretical justice models that yielded similar findings as those presented in the Chinese context. This study's outcome variables included pay satisfaction, affective commitment, perceived organizational support (POS), role ambiguity, supervisor satisfaction, and altruism. The structural model representing expected relationships between the four factors of organizational justice and their outcomes is shown in Figure 1.

Given the goal of identifying relevant outcome variables, I limited my search of the justice literature to examine organizational justice as an antecedent. I reviewed studies analyzing unique effects of the various dimensions of organizational justice on

outcome variables and, where possible, compared findings in the Chinese research with those reported in the meta-analysis conducted by Colquitt and colleagues (2001). Four outcome variables that I identified were examined in relation to justice with more frequency in both Chinese and Western contexts. These variables include affective commitment, altruism, and pay and supervisor satisfaction. I also included perceived organizational support (POS) and role ambiguity as these variables have not been studied in relation to justice in China. In the following section, I describe the outcome variables and related research in both Chinese and Western settings and present the remainder of my hypotheses.

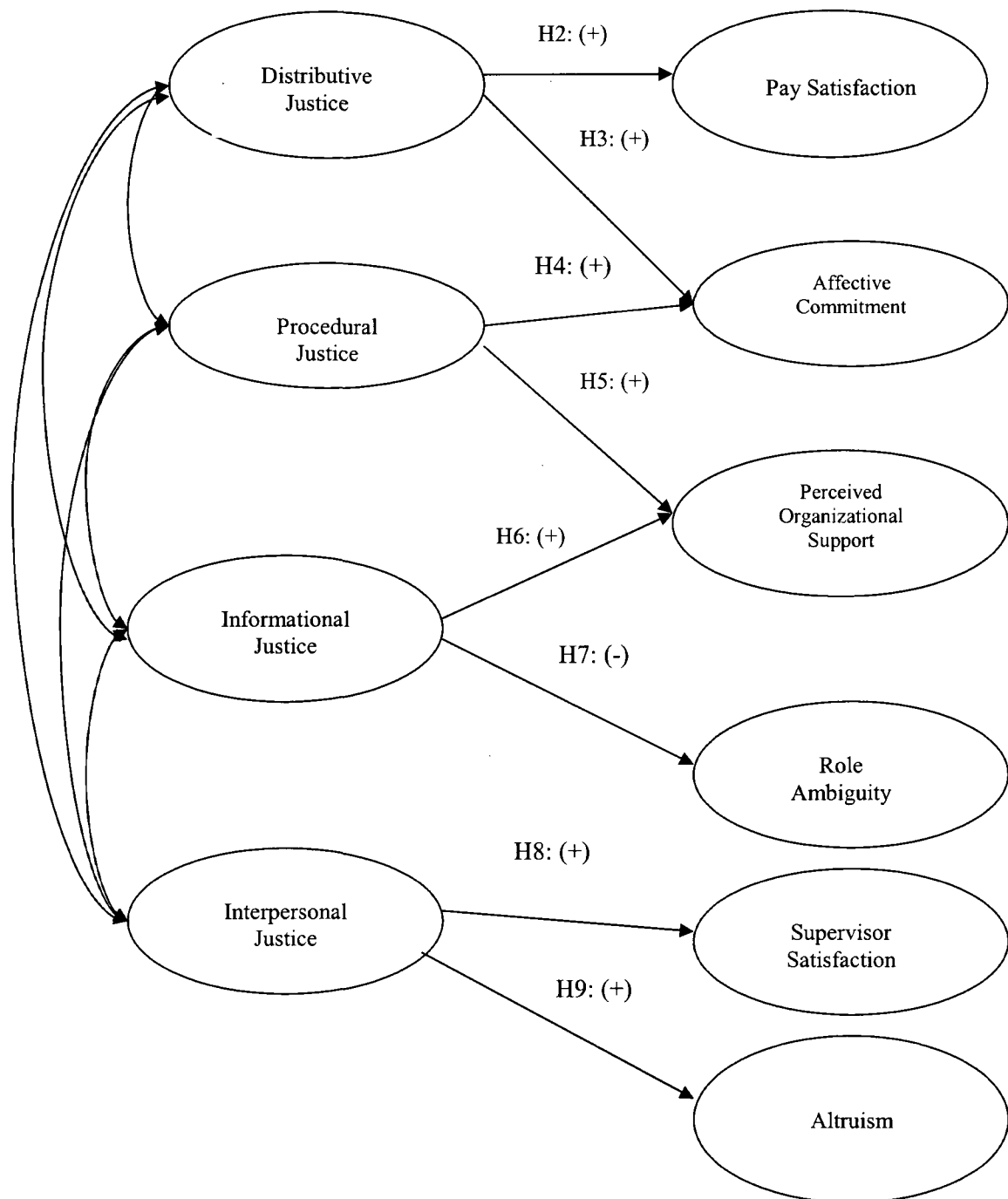


Figure 1. Hypothesized structural model for Chinese organizational justice.

Pay satisfaction and affective commitment. To establish criterion validity for distributive and procedural justice, I selected outcome variables based upon the two-factor and agent-system models of justice. Meta-analytic findings (Colquitt et al., 2001) and the two-factor model indicate that distributive justice is a stronger predictor of agent or person-focused outcomes while procedural justice is more closely tied to system or organization-focused outcomes. Similar to Colquitt's (2001) validation study, I selected a form of outcome satisfaction, pay satisfaction, as it is a person-centered outcome and there is sufficient research in both Chinese (Choi & Chen, 2007; Fong & Shaffer, 2003) and American (see Colquitt et al., 2001; McFarlin & Sweeney, 1992) literatures that documents this relationship. Because the procedural justice-organizational commitment link has been tested in both Chinese (Begely et al., 2006; Pillai et al., 2001) and Western (Colquitt et al., 2001) literature, I selected affective commitment as an outcome variable in the validation model. Affective commitment is a component of organizational commitment and entails the employee's emotional commitment to, identification with, and involvement in the organization (Meyer & Allen, 1991).

Based upon meta-analytic findings (Colquitt et al., 2001) and the two-factor model (Sweeney & McFarlin, 1993), whereby distributive justice is more strongly predictive of person-focused outcomes and procedural justice is more strongly linked to organization-focused outcomes, I proposed that distributive justice will be most highly related to pay satisfaction. Western research supporting this relationship is extensive (e.g., Colquitt et al., 2001; Folger & Konovsky, 1989; McFarlin & Sweeney, 1992; Sweeney & McFarlin, 1993). Folger and Konovsky (1989) found that distributive justice accounted for more unique variance in pay satisfaction than did procedural justice, while

procedural justice accounted for more unique variance in organizational commitment. Similarly, McFarlin and Sweeney (1992) found that distributive justice was a more important predictor of pay level satisfaction than procedural justice. Colquitt et al. (2001) found similar results in their meta-analysis of 28 studies that examined distributive justice's relationship with outcome satisfaction dependent variables (including satisfaction with pay, promotions, and performance evaluation results).

This relationship was also replicated in two studies examining Chinese employees. In a study examining justice and pay satisfaction for Chinese and American employees, Fong and Shaffer (2003) found that national culture did not influence reported pay level satisfaction perceptions, and distributive justice (based on performance, responsibilities, and effort) was the sole significant predictor (procedural and interactional justice had no significant influence) of pay level satisfaction. Choi and Chen (2007) found that, for Chinese employees in joint-venture organizations, performance-based distributive justice strongly influenced compensation system fairness perceptions. These research findings led to the following hypothesis.

Hypothesis 2: Distributive justice will be positively related to pay satisfaction.

Examining Chinese employees, Pillai, Williams, and Tan (2001) investigated the influence of procedural and distributive justice on organizational commitment. Findings were consistent with Colquitt and colleagues' (2001) meta-analysis and the two-factor model (Sweeney & McFarlin, 1993). Distributive justice was not related to organizational commitment whereas procedural justice was positively related to it. Begley et al. (2006) examined procedural and distributive justice's relationship to affective commitment, job satisfaction, organizational trust, and organizational citizenship behaviors. Items were

adapted from Moorman's (1991) justice scale; one of four items in the procedural justice scale is more related to informational justice than procedural. In partial contrast to Pillai et al. (2001), distributive justice was the strongest predictor for affective commitment and job satisfaction, while procedural justice relationships were also significant but somewhat weaker for affective commitment and job satisfaction.

Wong, Ngo, and Wong (2002) examined factors affecting Chinese employees' affective commitment. Wong et al. (2002) used the Balkin and Gomez-Meija (1990) scale for procedural justice, which does not include most criteria used in established justice scales. Their distributive justice scale included five modified items from Price and Muller (1986), which asked participants to indicate whether they were fairly rewarded based on job responsibilities, effort, performance, experience, and stress. Wong et al. (2002) found that distributive justice had both a direct and indirect (via trust in organization) influence on affective commitment, while procedural justice's link to affective commitment was fully mediated via trust in organization.

Procedural justice's link to organizational commitment is supported by the two-factor model and research conducted in Western organizations (Folger & Konovsky, 1989; McFarlin & Sweeney, 1992). Findings from Chinese organizations are mixed, with some results indicating support for the two-factor model (Pillai et al., 2001) and other research showing that, inconsistent with the two-factor model, distributive justice is also related to organizational commitment (e.g., Begely et al., 2006; Wong et al., 2002). Taking both Western and Chinese research findings into account, I expected that both procedural and distributive justice would influence perceptions of affective commitment.

Hypothesis 3: Distributive justice will be positively related to affective commitment.

Hypothesis 4: Procedural justice will be positively related to affective commitment.

Perceived organizational support. POS suggests that employees develop a general perception concerning the extent to which the organization values their contributions and cares about their well-being (Rhodes & Eisenberger, 2002). Shore and Shore (1995) explained that the employee's recurring experiences of fair procedures communicates concern from the organization for his or her welfare, and this should have a cumulative effect on the employee's perceived organizational support.

Western research typically applies the agent-system model when specifying justice's relation to POS such that procedural justice will predict organization (i.e., system)-focused outcomes whereas interactional justice will predict person (i.e., agent)-focused outcomes. For example, Stinglhamber, DeCremer, and Mercken (2006) supported the established link between procedural justice and perceived organizational support (for a review see Rhodes & Eisenberger, 2002) and interactional justice and perceived supervisor support. A more recent study (Cameron, Cropanzano, & Vandenberghe, 2007), analyzed informational and interpersonal justice separately and proposed a similar agent-system model with procedural justice predicting POS and informational justice and interpersonal justice predicting trust in supervisor. Contrary to hypotheses, Cameron and colleagues found that informational justice was also a significant predictor of POS while interpersonal justice had no relation to either trust or POS. These findings correspond with Colquitt and colleagues' (2001) meta-analysis,

which found that informational justice was the strongest predictor of outcomes that were organization-focused evaluations of authority (like POS). Similar to the agent-system model, procedural justice was not related to person-focused outcomes (Colquitt et al., 2001).

A possible explanation for the influence of informational justice on POS could be employees' perception that the amount of information shared is controlled more at the system-level than the agent-level, that is, senior managers rather than one's supervisor. Indeed, Camerman et al. (2007) concluded that informational justice provided diagnostic material useful for understanding the organization as a whole. Results from my qualitative study indicated that the majority of unfair decisions referenced organization-level (i.e., top management, departmental management, headquarters, and general managers) as opposed to person-level (i.e., supervisor, team leaders, team members, and coworkers) decision makers. These findings are also supported by research indicating paternal and hierarchical decision making in Chinese organizations where information is controlled by those at the top of the organization (Sagie & Aycan, 2003).

Hypothesis 5: Procedural justice will be positively related to perceived organizational support.

Hypothesis 6: Informational justice will be positively related to perceived organizational support.

Role ambiguity. Colquitt's (2001) somewhat conflicting second criterion for outcome variable selection required that outcomes be both heavily researched and recently introduced. He conceded that it was challenging to adequately specify part of a construct's nomological network with less frequently examined outcomes; however, the

contribution of research depends on its potential to advance theory, fill gaps in the literature, and establish relationships that have not been previously tested. The fourth outcome variable I selected, role ambiguity, nicely met these criteria. There is a need to clarify specific relationships between justice and role ambiguity in the Chinese context, and enough research examining similar constructs exists to hypothesize the dynamics of those relationships. Inclusion of role ambiguity should also contribute to a recently growing body of work involving investigation of organizational *injustice* as it relates to occupational stress (see Vermunt & Steensma, 2005, for review).

Social role theory (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964) describes occupational stress as a consequence of playing various roles within organizations. Role ambiguity is a type of role stressor that entails the lack of clarity in a role's behavioral requirements and predictability of responses to a person's behavior (Rizzo, House, & Lirtzman, 1970). Role ambiguity occurs because an employee is uncertain about work requirements and/or how he or she is evaluated (Tosi, Mero, & Rizzo, 2000).

Two studies have examined the link between justice and role ambiguity (Kottraba, 2003; Zohar, 1995). Kottraba (2003) found that informational justice was a significant predictor of role ambiguity. Kottraba concluded that employees' role stress could be significantly reduced if employees were provided with an explanation of how workplace procedures and decisions are derived. Zohar (1995) examined "role justice" which entails the fairness of a role sender's (typically one's superior) response to an employee undergoing role stress (i.e., ambiguity, conflict, and overload). Zohar described role ambiguity as an indication of an employee's inability to meet his or her role sender's expectation due to a lack of information.

In the Chinese context, informational justice has not been examined empirically; however, results from my qualitative study provide guidance. Results indicated that information justification and truthfulness in decision explanations were the criteria most often reported when determining whether an interaction was fair. In addition, several respondents described that explanations for workplace decisions needed increased specificity and greater level of detail.

Whether related to task requirements or a vague understanding about how one is evaluated, role ambiguity concerns uncertainty about the expectations of others (Tosi et al., 2000). Tosi et al. (2000) specify the source of uncertainty typically comes from interactions with someone in the organization including unclear directions from one's manager, unclear or mixed performance evaluations, or lack of feedback from others who are involved with one's work. According to Zohar (1995), role ambiguity is the result of social processes. Informational justice involves the provision of explicit, justified, and truthful explanations for workplace decisions. When an employee perceives low levels of informational justice, less information concerning work place decisions is offered and such information could be relevant to the expectations that the organization or supervisor have for employee performance. This possibility leads to the following hypothesis.

Hypothesis 7. Informational justice will be negatively related to role ambiguity.

Supervisor satisfaction. In both the meta-analysis (Colquitt et al., 2001) and Colquitt's (2001) validation study, interpersonal justice consistently predicted person-focused outcomes (i.e., person-referenced evaluation of authority, leader evaluation, and organizational citizenship behaviors directed at individuals). Colquitt et al. (2001) did note that, given the meta-analytic findings, the agent-system model appeared to

underestimate the effect of interpersonal justice on behavioral outcomes. Based on these findings and research using Chinese samples, I examined interpersonal justice's link to the person-referenced variable of supervisor satisfaction and altruistic helping behaviors.

The link between fair interpersonal treatment (Smith, Tyler, Huo, Ortiz, & Lind, 1998) and interactional justice (Cropanzano & Prehar, 1999; Moye, Masterson, & Bartol, 1997) with employee evaluation of leaders has been established in the Western literature (Colquitt, 2001). Cropanzano and Prehar (1999) found that interactional justice was a strong predictor of supervisor satisfaction while procedural justice's influence was nonsignificant. In an experimental study, Smith et al. (1998) manipulated the quality of interpersonal treatment (measured by honesty, politeness, and reliability) and found that participants in higher quality treatment manipulations reported higher feelings of respect from the group authority member, rated their group member authority more positively, and were more accepting of decision outcomes. Robbins, Summers, Miller, and Hendrix (2000) found that interpersonal justice was the sole justice variable able to explain unique variance in both supervisor ratings and employee perceptions of work group performance. Leung, Su, and Morris (2001) found that for both Chinese and American participants, fair interpersonal treatment (as measured by respectful, attentive, and supportive behavior) on the part of a supervisor led to positive attitudes toward the supervisor and higher acceptance of negative feedback. These results lead to the following hypothesis.

Hypothesis 8: Interpersonal justice will be positively related to supervisor satisfaction.

Altruism. Organ (1977) was first to identify a domain of performance that entailed extra-role and discretionary work behaviors. Organ (1988) later termed this performance domain “organizational citizenship behaviors” (OCB) and defined it as individual voluntary behavior that the organization’s formal reward system does not directly recognize although it advances the successful operation of the organization (Organ, 1988). Five dimensions of OCB identified by Organ (1988) were later operationalized by Podsakoff, MacKenzie, Moorman, and Fetter (1990; i.e., civic virtue, sportsmanship, conscientiousness, courtesy, and altruism). In this study, I only examined the dimension of altruism as it has been linked to interpersonal justice. Altruism entails discretionary behaviors that involve helping other organization members with work-related tasks.

Organizational justice is generally linked to OCB via an interpretation of the social exchange theory first proposed by Organ (1988, 1990) and the relational model of social identity theory (Tajfel & Turner, 1986; Tyler & Blader, 2000). Moorman and Bryne (2005) stated that social exchange theory specifies that relationships are supported by the exchange of benefits between parties. For example, if employees perceive fair treatment from the organization they will feel inclined to reciprocate with OCB. Tyler and Blader (2000) proposed the updated social identity-based model whereby an individual identifies with a group and has positive feelings toward that group (e.g., benevolence, pride), he or she will strive to contribute to group achievements and success. Positive group feelings could stem from fair treatment by its members and/or leader.

Farh, Earley, and Lin (1997) created an indigenous Chinese measure of organizational citizenship behaviors and examined its relationship with organizational

justice. Unfortunately, their interactional justice measure (adapted from Folger & Konovsky, 1989) included items tapping the accuracy of information used and process control (both procedural justice criteria), two items tapping information justification, and no items tapping interpersonal justice. This measure of interactional justice was a significant predictor of the OCB scale component of altruism. They did not examine the direct relationship between interactional justice and organizational citizenship but there was a significant positive correlation.

Meta-analytic findings indicated that interpersonal justice was the strongest predictor of organizational citizenship behaviors performed toward individuals within the organization (Colquitt et al., 2001). In his validation study, Colquitt (2001) found a similar link between interpersonal justice and helping behaviors. Other research has provided similar findings linking interpersonal justice to helping behaviors among both managerial and non-managerial employees in several organizations (Aquino, 1995). Taken together, these research findings indicate a significant positive relationship between interpersonal justice and altruistic helping behaviors.

Hypothesis 9: Interpersonal justice will be positively related to altruism.

Finally, the qualitative study identified Chinese culture-specific criteria used in justice judgments. While I do not have any a priori hypotheses related to culture specific justice factor(s), I will conduct an exploratory analysis to determine whether any of these items break into a separate emic factor and as further confirmation for the hypothesized four-factor organizational justice model.

METHOD

Participants

Three organizations and participants in four separate training courses participated in the survey. In all, 515 Chinese employees were invited to participate in the survey; 322 completed the questionnaire rendering a response rate of 62.5%. Fifteen cases were identified as outliers and were removed from analysis (see outlier analysis section below). All three organizations were private companies in the information technology industry. One hundred email invitations were randomly sent in one company that had a total of 250 employees. This company had 62 responses with 40 complete and 38 useable (2 outliers) questionnaires. The second company sent email invitations to all 150 employees with 142 responses and 108 completed and useable questionnaires (7 outliers). The third company sent email invitations to all 100 employees but had malfunctions with its intranet as 20 emails bounced back to the sender. Of the 80 who received email invitations, 28 responded and 22 completed and useable questionnaires resulted (with 1 outlier).

In the first training group, 50 attendees were invited to participate by the course professor and 19 (plus one outlier) completed the online questionnaires. Two training courses involved employees from two different companies in the medical industry. In one of these two courses, the instructor distributed a paper copy of the survey to 35 attendees and received 32 completed questionnaires. In the second course 43 were distributed with 41 surveys completed and one outlier resulting in 39 usable questionnaires. In the third training course, attended by employees from a company in the manufacturing industry, 40 paper copies of the questionnaire were distributed by the course professor and 33 were

returned completed (with 2 outliers). In the last course, attended by employees from various organizations including joint-venture, private and state-owned enterprises, 19 paper questionnaires were distributed with 19 returned complete with one later deemed as an outlier resulting in 18 useable questionnaires. Table 2 summarizes participant demographics and the type of organization and/or industry of which they are a member.

One hundred and forty five respondents were male (47.2%), 131 were female (42.7%), and 31 individuals (10.1%) did not specify gender. A majority of the respondents (249) were Han Chinese (81.1%), 3 were from a Chinese ethnic minority group called Menggu (1.0%), 3 were from a Chinese ethnic minority group called Man (1.0%), and 52 (16.9%) did not specify ethnicity. Age of respondents ranged from 20 to 60 with a mean age of 30.40 (SD = 6.00). Thirty-seven respondents (12.1%) did not specify age. Years of work experience ranged from less than 1 to 40 with a mean of 7.41 (SD = 6.02); 43 respondents (14.0%) did not specify tenure. One hundred and eighty-four (59.9%) respondents were not managers, 92 (30.0%) were managers, and 31 (10.1%) did not specify status. As listed above, 168 participants (54.4%) were from three private IT companies that ranged from 100-250 employees. From the first training group respondents ($N = 19$; 6.2 %), 14 respondents were from state-owned enterprises, 1 was from a joint venture organization, and 4 from private organizations. From the second ($N = 32$; 10.1%) and third ($N = 39$; 12.7%) training groups, respondents came from two private companies in the medical industry. Thirty-one (10.09%) respondents were from the private manufacturing training group. From the final training group ($N = 18$; 5.9%), 11 respondents were from state-owned enterprises, 4 from joint-ventures, 1 from private, and three did not specify organization type.

Table 2

Summary of Participant Demographics and Organization Type

<u>Organization Type/Industry</u>	<u>Number of Participants</u>	<u>Data Collection Method</u>
Private Technology Companies (3)	168	Online Survey
State-owned Companies	13/11	Online Survey/Paper
Private Medical Companies (2)	71	Paper
Private Manufacturing	31	Paper
Joint-Venture	5	Paper
Private	5	Paper
Did Not Specify	3	Paper

<u>Participant Characteristics</u>	<u>Number Responses</u>	<u>Mean</u>	<u>SD</u>
Age	270	30.40	5.99
Years Work Experience	264	7.41	6.02
Male	145	--	--
Female	131	--	--
Manager	92	--	--
Non-Manager	184	--	--

N = 307

Procedure

Participants either completed an online or paper questionnaire. For those completing the online questionnaire, I first gained permission by human resources and/or upper management to survey employees. For the three organizations that participated this way, I sent email invitations to the organization contacts for him/her to forward on to employees. The email briefly detailed the nature of the survey and invited employees to participate with a link to the online survey. Organization contacts were requested to invite all employees. The email link was also distributed by a university professor in a training

course. The professor briefly described the nature of the questionnaire, that it was voluntary, and requested completion at a later date. The first page of the online survey included a brief description of the possible benefits of its findings, the anonymity of responses, and requests that respondents indicate intent to participate by clicking “submit.” The submit button then took them to the first set of items. The online survey was hosted at SurveyMonkey.com.

Paper surveys were collected from participants in four separate training courses. All courses where data were collected were management-related trainings for full-time employees. Three of the training courses (two with medical and one with manufacturing industry participants) were conducted by a second university professor who distributed paper copies to attendees and collected responses onsite. In the fourth training course, a third professor distributed paper copies to respondents and collected them onsite.

Independent sample t-tests were conducted to determine whether significant differences occurred between scale means for individuals taking the online and paper versions of the questionnaires. No significant differences were found among scales comparisons.

Organizational Justice Measures

For the portion of the survey measuring organizational justice, participants were prompted with instructions stating that the following items refer to outcomes received on the job (e.g., pay, promotions, transfers, appraisals). They were then requested to think of a particular work outcome and respond to what extent they agreed with the justice statements. The procedures referenced in the instructions are those used to make the decision in question. The interactional justice item instructions refer to the authority

figure (e.g., supervisor, top management) who implemented the procedure to determine the outcome.

Confirmatory factor analyses (CFA) were conducted for the organizational justice items (listed in Table 1) by dimension in order to examine factor loadings and eliminate problem items (See Appendix E for CFA results of all scales in this study). Detailed description of the criteria for item elimination and listing of items eliminated is provided in the Results section below.

Distributive justice. CFA analysis of the measurement model indicated significant fit improvement when the distributive justice items were separated into two factors (see more detail below): distributive justice west and east. Distributive justice west was measured by Colquitt's (2001) four items (tapping equity-based distributive justice) and represents beliefs about justice common in Western cultures such as in the United States where the measure was created. Distributive justice east contained 10 newly developed items that were derived from the qualitative study and represent beliefs about justice common in Asian cultures such as China. Newly developed items retained for this scale included distributive justice based on equity (2 items based on ability and education), equality (one item), need (5 items including individual and others' needs), and guanxi (2 items). Colquitt's items formed distributive justice west with a coefficient alpha of .94 and the ten newly developed items comprising distributive justice east had a coefficient alpha of .90.

Procedural justice. Procedural justice was measured by six of Colquitt's (2001) procedural justice items (covering justice criteria of accuracy of information, consistency, bias suppression, correctibility, and individual process and outcome control) and five

newly developed items tapping collective outcome control, collective process control, expressing views via voting (2) and majority opinion outcome control. Two parallel items (item 59 covering voting and item 51 tapping collective process control) were removed (based on CFA results) to refine the scale and eliminate redundancies. Reliability analysis for the final 9 items resulted in a coefficient alpha of .91.

Informational justice. Informational justice was measured by Colquitt's (2001) five items tapping the justice criteria of truthful, timely, explanatory, tailored, and reasonable information provided for decision procedures. Reliability analysis for the five items resulted in a coefficient alpha of .93.

Interpersonal justice. Interpersonal justice was measured by Colquitt's (2001) four items measuring the following justice criteria: polite, dignified, proper, and respectful communication. Reliability analysis for the four items resulted in a coefficient alpha of .92.

Outcome Measures

Pay Satisfaction. Participants were asked to indicate how satisfied they are with their pay on a scale from 1 (*extremely dissatisfied*) to 7 (*extremely satisfied*). This was measured using 2 items from Hackman and Oldham's (1975) facet measure of pay satisfaction ("The degree to which I am fairly paid for what I contribute to this organization"). Reliability results indicated a Cronbach's alpha of .90 (See Appendix D items 11, 12)

Affective commitment. I used Chen and Francesco's (2003) Chinese language version of Meyer, Allen, and Smith's (1993) six-item scale ("I feel emotionally attached to this organization"). Respondents indicated their agreement with statements using a

scale of 1 (strongly disagree) to 7 (strongly agree). The alpha coefficient was relatively low when all six-items were analyzed; $\alpha = .32$. Three of the six items (Items 3, 4, and 5) that were negatively worded performed poorly and were removed from further analysis. The remaining item reliability improved significantly with a resulting alpha coefficient of $.65$ (See Appendix D items 1 – 6).

Perceived organizational support. Aryee and Chay's (2001) Chinese language version of Eisenberger, Cummings, Armeli, and Lynch's (1997) 7-item measure of perceived organizational support was administered to participants. Sample items include, "My organization really cares about my well-being" and "Help is available from my organization when I have a problem." The alpha coefficient was relatively low ($.60$) when all eight-items were analyzed. Three of the seven items that were negatively worded performed poorly and were removed from further analysis. Reliability of the scale with the remaining items improved significantly with a resulting alpha coefficient of $.84$. (See Appendix D items 22 – 28)

Role ambiguity. Six items, adopted from Rizzo et al. (1970) were used to measure role ambiguity. A sample item includes "I know exactly what is expected of me." Item 16 performed poorly in the confirmatory factor analysis (low factor loadings and high theta deltas) and was removed from further analysis (see Appendix E, Table E14). Participants indicated the extent to which they felt the item is true/false concerning their role at work on a scale from 1 (*very false*) to 7 (*very true*). All items were reverse scored. Cronbach's alpha was $.89$ (See Appendix D items 16 - 21).

Supervisor satisfaction. Participants were asked to indicate how satisfied they are with their supervisor on a scale from 1 (*extremely dissatisfied*) to 7 (*extremely satisfied*).

This was measured using 3 items from Hackman & Oldham's (1975) facet measure of supervisor satisfaction ("The degree of respect and fair treatment I receive from my boss."). Cronbach's alpha was .88. (See Appendix D items 13-15).

Altruism. This was measured using a component of Farh, Earley, and Lin's (1997) indigenous Chinese measure of OCBs. The altruism scale has 4 items measuring discretionary behaviors that have the effect of helping coworkers on work-related tasks or problems. A sample item includes "Willing to help colleagues to adjust to the work environment." Item 9 ("Willing to cover work assignments for colleague when needed.") was eliminated due to a relatively low factor loading and high theta-delta values in the confirmatory factor analysis (see Appendix E, Table E11). Participants indicated the extent to which they agreed with whether the altruistic helping behaviors represented their own actions by using a rating scale of 1 (*strongly disagree*) to 7 (*strongly agree*). Cronbach's alpha was .90. (See Appendix D items 7 - 10).

Standard blind translation and back-translation procedures (Brislin, 1986) were used for all Western scales used in this study. Chen and Francesco (2003) also used Brislin's (1986) approach and provided their translated affective commitment items for this study. Larry Farh provided Chinese items from the indigenous altruism component of scale used in Farh et al. (1997). A Chinese version of the survey is located in Appendix F.

Data Analysis Overview

To validate the COJS's construct and predictive validity, I used structural equation modeling to test the hypothesized relationships and overall model fit. Anderson and Gerbing (1998) recommend a two-stage strategy including confirmatory factor analysis that tests the measurement model fit (for each latent variable) to the observed

data followed by estimation of the proposed structural model's fit to the data. Based upon recommendations of Marsh and Hocevar (1988), parceling was used to create indicators for variables in the structural model.

Justice dimensions are subject to multicollinearity (Colquitt & Shaw, 2005).

When reviewing the progression of justice theory and measure development from the past four decades, Colquitt and Shaw (2005) noted a history of correlated justice dimensions (e.g., authors found that correlations among the four justice dimensions ranged from $r = .37$ to $r = .64$). Given this multicollinearity, dimensions tend to predict similar outcomes with some justice dimensions having strong influence and other dimensions having weak or moderate influence on the same variable (see Colquitt et al., 2001). While care was taken to select outcome variables that have a history of distinguishing dimensions in both Western and Eastern research, I used two analytic methods to test the fit of the hypothesized model.

As support for his hypotheses, Colquitt (2001) examined modification indices to determine whether additional paths were needed from one of the organizational justice factors to one of the outcome variables. This information would indicate the possible link of other justice factors to an outcome beyond the relationship specified in Colquitt's hypotheses. Colquitt noted Williams (1995) concern over using this method as it relies on post hoc "specification searches" (p. 227) whereby the researcher revises the model based on the statistical information and post hoc theory support.

More recently, J. A. Colquitt (personal communication, January 19, 2008) recommended two updated strategies for distinguishing among dimensions. First, Colquitt recommended that I compare fit indices of two a priori models. Specifically, I

compared the fit indices of my hypothesized model to a model with additional paths between justice dimensions and outcomes. Colquitt indicated that additional paths in the second model should also be supported by the literature (i.e., these include weak or moderate paths suggested by previous research findings). To further pinpoint the significance of additional paths, Colquitt suggested the use of equality constraints in SEM. For example, I proposed a path from interpersonal justice to altruism. The meta-analysis (Colquitt et al., 2001) also indicates a weaker, although significant, correlation between informational justice and OCBs performed toward others (altruism is a type of OCB performed toward others). To test the significance of this additional path I set a constraint to make the interpersonal and informational justice paths (to altruism) equal. If that constraint creates a statistically significant decrement in model fit, then the paths are significantly different from one another. I then verified that the path I predicted to be stronger (the interpersonal justice path in this example) is indeed stronger.

RESULTS

Missing Data

Given the relative ease of dropping out of an online survey, there were many partially completed surveys. There were no paper surveys collected in training sessions that had missing data of sufficient magnitude to warrant elimination. Online surveys with systematic missing data were deleted from the sample. Kline (2005) identifies systematic missing data as displaying a systematic pattern such that incomplete cases differ from cases with complete records. In this study's data, most missing data patterns indicated that respondents either had a "false start" (i.e., filled out a couple of items and then exited the survey) or quit half-way through. Other types of systematic data included skipping an entire page (i.e., scale) of the online survey. Sixty-seven cases with such missing data were deleted (33 were "false starts," 31 quit half-way through, and the remainder skipped one or more pages of the online survey). Of the remaining cases ($N = 322$), missing data per variable were less than 2% for most variables. In items located toward the end of the survey missing data tended to increase; however, most variables had less than 4% missing data. Two distributive justice items (numbers 39 and 42) displayed higher percentages of missing data (9 and 10%). Both of these items were problematic in the pilot study, displayed poor reliability and factor loadings in the current study, and were eliminated from further analysis.

Outlier Analysis

Prior to analyzing the data, I examined outliers using Mahalanobis distance values to identify potential problem cases and then examined each case more closely to determine the nature of the problem. The Mahalanobis distance is the distance of a case

from the centroid of the remaining cases and uses the χ^2 distribution as a measure of that distance. The centroid is the point created at the intersection of the means of all the variables (Tabachnick & Fidell, 2001). Tabachnick and Fidell (2001) recommend a probability estimate for deeming outlier status is $p < .001$ for the χ^2 value. I investigated each case that met this criterion to determine the nature of the outlier and whether it warranted deletion. Fifteen cases were deleted that met this criterion, with the highest Mahalanobis distance ($\chi^2 = 82.60, p < .00$) and lowest ($\chi^2 = 49.48, p < .00$). Careful reanalysis of box plots for each case revealed obvious outlying response patterns that included answering nonsensically (significantly different ratings for parallel items); haphazard responding (e.g., responding to positively and negatively worded same scale items with the same rating); and marking the same number throughout the survey. It is noted that outliers occurred proportionally for paper (5 outliers/125 responses) and online survey (10 outliers/197 responses) administrations. There did not appear to be any differences in the nature of outliers for either administration. The final sample size was 307.

Power Analysis

To obtain adequate power for hypothesis tests, sufficient sample size (N) is required. Given that this study's goal is scale development, I considered research establishing sample size requirements for testing the fit of both measurement and structural models. With regard to measurement models and factor analysis, research on methods for establishing power typically suggest examining the ratio of N to the number of items under analysis, p , or the ratio of N to the number of parameters, t , estimated in the model. Suggestions for the $N:p$ ratio include Cattell's (1978) 3:1 to 6:1. Bentler

(1989) recommended that the minimum $N:t$ ratio should be 5:1. Subsequent research posited that, in addition to considering sample size, the ratio of variables to factors (i.e., assessing overdetermination of factors) is important (MacCallum, Widaman, Zhong, & Hong, 1999).

Marsh, Hau, Balla, and Grayson (1998) described the compensatory relationship among N , p , and f (i.e., factor). For all sample sizes they found that increases in the p/f ratio improved the solution (more accurate parameter estimates, greater reliability, more appropriate solutions); large p/f compensated for small N ; and large N compensated for small p/f . In the case of CFA, Marsh and colleagues (1998) concluded that researchers should use moderate to large p/f and moderate to large N . Specifically, samples below 200 should be avoided. For CFA, Velicer and Fava (1998) suggested using 6 - 10 items per factor. The average p/f ratio for my study's CFA falls within this recommended range at 6.5 items to 1 factor. Given that my sample size is 307 and the total number of parameters is 40, the $N:t$ ratio is approximately 8:1 and exceeds Bentler's (1989) recommended 5:1 ratio. The $N:p$ ratio in the measurement model is approximately 11 respondents per observed variable (parcels + items) (exceeding Cattell's recommended range). According to these standards, 307 respondents allowed ample power to test the fit of the measurement model.

In the case of structural models, other considerations are used when determining adequate sample size. MacCallum et al. (1996) suggest guidelines for calculating power based on degrees of freedom. Degrees of freedom are calculated by the following formula: $df = p(p+1)/2 - q$ where p indicates manifest variables, and q is the number of

distinct parameters to be estimated. Because I used parcels to test fit of the structural model, the number of indicators per factor was reduced from what it would have been using all item-level data.

By using parcels and some item-level data, I had 25 observed variables; my model is specified with 40 parameters. MacCallum et al.'s formula provides the following number of degrees of freedom given this number of observed variables and parameters: $25(25 + 1)/2 - 40 = 285$ degrees of freedom. MacCallum et al. described how *df* increases when there are more observed variables and fewer parameters (as in this study). MacCallum and colleagues do not offer desired sample sizes for a *df* over 100; however, for *df* = 100 the recommended minimum *N* is 132. Jöreskog and Sörbom (2002) provide an alternate formula for determining adequate sample size in SEM analyses: $N = \frac{1}{2}[k(k-1)]$, where *k* is the number of variables under examination. With 25 observed variables, results of this formula indicate a needed sample size of 300. Based on these two formulas, the *N* of 307 allowed sufficient power to test the fit of the structural model.

Descriptive Analyses

Table 3 presents means, standard deviations, and intercorrelations among latent variables obtained from the measurement models. Significance was determined based on *t*-values ($t \geq 2.00$) for phi matrix correlations. Appendix G lists means, standard deviations, and intercorrelations of the parcels.

Measurement Model

Preliminary confirmatory factor analysis. Each scale was assessed independently to examine its measurement structure before testing fit of the measurement model. Maximum likelihood CFA was performed on item-level data before the analysis of the

Table 3

Means, Standard Deviations, and Intercorrelations among the Latent Variables

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Distributive Justice East	2.57	.77	—										
2. Distributive Justice West	2.84	.83	.32*	—									
3. Procedural Justice	2.73	.89	.60*	.20*	—								
4. Informational Justice	3.12	.90	.48*	.19*	.73*	—							
5. Interpersonal Justice	3.79	.85	.09	.35*	.49*	.65*	—						
6. Pay Satisfaction	3.80	1.38	.35*	.75*	.15*	.13*	.01	—					
7. Affective Commitment	4.41	1.78	.06	.06	.04	-.01	-.01	.07	—				
8. Perceived Org. Support	4.56	1.25	.16*	.51*	.27*	.28*	.02	.45*	.36*	—			
9. Role Ambiguity	3.39	1.54	.04	-.19*	-.17*	-.16*	.06	-.19*	-.65*	-.42*	—		
10. Supervisor Satisfaction	4.92	1.41	.17*	.44*	.12	.18*	.00	.43*	.25*	.78*	-.27*	—	
11. Altruism	6.20	.77	-.01	.14*	.00	.08	.04	.15*	.11	.27*	-.27*	.29*	—

Note. $N = 307$. *Intercorrelations provided by the measurement model phi matrix were significant at $p < .05$ for t -value ≥ 2.0 .

measurement and structural models. Certain items in the preliminary scale were redundant. Based upon recommendations set forth by Comrey and Lee (1992) and Tachachnick and Fidell (2001), CFAs were conducted separately for each measure in order to examine factor loadings and eliminate problem items. Items with factor loadings below .45 were eliminated from subsequent analyses (Comrey & Lee, 1992; Tabachnick & Fidell, 2001). Appendix E lists CFA results for all scales included in this study.

The objective of this stage of the research was refinement of items drafted from the qualitative study findings. Parallel items were written for several of the newly introduced emic Chinese dimensions in order to test and select those with the best psychometric properties. In the interest of parsimony and consistency with Colquitt's (2001) measure (i.e., each justice criterion is represented by one item), I examined reliability statistics and confirmatory factor analysis (CFA) item loadings and fit statistics as criteria for item elimination. Robinson, Shaver, and Wrightsman (1991) recommend elimination of items that have item-total correlations lower than .50. Comrey and Lee (1992) prescribed the following guidelines for evaluating item factor loadings: .71 (and higher) are deemed excellent, .63 very good, .55 good, .45 fair, and .35 (and lower) are poor. In the cases of parallel items measuring the same criteria, I retained the items with the highest factor loadings and item-total correlations.

The results for the distributive justice CFA model indicate that a single factor model did not fit the data well: χ^2 ($df=119$, $p < .00$) = 1085.04, CFI = .87, NFI = .85, RMSEA = .16. Colquitt's (2001) items did not load highly onto the single latent construct. Accordingly, I separated the items and conducted CFAs for two separate factors. The first was labeled distributive justice west; the items (all measuring equity-

based distributive justice) from Colquitt's measure (see the first four items in Table 1) were specified to load onto this construct. The second factor was labeled distributive justice east; the items developed based on the qualitative study were specified to load onto this construct. The separate CFA models fit the data better with $\chi^2 (df=2, p < .00) = 14.89$, CFI = .99, NFI = .96, RMSEA = .15 for distributive justice west and $\chi^2 (df=65, p < .00) = 247.35$, CFI = .96, NFI = .96, RMSEA = .10 for distributive justice east. Items that had factor loadings below .50 and items that were redundant in meaning with other items were removed from the distributive justice east model (i.e., items 39, 42, and 47). The chi-square difference between the revised model without these items was $\Delta\chi^2 (\Delta df = 30) = 115.44$, was significantly better fitting ($p < .0001$) and resulted in the following model fit statistics: $\chi^2 (df=35, p < .00) = 131.91$, CFI = .97, NFI = .96, RMSEA = .10.

The results for the CFA model of Procedural Justice indicate that a single factor model fit the data marginally well: $\chi^2 (df = 44, p < .00) = 526.78$, GFI = .76, CFI = .93, NFI = .91, RMSEA = .19. Items that had factor loadings below .50 and that duplicated meaning of other items were removed from the model (i.e., items 51 and 59). The model without these items resulted in significant fit improvement: $\Delta\chi^2 (\Delta df = 17, p < .00) = 319.79$, $\chi^2 (df = 27, p < .00) = 206.99$, GFI = .87, CFI = .95, NFI = .94, RMSEA = .15. Accordingly, it was used in subsequent analyses.

For informational justice, the CFA model indicated high loadings for the five items and good fit to the data: $\chi^2 (df = 5, p < .00) = 24.80$, GFI = .97, CFI = .97, NNFI = .99, RMSEA = .11. Similarly, 4 interpersonal justice items all loaded highly on one factor

and fit statistics were good: χ^2 ($df = 5$, $p = .051$) = 5.95, GFI = .99, CFI = 1.00, NNFI = .99, RMSEA = .08. Parcel assignment of retained items, eliminated items, and parceling strategy are presented below.

Organizational justice item-level measurement model. I tested the organizational justice measurement model using maximum likelihood estimation in LISREL (Joreskog & Sorbom, 2001) to conduct confirmatory factor analyses (CFA). Using Colquitt's (2001) validation approach, I conducted a series of CFAs to determine the best fitting measurement model for the remaining items. Finally, I explored a five factor model that examined fit of a culture-specific factor. The one-factor model, in which all items were used to represent a single organizational justice factor, was analyzed first. The second CFA tested a two factor model with items used to represent a distributive justice factor and a procedural justice factor; informational and interpersonal justice items were used to represent the procedural justice factor. Distributive, procedural, and interactional justice made up the three-factor model with informational and interpersonal justice items combined into a single interactional justice factor. The four-factor model used items to represent distributive, procedural, informational and interpersonal justice factors. Finally, the five-factor model separated distributive justice east and west variables described above.

In order to test model fit improvement I compared fit indices [i.e., non-normed fit index (NFI), incremental fit index (IFI), comparative fit index (CFI), and root-mean-square error of approximation (RMSEA)] in conjunction with analysis of the change in χ^2 comparisons for each of the one, two, three, four, and five factor measurement models. The findings are presented in Table 4 below. Findings indicate that the five-factor model

fit the data the best: χ^2 (454) = 936.48, $p < .001$; NNFI = .98; CFI = .98; IFI = .98, RMSEA = .06. The change in chi-square from the four factor model was significant: $\Delta \chi^2 = 744.31$, $p < .001$. Although the chi-square value was still statistically significant, all other fit statistics indicated excellent fit. Note further, as the findings in Appendix E indicate, that all the items loaded highly and significantly onto their respective constructs.

Table 4

Summary of Findings for Item-Level Measurement Model of Organizational Justice

Model	df	χ^2	$\Delta \chi^2$	NNFI	IFI	CFI	RMSEA
One-factor	464	5693.18		.84	.85	.85	.19
Two-factor	463	3441.42	2251.76	.89	.90	.90	.14
Three-factor	461	2570.11	871.31	.91	.92	.92	.12
Four-factor	458	1680.79	889.32	.94	.95	.95	.09
Five-factor	454	936.48	744.31	.98	.98	.98	.06

Note: All χ^2 and $\Delta \chi^2$ were significant at $p < .001$. $N = 307$.

Parcels. For scales with 4 items or more, I created parcels (made up of two to four items) to represent each latent variable. Little, Cunningham, Sharar, and Widaman (2002) recommend using parcels when one has already explored the dimensionality of the construct's measurement model, when one is not interested in the exact relations among the individual items comprising the measured variables, and when relations among constructs are the focal interest. Parceling reduces the number of items and the needed sample size given recommendations for item:subject ratio thus increasing stability of the

factor solution (Marsh & Hocevar, 1988). Compared to item-level data, parcel-based models are more parsimonious, have fewer chances for correlated residuals or dual loadings, and lead to reductions in various sources of sampling error (MacCallum et al., 1999).

When constructs are examined for the first time or with a new population (as in this study) it is important to be explicit about the parceling method used (Bandalos, Finney, & Geske, 2001). Based upon the qualitative study and prior research, it is apparent that certain constructs are multi-dimensional. For example, there are apparently four dimensions within distributive justice based on more than one item per justice criterion (i.e., equity, equality, need, *guanxi*). On the other hand, past research indicates that scales assessing affective organizational commitment, pay and supervisor satisfaction, procedural, interpersonal, and informational justice are unidimensional.

Based on recommendations from Little et al. (2002), I applied two different methods for building parcels based upon the dimensionality of the constructs. For the unidimensional factors, I used the item-to-construct balance approach (Little et al., 2002) that involves using the factor loadings as a guide for forming parcels. With this method, one uses the highest loading items to anchor each of the parcels. The items with the next highest item-to-construct loading are then added to the anchors in an inverted order. This process is continued by placing lower loading items with higher loading parcels until all items are placed. For the multidimensional construct (i.e., distributive justice east) I used the domain-representative approach which attempts to account for multi-dimensionality by combining items from different dimensions to create parcels that represent each dimension (e.g., creating parcels composed of items measuring equity, need, equality,

and guanxi). This approach was used to create parcels for distributive justice east because I was not interested in relationships between this construct's sub-dimensions and the latent outcome variables. Table 5 presents parcels for latent variables in the structural model and the independent measurement sub-models described below.

Measurement models for independent and dependent latent variables. Anderson and Gerbing (1998) recommend specifying individual measurement sub-models for independent and dependent variables. The independent latent variables measurement model included two parcels for distributive justice west, three parcels for distributive justice east, three parcels for Procedural Justice, two parcels for Informational Justice, and two parcels for Interpersonal Justice. The results for this measurement model indicated excellent fit with a non-significant chi-square, $\chi^2 (44, N = 307) = 56.70, p = .10$, and excellent fit statistics including NNFI = 1.00, CFI = 1.00, IFI = 1.00, GFI = .97, and RMSEA = .03. The χ^2 to *df* ratio equals 1.29, which also indicated good fit as it was less than recommended cutoff value of 2.00 (Tabachnick & Fidell, 2001).

Tables 6 and 7 display standardized solution factor loadings, t-values, theta delta values, item-total correlations, and composite reliability coefficients for the independent and dependent variables, respectively. Figures 2 and 3 show the path diagrams for the independent and dependent variable measurement models, respectively. Independent variable loadings were high ranging from .83 to .97 with all t-values above 2.00 indicating statistical significance. Theta delta values ranged from .09 to .31 indicating low measurement error in the model. Item-total correlations indicated high correlation among the indicators for each scale ranging from .79 to .87. Squared multiple correlations

Table 5

Summary of Parcel Construction and Item Elimination for Measurement Models

Component Scales ^A	Parcel 1 Items	Parcel 2 Items	Parcel 3 Items	Removed Items
Distributive Justice (West)	33, 35	34, 36		
Distributive Justice (East)	37, 47, 41, 48	38, 43, 49	44, 45, 40	39, 42, 47
Procedural Justice	50, 58, 60	52, 57, 56	55, 53, 54	51, 59, 61
Informational Justice	63, 65	64, 62, 61		
Interpersonal Justice	67, 69	66, 68		
Perceived Org. Support	23, 28	22, 24		25, 26, 27
Role Ambiguity	18, 19, 20	17, 21		16

^A The outcome variables of pay satisfaction, supervisor satisfaction, altruism and affective organizational commitment had fewer than four items per scale and were therefore not parceled; individual items were used to represent each latent variable.

Table 6

Factor Loadings, t-values, Theta-deltas, R², Item-Total Correlations, and Reliability Coefficients for the Organizational Justice Measurement

Model

Variables	Factor Loading	t-values	Theta delta	R ²	Item-Total Correlation of Indicators	Composite Reliability
Distributive Justice West						.91
DJW1	.92	13.95	.15	.85	.83	
DJW2	.90	13.68	.19	.81	.83	
Distributive Justice East						.93
DJE1	.90	19.68	.20	.80	.74	
DJE2	.93	20.97	.13	.87	.80	
DJE3	.83	17.57	.31	.69	.80	
Procedural Justice						.90
PJ1	.92	20.88	.15	.85	.80	
PJ2	.87	18.79	.25	.75	.78	
PJ3	.92	20.61	.16	.84	.70	
Informational Justice						.97
INFJ1	.97	22.40	.07	.93	.87	
INFJ2	.93	21.16	.13	.87	.87	
Interpersonal Justice						.97
INTJ1	.93	20.01	.13	.87	.87	
INTJ2	.94	20.13	.12	.88	.87	

Note. N = 307. DJW = distributive justice west, DJE = distributive justice east, PJ = Procedural Justice, INFJ = Informational Justice, INTJ = Interpersonal Justice. All t-values are significant at p < .05.

Table 7

Factor Loadings, t-values, Theta-Deltas, R², Item-Total Correlations, and Reliability Coefficients for the Outcome Variable Measurement Model

Variables	Factor Loading	t-values	Theta delta R ²	Item-total Correlation of Indicators	Composite Reliability
Pay Satisfaction					.94
PS11	.94	17.27	.12	.88	.84
PS12	.89	16.28	.21	.79	.84
Affective Commitment					.54
AC1	.63	10.98	.60	.40	.50
AC2	.73	13.06	.47	.53	.61
AC6	.78	14.14	.39	.61	.61
Perceived Organizational Support					.83
POS1	.88	18.14	.23	.77	.74
POS2	.84	17.02	.29	.71	.74
Role Ambiguity					.94
RA1	.95	20.73	.10	.90	.88
RA2	.93	20.06	.14	.86	.88
Supervisor Support					.90
SS13	.87	18.45	.24	.76	.77
SS14	.83	17.11	.32	.68	.78
SS15	.86	18.02	.27	.73	.80
Altruism					.90
ALT7	.83	17.04	.31	.69	.69
ALT8	.89	18.68	.21	.79	.79
ALT10	.83	16.86	.32	.68	.68

Note. N = 307. PS = Pay Satisfaction, AC = Affective Commitment, POS = Perceived Organizational Support, RA = Role Ambiguity, SS = Supervisor Support, ALT = Altruism. All t-values are significant at p < .05.

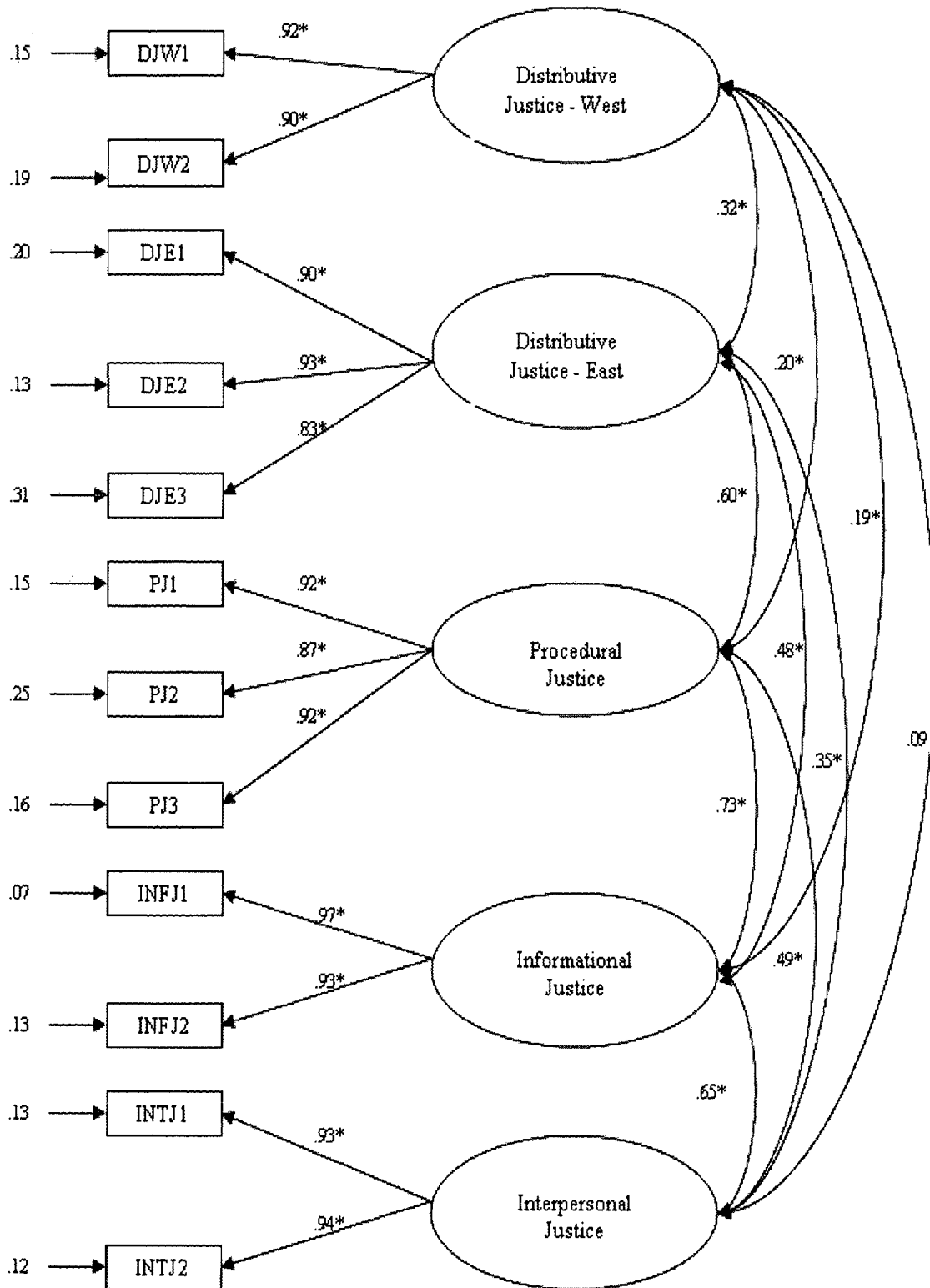


Figure 2. Measurement model for independent latent variables. ($N = 307$, $*p < .05$).

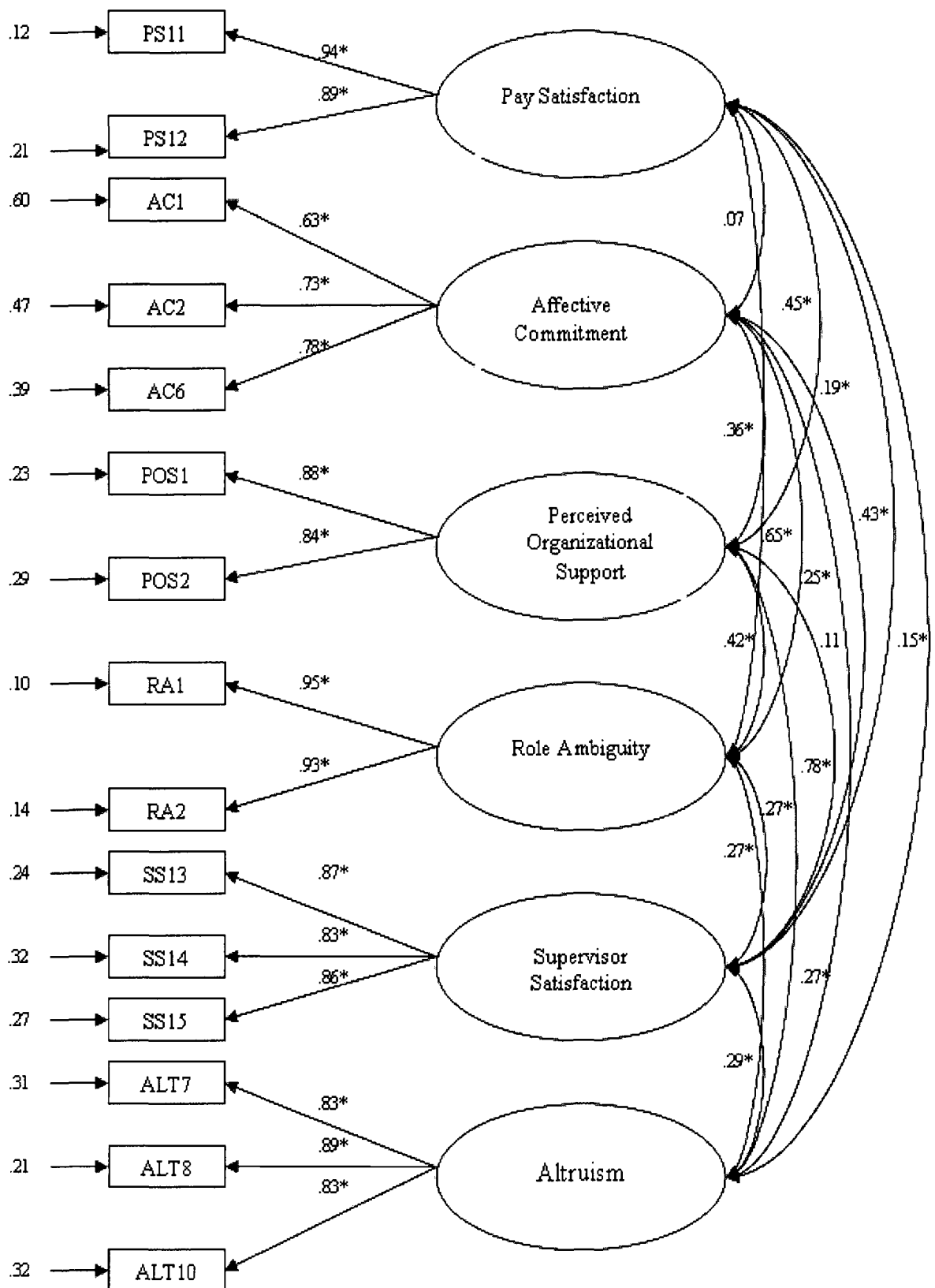


Figure 3. Measurement model for dependent latent variables. ($N = 307$, $*p < .05$).

(R^2) were also high ranging from .69 to .87 indicating that a large percentage of the indicator variance is attributed to the latent variables as opposed to measurement error.

As displayed in Table 3 there was a high correlation between procedural and informational justice ($r = .73$) and both variables displayed similar patterns of correlations among the outcome variables. These findings warranted a post hoc analysis to determine whether these constructs were indeed separate factors. Model fit statistics, where I combined informational justice with the procedural justice item parcels to load on one latent construct, indicated significantly worse fit with $\chi^2(48, N = 307) = 400.90$, $p = .00$, and fit statistics including NNFI = .89, CFI = .92, IFI = .92, GFI = .82, and RMSEA = .16. The chi-square difference indicated decrement in model fit with, $\Delta\chi^2(\Delta df = 3) = 344.20$ and was statistically significant ($p < .001$).

An acceptable fit was found for the latent dependent variable measurement model with $\chi^2(75, N = 307) = 109.42$, $p = .006$. Although the chi-square was significant, other fit indices indicated excellent fit: NNFI = .99, CFI = .99, IFI = .99, GFI = .95, and RMSEA = .04. DeShon (1998) demonstrated that coefficient alpha can result in biased reliability estimates especially when estimating scales with different score and measurement error variances. Thus, composite reliabilities were conducted using Werts, Linn, and Joreskog's (1974) equation. Factor loadings were high and ranged from .63 to .97. Theta deltas ranged from .10 to .60. Item-total correlations indicated high correlation among the indicators ranging from .50 to .88 and, with the exception of affective commitment (.54) high scale composite reliability coefficients for each scale ranging from .83 to .97.

Structural Model

LISREL 8.7 was used to assess fit of the hypothesized structural model (Figure 1). For the sake of comparison, I tested the originally hypothesized four-factor organizational justice model (i.e., distributive justice east and west items loading on one factor). This model is presented in Figure 4. Fit statistics were poor with: $\chi^2(310, N = 307) = 1637.84, p < .01$, GFI = .72, CFI = .88, NNFI = .86, and RMSEA = .12. Significant and non-significant gamma paths were similar to the revised five factor model (Figure 5) and are discussed with the revised model. Distributive justice east items had weak loadings ranging from .35 to .39.

The data achieved a considerably better fit with the five-factor model (Figure 5) but still had several non-significant predicted paths. Fit statistics were: $\chi^2(304, N = 307) = 834.34, p < .01$, GFI = .83, CFI = .95, NNFI = .94, and RMSEA = .08. The χ^2 to *df* ratio equals to 2.74 (which is greater than 2.00) and with the exception of GFI, the goodness-of-fit indices indicate good fit for the hypothesized model. I tested hypotheses 2 and 3 with both distributive justice east and West paths. Individual parameter estimates for the structural model are displayed in Figure 5. Confirmed significant gamma (γ) paths were found for H1 with distributive justice west ($\gamma = .71, t = 12.60$) and East ($\gamma = .12, t = 2.47$) to pay satisfaction and for informational justice to perceived organizational support (H6: $\gamma = .21, t = 2.56$) and role ambiguity (H7: $\gamma = -.16, t = 2.91$).

Hypothesized paths that were nonsignificant included distributive justice (both East and West) → affective commitment (H3); procedural justice → affective commitment (H4); procedural justice → perceived organizational support (H5); and interpersonal justice → supervisor satisfaction (H8) and altruism (H9). Prior to conducting exploratory

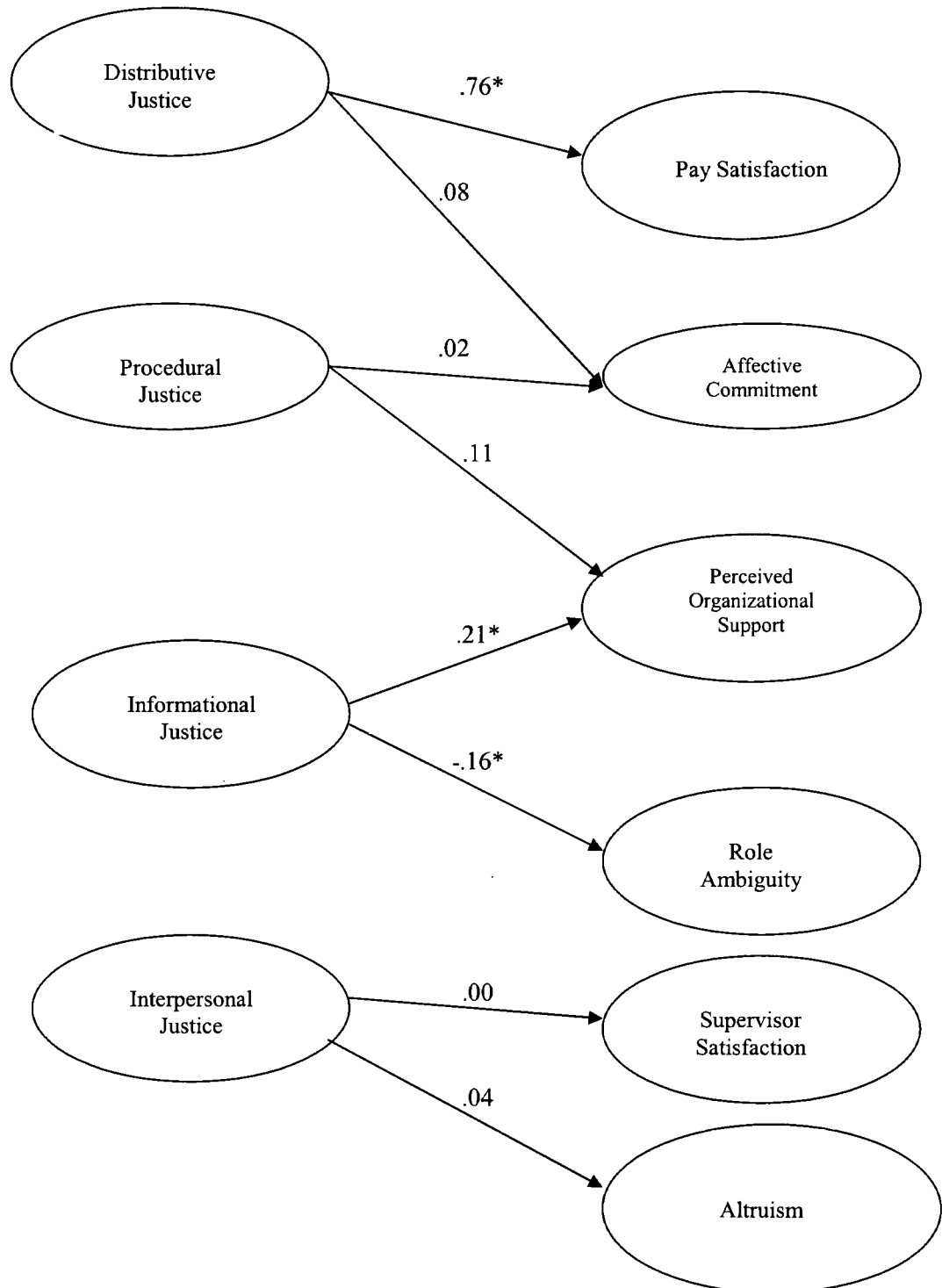


Figure 4. Path diagram displaying standardized solution coefficients for the four-factor hypothesized model ($N = 307$, $*p < .05$).

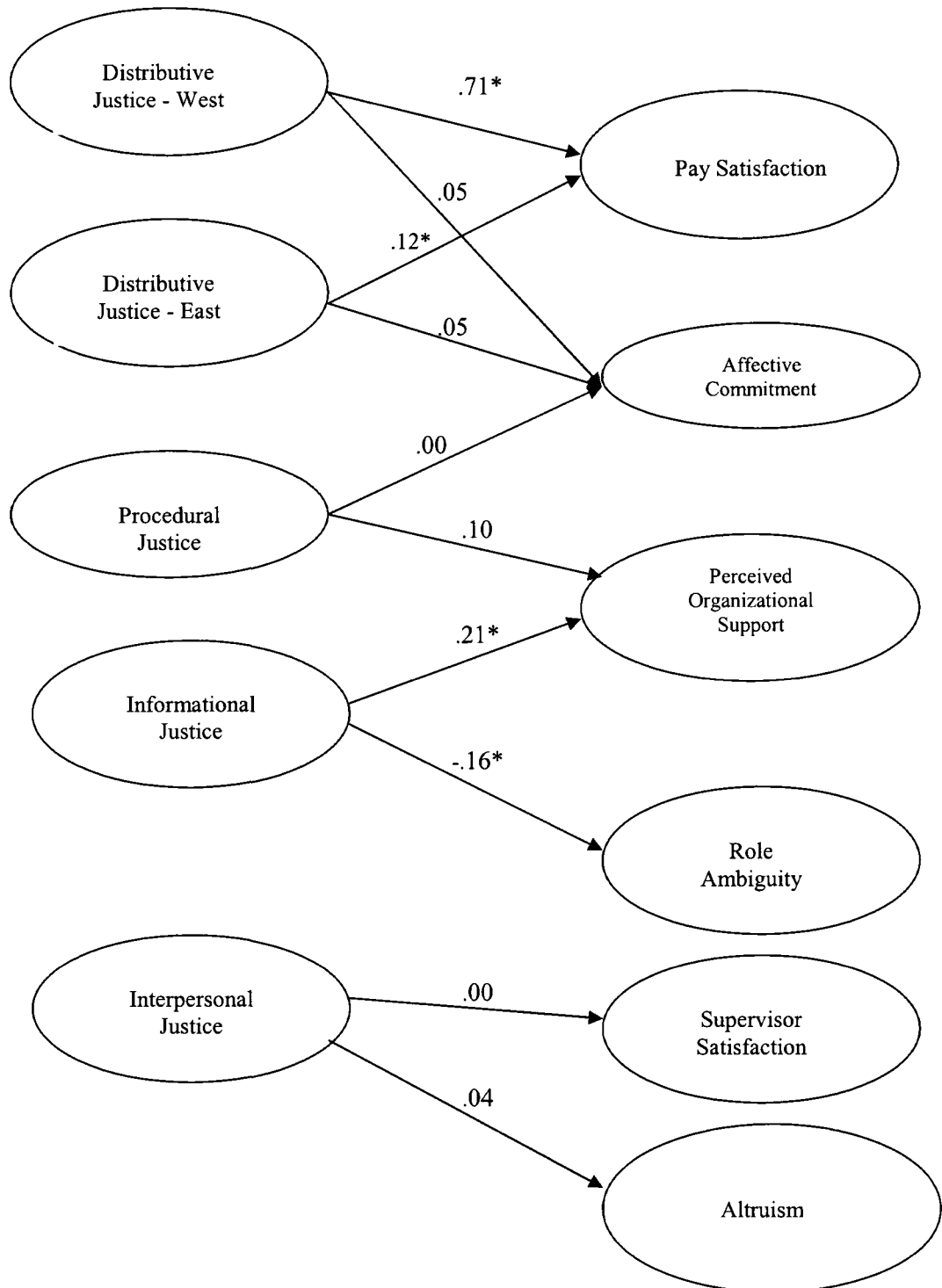


Figure 5. Path diagram displaying standardized solution coefficients for the five-factor hypothesized model ($N = 307$, $*p < .05$).

analyses using Colquitt's recommendation for testing additional paths, I deleted all nonsignificant paths to compare chi square values for constrained and unconstrained models. Anderson and Gerbing (1988) describe a constrained model as one that does not estimate one or more paths in the hypothesized (unconstrained) model. The fit statistics are compared for both models in Table 8 below. The constrained model showed a nonsignificant increase in χ^2 value when compared to the hypothesized model. Because the χ^2 increase was nonsignificant, subsequent exploratory models were compared to the more parsimonious constrained model.

Based on Colquitt's recommendation (described above), I tested additional gamma paths between justice antecedents and outcome variables that were supported by the research literature. The Colquitt et al. (2001) meta- analysis indicated moderate and significant relationships between distributive justice and outcome variables related to the evaluation of authority that are person-referenced (in this study supervisor satisfaction) and organization-referenced (perceived organizational support) and organizational citizenship behaviors that are person-referenced (altruism). These relationships were tested in Model 3 (distributive justice west to supervisor satisfaction), Model 4 (distributive justice west to perceived organizational support), and Model 5 (distributive justice west to altruism). Fit statistics are displayed in Table 8. The meta- analysis also indicated significant and moderate relationships between interpersonal justice and organization-referenced evaluation of authority outcome variables (perceived organizational support) as well. This relationship was tested in Model 6. I tested the above relationships and found significant corresponding gamma paths and improved model fit statistics. Colquitt's et al. (2001) meta-analysis also found moderate

Table 8

Comparison of Hypothesized Model with Alternative Models

Model	χ^2	df	$\Delta\chi^2$	Δdf	GFI	CFI	NNFI	RMSEA	Comparison Model
Four-Factor Model (4FM)	1637.84	307	--	--	.72	.88	.86	.12	--
Hypothesized Model (5FM)	834.34*	304	803.50*	3	.83	.94	.95	.08	4FM
Constrained Model (CM) ^A	842.86*	310	-8.52	6	.83	.94	.95	.08	5FM
DJW to SS (M3)	735.16*	309	107.70*	1	.85	.95	.95	.07	CM
DJW to POS (M4)	690.02*	308	45.14*	1	.86	.96	.96	.06	M3
Equality Constraint (InfJ and DJW to POS)	698.25*	309	-8.23*	1	.86	.96	.95	.06	M4
DJW to Altruism (M5)	680.56*	307	9.46*	1	.86	.96	.96	.06	M4
IntJ to POS (M6) ^B	667.81*	306	12.75*	1	.86	.96	.96	.06	M5
5FM Comparison	--	306	166.53*	2	--	--	--	--	5FM
Equality Constraint (IntJ and InfJ to POS)	689.93*	307	22.12*	1	.86	.96	.96	.06	M6
Equality Constraint (IntJ and DJW to POS)	717.26*	307	49.45*	1	.85	.96	.95	.07	M6

Note. $N = 307$. M3-6 = Models 3-6; DJW = Distributive Justice West; SS = Supervisor Satisfaction; POS = Perceived Organizational Support; InfJ = Informational Justice; IntJ = Interpersonal Justice; GFI = goodness of fit index; CFI = comparative fit index; NNFI = non-normed fit index; RMSEA = root mean square error of approximation. * $p < .01$

^AConstrained Model has deleted nonsignificant paths from the hypothesized model

^BBest fitting model.

relationships between procedural justice and outcome satisfaction (in this study pay satisfaction) and informational justice and organizational citizenship behaviors that are person-referenced (altruism). These paths were tested but were nonsignificant. It should also be noted that distributive justice east and west were tested for all additional distributive justice paths. Distributive justice east had nonsignificant gamma paths for all additional paths.

Colquitt (personal communication January 19, 2008) also recommended conducting equality constraints to further verify whether additional significant paths enhanced model fit. Anderson and Gerbing (1988) and Joreskög (1971) described this approach as a way to assess discriminant validity for two estimated constructs. The estimated paths between the two constructs are constrained to 1.0 and then a chi-square difference test of the values obtained for the constrained and unconstrained (freely estimated) models is performed (Joreskög, 1971). Bagozzi and Phillips (1982) noted that significantly lower chi square values for unconstrained paths, as compared to a model with equality constraints, would indicate discriminant validity is achieved. To test discriminant validity, I constrained additional paths and existing paths (i.e., those specified in the original model) to be equal. Equality constraints were conducted for the distributive justice west (additional) and informational justice (existing) paths to perceived organizational support; interpersonal (additional) and informational justice (existing) to perceived organizational support; and interpersonal (additional) and distributive justice (additional) to perceived organizational support. With all models in which I set equality constraints, there was a significant increase in χ^2 , which indicates that the additional paths enhanced model fit and should be estimated freely.

The parameter estimates with standardized solution of the best fitting revised model are displayed in Figure 6. The revised model (Model 6) statistics indicated a good fit to the data with $\chi^2(306, N = 307) = 667.81, p < .01$, GFI = .86, CFI = .96, NNFI = .96, and RMSEA = .06. The chi-square difference between revised model and the hypothesized model, $\Delta\chi^2(\Delta df = 2) = 166.53$, was statistically significant ($p < .001$), demonstrating significant fit improvement with the revised model. In addition, all other fit indices improved when comparing the revised and hypothesized models.

Results Summary

Hypothesis 1, which stated that the four factor organizational justice model would fit the best, was not confirmed. Confirmatory factor analysis indicated a five factor model, with distributive justice divided into two factors including items that are in Colquitt's (2001) distributive justice (West) measure and a second factor with distributive justice items identified during the qualitative study (termed distributive justice east). Construct validity and reliability were examined for all measures. High standardized loadings, squared multiple correlations, and fit indices supported construct validity for justice and most outcome measurement models. Item-total correlations and composite reliability (ranging from .83 to .97) indicated high reliability for most measures with the exception of affective commitment (composite reliability = .54). Hypotheses were tested by examining the significance of hypothesized structural model's gamma (γ) paths and model fit statistics. While overall fit of the hypothesized model to the data was adequate, only hypotheses 2, 6, and 7 were confirmed with significant paths from distributive justice west (H2: $\gamma = .71, t = 12.60$) and East (H2: $\gamma = .12, t = 2.47$) to pay satisfaction

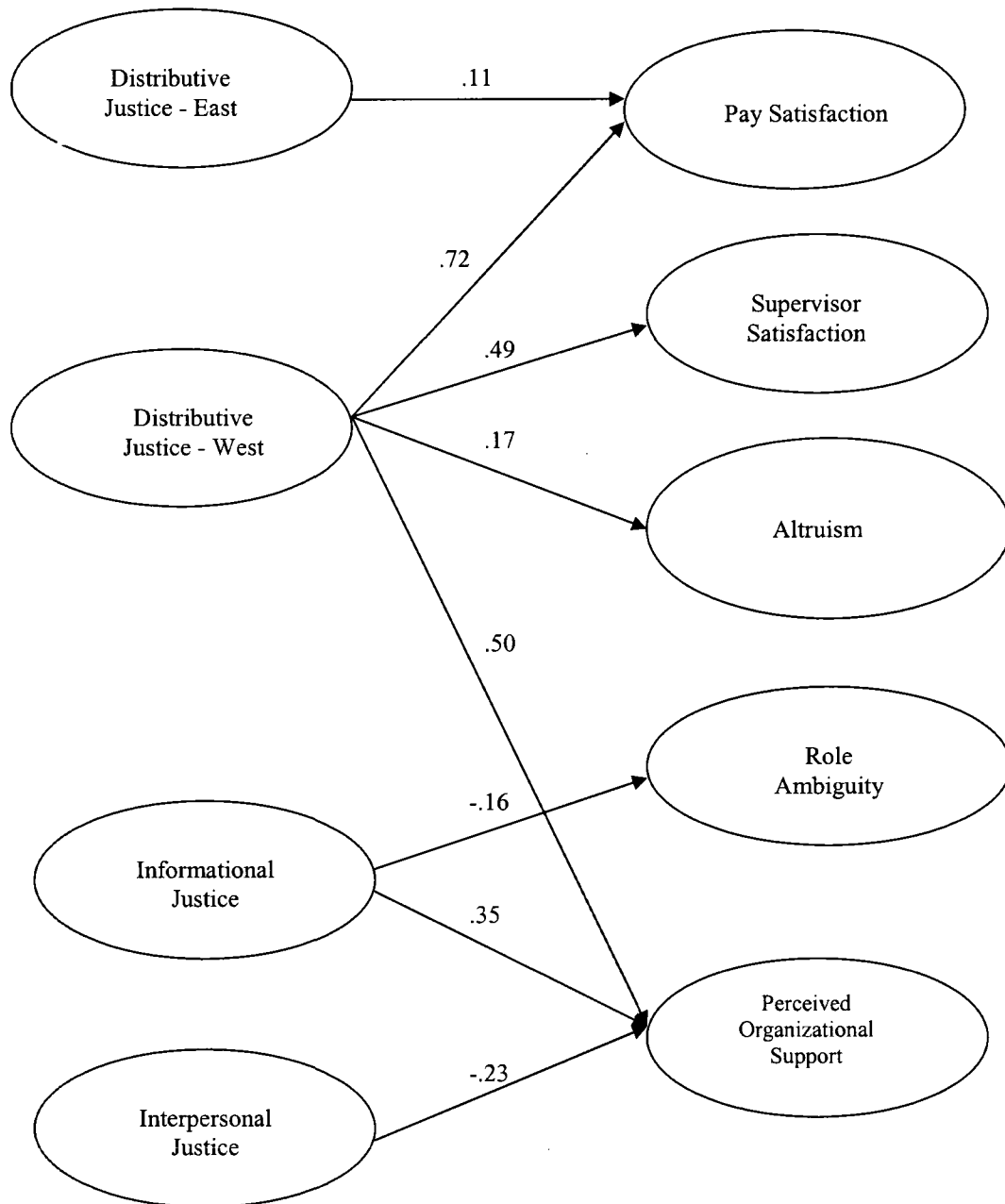


Figure 6. Path diagram displaying standardized solution coefficients for the revised model. ($N = 307$). All coefficients are significant at $p \leq .05$.

and for informational justice to perceived organizational support (H6: $\gamma = .21, t = 2.56$) and role ambiguity (H7: $\gamma = -.16, t = 2.91$). Hypotheses 3, 4, 5, 8, and 9 were not confirmed as the following paths were not significant: distributive justice (both East and West) to affective commitment (H3); procedural justice to affective commitment (H4); procedural justice to perceived organizational support (H5); and interpersonal justice to supervisor satisfaction (H8) and altruism (H9).

Exploratory analyses were conducted using the empirical literature (Colquitt et al., 2001) to support testing additional paths. Based on Colquitt's recommendation via personal correspondence, I conducted equality constraints (setting existing paths equal to additional paths) to further verify whether the additional significant paths enhanced model fit. With all models in which I set equality constraints, there was a significant increase in χ^2 , which indicates that the additional paths enhanced model fit and should be estimated freely. Significant additional paths included distributive justice west to supervisor satisfaction ($\gamma = .49, t = 8.22$), altruism ($\gamma = .17, t = 2.68$), and perceived organizational support ($\gamma = .50, t = 8.44$). There was also a significant additional path from interpersonal justice to perceived organizational support ($\gamma = -.23, t = -3.05$).

DISCUSSION

This study's purpose was to examine the theoretical dimensionality of organizational justice and test the construct validity of a new justice measure for Chinese employees. For organizational justice measurement, this research addresses Morris and Leung's (2000) criticism that less attention has been paid to developing measures for non-Western cultures. This indigenous and indirect measure allows researchers to understand more precisely the weight of various justice criteria in Chinese justice judgments. Because indirect measures are more strongly correlated with outcome measures (Colquitt et al., 2001), the COJS allows researchers to more precisely test relationships between Chinese employees' justice perceptions and important workplace outcomes. Findings from the structural model shed light on justice dimensions' relationships to several associated outcomes, place dimensions in a larger nomological network, and supports predictive validity.

Contributions to Research

This research contributes to the existing literature in several important ways. First, it is the sole attempt to build an indigenous measure that taps both emic and etic dimensions of Chinese justice perceptions. This work provides more information concerning the underlying justice criteria used by Chinese employees to determine workplace fairness. Both contributions consistent and inconsistent with prior literature were found and are described here.

Distributive Justice

Perhaps the most striking finding was the predictive strength of distributive justice west. The revised model indicated that Chinese justice perceptions function

similarly to Leventhal's (1980) distributive dominance model that states that distributive justice is dominant in determining fairness judgments. Findings run counter to Sweeney and McFarlin's (1993) two-factor model, which states that distributive justice has a stronger influence on more personal outcomes (e.g., pay satisfaction), whereas procedural justice is more strongly related to organizational-level outcomes (e.g., affective commitment, perceived organizational support). The COJS measurement model results confirmed the distinction between distributive and procedural justice in the Chinese context. From a predictive validity standpoint, distributive justice predicted several unique outcomes for which procedural justice had no predictive relationships.

Guanxi, need, equality, seniority and education-based equity were identified as influential criteria used in distributive justice judgments and comprised a newly identified emic factor – distributive justice east. Each of these dimensions has been studied in the Chinese literature and I compare my study's findings here.

Rooted in Confucian beliefs, *guanxi* prescribes behaviors comprised of role obligation, friendship and social definition (Liu, 2006). Gabrenya and Hwang (1996) described *guanxi* as complex relationship networks, beginning with family members and expanding throughout a lifetime to include other group memberships formed via education, occupation, and place of residence. In an experimental study examining distributive justice in a Chinese sample, Zhang and Yang (1998) found that participants allocated sums of money for work differentially depending on the type of *guanxi* between the allocator and the receiver (with family and close friends receiving higher sums than colleagues and acquaintances). This research aligns with earlier studies that found higher

allocations for in group members (Leung & Bond, 1984) and less trust and lower perceptions of out group members (Leung, 1988).

For the COJS, *guanxi* was first identified in the qualitative study (see Appendix B) and referenced mostly in relation to criteria used to determine whether distributions were fair. Interestingly, references to *guanxi* in the qualitative study were most often negative and referenced violations of distributive justice perceptions (e.g., higher allocation of resources given to someone who had “good *guanxi*” with the allocator). In this study’s confirmatory factor analysis, *guanxi* items had strong factor loadings for the latent variable distributive justice east and tapped the extent to which a respondent felt that organizational distributions met his or her expectations for *guanxi*.

Earlier distributive justice cross-cultural research also focused on resource allocation norms applied in a given situation. This research found that Chinese participants, members of a traditionally collectivist culture, showed a general preference for applying the equality rule and participants from traditionally individualist cultures emphasized the equity rule (e.g., Leung & Bond, 1982; Bond, Leung, Wan, 1982; Hui, Triandis, & Yee, 1991). Leung and Bond (1982) explained this result by arguing that the equity rule is more easily applied in individualist cultures that emphasize competition and productivity while the equality rule supports collectivist values of group harmony, loyalty, and unity.

The research by Leung, Bond, and colleagues was conducted over twenty-five years ago and, since that time, Chinese employees’ emphasis on the equality rule in distributive justice judgments may be waning whereas the equity rule emphasis may be increasing. I found in the qualitative study that, of 112 statements describing criteria used

in distributive justice judgments, only three references were made to the equality rule as compared to 66 for the equity rule. In confirmatory factor analysis for distributive justice east, the loadings for both equality items were the lowest of all items. Equality items were drafted based on qualitative results which used a coding system derived from Leung and Tong's (2004) cross-cultural model of organizational justice. According to this model, the equality rule can be applied using objective (equal share or usage) or subjective (perception of equal share through alternative compensation) equality criteria.

As further evidence for Chinese emphasis on equity, equity-based criteria were not only present in Colquitt's translated items that made up distributive justice west; seniority and education-based equity were also identified as a component of distributive justice east. Hundley and Kim (1997) also found that length of service was more strongly emphasized by employees from collectivist cultures (i.e., Japan and Korea) than U.S. employees. Sarachek (1990) found that education is regarded as a status marker and educational credentials in recruitment are heavily emphasized in Confucian countries. Education and seniority were also studied by Chen (1995) whose research offers insight on this study's findings on distributive dominance and the role of distributive justice east in Chinese justice perceptions.

Chen (1995) examined organizational goals and reward allocation preferences during China's economic reform. Chen offered evidence that there has been a macro-level shift in values, promoted by U.S. business, from production and profit to increased humanistic concerns. Chen also suggested that, due to economic reforms continuously implemented since 1978, the Chinese have experienced an opposite shift from an ideologically-controlled command to a profit-driven market economy.

Chen's (1995) research demonstrated that, given environmental demands of a shifting economy, Chinese employees could be economically-oriented and preferred the equity rule for the allocation of both material and socioemotional rewards, while U.S. companies preferred equity based rules for material rewards and egalitarian rules for socioemotional rewards. Socioemotional rewards included employee perceptions of managerial friendliness, display of one's photograph at the workplace and attending a party for upper management. In the current study, equity-based distributive justice influence also extends to the relatively social and interpersonal (i.e., supervisor satisfaction, altruism) outcomes. Distributive justice east also predicted pay satisfaction.

Both distributive justice variables tapped what Chen (1995) termed "differential rules" (non-egalitarian) for allocating distributions. Chen's (1995) differential rules included performance, rank, seniority, and job need. Distributive justice west tapped those equity rules based on work performance, effort, and contributions to the organization. Distributive justice east also contained differential rules with a particular "Chinese flavor." These included allocations based on seniority, educational background, *guanxi*, equality, and need.

In Chen's study, both Chinese and Americans rated performance-based differential distribution rules the highest; however, emphasis on differential distribution rules of rank, seniority and need (termed by Chen as "nonperformance differentiation") were significantly higher for Chinese than Americans. Indeed, Chen found that Americans preferred equality to nonperformance differentiation, but the Chinese did just the opposite. My findings indicate that Chinese still place importance on nonperformance differentiation (as measured by distributive justice east) when determining satisfaction

with material rewards (i.e., pay) but not socially-related outcomes (i.e., altruism, supervisor satisfaction, perceived organizational support).

Differential rules are also related to allocation based on need. Leung and Tong's (2004) cross-cultural model of organizational justice proposed that the need rule's criteria included existence (i.e., physiological, materialistic, or security), relatedness (interpersonal interaction needs), and growth (using existing capabilities or developing new ones). COJS items reflected this model and included distributive justice criteria tapping existence (individual material needs and needs of others) and growth (self, others and organization as a whole) needs.

Research examining the need rule in distributive justice is sparse; however, there is some evidence of similar findings in other Eastern cultures. Hundley and Kim (1997) found that, while Americans emphasized performance, Koreans tended to emphasize seniority, education and family size more in judging fairness of pay levels. Family size is an example of a material existence need. Leung (2005) cited several cross-cultural studies (Berman, Murphy-Berman, & Singh, 1985; Cohn, White, & Sanders, 2000; Murphy-Berman & Berman, 2002) that indicate, when resources are scarce, an individual's concern for the well-being of fellow group members increases. For instance, Hong Kong Chinese perceived the merit rule as fairer than the need rule, while the opposite occurred for Indonesians who endure scarcer resources (Murphy-Berman & Berman, 2002). While it is apparent the need rule is an important contributor to Chinese distributive justice judgments, its relationship to important work outcomes should be examined more closely in different contexts.

Procedural Justice

Emic procedural justice criteria identified in this study included the use of collective voice and voting in decision making procedures. The measurement model also confirmed that etic justice criteria included accuracy of information, bias suppression, consistency, individual voice process and outcome control, and ability to appeal the decision. Recall the two factor model, which indicates that distributive justice will have stronger influence on more personal outcomes (e.g., pay satisfaction), whereas procedural justice will be more strongly linked to organizational-level outcomes (e.g., affective commitment, perceived organizational support). While procedural justice's link to organizational commitment is supported by the two-factor model and research conducted in Western organizations (Folger & Konovsky, 1989; McFarlin & Sweeney, 1992), findings from Chinese organizations were mixed with some results indicating support for the two-factor model (Pillai et al., 2001) and other research showing that distributive justice was also related to organizational commitment (e.g., Begely et al., 2006; Wong et al., 2002).

Bear in mind the difficulty in predicting relationships was due to the use of overlapping measures for procedural justice in Chinese literature. For example, Begely and colleagues (2006) used Moorman's (1991) procedural justice scale, where one of four items was more related to informational justice than procedural justice. Wong et al. (2002) used the Balkin and Gomez-Meija (1990) scale for procedural justice, which does not include most criteria used in established justice scales. The COJS procedural justice items include both Colquitt's (2001) criteria, which have never been holistically examined in Chinese samples, and uniquely Chinese criteria (e.g., majority vote,

collective voice) identified in the qualitative study. The COJS does not appear to function under the same theoretical rules laid out in the Western context.

Older measures of procedural justice (i.e., Moorman, 1991) included informational justice items. Given that the two variables had never been examined separately in the Chinese context, I conducted a post hoc analysis to confirm that they were separate factors. Despite a high correlation between procedural and informational justice ($r = .73$) and similar patterns of correlations among the outcome variables, the post hoc analysis (see Results) provided sufficient evidence that these constructs were separate factors. This was similar to Western justice literature findings. Colquitt and Shaw (2005) noted a long history of high multicollinearity among organizational justice facets and Colquitt's (2001) measure also demonstrated high correlations between procedural and informational justice ($r = .62$).

Equity-based distributive justice best trumped procedural justice in predicting both person-centered and organizational-centered outcomes. Reasons for procedural justice's strength in Western research and lack of predictive power in the Chinese context could stem from the differential emphases on rule-versus relation-based societies. Li, Park and Li (2003) propose that differences in management styles and organizational structures exist between Eastern and Western cultures along the lines of relation-based governance and rule-based governance. In a rule-based system (such as in the U.S.) the government generally rules through transparent and universally applied public laws, policies and procedures that are enforced in an unbiased manner. In a relation-based system (as found in China), the government is unable to enforce rules impartially and public rules may be unfair and obscure. According to Li et al. (2004) this dynamic plays

out at the organizational level whereby relation-based governance organizations favor making decisions concerning selection and promotion based on prior reputation and personal connections while rule-based organizations use standardized and consistent application of procedures.

Based on findings from the qualitative study, Chinese employees clearly described their perspective of fair procedure characteristics. However, despite findings that emphasize the importance of equity-based performance criteria, expectations for and application of procedures and rules that consistently apply such criteria could still be slow to catch on in China, a relations-based culture. For example, in the qualitative study, employees often reported that decisions were made at upper echelons of the organization and announced. These respondents typically indicated that no formal procedure was used to make the decision or, if one was used, they had no knowledge of it.

Hofstede and Bond (1988) explain how Confucian and Chinese agrarian roots and the emphasis placed on the family structure influence decision making. The patriarchal family serves as the prototype for Chinese organizations with high power distance, strong vertical structures (e.g., relations between superiors and subordinates) and weak horizontal structures (e.g., relations among peers) (Hofstede & Bond, 1988). In a cross-cultural study of decision making using an 'executive in-basket' approach, Chinese managers overwhelmingly indicated that they would defer decisions to those with higher status and authority (Tse, Lee, Vertinsky, & Wehrung, 1988). With decision-making deferred to the top of the organization, the majority of Chinese employees may not use or be familiar with procedures for making decisions, rendering it difficult to apply procedural justice criteria.

Farh et al. (1997) found that, for Chinese employees, the more formal components of procedural justice (i.e., voice opportunity, ability to appeal the decision) were not as important as interactional justice (mostly measured by informational justice items) in predicting OCBs. These researchers state that their findings were consistent with the Chinese tradition of particularism (tendency to use personal criteria and relationships as a basis for decision making and action rather than formal and standardized procedures). Goodwin and Tang (1996) describe that Chinese interactions are based on “relational personalism” which begins with a distinction between in- and out-group members and specific ways of interacting (including allocating resources, time, and love) based on strength of the tie.

Informational and Interpersonal Justice

For the first time in a Chinese sample, informational and interpersonal justice factors were examined separately. Past research (e.g., Blader, Chang, & Tyler, 2001; Farh et al., 1997) typically included some combination of procedural, informational, and interpersonal justice criteria in the same “interactional” factor construct. Distinction between informational and procedural justice was supported by the differential significance of predictive power in relation to perceived organizational support. Likewise informational justice’s predictive influence on perceived organizational support was positive while interpersonal justice had a negative influence.

Another significant contribution includes examination and confirmation of the relationship between informational justice and role ambiguity for the first time in the Chinese context. This finding is important because there is also little research examining these relationships in Western samples. In Western research, role ambiguity has been

linked to several important workplace outcomes including job performance (Tubre & Collins, 2000), employee well-being and health (Jackson & Schuler, 1985), and work-family conflict (Williams & Alliger, 1994). Thus, learning more about similar relationship patterns in China provides valuable information on how to attenuate perceptions of role ambiguity and possibly other negative outcomes.

This study indicated that interpersonal justice was not a significant predictor of supervisor satisfaction while distributive justice, once again, had a dominant influence. In some related work, Kim and Leung (2007) recently examined how facets of justice weighed differentially across cultures on overall fairness perceptions. They found a significantly heavier weight of distributive justice perceptions for Chinese and Koreans as compared to Americans and Japanese on overall perceptions of organizational justice. Americans and Japanese placed greater importance on interactional justice than Chinese and Koreans in their overall organizational justice perceptions. They cited Abramson and Inglehart's (1995) findings that, as developing nations, China and Korea are still in a materialistic phase where emphasis is placed on material well-being such as pay and promotion, whereas the U.S. and Japan are in a post-materialist phase where emphasis is placed on ecological issues, human rights and quality of life.

My findings indicated a similar distributive dominance whereby distributive justice perceptions demonstrated stronger relationships with outcomes. My research also offers insight on the nature of Chinese interaction-based justice judgments. While Kim and Leung concluded that interactional justice was not as important for Chinese employees, their measure did not include informational justice items. Specifically, Kim and Leung (2007) used an interactional justice measure that only measured direct (rather

than indirect) interpersonal justice perceptions related to one's supervisor (e.g., "In interpersonal encounters, my supervisor gives me fair treatment" p. 94). In other words, no underlying justice criteria were tapped (e.g., extent to which interactions were respectful, honest, and timely). Informational justice has not yet been examined as a single factor in the Chinese context and appears to be the missing component in Chinese interactional justice judgments. Interactions are important but justice researchers examining Chinese samples have not been tapping criteria that matter to Chinese.

In my research, we discover more concerning the nature of noninstrumental or relational criteria that are influential in Chinese justice judgments. Kind, dignified and appropriate treatment do not appear to play as strong a role as honest, thorough, timely, tailored, and reasonable explanations surrounding the decision. My findings also indicate that the informational component of interpersonal interactions is more powerful than instrumental control (as measured by procedural justice) in predicting perceptions of organizational support.

Greenberg (1993; 1994; Lind, Greenberg, Scott, & Welchans, 2000) has similarly found that when employees had little or no voice in the decision, increased explanations and information from the decision maker influenced acceptance of decisions and perceptions of fairness. Shapiro and Brett (2005) stated that informational justice operates both noninstrumentally and instrumentally. From a noninstrumental perspective, Shapiro and Brett (2005) explain that sensitive explanations for decisions communicate that the decision maker respected the recipient enough to more carefully consider the decision. Instrumentally, the decision maker provides the information as justification for the outcome and to sway the recipient's judgment and commitment to the decision.

The dominant influence of informational (as compared to interpersonal) justice, is not surprising given research identifying Chinese decision making as paternalistic (Hofstede & Bond, 1988; Sagie & Aycan, 2003). In paternalistic decision making the sole obligation of the decision maker is to consult with the subordinates and share with them the final decision (Sagie & Aycan, 2003). Greenberg (1990) described that authorities often provide information to appear fair and increase acceptance of decisions. Paternalistic decision making was found to rely more on motivational mediating processes (i.e., subordinate support of and commitment to the decision) than cognitive (actual influence in decision making process by subordinates; Sagie & Aycan, 2003). This explains less influence of voice instrumentality (as measured by procedural justice) and greater influence of informational justice for perceived organizational support. In this decision making context, there is greater expectation for information about how the decision was made rather than actual participation in the decision.

Cheung and her colleagues (Cheung, Cheung, Leung, Ward, & Leong, 2003; Cheung, Cheung, Wada, & Zhang, 2003) found a personality factor that was separate from the NEO-FFI (Neuroticism-Extroversion-Openness Five Factor Inventory) and that is indigenous to Chinese culture. This scale, termed Interpersonal Relatedness, measures the emphasis on interdependent interpersonal relationships that characterize Chinese culture. Interpersonal Relatedness includes items of *renqing* (relationship orientation and reciprocity), harmony, face, traditionalism, and social sensitivity (Cheung et al., 2003). Research indicates that Interpersonal Relatedness is a strong predictor of trust (Zhang & Bond, 1998), persuasiveness and communication (Sun & Bond, 2000). Due to this emphasis on interpersonal relatedness in Chinese culture, subordinates may perceive

fairness in decision interactions when they have been provided with honest and appropriate information that sways their acceptance of the decision outcome.

My findings also indicated that respectful, kind and appropriate treatment on the part of the decision maker was negatively related to perceived organizational support. Interestingly, these findings parallel Colquitt and colleagues' (2001) meta-analytic findings, which showed a significant negative relationship between interpersonal justice and system-referenced evaluation of authority outcomes. Perhaps in both Western and Eastern contexts fair interpersonal treatment (such as that from coworkers or a supervisor) is increased to compensate for low support at the organizational level while organizations that are more transparent and provide more information on decision making are perceived as more supportive.

My research revealed that employees who felt they were equitably rewarded for performance perceived higher levels of support from the organization and supervisor and reported performing more discretionary helping behaviors toward fellow coworkers. The lack of relationship between interpersonal justice and supervisor satisfaction counters the only (to my knowledge) Chinese study that examines the relationship (Leung, Su, & Morris, 2001) as well as a larger body of Western research (Cropanzano & Prehar, 1999; Moye, Masterson, & Bartol, 1997; Smith, Tyler, Huo, Ortiz, & Lind, 1998) and meta-analytic findings (Colquitt et al., 2001).

My findings are in line with Blader and colleagues (2001; Tyler & Blader, 2000), who found that relational factors of justice are deemphasized in high power distance cultures. Similarly, Bond, Wan, Leung, and Giacalone (1985) found that, as compared to Americans, Chinese were more accepting of insulting remarks from a high-status in-

group person; however, no differences were found across Americans and Chinese reactions when the insult came from a low-status individual. James (1993) noted that high power distance societies inculcate an acceptance of power differences and lead individuals to expect and be more accepting of interpersonal injustices. Similarly in this study, interpersonal interactions appear not to influence how one perceives one's supervisor. However, it does appear that supervisors are judged by how fairly they distribute resources.

Interpersonal justice was also not related to altruism (discretionary helping behaviors). While validating their indigenous Chinese measure of OCB, Farh, Earley, and Lin (1997) examined altruism's relationship with organizational justice dimensions. Their interactional justice measure (adapted from Folger and Konovsky, 1989) included items tapping procedural (accuracy of information) and informational justice but had no items tapping interpersonal justice. Their measure of interactional justice and distributive justice was related to the OCB scale component of altruism, but did not assess interpersonal justice in a way comparable to my research. Reasons for the link between equitable distributive justice and altruistic helping behaviors are discussed in terms of sample characteristics below.

Limitations and Future Research

With the regard to the interpretation and generalization of these findings, I note the following limitations. First, certain items from the affective commitment, perceived organizational support, role ambiguity, and altruism outcome measures were not used in the structural model and have implications for the future use of these measures with Chinese samples and limits the comparability of my results to studies using the full

measures. Second, this study's sample was unique based on age, type of employer, and industry. Finally, with the exception of altruism, all outcome measures were developed and validated using Western samples.

Certain items from the outcome measures indicated such poor performance in the confirmatory factor analyses that they were eliminated from further analysis in the measurement and structural models. Three negatively worded items from the perceived organizational support scale (e.g., "My organization shows very little concern for me.") and the affective commitment scale (e.g., "I do not feel a strong sense of belonging to my organization.") were eliminated. Previous research examining Herscovitch and Meyer's (2002) organizational commitment scale suggests that the negatively worded items could form a separate factor and the scale's performance is superior when negatively worded items are omitted (Fenton-O'Creevy et al., 1997; Mathews & Shepherd, 2002). Research using a Chinese sample also reported better model fit when negatively worded items were deleted (Chen & Wang, 2008). This study had similar findings with negatively worded items in both perceived organizational support and affective commitment scales showing low factor loadings and high theta-delta values (see Appendix E, Tables E9 and E11).

Aryee and Chay's (2001) translation of the Eisenberger et al. (1997) perceived organizational support scale was adapted to measure perceived union support in Singapore. Aryee and Chay's findings indicated high reliability ($\alpha = .86$) and no issues with negatively worded items. A possible explanation for the difference in measure robustness, as compared to this study, was our referent of organization as opposed to union. In addition, it is possible Western-developed measures are more easily interpreted

by Singaporean Chinese vs. mainland Chinese given a more predominant Western influence in Singapore (formerly an English colony) as compared to China.

Role ambiguity (reverse scored) item 16 – “I feel certain about how much authority I have” – had similarly poor performance but was not negatively worded. This item may have been awkward for Chinese samples based on the salient humility norm which originates from Confucianism (Leung, 1996). For instance, Farh, Dobbins, and Cheung (1991) found that Chinese employees tend to rate themselves less positively than their supervisors – a finding that is reversed in the U.S. Statements relating to certainty about one’s authority may violate this Chinese modesty bias. China is also a culture that displays high power distance (Hofstede & Bond, 1988) where lower level employees (the majority in this study were non-managers) may perceive less authority than their counterparts in Western samples.

Poor psychometric characteristics of the altruism scale item are more concerning, given that it was developed previously on a Chinese sample (Farh et al., 1997). The deleted item – “Willing to cover work assignments for colleague when needed” – may have been misconstrued as covering for an employee when that individual should be doing his/her own work. Such action might be perceived as disloyal to the organization. Interestingly, this item had a high factor loading (.79) in the Farh et al. (1997) validation study. Future research should examine the generalizability of this measure to other Chinese samples.

My sample was relatively young ($M = 30.40$) and over half of respondents were from the information technology industry (54.4%). Most respondents were from private or joint-venture organizations (91.5%) with only a handful (8.5%) from state-owned

enterprises (SOE). The type of employer could influence Chinese justice perceptions. State-owned enterprises, established under the command economy, were initially likened to a cradle to grave “iron ricebowl” whereby individuals had lifetime employment with little to no mobility outside their enterprise and district into which they were born (Steinfeld, 1998). While there has been a great deal of reform in SOE’s since the shift from command to market economy (initiated by Deng Xiaoping in 1978), Steinfeld argued that SOE reforms entailed increased autonomy for SOE managers with few (rule-based) governance mechanisms to hold them accountable. It is plausible that SOE’s organizational and political culture values may be more reflective of both traditional Chinese and communist values that would emphasize equal distributions, harmony, and social networks while private and joint-ventures are a product of the market economy whereby competition and equity are emphasized. This study’s results reflect the later interpretation. Future research should investigate the potential moderating factor of organizational ownership type to determine whether significant differences in justice perceptions occur for these populations.

Age and experience in certain Chinese historical and sociopolitical events could present another influence on the nature of Chinese justice judgments. For instance, a majority of the respondents in this sample never experienced (at least as working adults) the command economy, the Cultural Revolution, life without one-child policy, totalitarian rule under Mao Zedong, or the Tiananmen Square protests. Consider the financial impact that the one-child policy created in terms of elderly care responsibilities placed on young working couples (i.e., caring for up to four aging parents). It is plausible

that, given the relatively young sample, this also influenced distributive dominance in the current model.

The type of industry represented could have also contributed to findings. The majority of respondents hailed from the information technology and medical industries, which are competitive, innovative, and fast-paced. Innovation relies on the effective flow of communication (Klein, Conn, & Sorra, 2001), which could have contributed to the emphasis on informational justice. Being privy to information could help one maintain competitiveness and power in innovative industries. Leung (2005) described that equity was conducive to productivity and competition while equality promotes solidarity, harmony, and cohesion. The emphasis on equity found here could be at least partially attributed to the necessity to stay competitive in such industries.

The link between perceived equitable distributions and altruistic helping behaviors could result from a uniquely Chinese interpretation of distributive justice in competitive industries. Leung (1997) argued that with in-group members, Chinese employees prefer equal distributions while with out-groups they prefer equitable distributions. Respondents in this study who perceived equitable distributive justice allocation from their organization responded with increased discretionary helping behaviors tied more to collective harmony than to personal gains. This could reflect the Chinese need to balance individualistic values of competitive industries with collectivist values for harmony and group cohesion. Research comparing employees across multiple industries could help distinguish whether industry type influences Chinese justice perceptions.

Based on the findings of this study, I identified several instances where indigenously developed justice dimensions relate differently to outcome measures as compared to previous Chinese research that used a Western measure of justice to predict relationships with the same outcomes. In the case of informational and interpersonal justice, this validation study resulted in etic items that had not yet been examined for Chinese employees. Using indigenously developed distributive and procedural justice measures, this research offers a better understanding of the relative predictive impact of each variable. This brings me to the question, “If outcome measures had been developed indigenously what other differences and similarities might one capture across cultures?” Organizational commitment and perceived organizational support would be excellent candidates for indigenous development given that they are based on subjective attitudes (more likely to vary by culture) and the poor performance of certain scale items in this study. The new COJS should therefore be vetted with indigenously developed outcome measures in order to better understand its predictive validity.

CONCLUSION

Noted as a major challenge in several fields of study including anthropology, political science, and psychology (Morris, Leung, Ames, & Lickel, 1999), the emic-etic dilemma baits the question of how to study constructs across cultures. Because justice has both emic and etic components the COJS allows researchers to compare cultures as well as examine dimensions unique to Chinese. Indeed, researchers note that the behavioral sciences are filled with examples of a construct once thought etic that later turns out to be emic, and vice versa (Farh et al., 2007; Smith, Bond, & Kagitcibasi, 2003). Thus, future research should examine relationship among indigenously developed predictor and outcome scales, not only for the psychometric benefits, but for the possibility of uncovering new dimensions of an attitude that exist across cultures.

The outcomes of this research point to several key findings. First, for three decades totalitarian communist rule (under Mao Zedong) and a command economy emphasized egalitarianism and equality while suppressing values for meritocracy and equity (Shambaugh, 2000). Earlier research supported Chinese emphasis of egalitarian criteria in their justice judgments (Bond, Leung, & Wan, 1982). This study documents the possible resurgence of equity values in the modern Chinese workplace. This is noted as resurgence given that the ancient Confucian philosophy emphasized meritocracy. Indeed, Confucius stated that a virtuous worker who cultivates his qualities can be a gentleman, while a shameless king's son is nothing more than a small man (Pye, 1992). Second, a new and culture-specific form of distributive justice was identified. Distributive justice east includes fairness criteria which emphasize allocations based on one's relationships with others and the needs of others. Third, for the first time

informational and interpersonal justice were examined in the Chinese context. This research indicated that informational justice significantly reduces role ambiguity and enhances perceived organizational support. Researchers can now examine both etic comparisons across Eastern and Western cultures and more detailed culture-specific Chinese justice criteria.

Finally, this research offers some important implications for applied settings. Chinese employers should pay special attention to ensuring that distributions reflect employees' contributions to the organization. Important contributions to consider include employees' effort and job performance. In addition, emphasis on the employees' professional development growth and material needs were identified as important and significantly tied pay satisfaction. Tying distributive decisions directly to information that justifies outcomes is also important in Chinese organizations. Distributions should be accompanied by timely, reasonable, and justifiable information in order to enhance perceptions of support and negate employees' role ambiguity. More research is needed to better understand how procedures impact Chinese perceptions. As China becomes more firmly entrenched in a market-based economic system, government regulations and employee values for consistent and transparent procedures may develop to accommodate the emphasis on the equity rule.

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Appendix A

Qualitative Questionnaire

Agreement to Contribute to the Research as a Participant

In order to ensure the willingness of all respondents, it is required that we obtain the consent of any survey participants. This agreement is designed to guarantee that survey administrators have disclosed necessary information, are willing to answer questions, and are conducting their research in a fair and confidential manner.

I agree to participate in research conducted by researchers at Peking University, Beijing Normal University and Old Dominion University, involving the following procedures:

- 1) Provide subjective feelings concerning the fairness of decisions in the workplace.
- 2) Providing general information about my place of employment including the approximate size of the organization and whether it is public or private.
- 3) Providing general information about myself including gender, ethnicity, age, and length of tenure at my work.

I understand that the research may have the following benefits:

- 1) Help foster understanding and incorporation of perceptions of fairness in workplace decisions and practices.
- 2) Help in the design of procedures and resource allocations that are sensitive to the values and beliefs of employees.

No risks are involved due to my anonymous participation and the confidential treatment of any information obtained.

I am aware that any questions I have now or later about this research can be asked by contacting Katherine Fodchuk at kfodchuk@odu.edu. I also understand that I may discontinue my participation at any time without any penalty. I indicate my agreement to participate by clicking the “submit” button below.

Decisions in the Workplace

This study examines peoples' perceptions of organizational justice. Organization justice concerns whether people view decisions and events in their workplaces as fair.

People make decisions in organizations everyday. Decisions could include, but are not limited to, how one should reward employees for good performance, how team members should divide work, or who should be promoted to a certain position. Please think of a decision that was made in your workplace that directly affected you and/or your colleague(s). This decision should be one that you thought was **unfair**. The decision can be one made by anyone in your organization (e.g., co-workers, supervisor, subordinate, top management, human resource department, etc.) that directly affected you and/or your colleague(s).

CONTINUE TO THE NEXT PAGE

Decision

1. Briefly describe the decision and its result or outcome.
2. Who made the decision? (*Only describe position of individual(s) in the organization in relation to you, e.g., my supervisor, member of my work group, etc.*)
3. Was there a formal procedure used or obvious steps taken to make the decision? If yes, please describe this procedure or steps.
4. Were any aspects of this procedure unfair? If yes, which aspects were unfair?
5. Describe a procedure that you would consider as fair to use in this situation.
6. What conditions or factors appeared to influence the final decision outcome?
7. If it were your decision, what conditions or factors would you have considered?
8. How did you find out about the decision (e.g., face-to-face meeting, email, phone, etc.)?
9. If the decision involved an interaction or communication from or with the decision maker, did you find the interaction or communication unfair? If so, why?

10. To make the interaction or communication fair what interpersonal behaviors should the decision maker have avoided?

11. If the interaction were a fair one, what types of interpersonal behaviors would you expect from the decision maker?

12. Please describe the specific action(s) taken by the decision maker(s) to implement this decision.

13. Would you implement the decision differently? If so, what actions would you take to implement the decision?

14. What individuals were affected by the decision and how were they affected?

CONTINUE TO THE NEXT PAGE

Demographic Information

This information is requested for research purposes and will only be reported in summary form in combination with all surveys received.

- 1) Your age:
- 2) Your gender:
- 3) Your ethnic background:
- 4) How many years of work experience do you have?
 _____years and _____months
- 5) Do you hold a management position in your organization?
 _____Management _____Non-Management
- 6) Please list approximate number of employees at your company?
- 7) Please indicate the type of company you work for:
 Public_____
- Joint Venture_____
- Foreign-Owned Company_____

**END OF SURVEY
 THANK YOU FOR YOUR PARTICIPATION**

Appendix B

Qualitative Study's Method Section

Participants

From the first sample, I analyzed 87 descriptions of critical incidents involving decisions related to organizational justice from 80 Chinese participants (7 participants provided responses for two different decisions per questionnaire). Forty-two paper questionnaires were distributed by a research collaborator at a management training course and 26 managers handed in their completed questionnaires. Thirty-five paper questionnaires were distributed by a Chinese management professor to employees in two workplace settings and 28 were collected by hand two days later. These two methods yielded a response rate of 71%. The remaining questionnaires were distributed via email through the academic and business acquaintances of Chinese research team members. This convenience sample yielded 26 questionnaires.

Respondent previous work experience ranged from .5 to 34 years with an average of 8.03 years. The sample was 46% male, 38 % female, and 16% did not specify gender. For the 85% of respondents who provided their age, ages ranged from 21 to 57 ($M = 31$). Non-managers made up 54% of the sample, 40% were managers, and 5% did not specify. Employees from state-owned organizations comprised 72% of the sample with 10% from private companies, 8% from foreign invested companies, 4% from joint ventures, and 3% from national companies. Participants from 11 organizations participated in the questionnaire. Respondents came from diverse industries including education, telecommunications, cosmetic sales, pharmaceutical sales, petroleum, finance, software, special equipment manufacturing, railway, utilities, and computer service. Eighty-two

percent reported their organization size yielding a range from 5 to 28,000 employees, with an average size of 1151.57. Calculated without the outliers of 5 and 28,000 (reported only by two respondents), the mean company size was 768 employees.

Qualitative Questionnaire

In order to generate examples of criteria used in Chinese justice judgments, each respondent completed a 14-item open-ended questionnaire eliciting descriptions of critical incidents of injustice (see Appendix A: Qualitative Questionnaire – English Version). Items were structured and content analysis of the questionnaire responses was conducted using a framework based on Leung and Tong's three stage model (2004) for examining organizational justice perceptions across cultures. This model was used because it contained organizational justice criteria found in research examining both Western (i.e., Colquitt's organizational justice dimensions) and non-Western samples. For example, distributive justice rules in Western measures typically only tap the equity rule (contribution or merit-based distribution). In Leung and Tong's model, distributive justice rules also included equality (equal distributions made to all concerned) and need (distributions made based on individual needs). This design also provided information for the development of an indirect measure (Lind & Tyler, 1988) of organizational justice.

I developed the questionnaire items in English and, working with Chinese management and psychology professors and a doctoral student who are fluent in English, we translated the items to Chinese and then back-translated items to English to compare meaning. Respondents were prompted to think of an unfair decision that was made in their workplace that directly affected them and/or their colleague(s). Instructions also specified that the decision maker did not have to be a superior but could also be a peer,

group member, subordinate, and so forth. In addition, several examples of workplace decisions were offered.

Four questions elicited information about the decision (i.e., who made the decision, description of decision and outcome, whether there was a formal or informal procedure associated with decision, and how respondent learned about the outcome). Seven items tapped distributive, procedural, and interactional justice criteria and practices. Procedural justice questions requested a description of aspects of the decision were that unfair and a procedure they considered fair. Distributive justice questions asked respondents to identify what conditions or factors appeared to influence the final decision outcome and what conditions or factors they would have considered if it were their decision. Interactional justice questions asked whether the decision involved an interaction and, if so, which aspects of the interaction or communication from or with the decision maker did they find unfair, what interpersonal behaviors or actions the decision maker should have avoided, and what types of interpersonal behaviors would be expected in a fair decision.

Data Coding Strategy

Chinese doctoral students and a Chinese professor translated the questionnaire responses. Questionnaires were divided among three Chinese doctoral students and one professor (they formed two coding teams) in the research team. I trained the doctoral students and professor to use the coding structure. We completed a practice session where the same five questionnaires were distributed to the doctoral student team for coding. Team members then met to compare, discuss, and come to a consensus on assigned codes and strategies. Each questionnaire was independently coded by two Chinese members of

the research team. I also coded the translated responses as a third check. I compared Chinese member codes to each other and to my codes. Team members and I discussed codes that were different and worked to reach agreement.

The 80 Chinese employees provided 351 usable responses surrounding fairness criteria. Agreement on the first round of coding averaged 76% for Chinese coding partners and 71% with my scores. The coding team partners discussed the codes on which they disagreed and increased their agreement to 98%. After they had reached agreement I reviewed their codes, received corrections to and further explanations for some of the response translations and increased my agreement rate to 97%. We discarded the statements we could not agree upon from further analysis. Content analysis of the resulting codes revealed distinct categories that corresponded with Leung and Tong's model and dimensions unique to the Chinese context.

Content Analysis Results

Participant response number for criteria used to make distributive, procedural, and interactional justice judgments are listed in Table B1. Table B2 presents reported components of Chinese justice that did not fit in the existing paradigm. *Guanxi* was referenced 16 times in questions tapping distributive justice and interactional justice. *Renqing* was referenced 8 times with 7 of the responses indicating it was viewed negatively and one positively. The use of majority opinion typically referred to taking an employee vote to use as criteria in decision making. Majority opinion was referenced in all three types of justice and most often was positive. The two references to majority vote as unfair concerned the way the vote was carried out (i.e., voters not fully informed of

Table B1

Number of responses for rules and criteria for each dimension of organizational justice

Distributive Justice (112 responses)	Procedural Justice (164 responses)	Interactional Justice (75 responses)
Equity rule (66)	With recognized procedure (52)	Information Justice (56)
Contribution 52	Accuracy of Information 17	Justification 21
Effort 3	Bias suppression 21	Truthfulness 24
Group membership 1	Process Control 11	Timeliness 2
Previous contribution 10	Outcome Control 2	Specificity 9
Equality rule (3)	Consistency 2	Interpersonal Justice (19)
Objective Equality 1	Procedure mostly unknown (77)	Propriety 7
Subjective Equality 2	Accuracy of Information 16	Respect 12
Need rule (40)	Bias suppression 11	
Existence 12	Process Control 19	
Growth 6	Outcome Control 5	
Relatedness 14	Consistency 22	
Need of Org. 8	Ethicality 1	
	No procedure (35)	
	Accuracy of Information 11	
	Bias suppression 10	
	Process Control 6	
	Outcome Control 1	
	Consistency 6	
	Correctibility 1	

Table B2

Emic Responses which did not fit Leung & Tong's (2004) Model

Criteria/ Response Type ¹	<u>Distributive Justice</u>		<u>Procedural Justice</u>		<u>Interactional Justice</u>	
	Responses	Response Type	Responses	Response Type	Responses	Response Type
<i>Guanxi</i>						
Used	11	Unfair	0	Unfair	5	
Would use	0	Fair	0	Fair	0	
<i>Renqing</i>						
Used	3	Unfair	0	Unfair	3	
Would use	2	Fair	0	Fair	0	
<i>Majority Opinion</i>						
Used	3	Unfair	2	Unfair	0	
Would use	2	Fair	6	Fair	3	
<i>Harmony</i>						
Used	0	Unfair	0	Unfair	0	
Would use	2	Fair	1	Fair	0	

¹Response type for distributive justice designates whether it appeared as if the referenced criteria was used in decision (i.e., "used") or whether the person "would use" it in making the decision, procedural and interactional justice designates whether the criteria was judged as fair or unfair.

voting options and not everyone was told about the vote). Finally, there were three positive references to harmony as it related to team processes.

Appendix C

Pilot Study

Participants

Data were collected from 56 employees in Beijing, China. Participants' average age was 32.96 (ranging from 22 to 52 years old). Of the participants, 51.8% were men and 46.4 % were women (one individual did not specify gender). Employees from state-owned organizations comprised 61.8% of the sample with 38.2% from private companies. Non-managers made up 51.8% of the sample, 46.4% were managers, and 1.8% did not specify status.

Procedure

A Chinese research partner distributed the survey at two organizations during employee weekly meetings. The research partner explained the purpose of the study and asked participants to return surveys to an organization contact person the following week. One organization was a private information technology-oriented company and the second was a state-owned finance organization. Fifty were distributed in the finance organization and 34 completed questionnaire were returned and 30 were distributed in the private information technology company with 22 returned yielding a total response rate of 70%.

Scale Refinement

Using Robinson, Shaver, and Wrightsman's (1991) criteria for scale selection and evaluation, I eliminated most items that had item-total scores less than .50. Before eliminating items with lower item-total scores, I also considered the emphasis placed on

the criteria in the qualitative questionnaire (i.e., the number of times it was referenced), whether there were other items already measuring the justice criteria, and research findings in the Chinese context related to that criteria. Due to low reliability criteria, I eliminated 10 of the original 27 distributive justice items. Fifteen items remained that measured the distributive justice criteria of equity (6), need (7), *guanxi* (2), and equality (2). Equality items approached the .50 item-total correlation condition and were sparsely mentioned in the qualitative data (3 out of 112). However, given research indicating equality as an allocation norm for Chinese (e.g., Bond, Leung, & Wan, 1982; Hui, Triandis, & Yee, 1991; Leung & Bond, 1982), I decided to retain two equality items. Reliability statistics for the refined distributive justice scale resulted in a Cronbach's alpha of .93 and item-total correlations which ranged from .45 to .80.

For procedural justice, I initially eliminated 2 of the 13 items based upon the reliability criteria and qualitative results. The item measuring ethicality was eliminated based on low item-total correlation (.45) and because it was only mentioned once in the qualitative results. An item measuring collective voice was also eliminated as it did not meet the reliability criteria and there were already two other items tapping that criterion. I decided to retain and revise the item measuring accuracy of information because it was very close to the .50 cutoff with an inter-item correlation of .49 and it was one of the most frequently mentioned criteria in the qualitative results. Eleven items remained that measured procedural justice criteria of accuracy of information (1), bias suppression (1), consistency (1), correctibility (1), individual process (1) and outcome (1) control, collective process control (2), and voting (3). Cronbach's alpha for the revised scale was .90 and item-total correlations ranged from .52 to .76.

Chinese research typically measures interactional justice by combining information and interpersonal justice items into one factor (i.e., Begely, Lee, & Hui, 2006; Leung, Smith, Wang, & Sun, 1996). Because my qualitative results indicated use of distinct criteria from informational and interpersonal justice in Chinese justice judgments, I compared reliability results for interpersonal and informational justice combined into interactional justice and as distinct factors. Preliminary reliability statistics for all 12 interactional justice items indicated poor item-total correlations for the three *guanxi* items. Three of the informational justice items were below the .50 cutoff, and Cronbach's alpha was .75. The item-total correlations for the *guanxi* interactional justice items were so low (below zero) that they were eliminated from further analysis. I next conducted separate reliability statistics for interpersonal and informational justice items. For the five informational justice items all item-total correlations were above .50 and Cronbach's alpha was .84. With the exception of one item dealing with propriety of the interpersonal interaction, all item-total correlations for interpersonal justice items ranged from .65 to .76 with a Cronbach's alpha of .82. Because interpersonal propriety (i.e., decision maker refrains from improper remarks) had a lower inter-item correlation and had a large proportion of interpersonal justice references in the qualitative study, I decided to retain and revise this item.

Appendix D

Survey

Participant Agreement and Information for Chinese Perceptions of Fairness in the Workplace Study Participation

This survey is part of ongoing university research concerning employee perceptions of fairness in the workplace in China.

Your participation in the survey is entirely voluntary. You may withdraw from the survey at any time or simply omit any questions that make you feel uncomfortable.

Your participation is anonymous and does not request that you provide any identifying information beyond general demographic data listed below.

Completing this survey involves...

- ... providing subjective feelings concerning the fairness in your workplace, job satisfaction, and commitment to my organization.
- ... providing general information about your workplace including the approximate size of the organization and whether it is public or private.
- ... providing general information about yourself including gender, ethnicity, age, managerial status, and length of tenure at my work.

Possible benefits of this research include...

- ... foster a better understanding of workplace fairness in China.
- ... help in the design of procedures and resource allocations that are sensitive to the values and beliefs of employees.
- ... help Chinese organizations become more successful.

Any questions that you have now or later about this research can be asked by contacting Ying Liu at lylw.liu@gmail.com. I indicate my agreement to participate by clicking the “submit” button below.

(Affective Commitment)

Rating scale (ranges from
1 – *Strongly Disagree* to
7 – *Strongly Agree*)

Please indicate the extent to which you agree/disagree with the following statements.

1. I would be very happy to spend the rest of my career with this organization.
 2. I really feel as if this organization's problems are my own.
 3. I do not feel a strong sense of belonging to my organization.*
 4. I do not feel emotionally attached to this organization.*
 5. I do not feel like part of the family at my organization.*
 6. This organization has a great deal of personal meaning for me.
-

(Altruism)

Please indicate the extent to which you agree/disagree that the following statements describe your actions:

7. Willing to assist new colleagues to adjust to the work environment.
 8. Willing to help colleague solve work-related problems.
 9. Willing to cover work assignments for colleague when needed.
 10. Willing to coordinate and communicate with colleagues.
-

(Satisfaction Measures)

Please indicate how satisfied you are with each aspect of your job below:

Rating scale (ranges from
1 – *Extremely Dissatisfied*
to 7 – *Extremely Satisfied*)

(Pay)

11. The degree to which I am fairly paid for what I contribute to the organization.
12. The amount of pay and fringe benefits I receive.

(Supervisor)

13. The degree of respect and fair treatment I receive from my boss.
 14. The overall quality of supervision I receive on my work.
 15. The amount of support I receive from my supervisor.
-

(Role Ambiguity)

Rating Scale (ranges from
1 – *Very False* to 7 – *Very True*)

Please rate the degree to which the following statements are true or false concerning your role at work.

16. I feel certain about how much authority I have.*
17. I have clear, planned goals and objectives for my job.
18. I know that I have divided my time properly.
19. I know what my responsibilities are.
20. I know exactly what is expected of me.
21. Explanation of what has to be done is clear.

(Perceived Organizational Support)

Rating Scale (ranges from
1 – *Very False* to 7 – *Very True*)

Please indicate the extent to which you agree with the following statements.

22. My organization cares about my opinions.
 23. My organization really cares about my well-being.
 24. My organization strongly considers my goals and values.
 25. My organization would forgive an honest mistake on my part.*
 26. If given the opportunity, my organization would take advantage of me.*
 27. My organization shows very little concern for me.*
 28. My organization is willing to help me if I need a special favor.
-

(Distributive Justice)	Rating Scale
The following items refer to outcomes you receive from your job (e.g., pay, promotions, transfers, appraisals, etc.). Thinking of a particular work outcome, to what extent:	(1 – to a small extent to 5 – to a large extent)
33. Does your (outcome) reflect the effort you have put into your work?	
34. Is your (outcome) appropriate for the work you have completed?	
35. Does your (outcome) reflect what you have contributed to the organization?	
36. Is your (outcome) justified, given your performance?	
37. Is your (outcome) appropriate given your educational background?	
38. Is your (outcome) appropriate given your current abilities?	
39. Does your organization divide the (outcome) equally among employees?*	
40. If the (outcome) cannot be divided equally, are employees compensated with some other type of (outcome)?	
41. Does your (outcome) reflect your financial needs?	
42. Does your (outcome) reflect the organization's financial needs?*	
43. Is your (outcome) appropriate given your professional development needs?	
44. Is your (outcome) appropriate given the development needs of the organization?	
45. Does your (outcome) reflect the career development needs of all concerned?	
46. Is your (outcome) justified given its impact on all concerned?	
47. Is your (outcome) justified given the needs of all concerned?*	
48. Does your (outcome) meet your expectations about <i>guanxi</i> ?	
49. Does your (outcome) meet the expectations that others have for <i>guanxi</i> ?	

(Procedural Justice)

Rating Scale

The following items refer to the procedures used to determine your outcome. To what extent:

(1 – to a small extent to
5 – to a large extent)

50. Have you been able to express your views and feelings during those procedures?
 51. Have those procedures allowed for organization members to collectively express their opinions?*
 52. Have organization members collectively had the opportunity to express views and feelings during those procedures?
 53. Have you had influence over the (outcome) arrived at by those procedures?
 54. Have those procedures been free of bias?
 55. Have those procedures been based on accurate information?
 56. Have you been able to appeal the (outcome) arrived at by those procedures?
 57. Have those procedures allowed organization members to express their views through voting?
 58. Have those procedures been based on the majority opinion of the organization's employees?
 59. Have those procedures been influenced by a vote from the organization's members?*
 60. Have those procedures been applied consistently?
-

(Informational Justice)

The following items refer to the authority figure (e.g., supervisor, top management) who implemented the procedure to determine your outcome. To what extent:

61. Has (he/she) been candid in (his/her) communication with you?
 62. Has (he/she) explained the procedures thoroughly?
 63. Has he/she communicated details in a timely manner?
 64. Has (he/she) seemed to tailor (his/her) communications to individuals' specific needs?
 65. Were (his/her) explanations regarding the procedures reasonable?
-

(Interpersonal Justice)

- 66. Has (he/she) treated you in a polite manner?
- 67. Has (he/she) treated you with dignity?
- 68. Has (he/she) treated you with respect?
- 69. Has (he/she) refrained from improper remarks?

* Items were dropped from analyses due to poor psychometric properties in Studies 2 and 3. All remaining items were retained in the final measurement and structural models.

Demographic Information

This information is requested for research purposes and will only be reported in summary form in combination with all surveys received.

- 1) Your age:
- 2) Your gender:
- 3) Your ethnic background:
- 4) How many years of work experience do you have?
_____years and _____months
- 5) Please indicate whether you are a manager or not:
Manager _____ Non-Manager _____
- 6) Please list approximate number of employees at your company.
- 7) Please indicate the type of your company:
State-owned _____
Private _____
Joint-venture _____

Appendix E

Confirmatory Factor Analyses of Individual Measures

Table E1

Distributive Justice- One Factor 17 Item Scale: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple Correlations (R²)

	Factor Loadings	Theta Delta	R ²
DJ33	.35	.73	.14
DJ34	.32	.70	.13
DJ35	.30	.68	.12
DJ36	.33	.71	.14
DJ37	.60	.48	.43
DJ38	.61	.43	.46
DJ39	.34	.78	.13
DJ40	.45	.71	.22
DJ41	.60	.63	.36
DJ42	.37	.70	.17
DJ43	.67	.34	.57
DJ44	.58	.45	.42
DJ45	.60	.45	.44
DJ46	.75	.24	.70
DJ47	.77	.19	.75
DJ48	.73	.36	.60
DJ49	.59	.35	.51

Note. $N=307$. Estimates of goodness-of-fit are: $\chi^2(df=119, p < .00) = 1085.04$, CFI = .87, NNFI = .85, RMSEA = .16 All t -values are greater than 2.00. *Cronbach's alpha* = .90.

Table E2

Distributive Justice West: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple Correlations (R²)

	Factor Loadings	Theta Delta	R ²
DJ33	.70	.35	.59
DJ34	.76	.23	.72
DJ35	.74	.22	.72
DJ36	.77	.23	.72

Note. $N = 307$. Estimates of goodness-of-fit are: $\chi^2 (df=2, p < .00) = 14.89$, CFI = .99, NNFI = .96, RMSEA = .15 All t -values are greater than 2.00. *Cronbach's alpha* = .94.

Table E3

Distributive Justice East 13 Items: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple Correlations (R²)

	Factor Loadings	Theta Delta	R ²
DJ37	.60	.48	.43
DJ38	.60	.44	.45
DJ39	.34	.78	.13
DJ40	.45	.71	.22
DJ41	.60	.63	.37
DJ42	.37	.70	.16
DJ43	.68	.33	.58
DJ44	.58	.45	.43
DJ45	.60	.45	.44
DJ46	.75	.23	.71
DJ47	.77	.18	.77
DJ48	.73	.36	.59
DJ49	.59	.35	.51

Note. $N = 307$. Estimates of goodness-of-fit are: $\chi^2 (df=65, p < .00) = 247.35$, CFI = .96, NNFI = .96, RMSEA = .10 All t -values are greater than 2.00. *Cronbach's alpha* = .90.

Table E4

Distributive Justice East 10 Items: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple correlations (R²)

	Factor Loadings	Theta Delta	R ²
DJ37	.68	.54	.46
DJ38	.70	.51	.49
DJ40	.48	.77	.23
DJ41	.61	.63	.37
DJ43	.79	.38	.62
DJ44	.70	.51	.49
DJ45	.69	.53	.47
DJ46	.81	.35	.65
DJ48	.78	.40	.60
DJ49	.70	.51	.49

Note. $N = 307$. Estimates of goodness-of-fit are: $\chi^2 (df=35, p < .00) = 131.91$, CFI = .97, NNFI = .96, RMSEA = .10 All t -values are greater than 2.00. *Cronbach's alpha* = .90.

Table E5

Procedural Justice- 11 Items: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple Correlations (R²)

	Factor Loadings	Theta Delta	R ²
PJ50	.77	.41	.59
PJ51	.81	.34	.66
PJ52	.82	.33	.67
PJ53	.76	.42	.58
PJ54	.75	.44	.56
PJ55	.73	.46	.54
PJ56	.69	.52	.48
PJ57	.71	.50	.50
PJ58	.74	.45	.55
PJ59	.62	.62	.38
PJ60	.53	.71	.29

Note. $N = 307$. Estimates of goodness-of-fit are: $\chi^2 (df = 44, p < .00) = 526.78$, GFI = .76, CFI = .93, NNFI = .91, RMSEA = .19 All t -values are greater than 2.00. *Cronbach's alpha* = .93.

Table E6

Procedural Justice- 9 Items: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple Correlations (R²)

	Factor Loadings	Theta Delta	R ²
PJ50	.73	.47	.53
PJ52	.77	.40	.60
PJ53	.75	.44	.56
PJ54	.78	.40	.60
PJ55	.77	.41	.59
PJ56	.71	.49	.51
PJ57	.71	.50	.50
PJ58	.77	.41	.59
PJ60	.55	.70	.30

Note. $N =$. Estimates of goodness-of-fit are: $\chi^2 (df = 27, p < .00) = 206.99$, GFI = .87, CFI = .95, NNFI = .94, RMSEA = .15 All t -values are greater than 2.00. *Cronbach's alpha* = .91.

Table E7

Informational Justice: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple Correlations (R²)

	Factor Loadings	Theta Delta	R ²
INFJ61	.84	.29	.71
INFJ62	.85	.28	.72
INFJ63	.91	.17	.83
INFJ64	.82	.34	.66
INFJ65	.83	.32	.68

Note. $N = 307$. Estimates of goodness-of-fit are: $\chi^2 (df = 5, p < .00) = 24.80$, GFI = .97, CFI = .97, NNFI = .99, RMSEA = .11. All t -values are greater than 2.00. *Cronbach's alpha* = .93.

Table E8

Interpersonal Justice: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple Correlations (R²)

	Factor Loadings	Theta Delta	R ²
INTJ66	.77	.22	.73
INTJ67	.86	.10	.88
INTJ68	.83	.14	.83
INTJ69	.68	.39	.54

Note. $N = 307$. Estimates of goodness-of-fit are: $\chi^2 (df = 5, p = .051) = 5.95$, GFI = .99, CFI = 1.00, NNFI = .99, RMSEA = .08. All t -values are greater than 2.00. *Cronbach's alpha* = .92.

Table E9

Affective Commitment – 6 items: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple Correlations (R²)

	Factor Loadings	Theta Delta	R ²
AC1	.70	.51	.54
AC2	.71	.49	.58
AC3	.33	.89	.11
AC4	.30	.92	.08
AC5	.26	.93	.11
AC6	.70	.50	.53

Note. $N = 307$. Estimates of goodness-of-fit are: $\chi^2 (df = 27, p < .00) = 110.14$, GFI = .88, CFI = .77, NFI = .62, RMSEA = .20 All t -values are greater than 2.00. *Cronbach's alpha* = .31.

Table E10

Affective Commitment – 3 items: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple Correlations (R²)

	Factor Loadings	Theta Delta	R ²
AC1	.72	.48	.52
AC2	.67	.55	.45
AC6	.48	.77	.43

Note. $N = 307$. Estimates of goodness-of-fit are: Fit Perfect, Saturated Model. *Cronbach's alpha* = .65.

Table E11

Altruism: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple Correlations (R²)

	Factor Loadings	Theta Delta	R ²
ALT7	.69	.22	.68
ALT8	.68	.12	.79
ALT9	.59	.43	.48
ALT10	.64	.17	.67

Note. $N = 307$. Estimates of goodness-of-fit are: $\chi^2 (df = 2, p = .57) = 1.12$, GFI = 1.00, CFI = 1.00, NFI = 1.00, RMSEA = .0 All t -values are greater than 2.00. *Cronbach's alpha* = .85.

Table E12

Perceived Organizational Support- 7 items: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple Correlations (R²)

	Factor Loadings	Theta Delta	R ²
POS22	.68	.54	.46
POS23	.81	.35	.65
POS24	.85	.28	.72
POS25	.59	.66	.34
POS26	.46	.79	.21
POS27	.51	.74	.26
POS28	.70	.51	.49

Note. $N = 307$. Estimates of goodness-of-fit are: $\chi^2 (df = 14, p < .00) = 135.81$, GFI = .90, CFI = .93, NNFI = .88, RMSEA = .16 All t -values are greater than 2.00. *Cronbach's alpha* = .60.

Table E13

Perceived Organizational Support- 4 items: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple Correlations (R²)

	Factor Loadings	Theta Delta	R ²
POS22	.68	.54	.46
POS23	.85	.28	.72
POS24	.86	.26	.74
POS28	.66	.57	.43

Note. N = 307. Estimates of goodness-of-fit are: χ^2 (df = 2, p = .35) = 1.00, GFI = 1.00, CFI = 1.00, NNFI = 1.00, RMSEA = .01 All t-values are greater than 2.00. Cronbach's alpha = .84.

Table E14

Role Ambiguity- 6 items: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple Correlations (R²)

	Factor Loadings	Theta Delta	R ²
RA16	.35	.88	.12
RA17	.86	.26	.74
RA18	.76	.43	.57
RA19	.94	.11	.89
RA20	.82	.33	.67
RA21	.81	.44	.66

Note. N = 307. Estimates of goodness-of-fit are: χ^2 (df = 9, p < .00) = 66.69, GFI = .93, CFI = .97, NNFI = .95, RMSEA = .15 All t-values are greater than 2.00. Cronbach's alpha = .85.

Table E15

Role Ambiguity- 5 items: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple Correlations (R²)

	Factor Loadings	Theta Delta	R ²
RA17	.86	.26	.73
RA18	.75	.43	.61
RA19	.95	.10	.91
RA20	.81	.34	.67
RA21	.81	.35	.69

Note. $N = 307$. Estimates of goodness-of-fit are: $\chi^2 (df = 5, p < .00) = 43.44$, GFI = .95, CFI = .98, NNFI = .95, RMSEA = .16 All t -values are greater than 2.00. Cronbach's $\alpha = .88$.

Table E16

Supervisor Satisfaction: Maximum Likelihood Factor Loadings for Lambda X, Theta Deltas, and Squared Multiple Correlations (R²)

	Factor Loadings	Theta Delta	R ²
SS13	1.00	1.52	.75
SS14	.47	.39	.72
SS15	.35	.13	.81

Note. $N = 307$. Estimates of goodness-of-fit are: Saturated model with perfect fit

Appendix F
Chinese Version of Survey

中国组织中的公平性调查
(问卷参与协议书及相关信息)

本问卷是我们课程研究的一部分,是有关中国组织中员工对公平性的了解和感受。

您的参与完全自愿。您有权在任何时间终止答题或跳过一些令您感觉不好的问题。

本问卷采用不记名方式,除了以下所列的基本统计信息外,您不用提供其他任何个人信息。

本问卷的完成包括以下内容:

- 1 针对组织中的公平性,员工满意度,员工敬业度提供您的主观感受
- 2 提供您所在组织的基本信息,包括组织的大小,国营还是私有
- 3 提供您的一些基本信息,包括性别,年龄,是否是管理层,在该组织的工作时间。

通过参加本次问卷调查,您有可能得到的益处包括:

- 1 对中国组织中的公平性有更好的理解
- 2 有助于对那些员工认为比较敏感的程序上的设计和资源的分配

如果您现在或以后对这项研究有任何问题,请联系刘颖老师(lylw.liu@gmail.com)

请选择出你对以下叙述(行为)的同意/不同意程度:

1. 我很乐意在我们公司中长期工作，直至退休。
 2. 我确实觉得我们公司所面临的问题就是我自己所面临的问题。
 3. 我对公司没有很强的归属感。
 4. 我没觉得和我所在的公司有感情。
 5. 我在公司中没有那种“大家庭的一员”的感觉。
 6. 在我们公司工作我來說有很大的个人意义。
-

请选择你对以下叙述(行为)的同意/不同意程度:

7. 愿意帮助新同事适应公司环境。
 8. 愿意帮助同事解决工作上的困难。
 9. 在需要的时候愿意代理或承担同事的工作。
 10. 愿意和同事合作与沟通。
-

请选自你对下列所述你工作各个方面满意程度:

11. 就我对公司的贡献而言，我所享受的工资待遇。
 12. 我的工资和福利待遇。
 13. 我领导对我的尊敬和公平对待程度。
 14. 我在工作上得到的督导的整体质量。
 15. 主管对我的支持。
-

角色模糊性

请根据你在工作中的角色来判断下列描述的对错程度。

16. 我明确地感受到我自己有多大的权力。
17. 我对自己的工作有明确的、有计划性的目标和目的。
18. 我知道我自己合理地分配了时间。
19. 我知道我的责任是什么。
20. 我很清楚地知道（别人）对我的期望是什么。
21. 对工作中要做什么的解释很清楚。

知觉到的组织支持)

请指出你在多大程度上赞成以下的表述。

22. 我的组织很在意我的意见。
 23. 我的组织真正关心我的身心健康。
 24. 我的组织非常尊重我的目标和价值观。
 25. 我的组织会原谅我职责范围内诚实的错误。
 26. 如果有机会，我的组织会充分发掘我的潜力。
 27. 我的组织很少关心我。
 28. 我的组织很少关心我。
-

以下问题涉及你在工作中的收益（例如：收入，提升，转岗，考核等）。根据你在组织中获得收益（任何一个）的情况，对于下列各个问题进行评价。请在1 - 5当中的某个数字上打√，表明你在多大程度上赞成每句话。

33. 你所获得的收益反映了你在工作中所做的努力了吗？
 34. 你所获得的收益针对你完成的工作而言是合理的吗？
 35. 你所获得的收益反映了你对组织做出的贡献吗？
 36. 针对你的工作表现而言你所获得的收益是公平合理的吗？
 37. 针对你的教育背景，你所获得的收益是合理的吗？
 38. 就你的能力而言，你所获得的收益是合理的？
 39. 组织在员工中间平均分配结果（收益）吗？
 40. 如果结果（收益）不能平均分配，员工会得到其他类型的补偿吗？
 41. 你所获得的收益反映了你的经济需求吗？
 42. 你所获得的收益反映了组织的经济需要吗？
 43. 就你的专业发展需要而言，你所获得的收益是合理的？
 44. 就组织发展需要而言，你所获得的收益是合理的？
 45. 你所获得的收益反映各个方面都考虑到的职业发展需要？
 46. 考虑到所有因素的影响，你所获得的收益是否合理的吗？
 47. 考虑到所有需要，你所获得的收益是公平合理的吗？
 48. 你所获得的收益达到你对关系的期望？
 49. 你所获得的收益达到其他人对关系的期望值？
-

以下项目涉及和你相关的制订决策的过程。在多大程度上：

50. 在制定决策过程中让你表达意见和感受？
 51. 制定决策的程序允许组织中的员工集体发表意见？
 52. 在制定决策过程中,所有的员工都有机会表达意见和感受？
 53. 在制定决策过程中让你对于达成的决定能够产生影响？
 54. 制定决策的过程是不偏不倚的？
 55. 制定决策的程序是建立在准确的信息的基础上？
 56. 对于这些决策所产生的结果你有机会上诉？
 57. 这些制定决策的程序允许组织员工通过投票来表达自己的意见？
 58. 这些制定决策的程序代表公司大多数人的意见？
 59. 这些制定决策的程序由员工投票决定？
 60. 这些程序的执行具有一贯性？
-

就从事决策的人而言（例如：主管，高层），你认为在多大程度上：

61. 他/她坦诚地与你沟通？
 62. 他/她彻底地解释决策的程序？
 63. 他/她及时地与你详细沟通？
 64. 他/她调整沟通方式以适合你的个人需要？
 65. 他/她就程序给予的解释合理吗？
 66. 他/她对你有礼貌？
 67. 他/她维护你的尊严？
 68. 他/她尊重你？
 69. 他/她避免对你作出不礼貌的评价？
-

个人信息

这些信息只用于研究目的，最终的结果仅仅以摘要的形式加以报告。

这些信息只用于研究目的，与所有收到的结果合并后，只以摘要的形式加以报告。

1) 您的年龄：

2) 您的性别：

3) 您的民族：

4) 您的工作年限：

5) 您在公司中是处于管理层吗？

_____ 管理者 _____ 非管理者

6) 请列出您们公司员工的大概人数？

7) 请说明您们公司是国营还是私有：

国营：

合资企业：

外资企业：

调查结束

感谢您的参与

Appendix G

Means, Standard Deviations, and Intercorrelations among Parcels

Subscales	Mean	SD	1	2	3	4	5	6	7	8
1. PS1	3.79	1.39	--							
2. PS2	3.80	1.36	.87	--						
3. AC3	4.31	1.74	.07	.16	--					
4. AC4	4.42	1.92	-.02	.07	.55	--				
5. AC5	4.52	1.67	.01	.07	.54	.60	--			
6. POS1	4.63	1.20	.36	.38	.29	.30	.30	--		
7. POS2	4.49	1.29	.37	.38	.27	.24	.26	.76	--	
8. RA1	3.37	1.54	-.17	-.18	-.34	-.45	-.51	-.40	-.34	--
9. RA2	3.40	1.53	-.17	-.18	-.31	-.43	-.49	-.39	-.29	.87
10. SS13	5.03	1.47	.46	.46	.25	.15	.30	.63	.65	-.29
11. SS14	4.66	1.39	.36	.34	.17	.13	.24	.58	.58	-.25
12. SS15	5.08	1.37	.28	.25	.14	.07	.21	.61	.57	-.23
13. ALT1	6.16	.84	.15	.18	.05	.14	.19	.25	.25	-.23
14. ALT2	6.15	.76	.12	.13	.05	.18	.20	.25	.23	-.13
15. ALT3	6.30	.71	.08	.09	.02	.12	.17	.16	.16	-.08
16. DJW1	2.86	.82	.62	.62	.08	.06	.10	.44	.45	-.17
17. DJW2	2.82	.83	.69	.67	.04	-.01	.03	.42	.40	-.18
18. DJE1	2.42	.78	.30	.33	.01	.02	.05	.11	.20	-.04
19. DJE2	2.62	.76	.27	.30	.02	.05	.06	.09	.16	-.03
20. DJE3	2.66	.77	.26	.26	.02	.03	.09	.13	.23	-.08
21. PJ1	2.83	.85	.13	.13	.03	.05	.06	.20	.26	-.19
22. PJ2	2.60	.95	.16	.15	.01	.01	.02	.16	.32	-.15
23. PJ3	2.75	.88	.11	.12	.01	.02	.04	.20	.28	-.13
24. INFJ1	3.00	.95	.12	.14	-.08	.00	.05	.20	.29	-.16
25. INFJ2	3.23	.84	.13	.12	-.07	.00	.08	.20	.28	-.16
26. INTJ1	3.72	.84	-.01	.02	-.16	.04	.03	.00	.08	-.06
27. INTJ2	3.85	.86	-.02	.01	-.16	.09	.04	.01	.06	-.09

(Table Continues)

Subscales	Mean	SD	9	10	11	12	13	14	15	16
1. PS1										
2. PS2										
3. AC3										
4. AC4										
5. AC5										
6. POS1										
7. POS2										
8. RA1										
9. RA2			--							
10. SS13			-.27	--						
11. SS14			-.26	.74	--					
12. SS15			-.21	.79	.77	--				
13. ALT1			-.34	.33	.27	.29	--			
14. ALT2			-.34	.29	.29	.29	.83	--		
15. ALT3			-.26	.25	.25	.22	.77	.78	--	
16. DJW1			-.16	.45	.39	.38	.17	.13	.03	--
17. DJW2			-.19	.40	.35	.33	.19	.16	.04	.89
18. DJE1			-.01	.15	.18	.09	.07	.03	.04	.28
19. DJE2			.00	.15	.19	.13	.01	-.01	.01	.28
20. DJE3			-.11	.14	.17	.19	-.01	-.02	-.02	.23
21. PJ1			-.14	.09	.13	-.07	.05	.03	.03	.14
22. PJ2			-.09	.11	.13	.03	.05	.02	.01	.15
23. PJ3			-.08	.11	.17	-.05	.03	.00	.01	.18
24. INFJ1			-.14	.16	.18	.18	.10	.08	.03	.18
25. INFJ2			-.14	.19	.21	.19	.13	.08	.02	.19
26. INTJ1			-.04	.07	-.01	.00	.11	.05	.08	.11
27. INTJ2			-.06	.05	-.02	-.01	.10	.02	.08	.10

(Table Continues)

Subscales	Mean	SD	17	18	19	20	21	22	23	24
1. PS1										
2. PS2										
3. AC3										
4. AC4										
5. AC5										
6. POS1										
7. POS2										
8. RA1										
9. RA2										
10. SS13										
11. SS14										
12. SS15										
13. ALT1										
14. ALT2										
15. ALT3										
16. DJW1										
17. DJW2			--							
18. DJE1			.31	--						
19. DJE2			.27	.84	--					
20. DJE3			.24	.74	.78	--				
21. PJ1			.19	.47	.49	.51	--			
22. PJ2			.23	.45	.50	.50	.80	--		
23. PJ3			.18	.46	.50	.51	.85	.78	--	
24. INFJ1			.15	.41	.44	.44	.63	.65	.65	--
25. INFJ2			.16	.40	.44	.41	.62	.63	.65	.92
26. INTJ1			.06	.34	.33	.26	.45	.38	.45	.61
27. INTJ2			.06	.34	.32	.27	.46	.39	.46	.63

(Table Continues)

Subscales	Mean	SD	25	26	27
1. PS1					
2. PS2					
3. AC3					
4. AC4					
5. AC5					
6. POS1					
7. POS2					
8. RA1					
9. RA2					
10. SS13					
11. SS14					
12. SS15					
13. ALT1					
14. ALT2					
15. ALT3					
16. DJW1					
17. DJW2					
18. DJE1					
19. DJE2					
20. DJE3					
21. PJ1					
22. PJ2					
23. PJ3					
24. INFJ1					
25. INFJ2		--			
26. INTJ1	.59	--			
27. INTJ2	.62	.90	--		

Note: Abbreviations: PS = Pay Satisfaction; AC = Affective Commitment; POS = Perceived Organizational Support; RA = Role Ambiguity; SS = Supervisor Support; ALT = Altruism; DJW = Distributive Justice West; DJE = Distributive Justice East; PJ = Procedural Justice; INFJ = Informational Justice; INTJ = Interpersonal Justice.

VITA

Katherine Mohler Fodchuk received her Bachelor of Science from California Polytechnic State University, San Luis Obispo in 1998. She graduated with a major in Psychology. Ms. Fodchuk received her Master of Arts in psychology from California State University, Sacramento (CSUS) in 2003. Katherine has taught an introductory psychology course at CSUS and organizational psychology at Old Dominion University. She was also a graduate research assistant for Programs for Research in Public Schools in Old Dominion University's Darden School of Education from 2006 – 2008.

Katherine Fodchuk has worked for a private consulting firm in litigation support for equal employment opportunity lawsuits and in the Test Validation and Construction Unit at the California State Personnel Board. She is currently the Director of Teacher Quality for Visiting International Faculty Program in Chapel Hill, North Carolina.

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