ORGANISATIONAL JUSTICE, INDIVIDUAL DIFFERENCES AND COUNTERPRODUCTIVE WORK BEHAVIOUR: A LONGITUDINAL STUDY IN NEW ZEALAND AND THAILAND

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ABSTRACT

Although extensive research has investigated the effects of perceptions of organisational justice and personality traits on counterproductive work behaviour (CWB), few studies have examined the overall process in which justice perceptions mediate the relationships of outcome satisfaction, opportunity to voice, leader-member exchange (LMX) and communication quality with CWB, and the moderating effects of individual differences (agreeableness, conscientiousness, self-control, collectivism and power distance). Additionally, cultural differences may alter individuals' justice perceptions and their responses to those perceptions. The primary purpose of this research was to examine whether the justice antecedent-justice-CWB model and the moderating influence of the above individual differences would be generalizable to New Zealand and Thailand. A two-wave longitudinal design was employed for main effect, mediation and moderation analyses in this research. Respondents representing a wide variety of organisations in New Zealand (N = 624 at Time 1, N = 276 at Time 2) and Thailand (N = 480 at Time 1, N = 242 at Time 2) completed self-report questionnaires, with two data collection points separated by a six-month time interval.

Mediation analyses showed that the justice antecedent-justice-CWB model was applicable to both samples, indicating that the four forms of perceived justice (distributive, procedural, interpersonal and informational justice) functioned as mediators. In addition, justice antecedents (outcome satisfaction, opportunity to

voice, LMX and communication quality) had specific effects on each form of perceived justice, and justice perceptions had differential effects on two forms of CWB - CWB directed toward the organisation (CWBO) and CWB directed toward other individuals (CWBI). The full mediating effects of justice perceptions were observed more in the short-term for the New Zealand sample, but in a longer-term for the Thai sample. That is, New Zealand respondents tended to have a more immediate response to injustice than did their Thai counterparts. This may suggest that differences in cultural values should be taken into consideration to understand the antecedent-justice-outcome linkages.

Even though both samples had similar antecedents (outcome satisfaction predicted distributive justice, opportunity to voice predicted procedural justice, three LMX dimensions - affect, loyalty and professional respect - predicted interpersonal and informational justice, and communication quality predicted informational justice), communication and leadership can have different effects on employees, depending on their cultural values. Among the four forms of justice, interpersonal justice was the most consistent predictor of CWB in both countries, indicating that interpersonal concerns may be more important for individuals than specific outcomes received from work or organisational practices.

The main effects of individual differences were more substantial than their moderating effects. Confirmatory factor analysis (CFA) results found two factors (positive and negative factors) for each of the agreeableness and conscientiousness constructs. Of all the personality variables, agreeableness (for the Thai sample) and disagreeableness (for the New Zealand sample) significantly predicted the four forms of justice. Disagreeableness (the negative factor of agreeableness) consistently predicted CWBI, while negligence (the negative factor of conscientiousness) consistently predicted CWBO in both samples. However,

the effects of personality variables on CWB were not stable across time, and the effects of collectivism and power distance on CWB were observed only in the Thai sample.

The current research not just replicated the model of justice, personality and CWB, which was developed mainly in the USA, but also provided both global and local level comparisons. The research findings provide additional knowledge in relation to the impact of justice perceptions on CWB in different cultural contexts. On the practical side, the findings help practitioners better understand the formation of employees' justice perceptions and significant factors leading to CWB, which may aid them in devising organisational policies of justice enhancement.

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Introduction

1.1 Background of the research

This research focused on identifying significant determinants of the occurrence of counterproductive work behaviours (CWB), which include any volitional acts that harm or are intended to harm the organisation or its members, such as sabotage, employee withdrawal (e.g. absence or lateness), wasting the employer's supplies, theft, spreading harmful rumours, violations of confidentiality, and interpersonal aggression (Spector & Fox, 2005). These behaviours have been studied under different labels, such as CWB (Fox, Spector, & Miles, 2001), workplace aggression (Neuman & Baron, 1998), antisocial behaviour (Giacalone & Greenberg, 1997), workplace deviance (Aquino, Lewis, & Bradfield, 1999; Robinson & Bennett, 1995), and organisational retaliatory behaviour (ORB) (Skarlicki & Folger, 1997). Even though there is a difference in terminology, researchers agree that these behaviours are harmful to an organisation and its employees.

Many stories concerning CWB have been presented in the media and CWB has been found to have an enormous impact on many organisations and their members. Harper (1990) reported that between 33 and 75 percent of employees engaged in CWB, such as theft and sabotage. Coffin (2003) noted that employee theft costs US business 50 billion dollars annually. The financial costs resulting from abusive supervision are estimated as more than 23 billion US dollars each year in terms of absenteeism and productivity loss (Tepper, Duffy, Henle, & Lambert, 2006). Other minor forms of CWB, such as lying, spreading rumours, withholding effort and absenteeism, are also harmful, as they may

violate workplace norms. They are considered to be antisocial behaviour (Robinson & Bennett, 1995). Regardless of the type, CWB has led to revenue loss, permanently damaging the workplace environment, and reducing productivity.

Due to the enormous cost of CWB, research on CWB has been of great interest to many organisations and researchers in several countries. Many studies have investigated the effects of perceptions of organisational issues (e.g. perceived injustice, organisational constraints, interpersonal conflict, and autonomy) and personality (mainly trait anger and negative affectivity) as predictors of CWB. A number of workplace aggression theories (e.g. Cullen and Sackett's personality and CWB model, 2003; Folger and Skarlicki's "popcorn model" of workplace aggression, 1998; Neuman and Baron's model of workplace aggression, 1998) indicate that CWB results from the interaction between situational and individual factors. Folger and Skarlicki (1998) used the "popcorn" metaphor to imply that individual (kernels) and situational (the temperature of the oil) factors interact to influence workplace aggression. The hotter the oil is, the more employees are likely to engage in acts of aggression, as more kernels are likely to pop. Neuman and Baron (1998) attempted to reflect the psychological processes that lead individuals to the decision to engage in aggression. More recently, Cullen and Sackett's personality and CWB model (2003) captures the processes underlying the observed empirical linkage between personality and CWB.

There are many explanations for why individuals engage in workplace aggression or CWB. Bies and Tripp (2005) argued that employees engage in workplace aggression as a form of retaliation, in an attempt to restore justice to an unfair situation. In other words, workplace aggression is a reaction to a frustrating

situation, one way of coping with stressors to restore justice. The individual approach suggests that individuals have stable predispositions to engage in certain behaviours across time and situations, and that they interpret a situation according to these stable individual characteristics (Skarlicki, Folger, & Tesluk, 1999). Empirical evidence supports the relative importance of individual differences (e.g. traits of conscientiousness, emotional stability, and agreeableness; Colbert, Mount, Harter, Witt, & Barrick, 2004) and work attitudes or perceptions (e.g. justice perceptions; Skarlicki et al., 1999) in predicting CWB. In Hershcovis et al.'s (2007) study, organisational justice was considered as a situational factor, which refers to social aspects that are perceived by individuals and are largely influenced by other people in the organisation. The findings of their meta-analysis (Hershcovis et al., 2007), that both individual (e.g. trait anger and sex) and situational (e.g. interpersonal conflict, job dissatisfaction and injustice) variables predict CWB, supports the importance of an interactionist approach. Hence, the current research examined the importance of justice perceptions and individual differences in predicting CWB among employees in a wide range of organisations in two countries (New Zealand and Thailand).

1.2 Scope of this research

Organisational justice perceptions were included in the present research as predictors of CWB for two main reasons. Firstly, organisational justice perceptions are regarded as vital cognitions leading to many social and organisational behaviours. Compared to other dimensions of attitude and belief, justice perceptions have exerted more influence on many behaviours at work, such as acceptance of and obedience to authorities, protest behaviours (Greenberg, 1987), and theft (Greenberg, 1993). Lind (1995) suggested that individuals use

fairness judgments as a decision heuristic in various social contexts. Thus, people are likely to use their own perceptions of justice to decide whether to behave cooperatively or competitively, whether to obey or ignore authorities, and whether to emphasize their self-interest or the organisation's interests.

Secondly, the justice perspective has been used in several studies of workplace aggression or CWB. Aquino, Tripp and Bies (2001) suggested that the perception of undeserved harm and feelings of injustice is often the motivation for revenge. In the present research, perceptions of injustice were expected to induce CWB toward other individuals in the organisation and toward the organisation as a whole.

Based on Colquitt (2001), four forms of justice perceptions - distributive, procedural, interpersonal and informational justice - were examined in the present research. *Distributive justice* reflects the perceived fairness of resource distributions such as pay, benefits or promotions. *Procedural justice* refers to the perceived fairness of the decision-making procedures that lead to those outcomes. The procedures are judged as fair if they are implemented consistently on the basis of accurate information, with opportunity to correct the decision and without bias. *Interpersonal justice* focuses on the quality of interpersonal treatment (e.g. respect or dignity) people receive from authorities or a decision maker during the enactment of organisational procedures. This form does not directly focus on the outcomes or procedures, but rather on whether or not people feel they are treated fairly when decisions are implemented. People will perceive fair interpersonal treatment if their managers communicate truthfully and treat them with respect. *Informational justice* relates to the quality and amount of explanation (e.g. accuracy or adequacy) people receive about the procedures or how the decisions are made (Greenberg & Colquitt, 2005).

Just as there are different forms of justice perceptions, different forms of CWB vary in terms of the target of CWB. Based on the Robinson and Bennett (1995) distinction of behaviours targeting the organisation versus other people, CWB can be directed toward the organisation or other people at work (e.g. colleagues and supervisors). As noted by Colquitt, Conlon, Wesson, Porter and Ng (2001), the target of behaviours (individuals or organisation) depends on the perceived sources of injustice. Consistent with this argument, researchers (e.g. Aquino et al., 1999; Fox et al., 2001) found that different forms of justice perceptions elicit CWB toward different targets. However, previous research has a strong focus on distributive and procedural justice. Relatively little research has focused on other forms of justice (interpersonal and informational justice). All forms of perceived fairness should be examined as they have unique antecedents and contrasting effects on specific forms or targets of CWB.

1.3 Main research issues

A number of studies have examined only one causal link in the relationships among antecedents of justice, perceived justice, and work outcomes, either the link between antecedents and justice perceptions (Bies & Shapiro, 1988), or that between justice perceptions and work outcomes (Aquino et al., 1999). A few researchers have attempted to examine the overall model (Kernan & Hanges, 2002) and the mediating role of organisational justice perceptions (Hassan & Chandaran, 2005). The popcorn model (Folger & Skarlicki, 1998) emphasises the effects of organisational features on aggression (i.e. CWB) and suggests that perceptions of justice will fully mediate the effects of changes in the workplace on aggression (Jawahar, 2002). Similarly, the model of linkages between personality and CWB (Cullen & Sackett, 2003) describes the overall

process in which personality can affect CWB and perceptual variables (e.g. justice perceptions) mediate the link between organisational features and CWB. Hence, a model which incorporates all three sets of variables - justice antecedents, justice perceptions, and consequences - was examined in the present research.

Additionally, studies looking at individual differences (personality traits and demographic variables) have been scarce in organisational justice and CWB research. Negative affectivity and trait anger were mostly examined as moderators between fairness perceptions and reactions to those perceptions (e.g. Fox et al., 2001; Skarlicki et al., 1999). The meta-analysis study of Cohen-Charash and Spector (2001) revealed that demographic characteristics (age, gender, race, and education level) had little or no main effect on justice perceptions, but suggested that interaction effects involving demographic variables should be further examined. Thus, the current research further investigated the moderating role of five individual difference variables (agreeableness, conscientiousness, self-control, individualism-collectivism and power distance) in the relationships between perceived justice and CWB.

Although culture has been suggested as an important variable which might play a role in how people make justice judgements and respond to those justice perceptions (Cohen-Charash & Spector, 2001), few studies (e.g. Erdogan & Liden, 2006) have attempted to explore the influence of cultural values on justice perceptions and work outcomes. Cultural differences may shape individuals' fairness perceptions and responses to those perceptions in organisational contexts. Even though a number of studies have focused on the factors that contribute to perceived justice and CWB, most of the research frameworks were developed in Western cultures, mainly the United States of America. The antecedent-justice-CWB relationship may vary in different societies. Based on this concern in cross-

cultural research, this research examined whether the antecedent-justice-CWB model would be generalizable to other two countries outside the USA (that is, New Zealand and Thailand), which differ in respect of two key cultural variables - individualism/collectivism and power distance.

1.4 Purpose of the research

The present research adapted the personality and CWB model from the work of Cullen and Sackett (2003), which reflects the linkages among organisational features, perceptual variables, personality and CWB, to capture the overall processes of the occurrence of CWB. The proposed model of the present research, which is presented in Figure 2.1 (p. 19 in Chapter 2), identifies significant determinants (i.e. justice antecedents, personality traits and cultural values) of employees' organisational justice perceptions and their behavioural responses (i.e. CWB) among New Zealand and Thai full-time employees in a wide range of organisations. The proposed model captures four mechanisms by which justice perceptions and individual differences can influence CWB: (a) justice perceptions as mediators of the relationships between justice antecedents and CWB, (b) individual differences as direct determinants of justice perceptions, (c) individual differences as direct determinants of CWB, and (d) individual differences as moderators of the relationships between justice perceptions and CWB. As differences in cultural values have been reported between Western and Asian countries (Hofstede, 1984; Wu, 2006) and a limited range of countries has been used in justice and CWB studies, the proposed model of the present research (Figure 2.1 on p. 19) was examined in one Western culture (New Zealand) and one Eastern culture (Thailand). A two-wave longitudinal research design was implemented to examine inter-relationships between variables in the model.

1.5 Research problems

The current research addressed three main research questions:

- Is the justice antecedent-perceived justice-CWB relationship generalizable to a non-Western culture or countries outside the USA?
- Under which conditions will employees aggress against the organisation or other individuals in the organisation?
- Do individual differences in personal traits (agreeableness, conscientiousness, and self-control) and cultural values (individualism-collectivism, and power distance) moderate the relationships between justice perceptions and CWB?

1.6 Significance of the research

The current research makes a contribution to knowledge in three ways: (a) by extending the range of Asian and Western countries that have been included in comparative cross-cultural studies of organisational justice, (b) by providing insights into significant determinants of employees' perceptions of fairness and CWB in New Zealand and Thailand, and (c) by using a longitudinal research design to assess the justice antecedent-justice-CWB relationships more rigorously.

Hofstede (2001) revealed that New Zealand and Thailand were greatly different in two work-related cultural dimensions (individualism-collectivism and power distance). According to the results of Hofstede's (2001) study, New Zealand was classified as a highly individualistic and low power distance culture, whereas Thailand had higher scores on collectivism and power distance. East-West comparisons have typically used the United States of America as the Western benchmark against other Eastern countries and used China, Hong Kong, or Japan as the Eastern point of reference. The current research will benefit

comparative cross-cultural research on justice and CWB by extending the range of countries used in this area.

To provide an insight into significant determinants (justice perceptions and individual differences) of CWB, mediation and moderation models were investigated in the current research by using a two-wave longitudinal design which enables more rigorous inferences about the causal links among research variables. Firstly, testing the model of antecedent-justice perception-CWB relationships by Structural Equation Modeling (SEM) provides more comprehensive understanding of the whole process and uncovers the specific linkages among the research variables than testing only one causal link in the relationships. Four justice antecedents (outcome satisfaction, opportunity to voice, leader-member exchange and communication quality), which prior research suggested might have a unique impact on each form of justice, were investigated in this research. Most previous studies (e.g. Aquino et al., 1999; Fox et al., 2001) have focused on the effects of three forms of justice perceptions (distributive, procedural and interactional justice) on two targets of CWB (CWBO and CWBI). To extend previous research, the impact of four justice dimensions on two specific targets of CWB was examined in the current research.

Additionally, the interplay between perceptual variables (i.e. perceived justice) and personal factors (i.e. personality traits and cultural values) on CWB was explored in the present research. Even though the importance of work perceptions and individual differences has been considered in prior research, much less research on work-related justice has assessed both sets of factors simultaneously. Negative affectivity and trait anger have been mainly examined as moderators between fairness perceptions and reactions to those perceptions. Thus, I provided additional information on justice research by including five

individual differences (agreeableness, conscientiousness, self-control, collectivism and power distance) as moderators of the perceived justice-CWB relationships.

Another contribution of the current research is the use of a longitudinal research design. Investigating the impact of justice perceptions and individual differences (personality traits and cultural values) on CWB over time will help to explain the cause of CWB occurrence among New Zealand and Thai employees. Even though a longitudinal design cannot be certain to demonstrate causality, it can test hypotheses that are consistent with causal interpretations. This will also provide a validation of hypothesised causal links between the research variables.

1.7 Structure of the thesis

This thesis comprises nine chapters including this introduction chapter. Chapter 2 describes the theoretical model of the current research and reviews previous literature relating to the antecedent-justice-CWB relationships, and mediation hypotheses. Chapter 3 provides the theoretical rationale relating to the importance of individual differences on justice perceptions and CWB, and moderation hypotheses. Chapter 4 describes the methodology and analytical approaches used to examine the research hypotheses. The next four chapters present the results for Confirmatory Factor Analysis (CFA) of the research measures (Chapter 5), Time 1 hypothesis tests (Chapter 6), Time 2 hypothesis tests (Chapter 7) and longitudinal hypothesis tests (Chapter 8) in the New Zealand and Thai samples. Finally, Chapter 9 discusses the research findings, conclusions and implications for future research in this area.

Chapter 2

Literature Review and Theoretical Model

This chapter reviews previous research relating to the variables of interest and describes research hypotheses based on both cross-sectional and longitudinal analyses. The chapter has four sections: (a) the conceptualisation of CWB and justice perceptions, (b) theoretical model of this research, (c) research hypotheses relating to the antecedent-justice-CWB relationships, and (d) cross-national replication. The hypotheses for this research are discussed in two main parts: the antecedent-justice-CWB relationships (presented in this chapter), and the influence of individual differences (personality and cultural values) on justice perceptions and CWB (presented in the next chapter).

2.1 Conceptualisation of counterproductive work behaviour and perceived justice

Counterproductive Work Behaviour

Counterproductive work behaviour (CWB) refers to detrimental, intentional behaviours committed by employees that affect organisations and their members in terms of productivity, performance and well-being. It includes both overt acts (e.g. aggression and theft) and passive acts (e.g. purposely doing work incorrectly or failing to follow instructions). Despite CWB being studied under different labels from a variety of theoretical perspectives, most researchers (e.g. Bruk-Lee & Spector, 2006; Fox et al., 2001) have commonly divided CWB into two categories reflecting the target: CWB targeted toward the organisation (CWBO) or toward other individuals (including supervisors or co-workers) in the

organisation (CWBI), based on Robinson and Bennett's (1995) organisational and interpersonal distinction in workplace aggression.

According to Robinson and Bennett's (1995) typology of deviant behaviours (labeled CWB in the current research), these behaviours vary across two dimensions (organisation versus individuals), are divided into four different categories, and range from minor to serious. CWB targeted toward the organisation includes production deviance and property deviance. The first group consists of minor behaviours, such as withholding effort from work, and leaving early without permission. The second group includes behaviours that are considered to be major, such as sabotaging or damaging organisational property/equipment. CWB targeted toward the individual is divided into political deviance and aggression. Political deviance is composed of minor behaviours, such as spreading rumours, while personal aggression refers to verbal abuse and other harassment forms (e.g. bullying) (Robinson & Bennett, 1995).

More recently, Spector et al. (2006) made an attempt to decide on the dimensionality of CWB in two different ways: (a) dividing these behaviours into two categories of organisation versus individuals, based on Robinson and Bennett (1995), and (b) sorting CWB into five categories of behaviours: abuse, production deviance, sabotage, theft, and withdrawal. Abuse includes harmful behaviours directed toward individuals through nasty comments, ignoring individuals, or making threats. Production deviance refers to the intentional failure to perform job tasks effectively. Sabotage is damaging or destroying organisational physical property. Theft includes stealing from another person at work or from the organisation. Withdrawal is being absent from work, late to work, and taking longer breaks than allowed. However, categorizing CWB should be driven by the purpose of the research (Spector et al., 2006). As this present research aimed to

investigate the unique effects of different justice perception forms on specific targets of CWB, two categories reflecting the target (CWBO and CWBI) were utilized.

Organisational justice perceptions

Initially researchers focused on the fairness of decision outcomes or reward allocations, termed *distributive justice* (Adams, 1965; Deutsch, 1975). Adams' equity theory (1965) has been the dominant theory of distributive justice. According to equity theory, people compare the proportion of their inputs (e.g. effort, education, experience) to their outcomes (e.g. pay, benefits, promotions), relative to the inputs and outcomes of similar others. Distributions will be perceived as fair if the ratios between outcomes and contributions are proportionally matched. Whereas Adams' theory (1965) advocated the use of an equity rule to determine fairness, Deutsch (1985) and Leventhal (1980) identified two additional allocation rules: equality (give all recipients the same proportions of outcomes) and need (give more resources to recipients who have a greater need).

In addition, some researchers focused on the fairness of procedures that lead to decision outcomes, known as *procedural justice* (Leventhal, 1980; Thibaut & Walker, 1975). Thibaut and Walker (1975) introduced the concept of procedural justice to the literature. They conducted laboratory studies on fairness perceptions in the legal context of dispute resolution by comparing the ability of adversarial procedures (where the judge controls only the decision but not the representation of evidence that leads up to it) and non-adversarial procedures (where the judge controls both outcome and procedure) to create fair decisions. The results revealed that participants in the adversarial condition had higher levels

of satisfaction with the procedure than those in the non-adversarial condition, regardless of the verdict outcomes (innocent or guilty). This indicated that allowing participants in the adversarial condition to exercise process control over the decision making through choosing their attorney to represent their arguments over the conflict resolution could enhance their perceptions of procedural fairness. In addition, Thibaut and Walker (1975) distinguished between two forms of control: decision control (the degree to which a disputant can determine the outcome of conflict) and process control (the degree to which a disputant can control the development of conflict resolution).

Inspired by Thibaut and Walker's (1975) process control concept, Leventhal (1980) extended the notion of procedural justice to nonlegal contexts or organisational settings, and broadened the list of procedural justice determinants beyond the concept of process control. According to Leventhal's theory of procedural justice judgments, a procedure should meet the following six criteria, if it is to be perceived as fair (Greenberg & Colquitt, 2005):

1) Consistency: procedures should be applied consistently across time and people.
2) Bias suppression: procedures should be free from personal self-interest, existing preconceptions or bias.
3) Accuracy: procedures should be based on accurate information with minimum error in making the decision.
4) Correctability: procedures must provide some opportunity to correct flawed or inaccurate decisions.
5) Representativeness: procedures must ensure that the basic concerns, opinions or interests of the individual in the group impacted by the decisions are heard.

6) Ethicality: procedures must be consistent with the standard of moral and ethical values held by the involved individuals.

The third type of justice, *interactional justice*, was proposed by Bies and Moag (1986). This type of justice focuses on people's perceptions of the quality of interpersonal treatment received from authorities or a decision maker when enacting organisational procedures. Bies and Moag (1986) identified four criteria for interactional justice, based on a study of expectations for interpersonal treatment during job recruitment. These criteria are: truthfulness (authorities should be open, honest and candid in their communication when enacting the procedures), justification (provide adequate explanations of the outcomes of a decision-making process), respect (treat individuals with dignity and sincerity rather than being rude), and propriety (avoid making prejudicial statements or asking improper questions).

However, in practice these four criteria have been studied along two dimensions: explanation and sensitivity (Greenberg, 1990). These two dimensions have been shown to have independent effects. Greenberg (1993) introduced an additional element to the debate over justice constructs by suggesting that interactional justice or the social aspect of justice can be more meaningfully assessed by two distinct types of interpersonal treatments: *interpersonal justice* (relates to how employees are treated during enacting procedures), and *informational justice* (relates to the accuracy, adequacy and quality of explanation employees receive about procedures). A meta-analysis by Colquitt et al. (2001) found evidence supporting Greenberg's (1993) distinction between informational and interpersonal justice. Their confirmatory factory analyses indicated that justice should be broken down into four distinct constructs (distributive, procedural, interpersonal and informational justice) and that each construct has

unique sets of antecedents and independent effects on work outcomes or performance. Hence, the present research used Colquitt's (2001) four justice dimensions to explore their antecedents and differential effects on two forms of CWB.

2.2 Relevant models and theoretical model of this research

There are a number of workplace aggression models which capture the complex interplay between many different factors and conditions. For instance, Folger and Skarlicki's (1998) "popcorn model" of aggression introduced the notion of an interaction between individual and situational factors. In addition, Neuman and Baron's (1998) model of workplace aggression addresses the interplay of a wide range of social (e.g. unfair treatment, increased workforce diversity, and aggressive norms), situational (e.g. layoffs, restructuring, and physical environment at work) and personal factors which may lead to workplace aggression. This model proposes that the influence of situational factors on individuals may vary depending on a number of dispositional factors, and also captures the psychological processes which lead to the decision to engage in aggression. The psychological processes involve reacting to situational stimuli with unpleasant feelings or aggressive thoughts, considering what can be done and deciding whether or not to engage in aggressive behaviours. However, these two models do not specify the empirical linkages between situational and personal factors and workplace aggression (i.e. CWB). It seems that little progress has been made to describe how individual factors (e.g. personality traits) may influence why CWB occurs.

More recently, Cullen and Sackett's (2003) model of linkages between personality and CWBs proposes how personality traits may influence the

occurrence of CWBs. This model makes a distinction between initiated and reactive CWBs. The term "initiated CWBs" implies that individuals may initiate CWB (e.g. stealing something from the organisation or others) to satisfy some motive (e.g. pleasure, greed or attention seeking) or need. In contrast, the term "reactive CWBs" reflects that individuals respond to certain organisational events (e.g. injustice) by engaging in some forms of CWB (e.g. stealing) to satisfy a motive such as revenge or escape. This model provides an explanation of how personality traits influence CWBs in two ways. One way is that personality exerts both direct and indirect influence on CWBs by shaping the attitudes held toward the CWBs and a set of perceptual variables (e.g. job stress and justice perceptions). Another mechanism is that specific personality traits may moderate two sets of relationships: between organisational events (e.g. organisational practices) and perceptual variables, and between perceptual variables and the CWBs. Personality may function as a moderator of the two sets of relationships because individuals with different traits tend to interpret certain organisational events differently (e.g. unsatisfying outcomes or unjust organisational practices) and respond to perceptions of injustice differently. For example, individuals high in negative affect are more likely to perceive certain organisational events as stressful and unjust, and respond negatively to those perceptual stimuli (Cullen & Sackett, 2003).

In sum, Cullen and Sackett's (2003) model indicated five mechanisms through which personality can affect CWBs: (a) personality as a direct determinant of CWBs, (b) personality as a determinant of attitudes toward CWBs, (c) personality as a determinant of a set of perceptual variables (e.g. injustice perceptions), (d) personality as a moderator of perceived organisational features and those perceptions leading to CWBs, and (e) personality as a moderator of

cognitive, affective and emotional reactions to perceived organisational events and CWBs (e.g. personality leads individuals to react differently to injustice). However, not all of these linkages were examined in the current research, for reasons outlined below.

Cullen and Sackett's (2003) personality and CWB model indicates that perceptual variables (e.g. justice perceptions) serve as a mediator between organisational events and CWB, and individual factors may have direct and moderating effects on perceptual variables and CWB. As the purpose of my research was to identify what affects justice perceptions and CWB, I adapted Cullen and Sackett's (2003) personality and CWB model and extended the model by including outcome satisfaction, opportunity to voice, leader-member exchange, and communication quality with employees as justice antecedents, four forms of justice perceptions (distributive, procedural, interpersonal and informational justice) as work perceptions, five individual differences (agreeableness, conscientiousness, self-control, collectivism and power distance), and two forms of CWB as work performance (see Figure 2.1).

Even though the personality and CWB model (Cullen & Sackett, 2003) suggests that personality may moderate two forms of relationships (between justice antecedents and justice perceptions, and between justice perceptions and CWB), I did not include the first form of moderating effects in my research model (Figure 2.1), for both practical and conceptual reasons. Practically, including the moderating effects of five individual differences in the relationships between four justice antecedents and four forms of justice would have added eighty-five moderation hypotheses in an already complex research. For conceptual reasons, personality seemed more important as a moderator of the perceived justice-CWB relationship (Fox et al., 2001) than that of the antecedent-perceived justice

relationship, and personality has been found as a significant moderator of the relations between perceived justice and reaction to it (i.e. CWB) (e.g. Cohen-Charash & Spector, 2001; Fox et al., 2001).

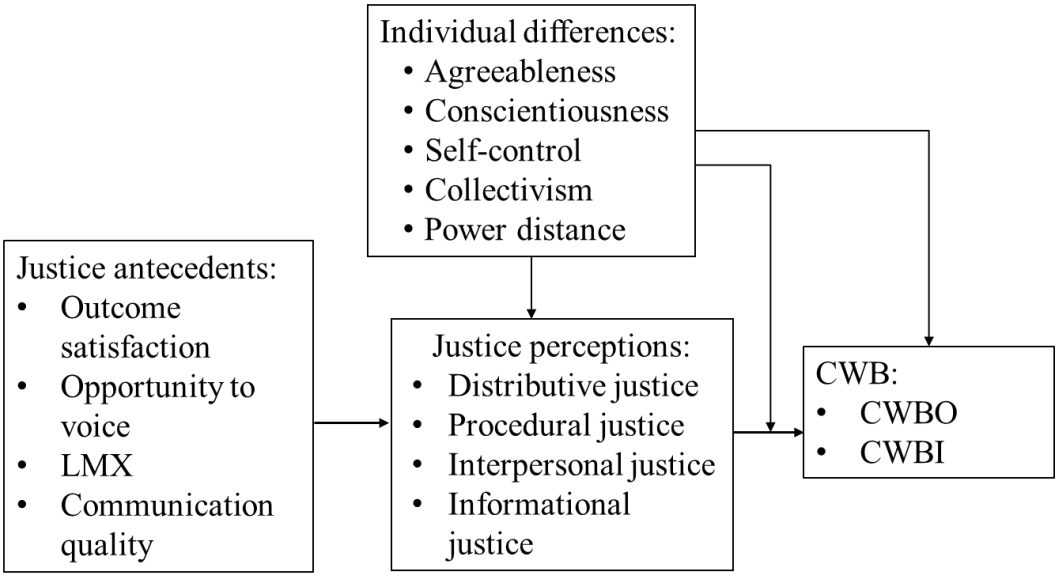

Figure 2.1. Theoretical model of the linkages among justice antecedents, justice perceptions, individual differences and CWB.

Note. LMX = leader-member exchange; CWBO = counterproductive work behaviours toward the organisation; CWBI = counterproductive work behaviours toward the individual.

2.3 Research hypotheses

As mentioned earlier, the hypotheses for the current research are discussed in two main sets which include the antecedent-justice-CWB relationships and the importance of individual differences on justice perceptions and CWB. The first set of research hypotheses is discussed in the following section and the second set is discussed in Chapter 3.

The antecedent-justice-CWB relationships

The theoretical model of this research (Figure 2.1 on p. 19) positions justice perceptions as mediators of their antecedents and CWB. This section involves three groups of research hypotheses: (a) the main effects of justice antecedents on perceived justice, (b) the main effects of justice perceptions on two forms of CWB, and (c) the mediating effects of justice perceptions in the relationship between antecedents and CWB. Following previous justice research (Kernan & Hanges, 2002), the relationships between antecedents and justice perceptions were examined contemporaneously while the relationships between justice perceptions and CWB were examined both cross-sectionally and longitudinally. A two-wave longitudinal design was adopted to examine the antecedent-justice-CWB relationships.

A. The influence of justice antecedents on perceptions of justice

The four forms of justice may have unique sets of antecedents. Justice perceptions are influenced by outcomes the individual receives from the organisation and organisational practices (e.g. procedures and quality of interactions) (Cohen-Charash & Spector, 2001). Outcome satisfaction, opportunity to voice, leader-member exchange (LMX), and the quality of communication with employees, which previous research suggested have differential influences on each form of justice perception, were included in the current research as justice antecedents.

Outcome satisfaction

In the current research, outcome satisfaction refers to employees' satisfaction with extrinsic rewards within the organisation, which includes

financial rewards (pay and fringe benefits), job security, opportunities for promotion or advancement, relations with co-workers, physical working conditions, support from others, and praise for job performance (O'Driscoll & Randall, 1999). Many researchers proposed that perceived distributive justice is a significant predictor of outcome satisfaction (e.g. Colquitt, 2001; DeConinck & Stilwell, 2004). Equity theory (Adams, 1965) suggests that employees expect specific rewards from the organisation based on their contributions. They provide inputs to their job and, in return, they receive outcomes from performing their jobs. The perceived ratio of what employees obtain from their jobs compared to what they put into their jobs helps determine equity or inequity. When employees evaluate if an outcome is fair, they are making a distributive justice decision. Employees' feelings of inequity are associated with dissatisfaction (Brief, 1998). McFarlin and Rice (1992) confirmed a model of dissatisfaction by Locke (1969) which employed equity-based concepts, and found evidence that the process of psychological comparison played an important role in shaping satisfaction with particular job facets.

However, the current research examined whether outcome satisfaction can be a predictor of distributive justice. Distributive justice is based on the perceived fairness of outcomes. Some research has identified various types of organisational outcomes that affect perceived distributive justice, such as pay, benefit, punishment, security, supervision, rewards, and job status (Adams, 1963; Cropanzano & Greenberg, 1997; Greenberg, 1987; Oldham, Kulik, Ambrose, Stepina, & Brand, 1986). Additionally, the resource model can contribute to understanding the psychology of distributive justice. Resource-based models of justice indicate that people's dependence on the organisation for resources (anything people value can be regarded as resource, such as pay, benefits, and

promotion) shapes the way they make distributive justice evaluations. Tyler's (1994) study supported the argument that resource judgments shape distributive justice judgments, and found that outcome satisfaction exerted an influence on evaluations of distributive justice. When people are satisfied with the outcomes received from their organisation, they are more likely to perceive that they achieve resource gains which lead to perceptions of distributive justice.

Furthermore, there are many studies supporting the link between outcome satisfaction and distributive justice perceptions. A number of studies reported that overall outcome satisfaction and specific outcome satisfaction (e.g. pay and benefit satisfaction) were correlated more highly with perceived distributive justice than with procedural justice (Cohen-Charash & Spector, 2001; Folger & Konovsky, 1989; Howard, 1999). Thus, this research examined whether outcome satisfaction (e.g. pay, promotion and benefits employees receive from their organisation) can be a predictor of distributive justice. As mentioned earlier, the relationships between justice antecedents and justice perceptions were expected to be contemporaneous and were examined only cross-sectionally.

Hypothesis 1: Outcome satisfaction will positively predict perceptions of distributive justice at Time 1 and Time 2.

Opportunity to voice

Opportunity to voice refers to the extent to which employees are allowed to provide input during the decision-making procedures. The procedures in the current research refer to formal procedures used by supervisors in making a decision for allocating pay, benefits, promotions, workload, and evaluating work performance. Research on antecedents of procedural justice suggests that the opportunity to provide information (voice/process control) during the process of

making decisions increases perceived procedural justice (Kanfer, Sawyer, Earley, & Lind, 1987; Lind, Lissak, & Conlon, 1983). Voice appears to be relevant to procedural justice across a variety of contexts. For example, employee input was found to be a key predictor of procedural justice in the context of reorganisation (Kernan & Hanges, 2002). Employees who are allowed inputs will have the opportunity to voice their concerns and shape procedures about the reorganisation process. In addition, Cohen-Charash and Spector's meta-analysis (2001) supported the influence of voice by showing that voice had a stronger correlation with procedural justice than with distributive justice.

There are two explanations proposed for the voice effect, which are instrumental (self-interest model) and noninstrumental (group-value model) perspectives (Lind & Tyler, 1988). Formerly, theories of procedural justice (Leventhal, 1980; Thibaut & Walker, 1978) attempted to explain procedural justice in terms of instrumental consequences. If individuals are given an opportunity to express their views, they may believe that voice helps them control outcomes or may increase the probability of a favourable or equitable outcome. In other words, based on the self-interest model of procedural justice, voice or input is valued because it may affect the decision maker. Employees believe that having an opportunity to use voice will persuade management to enact decisions that represent the employee's self-interest. From this perspective, individuals prefer fair procedures which provide opportunity for control because in the long run these procedures will offer them favourable outcomes (Greenberg, 1990; Lind & Tyler, 1988). In contrast, Lind and Tyler (1988) proposed a group-value model, which provides an alternative explanation in terms of symbolic or noninstrumental consequences of procedural justice. This is, the voice effect provides an opportunity to present information as a valued member of the group. Even if their

voice might not affect the outcome of the procedures, the opportunity for voice can enhance perceived control and make people feel they are a valued member of the group.

These two explanations for the voice effect were supported by the experimental study of Lind, Kanfer and Earley (1990). In a goal-setting study, participants were assigned to one of three voice conditions: pre-decision (allowed to express one's view before the goal was set), post-decision (after the goal was set), and no voice (not allowed to voice at all). The results showed that participants in the pre-decision voice condition reported greater fairness, compared with the other two voice conditions. This indicated support for the instrumental explanation. On the basis of the group-value model, participants in the post-decision voice condition still reported higher levels of perceived control and perceived fairness than those in the no-voice condition, in spite of having no chance of influencing the decision. This suggests that merely allowing individuals to express their ideas, even in the absence of influencing the decision, can increase their feelings of valued membership, security, and control over the situation.

In sum, voice represents an opportunity to ensure fair procedures which lead to greater procedural justice perceptions. Thus, the following hypothesis was tested (as mentioned previously the antecedent-justice relations were examined only cross-sectionally):

Hypothesis 2: Opportunity to voice will positively predict perceptions of procedural justice at Time 1 and Time 2.

Although the expectation was that voice might be most strongly related to procedural justice, the group-value model (Lind & Tyler, 1988) of procedural justice also suggests that voice or input might relate to interpersonal justice. This

model assumes that people value their relationships with groups and organisations and expect to be treated fairly. If they are allowed to voice, employees may feel that they are valued members of the organisation and are treated with respect and dignity during enacting procedures. The opportunity to use voice affirms the status of employees with the decision makers. Such status is very important because it acknowledges to employees that they are valued members of the group whom the decision maker represents. This may also increase their interpersonal justice perceptions because interpersonal justice focuses on the quality of interpersonal treatment. As the antecedent-justice relations were expected to be contemporaneous, the relationship between opportunity to voice and interpersonal justice was examined only cross-sectionally.

Hypothesis 3: Opportunity to voice will positively predict perceptions of interpersonal justice at Time 1 and Time 2.

Leader-member exchange

LMX has been defined in terms of the quality of the relationship between a supervisor and subordinate. According to LMX theory, supervisors develop different types of relationship or exchange with each subordinate (Dansereau, Graen, & Haga, 1975; Liden & Graen, 1980). LMX quality can range from high to low. A high-quality relationship is called ‘in-group exchange’, ‘cadre’, or ‘partnership’. In this relationship, leaders and followers develop a partnership characterised by a high degree of reciprocal influence, mutual positive affect, respect, loyalty, liking, and a sense of common fate. In contrast, a low-quality relationship is called ‘out-group exchange’ (Liden & Maslyn, 1998). In this type of relationship, leaders are characterised as overseers who fail to create a sense of

mutual trust, respect, or common fate (Dienesch & Liden, 1986; Kreitner & Kinicki, 2007; Liden & Maslyn, 1998).

Liden and Maslyn's (1998) LMX scale, which consists of four dimensions (affect, loyalty, contribution, and professional respect), was adopted in the current research. Each dimension reflects the quality of the relationship/exchange between supervisors and subordinates. The first dimension, *affect*, refers to "the mutual affection members of the dyad have for each other based primarily on interpersonal attraction rather than work or professional values" (Dienesch & Liden, 1986, p. 625). Mutual liking between supervisors and subordinates can play a role in developing LMX. The supervisor and subordinates frequently interact simply because they enjoy each other's company. As noted by Bridge and Baxter (1992), friendships often develop through work interaction.

The second dimension, *loyalty*, is the extent to which the leader and member are loyal to one another by supporting each other's actions and character publicly. The third dimension, *contribution*, refers to the extent to which the employee handles responsibilities and completes tasks that extend beyond what is required from the formal employment contract or job description; and likewise, the extent to which the supervisor provides resources and opportunities for such activity. That is, leaders provide valued resources (e.g. budgetary support, material, information and attractive task assignment) to members. Based on this dimension, higher quality refers to greater exchange of valued resources between leaders and members (Liden & Maslyn, 1998).

The fourth dimension, *professional respect*, refers to perceptions of the degree to which each member of the dyad has built a reputation, within or outside the organisation. This perception is based on historical data concerning the person, such as awards or other professional recognition achieved by the person,

along with comments made about the person by individuals within or outside the organisation. This kind of perception probably has developed before meeting or working with the person.

Some empirical support (Hassan & Chandaran, 2005) for the positive relationship between LMX and justice perceptions has been found. This suggests that higher exchange quality promotes perceptions of greater fairness. Masterson, Lewis, Goldman, and Taylor (2000) applied social exchange theory to organisational justice by conceptualising social exchange at two levels - in terms of global exchanges between employees and their supervisors and in terms of dyadic relationships between a supervisor and employees. They proposed that interactional justice, because of its focus on the supervisor's actions, should have a stronger association with LMX than will procedural justice (which focuses more on justice at the organisation level).

Much of the early justice research used the three-factor justice typology (distributive, procedural and interactional justice) to examine the relationship between perceived justice and LMX. Following the development of a justice measure by Colquitt (2001), interpersonal and informational justice should be assessed as distinct constructs. Hence, the current research investigated whether these two sub-dimensions of interactional justice (interpersonal and informational justice) might have a strong relationship with LMX.

As mentioned above, LMX can be a significant predictor of interpersonal justice perceptions. In high-quality relationships, leaders tend to behave in a less authoritarian manner and use their formal authority less frequently (Fairhurst & Chandler, 1989). If overall exchange quality is high, employees may feel that they are being treated fairly and respectfully during the enactment of procedures. As

the relationships between antecedents and perceived justice were expected to be relatively immediate, the relationship was examined only cross-sectionally.

Hypothesis 4: Four LMX dimensions, affect (H4a), loyalty (H4b), contribution (H4c) and professional respect (H4d), will positively predict perceptions of interpersonal justice at Time 1 and Time 2.

As LMX involves with supervisor-employee exchange and informational justice also represents supervisor-level communications, providing employees with valued resources (such as information, support and attractive task assignment) may increase their perceptions of informational justice. As mentioned previously, the relationships between antecedents and perceived justice were expected to be contemporaneous. Hence, the following hypotheses were proposed:

Hypothesis 5: Four LMX dimensions, affect (H5a), loyalty (H5b), contribution (H5c) and professional respect (H5d), will positively predict perceptions of informational justice at Time 1 and Time 2.

Even though LMX was found to be correlated higher with interactional justice than with procedural and distributive justice (Cohen-Charash & Spector, 2001), LMX quality may also influence procedural justice perceptions. In the high level of LMX, employees are likely to perceive that they have greater control in decision-making procedures in general (Scandura, Graen, & Novak, 1986). Their supervisors may also attempt to make the procedures fairer, in order to protect the relationship between them. Thus, LMX should also precede procedural justice. As the antecedent-perceived justice relations were expected to be relatively immediate, the following hypotheses were examined only cross-sectionally.

Hypothesis 6: Four LMX dimensions, affect (H6a), loyalty (H6b), contribution (H6c) and professional respect (H6d), will positively predict perceptions of procedural justice at Time 1 and Time 2.

The quality of communication with employees

Another antecedent in this research was the quality of communication which employees receive from management during the decision-making procedures (e.g. why procedures were used in a certain way or why outcomes were distributed in a certain way). Effective communication is based on the timeliness, helpfulness, and accuracy of information received from the organisation or management. There is some empirical support for the link between effective communication and perceptions of fairness in the context of reorganisation (i.e. downsizings) (Kernan & Hanges, 2002). Employee satisfaction with timely, accurate, and valued information provided by management during the process of reorganisation could predict subsequent justice perceptions. Higher communication quality was related to perceptions of greater informational justice because information employees received during the process of reorganisation might explicitly or implicitly convey reasons behind organisational decisions and enacted procedures (Kernan & Hanges, 2002). Based on these suggestions, I expected that effective communication quality would lead to greater perceptions of informational justice. As the antecedent-perceived justice relations were expected to be contemporaneous, the following hypothesis was examined only cross-sectionally.

Hypothesis 7: The quality of communication with employees will positively predict perceptions of informational justice at both Time 1 and Time 2.

In accordance with the group-value model (Tyler & Lind, 1992), the quality of communication with employees can also be considered as an interpersonal justice antecedent because it reflects that management is sensitive to employee desires for information and that employees are treated as valued members of the organisation. Based this notion, the following hypothesis was proposed:

Hypothesis 8: The quality of communication with employees will positively predict perceptions of interpersonal justice at both Time 1 and Time 2.

B. The influence of perceived justice on CWB

As the current research focused on the causal relations between justice perceptions and CWB, the following section describes the theoretical framework and the hypothesised main effects of justice perceptions on CWB based on cross-sectional and longitudinal analyses.

Justice perceptions have been considered an important predictor of many CWBs (Greenberg & Colquitt, 2005). Research on organisational justice (Colquitt et al., 2001) suggests that the target of CWB or other forms of workplace aggression (the organisation or individuals) depends on the perceived source of justice or injustice. The source of procedural justice or injustice tends to be the organisation, whereas the source of interactional justice or injustice tends to be individuals. Therefore, it is reasonable to expect that perceptions of procedural injustice are likely to elicit aggression toward the organisation, whereas interactional injustice perceptions are likely to elicit aggression toward the offending individual (e.g. colleagues) (Jawahar, 2002).

Even though previous studies have examined the relationship between justice and CWB, few studies have examined the relations of interactional justice,

or its two components (interpersonal and informational justice), with the two specific targets of CWB. The current research examined whether all four forms of perceived justice (distributive, procedural, interpersonal and informational justice) would elicit different targets of CWB (the organisation versus individuals). Equity theory (Adams, 1965) indicates that if individuals perceive their outcomes to be unfair when compared to others, they may attempt to restore justice. From a distributive justice perspective, engaging in CWB may be one method of restoring justice by reducing input to restore equity, in order to rebalance the input-output ratio (Cohen-Charash & Spector, 2001). This suggests that perceiving unfair outcomes may lead individuals to engage in CWB directed toward the organisation (CWBO).

On the contrary, Crosby (1984) argued that when people perceive distributive injustice, they are more likely to blame the source of the decision, or individuals who are responsible for the unfair distribution, rather than the system. This argument is consistent with the findings of Aquino et al. (1999), in which perceived distributive justice had a negative relationship with interpersonal deviance. In addition, theories of relative deprivation (Crosby, 1984; Folger, Rosenfield, & Robinson, 1983) can provide another explanation for the relationship between distributive justice and CWB. In accordance with these theories, unfair outcomes trigger feelings of dissatisfaction and resentment that motivate individuals to react by modifying their behaviour to restore equity or attempting to change the system. If they believe that they cannot change the system, they will probably turn against the person held most responsible for the violation of justice (Aquino et al., 1999).

Based on these arguments, I expected that distributive justice would lead to both CWB directed toward the organisation (CWBO) and toward other

individuals including supervisors or co-workers (CWBI). Following Kernan and Hanges (2002), perceived justice was expected to have both contemporaneous and longitudinal relationships with CWB. The following hypotheses were examined cross-sectionally and longitudinally:

Cross-sectional hypotheses:

Hypothesis 9: Perceived distributive justice will negatively predict both forms of CWB at Time 1 and Time 2.

H9a: Perceived distributive justice will negatively predict CWBO at both times.

H9b: Perceived distributive justice will negatively predict CWBI at both times.

Longitudinal hypotheses:

Hypothesis 10: Time 1 perceived distributive justice will negatively predict both forms of Time 2 CWB.

H10a: Time 1 perceived distributive justice will negatively predict Time 2 CWBO.

H10b: Time 1 perceived distributive justice will negatively predict Time 2 CWBI.

As the relations of procedural and interactional justice to CWB have received less attention, Aquino et al. (1999) proposed a theoretical model linking procedural, distributive, and interactional justice to the two forms of CWB (CWBO and CWBI). The prediction that perceived distributive justice would predict CWBI was also supported in Aquino et al.'s (1999) study. Additionally, there is some evidence supporting the relationship between procedural justice and CWB directed toward the organisation. Procedural injustice is a trigger that can

lead to an unfair outcome affecting employees' salary. Therefore, procedural injustice is more likely to lead employees to retaliate against the organisation, because processes and procedures are determined and implemented at the organisational level (Hershcovis et al., 2007; Skarlicki & Folger, 1997). Based on this argument, the current research proposed the following hypotheses:

Cross-sectional hypothesis:

Hypothesis 11: Perceived procedural justice will negatively predict CWBO at Time 1 and Time 2.

Longitudinal hypothesis:

Hypothesis 12: Time 1 perceived procedural justice will negatively predict Time 2 CWBO.

Additionally, Aquino et al.'s (1999) study showed that perceived interactional justice was negatively related to a wider range of behaviours (both CWBO and CWBI) than either distributive or procedural justice. These findings support Bies and Moag's (1986) notion that interactional justice is distinct from either procedural or distributive justice judgments. Interpersonal concerns may be more salient to individuals than outcomes or the structural characteristics of rules and procedures when they form judgments of fairness, thus they are more likely to be concerned about violations of interactional justice than violations of procedural or distributive justice. As noted by Tyler and Bies (1990), interactional justice has been found to arouse the most intense emotional and behavioural responses.

Based on the above argument, I expected that the two components of interactional justice (interpersonal and informational justice) would predict CWB toward both targets. Interpersonal justice refers to the perceived fairness of interpersonal treatments and concerns the security and respectfulness of authority

communication, while informational justice concerns the use of adequate, truthful and accurate explanations during the decision-making procedures (Colquitt, Scott, Judge, & Shaw, 2006). The following hypotheses were examined cross-sectionally and longitudinally:

Cross-sectional hypotheses:

Hypothesis 13: Two forms of interactional justice will negatively predict both forms of CWB at Time 1 and Time 2.

H13a: Perceived interpersonal justice will negatively predict CWBO at both times.

H13b: Perceived interpersonal justice will negatively predict CWBI at both times.

H13c: Perceived informational justice will negatively predict CWBO at both times.

H13d: Perceived informational justice will negatively predict CWBI at both times.

Longitudinal hypotheses:

Hypothesis 14: Two forms of interactional justice at Time 1 will negatively predict both forms of CWB at Time 2.

H14a: Time 1 perceived interpersonal justice will negatively predict Time 2 CWBO.

H14b: Time 1 perceived interpersonal justice will negatively predict Time 2 CWBI.

H14c: Time 1 perceived informational justice will negatively predict Time 2 CWBO.

H14d: Time 1 perceived informational justice will negatively predict Time 2 CWBI.

Figure 2.2 presents a summary of Hypotheses 1-14 for the antecedent-justice-CWB relationships.

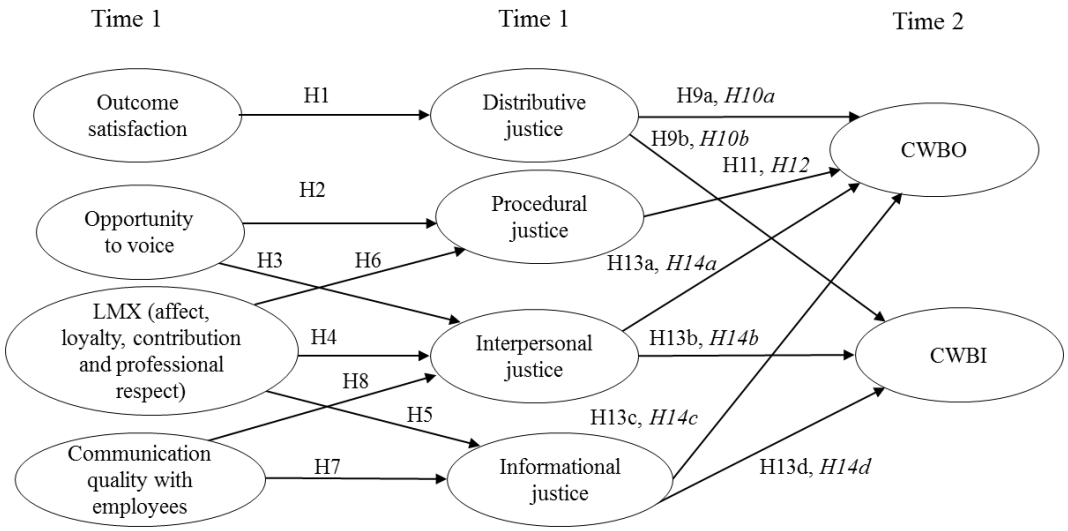

Figure 2.2. The antecedent-justice-CWB model.

Note. LMX = leader-member exchange; CWBO = counterproductive work behaviours toward the organisation; CWBI = counterproductive work behaviours toward the individual; *H10a, H10b, H12, H14a-d* = longitudinal hypotheses.

C. The mediating role of perceived justice in the antecedent-CWB relationships

Although many studies have examined the relationship between justice perceptions and work outcomes (e.g. Aquino et al., 2001; Hershcovis et al., 2007; Kernan & Hanges, 2002) as well as between antecedents and justice perceptions (e.g. Erdogan, 2002; Kernan & Hanges, 2002), few have investigated the mediating role of organisational justice in the antecedent-work outcome relationship (Hassan & Chandaran, 2005). Thus, the mediation effects of four justice perceptions in the relationships between their antecedents and CWB were examined cross-sectionally and longitudinally in the current research.

Based on the main effect hypotheses 1-14 (see Figure 2.2) which involve the unique influence of antecedents on justice perceptions and differential

influence of justice perceptions on two specific targets of CWB (CWBO and CWBI), the following mediating hypotheses are grouped into four parts for each form of justice perception (distributive, procedural, interpersonal and informational justice). All four forms of justice function as mediators. Each form of justice perception has its own unique set of antecedents and differential impact on the two forms of CWB. Following previous justice research (e.g. Kernan & Hanges, 2002), the contemporaneous relations between Time 1 antecedents and Time 1 justice perceptions (mediators) were examined while the longitudinal relations between Time 1 justice perceptions and Time 2 criterion variables were assessed. Thus, I examined the longitudinal indirect effects of justice antecedents at Time 1 on criterion variables (CWB) at Time 2 through mediators (justice perceptions) at Time 1.

Distributive justice as a mediator

Cross-sectional hypotheses:

Hypothesis 15: Distributive justice will mediate the outcome satisfaction-CWB relationships at Time 1 and Time 2.

- ***H15a:*** Distributive justice will mediate the outcome satisfaction-CWBO relationship at both times.
- ***H15b:*** Distributive justice will mediate the outcome satisfaction-CWBI relationship at both times.

Longitudinal hypotheses:

Hypothesis 16: Time 1 distributive justice will mediate the Time 1 outcome satisfaction-Time 2 CWB relationships.

- ***H16a:*** Time 1 distributive justice will mediate the Time 1 outcome satisfaction-Time 2 CWBO relationship.

H16b: Time 1 distributive justice will mediate the Time 1 outcome satisfaction-Time 2 CWBI relationship.

Procedural justice as a mediator

In Figure 2.2 (p. 35), opportunity to voice and four forms of LMX are predictors of procedural justice and this justice precedes CWBO. The mediation hypotheses for procedural justice were proposed as follows.

Cross-sectional hypotheses:

Hypothesis 17: Procedural justice will mediate the relationships between its antecedents (opportunity to voice and four forms of LMX) and CWBO at Time 1 and Time 2.

H17a: Procedural justice will mediate the opportunity to voice-CWBO relationship at both times.

H17b: Procedural justice will mediate the LMX-CWBO relationship at both times.

H17b(i): Procedural justice will mediate the relationship between affect and CWBO at both times.

H17b(ii): Procedural justice will mediate the relationship between loyalty and CWBO at both times.

H17b(iii): Procedural justice will mediate the relationship between contribution and CWBO at both times.

H17b(iv): Procedural justice will mediate the relationship between professional respect and CWBO at both times.

Longitudinal hypotheses:

Hypothesis 18: Time 1 procedural justice will mediate the relationships between Time 1 antecedents (opportunity to voice and four forms of LMX) and Time 2 CWBO.

H18a: Time 1 procedural justice will mediate the Time 1 opportunity to voice-Time 2 CWBO relationship.

H18b: Time 1 procedural justice will mediate the Time 1 LMX-Time 2 CWBO relationship.

H18b(i): Time 1 procedural justice will mediate the relationship between Time 1 affect and Time 2 CWBO.

H18b(ii): Time 1 procedural justice will mediate the relationship between Time 1 loyalty and Time 2 CWBO.

H18b(iii): Time 1 procedural justice will mediate the relationship between Time 1 contribution and Time 2 CWBO.

H18b(iv): Time 1 procedural justice will mediate the relationship between Time 1 professional respect and Time 2 CWBO.

<u>Interpersonal justice as a mediator</u>

In Figure 2.2 (p. 35), opportunity to voice, four forms of LMX and communication quality are predictors of interpersonal justice and this justice precedes both forms of CWB. The mediation hypotheses for interpersonal justice were proposed as follows.

Cross-sectional hypotheses:

Hypothesis 19: Interpersonal justice will mediate the relationships between its antecedents (opportunity to voice, four forms of LMX and communication quality) and CWB at Time 1 and Time 2.

H19a: Interpersonal justice will mediate the opportunity to voice-CWBO relationship at both times.

H19b: Interpersonal justice will mediate the opportunity to voice-CWBI relationship at both times.

H19c: Interpersonal justice will mediate the LMX-CWBO relationship at both times.

H19c(i): Interpersonal justice will mediate the relationship between affect and CWBO at both times.

H19c(ii): Interpersonal justice will mediate the relationship between loyalty and CWBO at both times.

H19c(iii): Interpersonal justice will mediate the relationship between contribution and CWBO at both times.

H19c(iv): Interpersonal justice will mediate the relationship between professional respect and CWBO at both times.

H19d: Interpersonal justice will mediate the LMX-CWBI relationship at both times.

H19d(i): Interpersonal justice will mediate the relationship between affect and CWBI at both times.

H19d(ii): Interpersonal justice will mediate the relationship between loyalty and CWBI at both times.

H19d(iii): Interpersonal justice will mediate the relationship between contribution and CWBI at both times.

H19d(iv): Interpersonal justice will mediate the relationship between professional respect and CWBI at both times.

H19e: Interpersonal justice will mediate the communication quality-CWBO relationship at both times.

H19f: Interpersonal justice will mediate the communication quality-CWBI relationship at both times.

Longitudinal hypotheses:

Hypothesis 20: Time 1 interpersonal justice will mediate the relationships between Time 1 antecedents (opportunity to voice, four forms of LMX and communication quality) and Time 2 CWB.

H20a: Time 1 interpersonal justice will mediate the Time 1 opportunity to voice-Time 2 CWBO relationship.

H20b: Time 1 interpersonal justice will mediate the Time 1 opportunity to voice-Time 2 CWBI relationship.

H20c: Time 1 interpersonal justice will mediate the Time 1 LMX-Time 2 CWBO relationship.

H20c(i): Time 1 interpersonal justice will mediate the relationship between Time 1 affect and Time 2 CWBO.

H20c(ii): Time 1 interpersonal justice will mediate the relationship between Time 1 loyalty and Time 2 CWBO.

H20c(iii): Time 1 interpersonal justice will mediate the relationship between Time 1 contribution and Time 2 CWBO.

H20c(iv): Time 1 interpersonal justice will mediate the relationship between Time 1 professional respect and Time 2 CWBO.

H20d: Time 1 interpersonal justice will mediate the Time 1 LMX-Time 2 CWBI relationship.

H20d(i): Time 1 interpersonal justice will mediate the relationship between Time 1 affect and Time 2 CWBI.

H20d(ii): Time 1 interpersonal justice will mediate the relationship between Time 1 loyalty and Time 2 CWBI.

H20d(iii): Time 1 interpersonal justice will mediate the relationship between Time 1 contribution and Time 2 CWBI.

H20d(iv): Time 1 interpersonal justice will mediate the relationship between Time 1 professional respect and Time 2 CWBI.

H20e: Time 1 interpersonal justice will mediate the Time 1 communication quality-Time 2 CWBO relationship.

H20f: Time 1 interpersonal justice will mediate the Time 1 communication quality-Time 2 CWBI relationship.

Informational justice as a mediator

In Figure 2.2 (p. 35), communication quality and four forms of LMX are predictors of informational justice and this justice precedes both forms of CWB. The mediation hypotheses for informational justice were proposed as follows.

Cross-sectional hypotheses:

Hypothesis 21: Informational justice will mediate the relationships between its antecedents (communication quality and four forms of LMX) and CWB at Time 1 and Time 2.

H21a: Informational justice will mediate the communication quality-CWBO relationship at both times.

H21b: Informational justice will mediate the communication quality-CWBI relationship at both times.

H21c: Informational justice will mediate the LMX-CWBO relationship at both times.

H21c(i): Informational justice will mediate the relationship between affect and CWBO at both times.

H21c(ii): Informational justice will mediate the relationship between loyalty and CWBO at both times.

H21c(iii): Informational justice will mediate the relationship between contribution and CWBO at both times.

H21c(iv): Informational justice will mediate the relationship between professional respect and CWBO at both times.

H21d: Informational justice will mediate the LMX-CWBI relationship at both times.

H21d(i): Informational justice will mediate the relationship between affect and CWBI at both times.

H21d(ii): Informational justice will mediate the relationship between loyalty and CWBI at both times.

H21d(iii): Informational justice will mediate the relationship between contribution and CWBI at both times.

H21d(iv): Informational justice will mediate the relationship between professional respect and CWBI at both times.

Longitudinal hypotheses:

Hypothesis 22: Time 1 informational justice will mediate the relationships between Time 1 antecedents (communication quality and four forms of LMX) and Time 2 CWB.

H22a: Time 1 informational justice will mediate the Time 1 communication quality-Time 2 CWBO relationship.

H22b: Time 1 informational justice will mediate the Time 1 communication quality-Time 2 CWBI relationship.

H22c: Time 1 informational justice will mediate the Time 1 LMX-Time 2 CWBO relationship.

H22c(i): Time 1 informational justice will mediate the relationship between Time 1 affect and Time 2 CWBO.

H22c(ii): Time 1 informational justice will mediate the relationship between Time 1 loyalty and Time 2 CWBO.

H22c(iii): Time 1 informational justice will mediate the relationship between Time 1 contribution and Time 2 CWBO.

H22c(iv): Time 1 informational justice will mediate the relationship between Time 1 professional respect and Time 2 CWBO.

H22d: Time 1 informational justice will mediate the Time 1 LMX-Time 2 CWBI relationship.

H22d(i): Time 1 informational justice will mediate the relationship between Time 1 affect and Time 2 CWBI.

H22d(ii): Time 1 informational justice will mediate the relationship between Time 1 loyalty and Time 2 CWBI.

H22d(iii): Time 1 informational justice will mediate the relationship between Time 1 contribution and Time 2 CWBI.

H22d(iv): Time 1 informational justice will mediate the relationship between Time 1 professional respect and Time 2 CWBI.

2.4 Cross-national replication

Even though the antecedent-justice-CWB relationship has been investigated, little is known regarding the generalizability of this relationship to non-Western contexts. Brockner et al. (2001) suggested that justice perceptions might not be related to work behaviour universally and the degrees of influence on outcomes may vary across cultures. The research model of linkages among antecedents, justice, individual differences and CWB (Figure 2.1 on p. 19) was

developed from the existing frameworks related to organisational justice and CWB in Western cultures, mainly the United States of America. The current research aimed to examine whether those linkages among the research variables might be generalizable to countries outside the USA. It also compared findings from a Western country (New Zealand) with those from a non-Western country (Thailand), to determine the level of a similarity across countries with different cultural and socio-political contexts.

There are two main reasons why I conducted a comparative study between these two nations. Firstly, the small range of countries (mainly the USA, Japan and China) that have been included in comparative studies of organisational justice and CWB limits the ability to understand the antecedent-justice-CWB relationship in different cultural contexts. The interplay of different forms of justice perceptions, antecedents and CWB may show subtle variations across countries. In other words, people from different cultures may react differently to the same organisational practices and unfair situations. Therefore, the current research extended the range of Asian and Western countries by selecting one Western country (New Zealand) and one Asian country (Thailand).

Another reason was that a great difference in two dimensions of work-related cultural values, individualism-collectivism (I-C) and power distance between these countries was found in Hofstede's (2001) cross-cultural study. Although there are cultural variations within New Zealand, New Zealand is predominantly individualist and Thai society is collectivist (Hofstede, 1984). Committing to the member group and loyalty has been embedded in collectivist cultures. On the other hand, the idea of privacy and individual rights is considered as the cultural norm of individualists. Furthermore, Hofstede (1984) classified Thailand as a high power distance culture, in which superiors and subordinates

consider each other as existentially unequal, and subordinates expect to be told what to do. In contrast, New Zealand society seems to have greater equality between power levels. This orientation reinforces more cooperative interaction across power levels.

These differences in cultural values (I-C and power distance) may alter the degrees of justice antecedents' influence on justice perceptions, as well as the magnitudes of justice perceptions' influence on CWB across different cultures. People with different cultural values hold different attitudes toward the violation of justice. For example, justice is more important for people in individualistic societies. People in low power distance societies are less tolerant of justice violations than people in higher power distance societies (Tyler, Lind, & Huo, 2000).

2.5 Chapter summary

This chapter has described the theoretical model and hypotheses developed for the current research. The theoretical model of this research (Figure 2.1 on p. 19) was adapted from the model of personality and CWB (Cullen & Sackett, 2003), which emphasises the antecedents-justice-CWB relationships, and the influence of individual differences on CWB. Hence, the research hypotheses comprise two main sets which involve the hypothesised antecedent-justice-CWB relationships (Figure 2.2 on p. 35), and the hypotheses relating to the influence of individual differences on justice and CWB (discussed in Chapter 3).

My proposed mediation model (Figure 2.2 on p. 35) incorporates four forms of perceived justice as mediators of the relationship between justice antecedents and CWB. Hence, research hypotheses involve (a) the main effects of antecedents (outcome satisfaction, opportunity to voice, LMX and communication

quality) on justice perceptions, (b) the main effects of justice perceptions on two forms of CWB (CWBO and CWBI), and (c) the mediating effects of justice perceptions in the antecedent-CWB relationships. To assess the mediating effects, the two-wave longitudinal design was used to examine the longitudinal effects of Time 1 justice antecedents on Time 2 CWB through justice perceptions at Time 1.

Concerning the generalizability of the research model developed in the Western context and the limited range of countries used in previous studies of justice and CWB, my proposed model (Figure 2.1 on p. 19) was examined in one Western country, New Zealand and one Asian country, Thailand.

In addition, the theoretical model (Figure 2.1 on p. 19) also suggests that individual differences may be direct determinants of justice perceptions and CWB, and moderators of the relationships between justice perceptions and CWB. Hence, the hypothesised main effects of five individual differences (agreeableness, conscientiousness, self-control, collectivism and power distance) on perceived justice and CWB, and the hypothesised moderating effects of those individual differences are discussed in the next chapter.

Chapter 3

Individual Differences

This chapter presents the second set of research hypotheses which involve the influence of individual differences on justice perceptions and counterproductive work behaviour (CWB). The research model (Figure 2.1 on p. 19) indicates three mechanisms by which individual differences can affect justice perceptions and CWB: (a) the main effects of individual differences on justice perceptions, (b) the main effects of individual differences on CWB, and (c) the moderating role of individual differences in the perceived justice-CWB relationships. These hypothesised main effects and moderating effects are discussed in this chapter.

3.1 Individual differences, justice perceptions and CWB

The workplace aggression literature has included a number of personality traits that may have an association with workplace aggression (i.e. CWB), such as trait affective disposition (trait anger, trait anxiety or negative affectivity) (Cohen-Charash & Spector, 2001; Fox et al., 2001; Hershcovis et al., 2007; Skarlicki et al., 1999), self-control and attribution style (Douglas & Martinko, 2001), agreeableness (Mount, Ilies, & Johnson, 2006; Skarlicki et al., 1999) and conscientiousness (Mount et al., 2006). It is practically unrealistic to include all traits in a single study, thus three personality traits (agreeableness, conscientiousness and self-control) were selected for the reasons outlined below.

Those three personality traits appear to have a possibility of explaining the variability in two forms of CWB (CWBO and CWBI) and have implications for understanding justice judgements. Based on over one hundred studies, among the

Big Five personality traits conscientiousness seems to be the strongest predictor of a broad class of CWBs, followed by agreeableness (Cullen & Sackett, 2003). However, Marcus and Schuler (2004) found that self-control was the strongest correlate of broad categories of CWB.

In spite of the fact that the model of the personality-CWB relationship (Cullen & Sackett, 2003) indicates the influence of personality on perceived justice and that several meta-analyses (e.g. Cohen-Charash & Spector, 2001) have examined antecedents and outcomes of organisational justice perceptions, few studies have investigated the linkages between personality traits and organisational justice. Shi, Lin, Wang and Wang (2009) explored the links between Big Five personality traits and four forms of perceived justice (distributive, procedural, interpersonal and informational justice) and found that agreeableness was an important correlate of justice perceptions. Although the direct influence of conscientiousness and self-control on justice perceptions has not been explored in organisational justice research, these two traits have implications for justice judgements (discussed in the next section). The current research aimed to extend the literature on the dispositional correlates of organisational justice by including three personality traits (agreeableness, conscientiousness and self-control), which may affect justice perceptions and reactions to those perceptions (i.e. CWB).

In addition to those three personality traits, two cultural values - individualism-collectivism (I-C) and power distance - were included in the current research as individual differences. Even though previous studies (e.g. Clugston, Howell, & Dorfman, 2000; Moorman & Blakely, 1995) emphasised the influence of cultural values (e.g. I-C and power distance) on criterion variables (e.g. organisational commitment and organisational citizenship behaviour/OCB), their

influence on CWB has rarely been examined. According to Hofstede (1984), work-related cultural values can be divided into four dimensions, including I-C, power distance, uncertainty avoidance, and masculinity. However, only I-C and power distance were included in the current research for the reasons outlined below.

Conceptually, most cross-cultural research on organisational justice is guided by I-C and power distance (Greenberg & Colquitt, 2005) and these two cultural dimensions have been widely examined in organisational perception and behaviour studies (e.g. Clugston et al., 2000; Moorman & Blakely, 1995). Another reason is that I-C is a key dimension for classifying culture, and power distance has been found to be a consistent moderator of perceived justice and work outcomes (e.g. absenteeism, job performance, and trust in supervisors) (Lam, Schaubroeck, & Aryee, 2002; Lee, Pillutla, & Law, 2000). As cultural values may shape the way individuals make fairness judgements and respond to those perceptions (Cohen-Charash & Spector, 2001), I-C and power distance, which have implications for understanding CWB, were included as individual differences in the current research.

3.2 Research hypotheses

The research hypotheses relating to the influence of five individual differences (agreeableness, conscientiousness, self-control, I-C and power distance) on justice perceptions and CWB are discussed in three parts: (a) individual differences as direct determinants of justice perceptions, (b) individual differences as direct determinants of CWB, and (c) individual differences as moderators of the justice-CWB relationships.

A. Individual differences as predictors of justice perceptions

Three personality traits (agreeableness, conscientiousness and self-control), which have implications for understanding fairness judgements were included as determinants of justice perceptions. *Agreeableness* is characterised by individuals being good-natured, emotionally supportive, tolerant and courteous (Barrick, Mount, & Judge, 2001). Individuals with high scores on agreeableness are highly cooperative, trusting, sociable, and empathic to others, while those with low agreeableness are self-centered, non-cooperative, vengeful, jealous, manipulative and inconsiderate (Digman, 1990). Prior research found that agreeableness was associated with having positive beliefs and making positive attributions about their supervisors, co-workers and organisations (Costa & McCrae, 1992). This suggests that agreeable persons will perceive that they are treated fairly in their organisations.

More recent research (Shi et al., 2009) revealed that agreeableness was significantly positively related to four forms of justice perceptions (distributive, procedural, interpersonal and informational justice). This indicates that agreeable employees are more likely to be more appreciative of other people's contributions at work, which leads them to a balanced view of input and outcome ratio in the process of social comparison and perceived fairness of distribution. Additionally, Shi et al. (2009) stated that the characteristics of agreeable persons, such as being cheerful, adaptable and cooperative, lead them to have good relationships with others at work. Thus, they tend to be included in the decision-making process, interpersonal socialisations and information sharing at work. This may make them perceive high levels of procedural, interpersonal and informational justice.

Based on these arguments, the following hypotheses were examined cross-sectionally and longitudinally:

Cross-sectional hypotheses:

Hypothesis 23: Agreeableness will positively predict employees' perceptions of (23a) distributive justice, (23b) procedural justice, (23c) interpersonal justice, and (23d) informational justice at Time 1 and Time 2.

Longitudinal hypotheses:

Hypothesis 24: Agreeableness at Time 1 will positively predict employees' Time 2 perceptions of (24a) distributive justice, (24b) procedural justice, (24c) interpersonal justice, and (24d) informational justice.

Conscientiousness reflects the extent to which a person is organised, responsible, dependable, and achievement-oriented. There is argument on whether conscientious people are more likely to perceive higher or lower levels of organisational justice perceptions (Shi et al., 2009). On one side, individuals high in conscientiousness are characterised as hard-working, responsible, careful and achievement-oriented, which makes them more likely to achieve better work outcomes and receive work rewards. This may result in high levels of organisational justice perceptions (Barrick & Mount, 1991).

However, in the current research conscientiousness was expected to have a negative association with justice perceptions based on the following arguments. Conscientious individuals tend to be sensitive to violations of moral standards and how they will be rewarded from their contribution at work (Schmidt & Hunter, 1998). Colquitt et al. (2006) and Foote and Harmon (2006) found that conscientiousness was a component of trait morality and equity sensitivity. This indicates that people high in conscientiousness tend to adhere to moral standards and prefer the inputs that they bring to a job to be equal to the outcomes they receive from it. This may make it difficult for conscientious people to perceive

organisational justice if they feel they are not properly rewarded. Additionally, Cropanzano and Rupp (2003) found that adherence to moral principles had a negative relationship with organisational justice perceptions. Thus, the following hypotheses were proposed:

Cross-sectional hypotheses:

Hypothesis 25: Conscientiousness will negatively predict employees' perceptions of (25a) distributive justice, (25b) procedural justice, (25c) interpersonal justice, and (25d) informational justice at Time 1 and Time 2.

Longitudinal hypotheses:

Hypothesis 26: Conscientiousness at Time 1 will negatively predict employees' Time 2 perceptions of (26a) distributive justice, (26b) procedural justice, (26c) interpersonal justice, and (26d) informational justice.

Self-control refers to the extent to which individuals have an ability to manage their emotions and desires. Policing and crime research (Wolfe, 2011) found that low self-control was negatively associated with procedural justice among university students enrolled in six criminal justice, history, and psychology courses in the southern United States. This indicated that respondents with lower levels of self-control were less likely to judge the police in their locality as procedurally fair. Some observational policing studies (Mastrofski, Reisig, & McCluskey, 2002) suggested that low self-control may be an indicator of procedural injustice because people with low self-control (tendency to experience high levels of anger and resist following the authority's commands) are more likely to have police officers treat them disrespectfully.

The effect of self-control on justice perceptions has been often examined in the legal setting, but few studies (e.g. Bechtoldt, Welk, Hartig, & Zapf, 2007)

have examined the effect of self-control in the organisational context. Bechtoldt et al. (2007) and Wolfe (2011) found a significant positive association between self-control and procedural justice. This suggested that people high in self-control (ability to control their temper) are less likely to experience disrespect during the decision-making procedures, therefore they tend to perceive a fair process (Mastrofski et al., 2002). In the current research, the relationships between self-control and four forms of justice perceptions were explored cross-sectionally and longitudinally as follows.

Cross-sectional hypotheses:

Hypothesis 27: Self-control will positively predict employees' perceptions of (27a) distributive justice, (27b) procedural justice, (27c) interpersonal justice, and (27d) informational justice at Time 1 and Time 2.

Longitudinal hypotheses:

Hypothesis 28: Self-control at Time 1 will positively predict employees' Time 2 perceptions of (28a) distributive justice, (28b) procedural justice, (28c) interpersonal justice, and (28d) informational justice.

It is difficult to form a hypothesis about the direct influence of cultural values (I-C and power distance) on justice perceptions. These two cultural values have been mainly studied for their hypothesised role as moderators of the relationship between perceived justice and reaction to it (e.g. organisational commitment behaviour/OCB), and as direct determinants of work performance (Clugston et al., 2000; Erdogan & Liden, 2006). Thus, this research examined the direct influence of I-C and power distance on CWB and their moderating role in the relationships between justice perceptions and CWB, which are discussed in the following sections.

B. Individual differences as predictors of CWB

As noted by Cullen and Sackett (2003), personality traits may affect the occurrence of CWB because they reflect internal states that predispose people to certain behaviours. Substantial empirical evidence indicates that people differ in their propensity to aggress. Some may respond mildly to even strong provocation while others may react with strong emotions and some forms of aggression to even mild forms of annoyance (Neuman & Baron, 1998). Unlike the situational factors which can provoke individuals to behave in a certain way (e.g. individuals engage in some forms of CWB as an attempt to restore justice to an unfair situation), individual differences are stable across time and situation (Hershcovis et al., 2007). Hence, five individual differences (agreeableness, conscientiousness, self-control, I-C and power distance) were expected to predict both targets of CWB (CWBO and CWBI).

Prior meta-analysis found that *agreeableness* was a predictor of work performance (Barrick et al., 2001). This trait has been found to be a valid predictor of interpersonal performance, such as forming cooperative relationships, teamwork, and customer service (Mount et al., 2006). Mount et al.'s (2006) study provided empirical support that agreeableness had a direct negative relationship with CWBI rather than CWBO. They suggested that agreeableness is an interpersonal trait and involves more interpersonal interactions. Agreeableness also has implications for task-based CWB (CWBO), even though the relationship may not be as strong as for interpersonal-based CWB (CWBI). As noted by Goldberg (1999), disagreeable people are manipulative, not cooperative, more likely to break the rules and cheat to get ahead. Thus, I expected that agreeableness would negatively predict both CWBO and CWBI cross-sectionally and longitudinally.

Cross-sectional hypotheses:

Hypothesis 29: Agreeableness will negatively predict both (29a) CWBO and (29b) CWBI at Time 1 and Time 2.

Longitudinal hypotheses:

Hypothesis 30: Agreeableness at Time 1 will negatively predict both (30a) CWBO and (30b) CWBI at Time 2.

Individuals with high *conscientiousness* are responsible, reliable, and achievement oriented whereas those low in this trait have less motive to perform a task that they want to accomplish. Even though meta-analytic findings (Sackett & DeVore, 2001) revealed that conscientiousness was the most consistent predictor of CWB and Dalal's (2005) meta-analysis also found a significant negative relationship between conscientiousness and CWB, very little research has examined the relationship between conscientiousness and the two forms of CWB. Mount et al. (2006) found that conscientiousness had meaningful relationships with both CWBO and CWBI, but this trait best predicted organisationally-targeted CWB. As conscientiousness has an association with dependability and rules-compliance, people high in this trait are less likely to break rules and norms of the organisation (e.g. lack of punctuality or theft). This suggests that this trait is most relevant to task-based CWB (Mount et al., 2006).

However, conscientiousness was found to be a generalizable predictor of overall work performance or behaviours that are under volitional control (Barrick et al., 2001). As both CWBO and CWBI are active and volitional acts, it can be inferred that conscientiousness should predict both targets of CWB. Conscientious people are rule-compliant and goal-oriented so they are less likely to engage in both task-based and interpersonal-based CWBs that hinder the attainment of

organisational goals. Based on these arguments, the following hypotheses were proposed.

Cross-sectional hypotheses:

Hypothesis 31: Conscientiousness will negatively predict both (31a) CWBO and (31b) CWBI at Time 1 and Time 2.

Longitudinal hypotheses:

Hypothesis 32: Conscientiousness at Time 1 will negatively predict both (32a) CWBO and (32b) CWBI at Time 2.

Based on self-control theory (Gottfredson & Hirschi, 1990), the single most important factor behind any criminal acts is individual lack of *self-control*. High self-control individuals tend to avoid any act that may lead to possible long-term negative consequences, while those low in self-control tend to lack the ability to effectively manage their frustrations and lose their inhibitions by impulsively or aggressively response to provocations (Douglas & Martinko, 2001). Douglas and Martinko (2001) found a significant negative relationship between self-control and overall incidence of workplace aggression (e.g. saying unkind things to purposely harm others at work or saying nasty things about the organisation). In addition, Marcus and Schuler (2004) applied self-control theory to provide an explanation for CWB. They found support for self-control theory, because self-control was related to the consideration of future consequences and was the main predictor of a wide variety of different counterproductive acts. By inference, this suggests that self-control may predict both task-based and interpersonal-based CWB.

Cross-sectional hypotheses:

Hypothesis 33: Self-control will negatively predict both (33a) CWBO and (33b) CWBI at Time 1 and Time 2.

Longitudinal hypotheses:

Hypothesis 34: Self-control at Time 1 will negatively predict both (34a) CWBO and (34b) CWBI at Time 2.

Collectivism, which may have implications for CWB, was assessed as individual differences in the current research. This scale is a bipolar construct where those falling at one end of the continuum are defined as collectivistic, while those falling at the other end are defined as individualistic. Higher scores on this scale represent more collectivism. This construct refers to how individuals value themselves and their groups or organisations. People with high collectivism tend to focus on group or organisational benefits, ingroup harmony, duty, security, personalised relationships and norms that favour their own workgroup, while those high in individualism tend to emphasize their own interests, self-actualization, freedom, autonomy, fairness, career progress in the organisation (Triandis, 1994). Clugston et al. (2000) found that collectivism was positively related to normative commitment across three foci (organisation, supervisor and work group). They indicated that collectivists have a higher moral and social identification with the workplace than individualists because collectivists' commitment is based on a sense of duty. As collectivists' behaviour will favour the group and value group harmony, I expected that collectivism would have a negative association with both forms of CWB.

Cross-sectional hypotheses:

Hypothesis 35: Collectivism will negatively predict both (35a) CWBO and (35b) CWBI at Time 1 and Time 2.

Longitudinal hypotheses:

Hypothesis 36: Collectivism at Time 1 will negatively predict both (36a) CWBO and (36b) CWBI at Time 2.

Power distance refers to the extent to which people accept the inequality in power between superiors and subordinates in organisations. Individuals reporting high scores on power distance tend to be submissive to authority, accept hierarchy and their social status, fear economic loss, and believe that they have few job alternatives (Bochner & Hesketh, 1994). Due to the belief about being subordinate in society and having few alternatives elsewhere, high power distance people tend to be concerned more about the consequences of their actions and are less likely to engage in any behaviour that harms the organisation and other people (i.e. CWBO and CWBI). Power distance seems to have more implications for CWBI than CWBO, as it is a measure of the interpersonal power or influence between supervisors and subordinates. Even though the relationship between power distance and two forms of CWB has rarely been explored, prior research (Clugston et al., 2000) indicated that power distance was positively related to organisational commitment across three foci (organisation, supervisor and workgroup), suggesting that individuals high on power distance felt a duty-bound loyalty in all their relationships. In addition, Shao, Rupp, Skarlicki and Jones (2013) found a negative relationship between power distance and negative behaviours toward organisation and supervisor. This may suggest that because CWB encompasses any harmful acts committed by employees against the

interests of the organisation and its members, power distance should be negatively associated with both CWBO and CWBI.

Cross-sectional hypotheses:

Hypothesis 37: Power distance will negatively predict both (37a) CWBO and (37b) CWBI at Time 1 and Time 2.

Longitudinal hypotheses:

Hypothesis 38: Power distance at Time 1 will negatively predict both (38a) CWBO and (38b) CWBI at Time 2.

C. Individual differences as moderators of the relationships between justice perceptions and CWB

Regarding the impact of individual differences on the occurrence of CWB, specific individual differences can moderate the relationships between justice perceptions and two forms of CWB (Figure 2.1 on p.19). As noted by Cohen-Charash and Spector (2001), studies looking at individual differences have been scarce. Negative affectivity was mainly examined as a control variable affecting the relationships between perceived justice and the outcomes of these perceptions (Folger & Konovsky, 1989) or as a moderator of the relationships between perceived justice and its outcomes (Skarlicki et al., 1999). Individuals with certain traits are more likely to experience more intense perceptions of unfairness when faced with aversive events. These perceptions of unfairness may prompt such individuals to engage in workplace aggression or CWB (Jawahar, 2002).

The following section discusses theoretical rationale and hypotheses relating to the moderating roles of five individual differences (agreeableness, conscientiousness, self-control, collectivism and power distance) in the justice perception-CWB relationships.

Agreeableness has been regarded as the strongest predictor of CWB (Cullen & Sackett, 2003). Empirical support was found for a moderating role of agreeableness in the relationship between justice perceptions and retaliation (Skarlicki et al., 1999). Agreeableness has been described in terms of the difference in individuals' motivation to avoid arguments (Graziano & Eisenberg, 1997). Individuals high in agreeableness are less likely to express high emotion, have controversial issues and attack others. In addition, Buss and Plomin (1984) stated that less agreeable individuals are likely to become distressed when they encounter negative information and react with higher emotional arousal. This may lead them to be affected more by aversive events (e.g. injustice) than people with high levels of agreeableness. Due to the tendency to experience higher levels of emotion and their antagonistic nature, less agreeable people will be more likely to engage in aggressive behaviours (Jawahar, 2002). Based on above arguments, I expected that agreeableness would moderate the perceived justice-CWB relationship, with a stronger relationship among those lower in agreeableness.

Figure 2.2 (p.35 in Chapter 2) proposes the differential impacts of each form of perceived justice on two targets of CWB (CWBO and CWBI). Three forms of justice (distributive, interpersonal and informational justice) were expected to be related to both forms of CWB, while procedural justice was hypothesised to be related to only CWBO. Thus, predictions were derived for the moderating role of individual differences in the relationship between each form of perceived justice and its outcome (CWBO or CWBI).

Cross-sectional hypotheses:

Hypothesis 39: Agreeableness will moderate the relationships between each form of perceived justice (distributive, procedural, interpersonal and informational

justice) and its outcome (CWBO or CWBI) at Time 1 and Time 2, with a stronger relationship among those low in agreeableness.

H39a: Agreeableness will moderate the distributive justice-CWBO relationship at both times.

H39b: Agreeableness will moderate the distributive justice-CWBI relationship at both times.

H39c: Agreeableness will moderate the procedural justice-CWBO relationship at both times.

H39d: Agreeableness will moderate the interpersonal justice-CWBO relationship at both times.

H39e: Agreeableness will moderate the interpersonal justice-CWBI relationship at both times.

H39f: Agreeableness will moderate the informational justice-CWBO relationship at both times.

H39g: Agreeableness will moderate the informational justice-CWBI relationship at both times.

Longitudinal hypotheses:

Hypothesis 40: Agreeableness at Time 1 will moderate the relationships between Time 1 justice perceptions and Time 2 CWB, with a stronger relationship among those low in agreeableness.

H40a: Agreeableness at Time 1 will moderate the Time 1 distributive justice-Time 2 CWBO relationship.

H40b: Agreeableness at Time 1 will moderate the Time 1 distributive justice-Time 2 CWBI relationship.

H40c: Agreeableness at Time 1 will moderate the Time 1 procedural justice-Time 2 CWBO relationship.

H40d: Agreeableness at Time 1 will moderate the Time 1 interpersonal justice-Time 2 CWBO relationship.

H40e: Agreeableness at Time 1 will moderate the Time 1 interpersonal justice-Time 2 CWBI relationship.

H40f: Agreeableness at Time 1 will moderate the Time 1 informational justice-Time 2 CWBO relationship.

H40g: Agreeableness at Time 1 will moderate the Time 1 informational justice-Time 2 CWBI relationship.

Similar to agreeableness, a strong direct relationship between *conscientiousness* and CWB has been observed (Dalal, 2005). Few studies have examined this trait as a moderator of the relationship between perceptual variables and CWB. Colbert et al. (2004) found that the relationship between perceptions of the work situation and CWB was stronger for employees with low levels of conscientiousness or emotional stability. This suggests that unconscientious individuals are more likely to engage in CWB when they have negative perceptions of the work situation (e.g. unfair treatment). Even though Colquitt et al. (2006) attempted to explore the moderating role of Big Five personality dimensions, conscientiousness did not significantly moderate the justice perception-CWB relationship in their study. However, their study used only a single facet of CWB (theft) as a work outcome variable. The present research examined whether conscientiousness would moderate the relationships between perceived justice and two forms of CWB with a stronger relationship when conscientiousness was low.

Cross-sectional hypotheses:

Hypothesis 41: Conscientiousness will moderate the relationships between each form of perceived justice (distributive, procedural, interpersonal and informational justice) and its outcome (CWBO or CWBI) at Time 1 and Time 2, with a stronger relationship among those low in conscientiousness.

H41a*:* Conscientiousness will moderate the distributive justice-CWBO relationship at both times.

H41b: Conscientiousness will moderate the distributive justice-CWBI relationship at both times.

H41c: Conscientiousness will moderate the procedural justice-CWBO relationship at both times.

H41d: Conscientiousness will moderate the interpersonal justice-CWBO relationship at both times.

H41e*:* Conscientiousness will moderate the interpersonal justice-CWBI relationship at both times.

H41f: Conscientiousness will moderate the informational justice-CWBO relationship at both times.

H41g: Conscientiousness will moderate the informational justice-CWBI relationship at both times.

Longitudinal hypotheses:

Hypothesis 42: Conscientiousness at Time 1 will moderate the relationships between Time 1 justice perceptions and Time 2 CWB, with a stronger relationship among those low in conscientiousness.

H42a: Conscientiousness at Time 1 will moderate the Time 1 distributive justice-Time 2 CWBO relationship.

H42b: Conscientiousness at Time 1 will moderate the Time 1 distributive justice-Time 2 CWBI relationship.

H42c: Conscientiousness at Time 1 will moderate the Time 1 procedural justice-Time 2 CWBO relationship.

H42d: Conscientiousness at Time 1 will moderate the Time 1 interpersonal justice-Time 2 CWBO relationship.

H42e: Conscientiousness at Time 1 will moderate the Time 1 interpersonal justice-Time 2 CWBI relationship.

H42f: Conscientiousness at Time 1 will moderate the Time 1 informational justice-Time 2 CWBO relationship.

H42g: Conscientiousness at Time 1 will moderate the Time 1 informational justice-Time 2 CWBI relationship.

Another personality trait which was included as a potential moderator of the justice perception-CWB relationship in the current research was *self-control*. As noted by Buss (1961), high self-control people are more likely to remain calm in provocative situations and less likely to engage in aggressive acts. In contrast, low self-control individuals tend to engage in more aggressive behaviours because they lack the ability to inhibit their negative emotions or behaviours when confronted with unpleasant situations. Even though a number of studies (e.g. Douglas & Martinko, 2001; Marcus & Schuler, 2004) found a relationship between self-control and workplace aggression, few studies have examined the moderating effects of self-control on workplace aggression. Bechtoldt et al. (2007) found a significant three-way interaction of self-control, emotional labour (the display of organisationally-desired emotions during work through surface or deep acting), and organisational justice on two forms of CWB. However, they

examined only the effects of two justice dimensions (procedural and distributive justice) on CWB. Thus, the moderating role of self-control in the relationships between four forms of perceived justice and two forms of CWB was explored in the current research. Based on the above argument, I hypothesised that self-control would moderate the perceived justice-CWB relationship with a stronger relationship among those lower in self-control.

Cross-sectional hypotheses:

Hypothesis 43: Self-control will moderate the relationships between each form of perceived justice (distributive, procedural, interpersonal and informational justice) and its outcome (CWBO or CWBI) at Time 1 and Time 2, with a stronger relationship among those low in self-control.

- ***H43a:*** Self-control will moderate the distributive justice-CWBO relationship at both times.
- ***H43b:*** Self-control will moderate the distributive justice-CWBI relationship at both times.
- ***H43c:*** Self-control will moderate the procedural justice-CWBO relationship at both times.
- ***H43d:*** Self-control will moderate the interpersonal justice-CWBO relationship at both times.
- ***H43e:*** Self-control will moderate the interpersonal justice-CWBI relationship at both times.
- ***H43f:*** Self-control will moderate the informational justice-CWBO relationship at both times.
- ***H43g:*** Self-control will moderate the informational justice-CWBI relationship at both times.

Longitudinal hypotheses:

Hypothesis 44: Self-control at Time 1 will moderate the relationships between Time 1 justice perceptions and Time 2 CWB, with a stronger relationship among those low in self-control.

H44a: Self-control at Time 1 will moderate the Time 1 distributive justice-Time 2 CWBO relationship.

H44b: Self-control at Time 1 will moderate the Time 1 distributive justice-Time 2 CWBI relationship.

H44c: Self-control at Time 1 will moderate the Time 1 procedural justice-Time 2 CWBO relationship.

H44d: Self-control at Time 1 will moderate the Time 1 interpersonal justice-Time 2 CWBO relationship.

H44e: Self-control at Time 1 will moderate the Time 1 interpersonal justice-Time 2 CWBI relationship.

H44f: Self-control at Time 1 will moderate the Time 1 informational justice-Time 2 CWBO relationship.

H44g: Self-control at Time 1 will moderate the Time 1 informational justice-Time 2 CWBI relationship.

Other than the above three personality traits, two cultural values related to work - *collectivism* and *power distance* - were expected to moderate the justice perception-CWB relationships. As noted earlier, differences in cultural values may shape how individuals with different cultural values react to the same organisational practices or treatments and respond to unfair situations differently (Tyler et al., 2000). Previous studies provided empirical support for this notion. For instance, Lee et al. (2000) found that power distance moderated the effect of

procedural and interactional justice on trust in supervisors with a stronger effect for those low in power distance. Erdogan and Liden (2006) found collectivism to be a moderator of the relationship between justice perceptions and LMX. This suggests that cultural values play a role in determining how individuals respond to justice.

Even though all cultural groups have a collective concern for justice, this does not mean that all effects of justice can be generalizable across different cultural groups (Rawls, 1971). Mueller and Wynn (2000) found that individualists value justice more than collectivists. As noted by Gouldner (1960), when individuals perceive fairness, they form a desire to reciprocate to the source of perceived fairness through the reciprocity norm. Individualists value fairness because they emphasize their rights and freedom (Earley & Gibson, 1998), and Markus and Kitayama (1991) also indicated that feeling positively about themselves is an important cultural value of individualists. Perceived fairness implies that individual rights are being respected and protected, thus individualists tend to be sensitive to how they will be treated and rewarded. If they are treated fairly, they are more likely to promptly reciprocate. However, they are unlikely to tolerate the violation of fairness when their needs are not satisfied.

On the other hand, collectivists may have more tolerance for violation of fairness norms. As noted by Hofstede (1991), collectivists tend to regard the work relationship as a family relationship. They place more emphasis on protecting and maintaining harmonious relationships, obligation, and loyalty to the group, even though their needs are not personally met. This is because adjusting one's behaviour to others and maintaining harmony is an important cultural value for collectivists (Markus & Kitayama, 1991). Collectivists are more concerned with the consequences of their behaviours on their in-group members and are more

likely to sacrifice personal interests for group interests. Collectivists may be less likely to respond negatively to violations of fairness, while individualists are less concerned with the consequences of their behaviours on other people in the social environment but are more concerned with their own needs, interest, and goals (Leung & Bond, 1984). Therefore, I expected that the relationship between justice perceptions and CWB would be stronger for those lower in collectivism.

Cross-sectional hypotheses:

Hypothesis 45: Collectivism will moderate the relationships between each form of perceived justice (distributive, procedural, interpersonal and informational justice) and its outcome (CWBO or CWBI) at Time 1 and Time 2, with a stronger relationship among those low in collectivism.

- ***H45a:*** Collectivism will moderate the distributive justice-CWBO relationship at both times.
- ***H45b:*** Collectivism will moderate the distributive justice-CWBI relationship at both times.
- ***H45c:*** Collectivism will moderate the procedural justice-CWBO relationship at both times.
- ***H45d:*** Collectivism will moderate the interpersonal justice-CWBO relationship at both times.
- ***H45e:*** Collectivism will moderate the interpersonal justice-CWBI relationship at both times.
- ***H45f:*** Collectivism will moderate the informational justice-CWBO relationship at both times.
- ***H45g:*** Collectivism will moderate the informational justice-CWBI relationship at both times.

Longitudinal hypotheses:

Hypothesis 46: Collectivism at Time 1 will moderate the relationships between Time 1 justice perceptions and Time 2 CWB, with a stronger relationship among those low in collectivism.

H46a: Collectivism at Time 1 will moderate the Time 1 distributive justice-Time 2 CWBO relationship.

H46b: Collectivism at Time 1 will moderate the Time 1 distributive justice-Time 2 CWBI relationship.

H46c: Collectivism at Time 1 will moderate the Time 1 procedural justice-Time 2 CWBO relationship.

H46d: Collectivism at Time 1 will moderate the Time 1 interpersonal justice-Time 2 CWBO relationship.

H46e: Collectivism at Time 1 will moderate the Time 1 interpersonal justice-Time 2 CWBI relationship.

H46f: Collectivism at Time 1 will moderate the Time 1 informational justice-Time 2 CWBO relationship.

H46g: Collectivism at Time 1 will moderate the Time 1 informational justice-Time 2 CWBI relationship.

Another cultural dimension, *power distance*, can also shape individuals' reactions to perceived fairness. Based on the relational model, which reflects the importance of the treatment quality that people experience from their authorities, emotional attachment to groups and self-categorization as group members, cultural values may enhance the significance of interpersonal treatment as indicators of social standing in a group (Tyler et al., 2000). In higher power distance societies, people at the top of the organisational hierarchy are regarded to

have more privileges than their counterparts in lower power distance societies. People with higher power distance are familiar with being treated less positively by authorities, therefore less positive treatment tends to be more acceptable and is less likely to result in negative consequences (e.g. CWB). Tyler et al. (2000) collected data across four different cultures (Hong Kong, Japan, United States and Germany) differing in power distance and found that people with a higher level of power distance reacted less negatively to poor quality interpersonal treatment in the decision-making process. In Tyler et al.'s (2000) study, interpersonal treatment included both opportunity to voice in the process of decision making (procedural justice) and the quality of the interpersonal treatment (interactional justice).

Culture can influence people to accept power differences which lead them to be less likely to get angry about interactional injustice (James, 1993). These arguments were derived from Gudykunst and Ting-Toomey (1988), who analysed the relationship between anger and justice in seven European countries (Belgium, France, Great Britain, Italy, Spain, Switzerland and West Germany) and found that power distance was negatively correlated with injustice, which was an antecedent to anger. The findings suggested that, in high power distance cultures, people tend to accept unequal social privileges, which lead them to tolerate unfair interpersonal treatment. Thus, I expected a stronger relationship between justice perceptions and CWB among individuals with lower levels of power distance.

Cross-sectional hypotheses:

Hypothesis 47: Power distance will moderate the relationships between each form of perceived justice (distributive, procedural, interpersonal and informational justice) and its outcome (CWBO or CWBI) at Time 1 and Time 2, with a stronger relationship among those low in power distance.

H47a: Power distance will moderate the distributive justice-CWBO relationship at both times.

H47b: Power distance will moderate the distributive justice-CWBI relationship at both times.

H47c: Power distance will moderate the procedural justice-CWBO relationship at both times.

H47d: Power distance will moderate the interpersonal justice-CWBO relationship at both times.

H47e: Power distance will moderate the interpersonal justice-CWBI relationship at both times.

H47f: Power distance will moderate the informational justice-CWBO relationship at both times.

H47g: Power distance will moderate the informational justice-CWBI relationship at both times.

Longitudinal hypotheses:

Hypothesis 48: Power distance at Time 1 will moderate the relationships between Time 1 justice perceptions and Time 2 CWB, with a stronger relationship among those low in power distance.

H48a: Power distance at Time 1 will moderate the Time 1 distributive justice-Time 2 CWBO relationship.

H48b: Power distance at Time 1 will moderate the Time 1 distributive justice-Time 2 CWBI relationship.

H48c: Power distance at Time 1 will moderate the Time 1 procedural justice-Time 2 CWBO relationship.

H48d: Power distance at Time 1 will moderate the Time 1 interpersonal justice-Time 2 CWBO relationship.

H48e: Power distance at Time 1 will moderate the Time 1 interpersonal justice-Time 2 CWBI relationship.

H48f: Power distance at Time 1 will moderate the Time 1 informational justice-Time 2 CWBO relationship.

H48g: Power distance at Time 1 will moderate the Time 1 informational justice-Time 2 CWBI relationship.

In sum, those five individual differences (agreeableness, conscientiousness, self-control, collectivism and power distance) were hypothesised to have a moderating role in the justice perception-CWB relationships, with stronger relationships when those three traits and two cultural values were low. The moderation hypotheses were examined cross-sectionally and longitudinally.

3.3 Chapter summary

This chapter has described the theoretical rationale and hypotheses relating to the importance of individual differences for the occurrence of CWB. The proposed model of this research (Figure 2.1 on p. 19), which was adapted from the model of personality and CWB (Cullen & Sackett, 2003), reflects the influence of individual differences on CWB. The model suggests three mechanisms by which individual differences affect justice and CWB: (a) individual differences as direct determinants of justice perceptions, (b) individual differences as direct determinants of CWB, and (c) individual differences as moderators of the relationships between justice perceptions and CWB. Five individual differences (agreeableness, conscientiousness, self-control, collectivism and power distance) which have implications for CWB were included in this

research. To assess the longitudinal effects of individual differences on justice perceptions and CWB, the longitudinal main effect and moderation hypotheses were proposed by using a two-wave study design. The research methodology employed in the current research is discussed in the next chapter.

Chapter 4

Methodology

This chapter describes the methodology used in the current research. The following topics are discussed: (a) the research design, (b) participants, (c) measures, (d) procedures, and (e) data analysis.

4.1 Research design

A longitudinal research design, with two data collection points separated by a six-month interval, was adopted to measure the links among antecedents of justice perceptions, four forms of justice, individual differences, and counterproductive work behaviour (CWB) in New Zealand and Thailand. Longitudinal research allows the researcher to examine possible causal mechanisms, which a cross-sectional study cannot (Cole & Maxwell, 2003). The research model (see Figure 2.1 on p. 19) was tested longitudinally and cross-sectionally by collecting data at two times separated by a six-month interval. The longitudinal approach is discussed in detail in section 4.5.

A self-report survey was employed in this research. Despite concerns about self-presentation bias in self-report measures, the CWB theory not emphasises objective stressors (e.g. physical work conditions) in the external environment but rather individual's perceptions and behavioural responses to those perceptions (Spector, 2006). Thus, the self-report of individual committing CWB is more intimately connected to both antecedents and behavioural responses than other alternative sources (observers, peers, or supervisors) (Fox & Spector,

1999). The meta-analyses (Berry, Carpenter & Barratt, 2012) found no significant different results for self- and other-ratings of CWB.

4.2 Participants

The participants in this research were full-time employees from a wide range of industries, such as education services, professional and business services, transportation, financial, insurance and real estate services, government services, manufacturing, wholesale and retail trade, and other services (e.g. information and entertainment) in New Zealand and Thailand. This may help enhance the generalizability of the results by recruiting the samples from various organisations, covering a wide range of organisational conditions.

New Zealand respondents

For the first round of data collection in New Zealand, fifty-nine organisations from various industries were approached to participate in the research. Twelve organisations agreed to participate. To increase the sample size, participants were also recruited through www.getparticipants.com. The first wave of data collection started in March-April in 2010. A total of 698 of the 914 participants accessing the Time 1 online survey webpage answered the questionnaire, representing a response rate of 76.37%. Seventy-four cases were dropped, as they contained too many missing values (answered less than 50% of the items for each variable). There were 624 respondents remaining for the second wave of the data collection. At Time 1, 199 out of the total sample were recruited from www.getparticipants.com. The second stage of data collection began in September 2010. A total of 276 respondents completed the Time 2 questionnaire, giving a 44.23% response rate. At Time 2, there were 119 out of the total sample from www.getparticipants.com.

Independent-samples *t*-tests indicated significant differences in a few variables (4 out of 20 variables at Time 1 and 2 out of 20 variables at Time 2) between getparticipants members and other twelve organisations at both times. At Time 1, getparticipants members reported significantly lower scores on interpersonal justice (M = 3.63, t = 2.10) than those recruited from other organisations (M = 3.84), while the mean levels of disagreeableness (negative factor of agreeableness) (M = 1.74, t = 2.02), conscientiousness (M = 3.92, t = 2.30), and CWBO (M = 1.62, t = 3.30) among getparticipants members were minimally higher than those from other organisations (M = 1.61 for disagreeableness; M = 3.78 for conscientiousness; M = 1.50 for CWBO). At Time 2, the mean levels of disagreeableness (M = 1.85, t = 2.08) and CWBO (M = 1.66, t = 2.46) among getparticipants members were significantly higher than those from other organisations (M = 1.62 for disagreeableness; M = 1.51 for CWBO). However, due to small differences in those variables between the two groups, I did not control for group differences between getparticipants members and other organisations in further analyses.

Thirteen cases were detected at Time 1 and seven cases at Time 2 as multivariate outliers. These outlying cases, however, were retained for further analysis, as the outlying cases at Time 1 mostly appeared to be different respondents from those who were detected as outliers at Time 2. The retention of these outlying cases is discussed in detail in section 4.5.

The demographic characteristics of the New Zealand sample at both times are shown in Table 4.1. This sample was predominantly female (72.1% at Time 1, 79% at Time 2). Twenty respondents (3.2%) at Time 1 and only three people at Time 2 in this sample did not specify gender.

Table 4.1

Demographic characteristics of the respondents in New Zealand

Demographic variables	Time 1		Time 2	
	NZ (*N* = 624)		NZ (*N* = 276)	
	N	%	*N*	%
Gender				
- Male	154	24.7	55	19.9
- Female	450	72.1	218	79.0
Missing	20	3.2	3	1.1
Ethnicity				
- New Zealand European	435	69.7	201	72.8
- Other European	62	9.9	28	10.1
- Maori	25	4.0	10	3.6
- Asian	22	3.5	10	3.6
- Pacific Island	10	1.6	3	1.1
- Other	53	8.5	23	8.3
Missing	17	2.7	1	.4
Education				
- Less than high school	19	3.0	8	2.9
- High school graduate	101	16.2	46	16.7
- Technical certificate or diploma	139	22.3	59	21.4
- Undergraduate degree/diploma	199	31.9	86	31.2
- Postgraduate degree/diploma (e.g. MA, PhD, etc.)	150	24.0	76	27.5
Missing	16	2.6	1	.4
Type of industry				
- Finance, insurance, or real estate	8	1.3	5	1.8
- Wholesale or retail trade	37	5.9	11	4.0
- Transportation	7	1.1	4	1.4
- Education services	172	27.6	87	31.5
- Professional or business services	53	8.5	15	5.4
- Government sector	209	33.5	105	38.0
- Manufacturing	30	4.8	6	2.2
- Agriculture, mining, or construction	14	2.2	6	2.2
- Other	71	11.4	37	13.4
Missing	23	3.7	-	-
Age (years)				
- *M*	41.92		42.52	
- *SD*	12.39		12.21	
- Minimum	18		18	
- Maximum	79		79	
Missing	25 (4 %)		4 (1.4%)	
Organisational tenure (months)				
- *M*	81.19		85.36	
- *SD*	87.95		82.12	
- Minimum	1		2	
- Maximum	460		441	
Missing	8 (1.3%)		1 (.4%)	
Job tenure (months)				
- *M*	55.06		55.52	
- *SD*	65.67		56.83	
- Minimum	0		1	
- Maximum	432		505	
Missing	7 (1.1%)		1 (.4%)	

The largest ethnic groups were New Zealand European/Pakeha (69.7% at Time 1 and 72.8% at Time 2), followed by other Europeans (9.9% at Time 1 and 10.1% at Time 2). Other ethnicities identified by respondents were Maori (4% at Time 1 and 3.6% at Time 2), Asian (3.5% at Time 1 and 3.6% at Time 2), Pacific Island (1.6% at Time 1 and 1.1% at Time 2) and other groups (8.5% at Time 1 and 8.3% at Time 2). The educational level of this sample was high, with 31.9% at Time 1 and 31.2% at Time 2 holding an undergraduate degree and 24% at Time 1 and 27.5% at Time 2 holding a postgraduate degree. The largest industry sectors represented in the New Zealand sample were the government sector (33.5% at Time 1 and 38% at Time 2) and education services (27.6% at Time 1 and 31.5% at Time 2).

The average age of respondents was 41.92 years at Time 1 and 42.52 years at Time 2. Average organisational tenure was 6.77 years at Time 1 and 7.11 years at Time 2, with 4.5% at Time 1 and 8.1% at Time 2 working in their organisation less than one year. Average job tenure was 4.59 years at Time 1 and 4.63 years at Time 2, with 19.8% at Time 1 and 15.8% at Time 2 working in their job less than one year.

Thai respondents

For the Thai sample, twenty-four organisations from a wide range of industries were sent an invitation letter via email or mail to participate in the research, however only fourteen organisations decided to participate. Similar to the New Zealand sample, most organisations in Thailand declined to participate because of organisational constraints (e.g. time constraint). To enable these fourteen organisations in Thailand to take part in the research, the questionnaires were distributed using an online survey for twelve organisations and a hard copy

version for two organisations. The first wave of data collection began during March-April 2010. For the twelve participating organisations which were sent the Time 1 online survey, 312 respondents accessed the link but 226 completed responses were obtained, representing a response rate of 72.44%. Another two participating organisations were sent a hard copy of the survey, and 261 of the 450 questionnaires were returned. The response rate for the hard copy survey at Time 1 was 58%. The total Thai sample for Time 1 was 480 after removing seven cases which contained missing data on more than 50% of each variable.

The Time 2 data collection was carried out six months later, in September 2010. At Time 2, 270 respondents completed questionnaires, for a 56.25% response rate. The total Thai sample for Time 2 was 242 after removing twenty-eight cases who answered less than 50% of the items for each variable. Although twelve cases at Time 1 and six cases at Time 2 were detected as multivariate outliers, they were different respondents at each time. These outlying cases were included for the further analyses (see more details in section 4.5).

The demographic profiles of the Thai sample are shown in Table 4.2. The total sample size was 480 for Time 1 and 242 for Time 2. The proportion of males (41.9% at Time 1 and 51.7% at Time 2) and females (55.2% at Time 1 and 47.5% at Time 2) at both times was similar. All of the respondents identified themselves as Thai, except for sixteen respondents (3.3%) at Time 1 and one person at Time 2 not specifying ethnicity information. Their educational level was high, with 53.8% at Time 1 and 65.3% at Time 2 holding an undergraduate degree. The industries that most respondents worked in were the government sector (39.4% at Time 1 and 38.4% at Time 2), professional or business services (33.8% at Time 1 and 41.7% at Time 2), and wholesale or retail trade (15.8% at Time 1 and 13.6% at Time 2).

Table 4.2

Demographic characteristics of the respondents in Thailand

Demographic variables	Time 1		Time 2	
	Thai (*N* = 480)		Thai (*N* = 242)	
	N	%	*N*	%
Gender				
- Male	201	41.9	125	51.7
- Female	265	55.2	115	47.5
Missing	14	2.9	2	.8
Ethnicity				
- Thai	464	96.7	241	99.6
Missing	16	3.3	1	.4
Education				
- Less than high school	10	2.1	7	2.9
- High school graduate	41	8.5	19	7.9
- Technical certificate or diploma	63	13.1	30	12.4
- Undergraduate degree/diploma	258	53.8	158	65.3
- Postgraduate degree/diploma (e.g. MA, PhD, etc.)	50	10.4	19	7.8
Missing	58	12.1	9	3.7
Type of industry				
- Finance, insurance, or real estate	6	1.3	-	-
- Wholesale or retail trade	76	15.8	33	13.6
- Education services	17	3.5	1	.4
- Professional or business services	162	33.8	101	41.7
- Government sector	189	39.4	93	38.4
- Manufacturing	26	5.4	12	5.0
- Other	4	.8	2	.8
Age (years)				
- *M*	30.47		30.70	
- *SD*	6.96		6.68	
- Minimum	18		21	
- Maximum	62		53	
Missing	28(5.8%)		5 (2.1%)	
Organisational tenure (months)				
- *M*	56.16		60.13	
- *SD*	61.60		58.66	
- Minimum	1		5	
- Maximum	360		366	
Missing	26 (5.4%)		2 (.8%)	
Job tenure (months)				
- *M*	63.73		64.69	
- *SD*	61.28		54.55	
- Minimum	0		4	
- Maximum	360		366	
Missing	28 (5.8%)		3 (1.2%)	

The average age of the Thai sample was 30.47 years at Time 1 and 30.70 years at Time 2, ranging from 18 to 62 years at Time 1 and 21 to 53 years at Time 2. The average tenure in the organisation was 4.68 years at Time 1 and 5.01 years at Time 2, with 15% at Time 1 and 9.2% at Time 2 working in the organisation less than one year. On average, respondents had worked in their profession for 5.31 years at Time 1 and 5.39 years at Time 2, with 11.1% at Time 1 and 7.5% at Time 2 having job tenure below one year.

To assess possible organisational-level effects in the Thai data, analysis of variance between groups (ANOVA) was conducted to examine whether there was a significant amount of variance between organisations (see Chapter 6 for the Time 1 results on p. 132 and Chapter 7 for the Time 2 results on p. 178). As the actual number and types of organisations could not be identified in the New Zealand sample, industry type was identified instead to check the diversity of the observed sample. The ANOVA results for industry type in the New Zealand sample are discussed in Chapter 6 (p. 132) and Chapter 7 (p. 178) for the Time 1 and Time 2 data, respectively.

4.3 Measures

The questionnaire (Appendix B) comprised one hundred and thirty-three items that measured the variables in the research model (Figure 2.1 on p. 19), and seven items measuring demographic variables. The cover letter and online questionnaire employed for this research are shown in Appendix B. Time 1 and Time 2 surveys contained the same items.

Time 1 questionnaire

The questionnaire comprised measures of fifteen variables (see Appendix B) which were grouped into eight sections: (1) four forms of perceived organisational justice (procedural, distributive, interpersonal and informational justice), (2) outcome satisfaction, (3) the opportunity to voice and quality of communication, (4) leader-member exchange (LMX) quality, (5) personality traits (agreeableness, conscientiousness, and self-control), (6) individual cultural values related to work (collectivism and power distance), (7) CWB directed toward the organisation and other individuals, and (8) demographic profile. Most variables in the questionnaires were measured using five-point response scales, except outcome satisfaction and CWB which had seven-point response scales.

Table 4.3 presents a summary of the measures used in this research, including the sources of the scales, number of items, and reliability of the scales in both samples at both times. For the New Zealand sample, the reliability of each measure (prior to confirmatory factor analyses, CFA) at both times exceeded the generally accepted minimum of .7, except power distance, with alpha coefficients ranging from .64 to .95 at Time 1 and .68 to .95 at Time 2. However, the reliability of cultural values appeared to be below .7 in previous studies (e.g. Wu, 2006). The Cronbach's alphas of power distance and collectivism were .55 and .67 for his Taiwanese sample, and .72 and 64 in his U.S. sample.

For the Thai sample, Table 4.3 shows that the reliability of all measures before CFA at both times exceeded .70, except the measure of self-control at Time 2 (α = .65). Alpha coefficients ranged from .71 to .98 at Time 1 and .65 to .98 at Time 2.

Table 4.3

Variables, sources of the measures, and number of items

Variables	Sources	No. of items	Reliability			
			Time 1		Time 2	
			NZ (*N* = 624)	Thai (*N* = 480)	NZ (*N* = 276)	Thai (*N* = 242)
1. Distributive justice	Colquitt's (2001) Organisational Justice Measure	4	.93	.91	.95	.91
2. Procedural justice	Colquitt's (2001) Organisational Justice Measure	7	.90	.87	.90	.91
3. Interpersonal justice	Colquitt's (2001) Organisational Justice Measure	4	.95	.91	.95	.92
4. Informational justice	Colquitt's (2001) Organisational Justice Measure	5	.92	.90	.91	.92
5. Outcome satisfaction	O'Driscoll and Randall (1999)	7	.84	.91	.83	.95
6. Opportunity to voice	Kernan and Hanges (2002)	3	.89	.87	.87	.91
7. Communication quality	Kernan and Hanges (2002)	6	.88	.86	.87	.91
8. LMX	Liden and Maslyn's (1998) LMX-MDM					
- Affect		3	.92	.91	.91	.92
- Loyalty		3	.93	.89	.93	.87
- Contribution		3	.84	.75	.86	.82
- Professional respect		3	.95	.92	.94	.93
9. Agreeableness	Goldberg's (1999) IPIP	10	.86	.86	.87	.86
10. Conscientiousness	Goldberg's (1999) IPIP	10	.83	.83	.85	.83
11. Self-control	Goldberg's (1999) IPIP	10	.70	.71	.76	.65
12. Collectivism	Dorfman and Howell's (1988) work-related cultural values scale	6	.76	.87	.77	.94
13. Power distance	Dorfman and Howell's (1988) work-related cultural values scale	6	.64	.76	.68	.87
14. CWBO	Spector and Fox's (2002) CWB-Checklist	21	.81	.96	.89	.96
15. CWBI	Spector and Fox's (2002) CWB-Checklist	22	.86	.98	.89	.98

Note. NZ = New Zealand; LMX = leader-member exchange; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.

Perceived organisational justice

Organisational justice perceptions were measured by the Organisational Justice Measure of Colquitt (2001) (Appendix B, Section 1), which consisted of four subscales: distributive justice (4 items), procedural justice (7 items), interpersonal justice (4 items), and informational justice perceptions (5 items). Respondents were asked to use a five-point scale in answering the items on the extent to which they perceived each form of justice in their organisation (1 = "*very little extent*" to 5 = "*very large extent"*).

Distributive justice items refer to the outcomes workers receive from their work (e.g. pay, benefits, promotions etc.). A sample item for distributive justice is "Does your outcome reflect what you have contributed to the organisation?". For the ratings of perceived *procedural justice*, the respondents were asked to indicate the fairness of formal procedures used for allocating pay, benefits, promotions, and evaluating work performance (e.g. "Have you been able to express your views and feelings during those procedures?"). *Interpersonal justice* items (e.g. "Has your immediate supervisor or manager treated you in a polite manner?") and *informational justice* items (e.g. "Has your immediate supervisor or manager been candid in his/her communications with you?") refer to the way employees are treated interpersonally by their supervisor or manager.

In Colquitt's (2001) study, the reliability of each component of justice was .78 for procedural justice, .79 for interpersonal justice and informational justice, and .92 for distributive justice. In the present research, Cronbach's alpha values for these four forms of justice perceptions ranged from .90 to .95 in the New Zealand sample at both times, and from .87 to .91 at Time 1 and .91 to .92 at Time 2 in the Thai sample.

Outcome satisfaction

Outcome satisfaction was assessed using the 7-item extrinsic reward satisfaction scale (α = .74) of O'Driscoll and Randall (1999). Respondents were asked how satisfied they were with various facets of their job on a seven-point scale, such as financial rewards (pay and fringe benefits). The seven items reflect extrinsic rewards, including financial rewards, job security, opportunities for promotion or advancement, relations with co-workers, physical working conditions, support from others, and praise for job performance. (Appendix B, Section 2). In this research, this scale had a high reliability at both times in both samples. Cronbach's alpha values were .84 at Time 1 and .83 at Time 2 in the New Zealand sample, while .91 at Time 1 and .95 at Time 2 in the Thai sample.

Opportunity to voice

Opportunity to voice was assessed by a three-item employee input scale (Kernan & Hanges, 2002). The three items (e.g. "I have an adequate opportunity to provide inputs during the decision-making procedures") were adapted for the current research to apply specifically to the general work context. The *"procedures"* in the question refer to formal procedures used by supervisors in making a decision for allocating pay, benefits, promotions, workload, and evaluating work performance. Respondents were asked to answer on a five-point scale (with anchors of 1 = "*strongly disagree"* and 5 = "*strongly agree"*) (Appendix B, Section 3). Kernan and Hanges (2002) found that the reliability of employee input/voice varied from .80 to .81 at both Time 1 and Time 2. In the present research, the reliabilities varied from .87 to .89 in the New Zealand sample, and .87 to .91 in the Thai sample.

Communication quality with employees

The measure of communication quality with employees was adapted from the 6-item communication scale of Kernan and Hanges (2002). The items were adjusted to suit the general work context for the present research. Items assessed respondents' evaluation of timeliness, accuracy, and adequacy of the information they received from management during the decision-making procedures on a five-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). An example of the items is "The amount of information I receive about the procedures is adequate" (Appendix B, Section 3). The *"procedures"* in the question refer to formal procedures used by supervisors in making a decision for allocating outcomes such as pay, benefits and promotions. Kernan and Hanges (2002) found that the reliability of communication scale varied from .83 to .84 in their two wave-study. In the present research, the Cronbach's alphas varied from .87 to .88 in New Zealand, and from .86 to .91 in Thailand.

Leader-member exchange (LMX) quality

LMX quality was measured using the 12-item Multidimensional LMX scale (LMX-MDM; Liden & Maslyn, 1998) (Appendix B, Section 4), which contained four dimensions (affect, loyalty, contribution and professional respect). Each dimension consists of three items. LMX-MDM aims to assess employees' perceptions of the quality of their relationship with their supervisor or manager. The items were rated on a five-point scale with the anchors of "*strongly disagree"* to "s*trongly agree"* (e.g. "I do work for my supervisor that goes beyond what is specified in my job description"). Higher scores on the items indicate a higher quality of leader-member exchange. In Liden and Maslyn's (1998) study, the reliabilities of the 11-item LMX-MDM were high for the affect (α = .90), loyalty

(α = .78), and professional respect scales (α = .92), but low for the contribution scale (α = .60). The reliabilities of the four dimensions in the present samples were high, ranging from .84 to .95 at Time 1 and .86 to .94 at Time 2 in the New Zealand sample, and from .75 to 92 at Time 1 and .82 to .93 at Time 2 in the Thai sample.

Personality traits

The current research assessed three personality traits, including agreeableness, conscientiousness, and self-control, using the International Personality Item Pool (IPIP; Goldberg, 1999). Respondents were asked to rate each item on a five-point scale (from "*very inaccurate*" to "*very accurate*") according to how well it describes them (see Appendix B, Section 5).

- **Agreeableness** was measured using the 10-item version of the Agreeableness Scales of Big Five factor markers from IPIP. A sample of agreeableness items is "I sympathize with others' feelings". Items 7-10 were negatively worded (e.g. "I am not really interested in others"), thus they were reverse-scored. The reliability of this scale was .82 (Goldberg, 1999) and .76 (Gow, Whiteman, Pattie, & Deary, 2005). In the present research, Cronbach's alpha values varied from .86 to .87 in the New Zealand sample, and .86 at both times in the Thai sample.
- **Conscientiousness** included ten items as defined in the Big Five personality measure from IPIP, developed by Goldberg (1999) (e.g. "I am always prepared") and the reliability of this scale was .79 based on Goldberg (1999) and .77 based on Gow et al. (2005). Four of the ten items are negatively worded (e.g. "I leave my belongings around"). The

reliabilities varied from .83 to .85 in the New Zealand sample, and .83 at both times in the Thai sample.

- **Self-control** was assessed using the 10-item Self-control Scale from IPIP (α = .71 based on Goldberg, 1999). A sample self-control item is "I am not easily affected by my emotions". Seven of the ten items are negatively worded (e.g. "I act wild and crazy"), thus they needed to be reverse-scored. The reliabilities varied from .70 to .76 in the New Zealand sample, and from .65 to .71 in the Thai sample.

Collectivism

Collectivism was measured using a 6-item scale from Dorfman and Howell's (1988) work-related cultural values scale (Appendix B, Section 6). The respondents were asked to rate their agreement on a five-point scale from (1) "*strongly disagree"* to (5) "*strongly agree"*. Higher scores represent more collectivism. A sample item is "Group welfare is more important than individual rewards". The reliability of this scale, based on the studies by Baker, Carson and Carson (2009), Clugston et al. (2000), and Erdogan and Liden (2006), ranged from .77 to .86. In the present samples, alpha coefficients for the New Zealand sample were .76 at Time 1 and .77 at Time 2, and for the Thai sample were .87 at Time 1 and .94 at Time 2.

Power distance

Power distance was measured using a 6-item scale from Dorfman and Howell's (1988) work-related cultural values scale (Appendix B, Section 6). The respondents were asked to rate their agreement on a five-point scale from (1) "*strongly disagree"* to (5) "*strongly agree"*, higher scores indicating more power distance. A sample item is "Managers should avoid off-the-job social contacts

with employees". In Dorfman and Howell's (1988) study, the reliability of this measure was.70. In the present research, the reliabilities of power distance at both times varied from .64 to .68 in the New Zealand sample, and from .76 to .87 in the Thai sample.

Counterproductive work behaviour (CWB)

The 43-item Counterproductive Work Behaviour Checklist (CWB-C) (Spector & Fox, 2002) (Appendix B, Section 7) was used to assess organisation-targeted CWB and individual-targeted CWB. The CWB-C can be scored in three different ways: (a) computing a single overall score, (b) dividing items into two subscales reflecting the target of CWB, (c) dividing items into five subscales (abuse, production deviance, sabotage, theft, and withdrawal) depending on the specific purpose. As different forms of organisational justice perceptions lead to different targets of CWB (e.g. Aquino et al., 2001), the current research focused on the specific targets of CWB and the 43-item CWB measure was divided into two scales: CWB directed toward the organisation (CWBO, consisting of 21 items) and CWB directed toward other individuals (CWBI, 22 items), based on Robinson and Bennett's (1995) distinction of organisation-targeted versus individual-targeted CWB.

Respondents were asked to indicate how often they had used each behaviour in their workplace in the last year. The response choices are a 7-point frequency scale ranging from (1) "*never"* to (7) *"everyday*", with higher scores indicating higher levels of organisation-targeted or individual-targeted CWB. The Cronbach's alpha based on Spector et al. (2006) was .84 for CWBO (e.g. "Purposely wasted your employer's materials/supplies") and .85 for CWBI (e.g. "Withheld needed information from someone at work") (see Appendix B, Section

7). The reliabilities in the present samples were: CWBO = .81 at Time 1 and .89 at Time 2 for the New Zealand sample, and .96 for the Thai sample at both times, and CWBI = .86 at Time 1 and .89 at Time 2 for the New Zealand sample, and .98 for the Thai sample at both times.

Regarding the factorial validity of CWB, Spector et al. (2006) chose subject matter experts (SMEs) to sort the CWB-C items into 2 categories based on target (organisation vs. individual) rather than factor analysis of items, for two reasons. First, behaviour checklists such as CWB-C are causal indicator scales in which each item reflects a non-interchangeable behaviour (i.e. spreading rumour is not the same as threatening someone at work with violence; being late is not the same as purposely failing to follow instructions). Contrasted with other typical effect indicator scales where items are all designed to assess the same underlying construct and are interchangeable, the measure of CWB comprises items that are not highly correlated. Behaviour checklists consist of items that are conceptually related but distinct items are combined to define a construct (Bollen & Lennox, 1991; Edwards & Bagozzi, 2000 cited in Spector et al., 2006). Second, items that ask respondents to rate how often they engaged in each behaviour produce considerable variability in the percentage of people who engage in each behaviour. This leads to differential skew in the distribution of many items and this extreme skew in item distribution distorts factor structures (Spector et al., 2006). For the above reasons, CFA was not conducted on the CWB measure.

Demographic items

Demographic information (Appendix B, Section 8) included the respondent's gender, ethnicity, age, educational level, organisational and job tenure, and the type of industry.

4.4 Procedure

A list of organisations in both New Zealand and Thailand was generated and an invitation (see Appendix A) was sent to the Human Resource Managers or organisational representatives via e-mail or mail with a copy of the questionnaires. They were asked to participate in a longitudinal study with two data collection points separated by a six-month interval. The first stage of data collection started in March 2010 for most organisations. The second stage of data generally began in September, but some organisations which sent out the first survey link to their members in July-August 2010 started the second wave of data collection in December-January, 2011.

A URL (World Wide Web address) using the Qualtrics survey software was provided to facilitate the completion of the online survey in New Zealand and Thailand. Once the respondents completed the survey, all answers were automatically recorded in an excel database and were imported to Statistical Package for the Social Sciences (SPSS) version 20. The online survey method appeared to be inconvenient for two organisations in Thailand. Due to lack of internet accessibility and unfamiliarity with online survey completion within these two participating workplaces, a hard copy version was adopted to facilitate the survey completion within these organisations.

For the Thai sample, all measures were translated into Thai. The back-translation technique (Brislin, 1970) was used to check the equivalence of wording in the original and back-translated versions, by using three English-Thai bilinguals in order to ensure comparability across the Thai and New Zealand samples. Initially, I translated an English version of the questionnaire into Thai and then the questionnaires were translated back into English by a Master's degree student at the Centre for Translation and Language Services Research

Institute for Languages and Cultures at Asia Mahidol University in Thailand. After the back-translation, an executive committee of the Translation and Language Centre from Mahidol University checked the equivalence of wording in the original and back-translated versions and certified the translation. A few discrepancies between the original and back-translation versions were discussed by the bilingual panel until a satisfactory version was reached.

After obtaining ethical approval from the University of Waikato's School of Psychology Research and Ethics Committee, questionnaires were distributed in organisations in New Zealand and Thailand. Participants gave their consent to participate by completing the online or hard copy questionnaires. In the introduction part of the questionnaires (see Appendix B), participants were informed that their responses would remain anonymous and confidential, and they could withdraw from this six-month research at any time for any reason. The participating organisations and respondents were provided information relating to the research purposes and procedures in the invitation letter (see Appendix A) and cover letter (see Appendix B) respectively.

At Time 1, Human Resource Managers or other representatives of participating organisations were asked to forward the links for the online questionnaire webpage to all their employees. I also provided the hard copy version of questionnaires for two organisations in Thailand and asked their representatives to distribute to all their employees. In order to match the Time 1 and Time 2 questionnaires while maintaining anonymity, a codeword for matching the questionnaires was constructed by asking participants to insert the initials of their name, the date of their birth, and the first three letters of the month of their birth in the space provided in the questionnaires (see Appendix B). Also, at Time 2 participants were reminded that they should use the same initials

(codeword) as they had at Time 1. After six months, the Human Resource Managers or representatives of participating organisations received an e-mail containing a URL to the Time 2 questionnaire webpage and asked to again circulate to all their employees. For those two organisations in Thailand with lack of internet access, I sent them the hard copy version of the Time 2 survey via mail.

The researcher's contact email address and phone number were provided in case the participants had an inquiry on any aspects of the questionnaires. A few participants who had some difficulties in accessing the survey link and were interested in the Time 1 preliminary results contacted me via email. A summary of the results of this research was sent to each participating organisation via email at the end of the project, and Human Resource Managers or representatives were asked to forward it to their members.

These procedures were applied to most organisations in New Zealand and Thailand, except www.getparticipants.com which provided an automated system to send out the second survey link to their members. This system sent a reminder email at 170 days after the completion of Time 1, and sent the link to the second questionnaire again at 180 days. Members from www.getparticipants were offered an opportunity to win a NZ$100 Visa gift voucher for completion of Time 1 and Time 2 surveys. The reason I offered this prize to getparticipants members only was that I was allowed to ask their members to fill their e-mail address in the survey if they were interested in the prize for survey completion. This website was paid to post my research on their webpage and provide an automated system to send out the survey link to their members. At the end of the project, I sent a research summary to getparticipants respondents via email.

4.5 Data analysis

This section describes the methods utilized in this research to analyse the data, including data preparation, scale validation, outliers and normality check, and statistical methods used to investigate hypotheses.

Data preparation

All responses obtained from the Time 1 and Time 2 online survey were downloaded from Qualtrics survey software into SPSS format. SPSS was utilized to merge the data from different organisations. For the data collected in hard copy version, I also used SPSS to enter the data.

Frequencies of all items were conducted to detect any data errors and missing values. Seventy-four cases in the New Zealand sample and thirty-five cases in the Thai sample where respondents completed less than 50% of items representing a specific variable were entirely excluded from the sample. After the reverse coding of required items for the measures of communication quality, agreeableness, conscientiousness and self-control, person mean substitution was adopted to replace any missing values. As noted by Roth, Switzer and Switzer (1999), the mean response of a person to other items on a scale not only enables researchers to retain a great deal of data that listwise deletion would remove, but also acknowledges differences across individuals by using the person mean of remaining item scores to replace missing values.

Scale validation

Prior to examining the research model, CFAs using AMOS version 20 were conducted to confirm the factor structure of each construct for both samples at both times, except outcome satisfaction and the CWB measure. As these two

variables were causal indicator scales which contained discrete items to define a construct rather than the typical effect indicator scales, differences in item distribution may distort factor structures. The CFA results and the reliability of revised measures are discussed in Chapter 5.

Checking outliers and normality

Prior to conducting analysis, all variables were tested for multivariate outliers and normality.

Detecting outliers

An outlier is an observation with an extreme value which differs from most others and can bias statistics such as the mean, correlations and regression coefficients (Field, 2009). This can also lead to both Type I and Type II errors (Tabachnick & Fidell, 2007). A Mahalanobis distance test (D^2) was performed using SPSS to detect multivariate outliers. The criterion for multivariate outliers in the present research was Mahalanobis distance at $p < .001$. The χ^2 critical value with degrees of freedom equal to the number of variables (twenty) was 45.32 at $p < .001$ (based on Table C.4 in Tabachnick & Fidell, 2007, p. 946). The results of multivariate outliers analysis using SPSS yielded 13 and 7 multivariate cases for the New Zealand Time 1 and Time 2 data, while in the Thai sample there were 12 cases at Time 1 and 6 cases at Time 2.

However, there are two main reasons for the retention of these outlying cases in the two samples. The first reason is that the correlations between variables with and without outliers were minimally different from each other. After the removal of outlying cases from the Time 1 and Time 2 data, the largest change in correlations was only .12 at Time 1 (see Table 6.2 on p.127, and Appendix C.1) and .09 at Time 2 (see Table 7.2 on p.173, and Appendix C.3) for

the New Zealand sample, while the largest change in correlations for the Thai sample was .07 at Time 1 (see Table 6.3 on p.129, and Appendix C.5) and .06 at Time 2 (see Table 7.3 on p.175, and Appendix C.6). Comparison of the correlations before and after outlier deletions revealed a minimal change in the two samples at both times. Another reason is that the outlying cases at Time 1 appeared to be different respondents from those who were detected as outliers at Time 2 (in both samples). Only one case was a multivariate outlier at both times in the New Zealand sample. Thus, all the cases were retained for further analysis.

Normality of the data set

To check normality in a large sample (≥ 200), looking at the shape of distribution visually and the values of skewness and kurtosis is more important than calculating their significance (Field, 2009; Tabachnick & Fidell, 2007). The frequency distributions of all variables were plotted and descriptive statistics were conducted to provide the values of skewness and kurtosis. If the skewness and kurtosis values of each variable fall within the range of plus or minus three, their distribution is considered to be normal (Kline, 2010; Tabachnick & Fidell, 2007). The skewness and kurtosis statistics for both samples are presented in Table 4.4.

The distribution of scores on each measure was fairly normal, with the exception of CWBI scores which were positively skewed (> 3) in the New Zealand sample at both times. Previous studies (e.g. Penney & Spector, 2002; Penney & Spector, 2005) have also found that the distributions of the two forms of CWB often appeared to be positively skewed. Transformations were performed on CWBI for the New Zealand sample. As recommended by Tabachnick and Fidell (2007), logarithmic transformation was undertaken to improve the

distribution on CWBI for the New Zealand sample at both times. Data transformation in the New Zealand sample is discussed below.

Table 4.4

Skewness statistics (N = 624 at Time 1 and 276 at Time 2 in the New Zealand sample, and N = 480 at Time 1 and 242 at Time 2 in the Thai sample)

Variables	Skewness				Kurtosis			
	Time 1		Time 2		Time 1		Time 2	
	NZ	Thai	NZ	Thai	NZ	Thai	NZ	Thai
1. Procedural justice	.06	-.01	-.02	.43	-.56	-.14	-.58	-.12
2. Distributive justice	.11	-.16	.04	.21	-.87	-.28	-.83	-.29
3. Interpersonal justice	-.71	-.28	-.63	.12	-.41	-.18	-.49	-.61
4. Informational justice	-.09	-.19	-.07	.29	-.80	-.15	-.61	-.44
5. Outcome satisfaction	-.31	-.25	-.29	.31	-.54	-.42	-.66	-.87
6. Opportunity to voice	.01	-.26	.07	.19	-.98	.01	-.88	-.75
7. Communication quality	-.11	-.34	.06	-.04	-.58	.64	-.43	-.23
8. Affect	-.48	-.18	-.37	.17	-.50	-.17	-.57	-.64
9. Loyalty	-.58	-.24	-.54	.03	-.57	.05	-.57	-.20
10. Contribution	-.70	-.29	-.82	.12	.52	.27	.34	-.48
11. Professional respect	-.51	-.19	-.48	.26	-.79	-.05	-.96	-.62
12. Agreeableness [a]	-.84	-.19	-.62	-.24	1.08	-.01	.24	-.55
13. Disagreeableness [b]	-1.04	-.44	-1.05	-.41	.46	-.06	.76	-.34
14. Conscientiousness [c]	-.44	-.23	-.43	-.05	.04	.22	.34	-.52
15. Negligence [d]	-.65	-.40	-.47	-.30	-.10	-.40	-.72	-.29
16. Lack of self-control	.45	.36	.40	.33	-.77	-.48	-.72	-.76
17. Collectivism	.11	-.25	.26	-.19	-.01	-.21	.20	-1.01
18. Power distance	.59	.08	.59	.13	.57	.08	.68	-.83
19. CWBO	1.82	1.54	2.82	1.62	6.35	1.97	12.54	2.63
20. CWBI	4.36	1.97	4.43	1.91	29.02	3.78	25.66	3.91

Note. NZ = New Zealand; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; standard error of skewness values: for the NZ sample = .09 at Time 1 and .15 at Time 2, for the Thai sample = .11 at Time 1 and .16 at Time 2; [a] the positive factor of agreeableness based on CFA; [b] the negative factor of agreeableness based on CFA; [c] the positive factor of conscientiousness based on CFA; [d] the negative factor of conscientiousness based on CFA.

Transformation in the New Zealand sample

Substantial positive skewness indicating asymmetry in distributions was noted for CWBI at both times in the New Zealand data, with low scores representing less engagement. As recommended by Field (2009), a logarithmic transformation was applied to CWBI at both times.

After transforming the skewed variable, the skewness values of CWBI were improved and correlations were performed with the transformed and non-transformed variables. The results revealed minimal difference in correlation sizes. The difference in the correlations between CWBI and other variables was only .03 at Time 1 (see Table 6.2 on p.127 for the correlations before transformation, and Appendix C.2 for those after transformation) and .04 at Time 2 (see Table 7.2 on p.173 for the correlations before transformation and Appendix C.4 for those after transformation), therefore the original untransformed variables were retained.

In the Thai sample, the variables were distributed normally, with the skewness values below plus and minus three. The kurtosis values of CWBI were slightly higher (3.78 at Time 1 and 3.91 at Time 2) than were other measures, but were still not substantially outside the recommended range (Kline, 2010).

Statistical methods

After the validation of all study variables using CFA (see Chapter 5), descriptive statistics using SPSS were calculated to provide means, standard deviations and correlations. Structural Equation Modeling (SEM) using AMOS was employed to test mediation hypotheses in this research because SEM is theoretically and empirically a more efficient simultaneous estimation than regression (Iacobucci, Saldanha, & Xiaoyan, 2007). The fit statistics I used for CFA and SEM analyses were chi-square (χ^2), the chi-square (χ^2)/degree of freedom (*df*) ratio, the standardised root mean squared residual (SRMR), goodness of fit index (GFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA) (Byrne, 2010). If the hypothesised mediation models did not provide an acceptable fit to the data, model respecification, which involves

trimming or adding direct effects based on modification indices, was applied (Kline, 2010). The chi-square difference statistic was used to examine whether the respecified models had a statistically better fit than the original model.

To examine direct, indirect and total effects, bootstrap methods using AMOS as recommended by Shrout and Bolger (2002) were performed. One thousand bootstrap samples and bias-corrected confidence intervals were created to determine the statistical significance of the mediation effects.

For testing moderation effect hypotheses, moderated multiple regression (MMR) using a hierarchical entry of the predictors was conducted. MMR using SPSS is the most popular statistical tool for estimating interaction effects in the organisational sciences (Aguinis & Gottfredson, 2010). Prior to conducting MMR, all the predictors and moderators were centred by subtracting the sample mean from all individuals' scores on each variable, in order to eliminate multicollinearity effects between the predictor variables (Aiken & West, 1991). The predictor variables were entered in the regression equation in five steps. In the first step, demographic variables were initially entered to control their potentially confounding effects. In the second step, four forms of justice perceptions were entered. Following Colquitt et al. (2006), I entered the interactions among perceived justice variables in Step 3 to control their possible interactive effects. In Step 4, individual differences (agreeableness, conscientiousness, self-control, collectivism and power distance) were entered. In Step 5, the two-way interactions (e.g. distributive justice × agreeableness) were added last. To examine the pattern of significant interactions, each interaction was plotted using the procedures recommended by Aiken and West (1991).

As cross-sectional research often provides little insight into how variables change over time and may lead to erroneous conclusions (Maxwell & Cole, 2007),

both mediation and moderation approaches were tested through cross-sectional and longitudinal analyses in both samples. The results of mediation and moderation analyses are discussed in Chapter 6 (Time 1 results) and Chapter 7 (Time 2 results) for the cross-sectional analysis and in Chapter 8 for the longitudinal analysis.

Longitudinal analysis

The two-wave design was used to provide more rigorous inferences about causal mechanisms. The purpose of the longitudinal analysis was to examine the causal relation between variables and whether main effects, mediated effects, and moderated effects were stable over the six-month timeframe. The time interval in this research was six months, which was long enough to expect variance in the relationship between study variables. As there is insufficient evidence to suggest the most appropriate time lag for the effects of particular predictors on criterion variables, I selected a certain time lag (six months) based on organisational reasons (e.g. time constraints) (Zapf, Dormann, & Frese, 1996).

Longitudinal mediation using SEM

As suggested by Cole and Maxwell (2003), cross-sectional studies might yield biased and misleading estimates of mediation processes because the initial levels of mediators or outcome variables were not controlled. Testing of a meditational model should be longitudinally implemented by an autoregressive model using SEM to statistically control for prior levels of outcome variables (Cole & Maxwell, 2003). Following these recommendations, longitudinal analysis using SEM was employed to examine the mediation hypotheses. To fulfil the requirement of longitudinal mediation analysis, the criterion variables at Time 2 were regressed on the predictors and mediators at Time 1.

Longitudinal hierarchical regression

Hierarchical regression was conducted to examine the main effects and moderating effects of individual differences on criterion variables over the six-month timeframe. Similar to mediating effect analyses, I also used the time-effect method, which examines whether Time 1 variables can predict Time 2 variables, to assess the longitudinal main effects and moderating effects. The criterion variable at Time 2 was regressed on the predictors at Time 1. Moderation analyses included six steps. In Step 1, the Time 1 outcome variables (i.e. two forms of CWB) were entered to control for the prior levels of outcome variables. In Step 2, demographic variables (e.g. gender, education, or age) were entered to control their confounding effects, followed by the Time 1 justice perceptions in Step 3. Following previous studies (e.g. Colquitt et al, 2006), interactions among justice perceptions were entered in Step 4 to control their possible interactive effects. Individual predictors were entered in Step 5. In Step 6, the two-way interactions between the predictors at time 1 (e.g. Time 1 distributive justice × Time 1 agreeableness) were entered.

4.6 Chapter summary

This chapter has described the methodology used in the current research, including the research design, research sample, research measures, data collection procedures, and data analysis. The CFA results for all research measures are presented in Chapter 5 and the results of cross-sectional Time 1 and Time 2 analyses are discussed in Chapter 6 and 7. The results of longitudinal analyses are presented in Chapter 8.

Chapter 5

Validating the Measures

This chapter presents the results of confirmatory factor analysis (CFA) in the New Zealand and Thai samples at Time 1 and Time 2, and the reliability for the final measures retained from the CFAs.

5.1 Confirmatory factor analysis

A first-order CFA using AMOS 20 was performed to examine the factorial validity of all measures (i.e. organisational justice perceptions, communication quality with employees, leader-member exchange/LMX, opportunity to voice, agreeableness, conscientiousness, self-control, collectivism and power distance), except the measures of counterproductive work behaviour (CWB) and outcome satisfaction (see pp. 89-90, 94).

According to Byrne (2010), the evaluation of model fit is based on several criteria that focus on (a) the adequacy of the model as a whole and (b) the parameter estimates. Firstly, in testing the model as a whole, I focused on the following indices: the chi-square (χ^2)/degree of freedom (*df*) ratio, the standardised root mean squared residual (SRMR), goodness of fit index (GFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA).

Chi-square (χ^2) is an index of model fit that assesses the extent to which the covariances of the structural model match the sample covariance. Even though the chi-square value ideally should be nonsignificant, indicating a good fit of the model, the chi-square value is always inflated and statistically significant in large sample sizes (Byrne, 2010). For these reasons, the χ^2/df ratio has been used. A

good-fitting model may be indicated when the ratio of the chi-square to the degree of freedom (χ^2/df) is less than 2 and values up to 5 are considered acceptable (Jackson, Wall, Martin, & Davids, 1993). To compare the fit of two or more models, the difference in χ^2 ($\Delta\chi^2$) value was used to assess the extent to which model exhibits a significantly better fit or improvement over another (Byrne, 2010).

SRMR represents the average value of all standardised residuals, ranging from 0 to 1, with small values (.05 or less) indicating a good-fitting model. GFI is an absolute index of fit because it compares the hypothesised model with a null model. The threshold of GFI ranges from 0 to 1 with values > .9 indicating a good fit. The value of CFI resulting from the comparison between the hypothesised model and a baseline model ranges from 0 to 1, with values > .9 being indicative of a good-fitting model. Another fit statistic is RMSEA, which considers the error of approximation in the population. Values less than .05 indicate good fit and values up to .08 are acceptable. A very narrow 90% confidence interval of the RMSEA value reflects good precision of the RMSEA values and model fit (Byrne, 2010).

Secondly, the statistical significance of the parameter estimates was indicated by the critical ratio (C.R.), which tests that the estimate is significantly different from zero. Based on a probability level of .05, C.R. should be > 1.96 to be considered significant. Nonsignificant parameters can be considered unimportant to the model. In addition, the removal of items with low factor loadings and squared multiple correlations (R^2) less than .49 was performed when models had a poor fit. The cutoff for factor loadings in this research was .45 (20% overlapping variance) (Tabachnick & Fidell, 2007). When the loadings of items failed to reach a value of .45, they were deleted and the goodness-of-fit indices

were compared before and after the deletion of certain items. When the deletion of items yielded no substantial improvement, the deleted items were included in the model.

In the following sections, the CFA results of all measures used in the current research for both samples at both times, except CWB and outcome satisfaction, are discussed.

5.2 The results of validating the measures in New Zealand and Thailand

Perceived justice. To determine which factor structure produced the best fit to the present data for the New Zealand and Thai samples at Time 1 and Time 2, the fit of four different factor structures was compared (see Table 5.1). The first was a one-factor model consisting of 20 items indicative of one organisational justice factor. The second was a two-factor model including distributive justice (4 items) as one factor and procedural justice (16 items subsuming interpersonal and informational justice) as the other. The third was a three-factor model including distributive (4 items), procedural (7 items) and interactional justice (9 items subsuming interpersonal and informational justice). The final model was a four-factor model with distributive (4 items), procedural (7 items), interpersonal (4 items) and informational justice (5 items) (Colquitt, 2001).

To assess which model had a better fit than others, a chi-square difference ($\Delta\chi^2$) test was used. Consistent with Colquitt (2001), the best fitting model was the four-factor model and the worst fitting model was the one-factor model, in both samples at both times. The four-factor model was significantly better than the one-factor, two-factor and three-factor models in the two samples at both times. These results suggest that both samples exhibited the same factor structure at Time 1 and Time 2 (see Table 5.1).

Table 5.1

Fit indices of measurement models of organisational justice

Structure	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Compared $\Delta\chi^2$ of 4-factor[b] with the competing models
Time 1									
NZ (N = 624)									
1-factor	4082.34	170	24.01	.11	.47	.66	.19	(.19-.20)	$\Delta\chi^2_{(24)} = 3624.20^{**}$
2-factor	2578.94	169	15.26	.11	.58	.79	.15	(.15-.16)	$\Delta\chi^2_{(23)} = 2120.80^{**}$
3-factor	1336.98	167	8.01	.07	.78	.90	.11	(.10-.11)	$\Delta\chi^2_{(21)} = 878.84^{**}$
4-factor [a]	614.79	164	3.75	.04	.91	.96	.07	(.06-.07)	$\Delta\chi^2_{(18)} = 156.65^{**}$
4-factor [b]	458.14	146	3.14	.04	.93	.97	.06	(.05-.07)	-
Thai (N = 480)									
1-factor	2172.05	170	12.78	.09	.58	.72	.16	(.15-.16)	$\Delta\chi^2_{(24)} = 1761.19^{**}$
2-factor	1505.40	169	8.91	.09	.68	.81	.13	(.12-.13)	$\Delta\chi^2_{(23)} = 1094.54^{**}$
3-factor	824.69	167	4.94	.05	.83	.91	.09	(.09-.10)	$\Delta\chi^2_{(21)} = 413.83^{**}$
4-factor [a]	528.64	164	3.22	.05	.90	.95	.07	(.06-.08)	$\Delta\chi^2_{(18)} = 117.78^{**}$
4-factor [b]	410.86	146	2.81	.04	.92	.96	.06	(.06-.07)	-
Time 2									
NZ (N = 276)									
1-factor	2006.54	170	11.80	.11	.47	.66	.20	(.19-.21)	$\Delta\chi^2_{(24)} = 1731.41^{**}$
2-factor	1226.41	169	7.26	.10	.59	.80	.15	(.14-.16)	$\Delta\chi^2_{(23)} = 951.28^{**}$
3-factor	750.35	167	4.49	.08	.74	.89	.11	(.11-.12)	$\Delta\chi^2_{(21)} = 475.22^{**}$
4-factor [a]	393.33	164	2.39	.05	.87	.96	.07	(.06-.08)	$\Delta\chi^2_{(18)} = 118.20^{**}$
4-factor [b]	275.13	146	1.88	.04	.91	.98	.06	(.05-.07)	-
Thai (N = 242)									
1-factor	962.93	170	5.66	.07	.64	.82	.14	(.13-.15)	$\Delta\chi^2_{(24)} = 628.28^{**}$
2-factor	736.95	169	4.36	.06	.71	.87	.12	(.11-.13)	$\Delta\chi^2_{(23)} = 402.30^{**}$
3-factor	449.37	167	2.69	.04	.84	.94	.08	(.07-.09)	$\Delta\chi^2_{(21)} = 114.72^{**}$
4-factor [a]	383.70	164	2.35	.04	.87	.95	.08	(.07-.09)	$\Delta\chi^2_{(18)} = 49.05^{**}$
4-factor [b]	334.65	146	2.29	.04	.87	.95	.07	(.06-.08)	-

Note. NZ = New Zealand; [a] 4-factor model with 20 items; [b] 4-factor model with 19 items (item 2 in Appendix B, Section 1, was removed based on the R^2 values); $\Delta\chi^2$ refers to the chi-square difference between models.
$^{**}p < .01$

The overall results of the four-factor model were within the acceptable range in both samples at Time 1 (Table 5.1) and the parameter estimates were above 1.96 in both samples at both times. Even though the fit indices indicated satisfactory overall model fit in both samples at Time 2, the GFI values in both samples were below .9. Based on the R^2 values and inter-item correlations, item 2 (Appendix B, Section 1) with a lower correlation with others in the procedural

justice dimension was dropped in both samples at both times. The revised four-factor model with 19 items yielded a statistically significant improvement in model fit compared to the four-factor model with 20 items in both samples at Time 1 and Time 2 (see Table 5.1). Even though the GFI value for the four-factor model with 19 items was still below .9 (.87) in the Time 2 Thai sample, the overall fit statistics were significantly improved in the Thai sample at both times. Hence, I used the four-factor model with 19 items for further analysis. The standardised factor loadings for the 19 items, four-factor model (shown in Table 5.2) were all within an acceptable range.

Table 5.2

Standardised factor loadings for the final four-factor model of organisational justice

Items	Factor loadings			
	Time 1		Time 2	
	NZ (*N* = 624)	Thai (*N* = 480)	NZ (*N* = 276)	Thai (*N* = 242)
Procedural justice				
1	.66	.67	.64	.81
3	.78	.63	.79	.79
4	.85	.72	.88	.73
5	.84	.80	.84	.85
6	.58	.77	.58	.77
7	.84	.78	.84	.83
Distributive justice				
8	.82	.86	.85	.88
9	.92	.89	.93	.86
10	.89	.86	.95	.86
11	.90	.80	.93	.81
Interpersonal justice				
12	.94	.88	.92	.90
13	.98	.92	.97	.90
14	.95	.88	.97	.90
15	.80	.70	.80	.73
Informational justice				
16	.74	.81	.74	.86
17	.86	.83	.82	.87
18	.88	.88	.90	.87
19	.84	.81	.80	.83
20	.83	.70	.86	.79

Note. NZ = New Zealand; Items 1 and 3-20 in Appendix B, Section 1.

Communication quality with employees was a one-factor model with six items, its goodness-of-fit indices were within an acceptable range in the New Zealand and Thai samples at Time 2, while the fit indices for both samples at Time 1 were slightly outside of the acceptable range (see Table 5.3). The parameter estimates were significant (C.R. > 1.96) in both samples at both times.

Table 5.3

Fit indices of measurement models of communication quality with employees

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Compared $\Delta\chi^2$ of Model C with Models A & B
Time 1									
NZ (*N* = 624)									
Model A	52.53	9	5.84	.03	.97	.98	.09	(.07-.11)	$\Delta\chi^2_{(7)} = 46.69^{**}$
Model B	25.35	5	5.07	.02	.98	.99	.08	(.05-.11)	$\Delta\chi^2_{(3)} = 22.67^{**}$
Model C	2.68	2	1.34	.01	1.00	1.00	.02	(.00-.09)	-
Thai (*N* = 480)									
Model A	65.40	9	7.27	.04	.95	.96	.11	(.09-.14)	$\Delta\chi^2_{(7)} = 58.37^{**}$
Model B	29.74	5	5.95	.03	.98	.97	.10	(.07-.14)	$\Delta\chi^2_{(3)} = 22.71^{**}$
Model C	7.03	2	3.52	.02	.99	.99	.07	(.02-.13)	-
Time 2									
NZ (*N* = 276)									
Model A	18.58	9	2.06	.03	.98	.99	.06	(.02-.10)	$\Delta\chi^2_{(7)} = 16.30^{*}$
Model B	13.89	5	2.78	.03	.98	.99	.08	(.03-.13)	$\Delta\chi^2_{(3)} = 11.61^{**}$
Model C	2.28	2	1.14	.02	1.00	1.00	.02	(.00-.12)	-
Thai (*N* = 242)									
Model A	26.97	9	3.00	.03	.97	.98	.09	(.05-.13)	$\Delta\chi^2_{(7)} = 25.66^{**}$
Model B	11.91	5	2.38	.03	.98	.99	.08	(.02-.13)	$\Delta\chi^2_{(3)} = 10.60^{*}$
Model C	1.31	2	.65	.01	1.00	1.00	.00	(.00-.11)	-

Note. NZ = New Zealand; Model A = 1-factor model with 6 items; Model B= 1-factor model with 5 items (item 9 in Appendix B, Section 3, was removed based on the inter-item correlations and R^2 values); Model C = 1-factor model with 4 items (items 4 and 9 in Appendix B, Section 3, were removed based on the inter-item correlations and R^2 values); $\Delta\chi^2$ refers to the chi-square difference between models.
$^{**}p < .01$. $^{*}p < .05$.

To obtain a better fit in both samples, one item (item 9 in Appendix B, Section 3) was removed from the model, followed by another item (item 4 in Appendix B, Section 3), based on the R^2 values and inter-item correlations. By deleting these two items, the goodness-of-fit statistics of Model C (with 4 items)

revealed a significant improvement in model fit, compared to Models A (with 6 items) and B (with 5 items) in the two samples at both times (see Table 5.3). I initially also dropped item 5 (in Appendix B, Section 3) with a factor loading below .45, but no substantial improvement was found. Thus, this item was retained. The range of standardised factor loadings (Table 5.4) was from .41 to .87 for the Time 1 New Zealand sample, .34 to .85 for the Time 2 New Zealand sample, .45 to .89 for the Time 1 Thai sample, and .54 to .88 for the Time 2 Thai sample.

Table 5.4

Standardised factor loadings for the final model of communication quality with employees

Items	Factor loadings			
	Time 1		Time 2	
	NZ (N = 624)	Thai (N = 480)	NZ (N = 276)	Thai (N = 242)
5	.41	.45	.34	.54
6	.78	.69	.81	.83
7	.87	.89	.82	.88
8	.82	.77	.85	.83

Note. NZ = New Zealand; Item 5 = reverse-scored item, Items 6-8 = positive items, in Appendix B, Section 3.

Leader-member exchange (LMX). The goodness-of-fit of a four-factor model was tested in comparison to a one-factor, two-factor and three-factor model across the two samples at both times (Table 5.5). The four-factor model reflected the four dimensions of affect, loyalty, contribution, and professional respect (containing three items for each dimension) (Liden & Maslyn, 1998). The one-factor model combined all four dimensions into a global LMX scale. The two-factor model was indicative of one factor comprising the work-related scales (subsuming contribution and professional respect) and another factor (affective feelings) including the affect and loyalty items. The three-factor model combined

contribution and professional respect into one factor but separated affect and loyalty items (Schriesheim, Neider, Scandura, & Tepper, 1992).

Table 5.5

Fit indices of measurement models of LMX

Structure	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Compared $\Delta\chi^2$ of 4-factor[b] with the competing models
Time 1									
NZ (N = 624)									
1-factor	1923.63	54	35.62	1.00	.63	.73	.24	(.23-.25)	$\Delta\chi^2_{(16)} = 1752.79^{**}$
2-factor	1338.74	53	25.26	.11	.70	.82	.20	(.19-.21)	$\Delta\chi^2_{(15)} = 1167.90^{**}$
3-factor	860.97	51	16.88	.10	.80	.88	.16	(.15-.17)	$\Delta\chi^2_{(13)} = 844.09^{**}$
4- factor [a]	249.78	48	5.20	.05	.94	.97	.08	(.07-.09)	$\Delta\chi^2_{(10)} = 78.94^{**}$
4-factor [b]	170.84	38	4.50	.03	.95	.98	.08	(.06-.09)	-
Thai (N = 480)									
1-factor	931.85	54	17.26	.07	.72	.80	.18	(.17-.20)	$\Delta\chi^2_{(16)} = 785.18^{**}$
2-factor	585.44	53	11.05	.06	.81	.88	.15	(.13-.16)	$\Delta\chi^2_{(15)} = 438.77^{**}$
3-factor	309.03	51	6.06	.05	.90	.94	.10	(.09-.11)	$\Delta\chi^2_{(13)} = 162.36^{**}$
4- factor [a]	192.94	48	4.02	.04	.94	.97	.08	(.07-.09)	$\Delta\chi^2_{(10)} = 46.27^{**}$
4-factor [b]	146.67	38	3.86	.03	.95	.98	.08	(.06-.09)	-
Time 2									
NZ (N = 276)									
1-factor	894.15	54	16.56	.11	.63	.74	.24	(.22-.25)	$\Delta\chi^2_{(16)} = 795.55^{**}$
2-factor	682.68	53	12.88	.11	.69	.80	.21	(.19-.22)	$\Delta\chi^2_{(15)} = 584.08^{**}$
3-factor	506.48	51	9.93	.11	.76	.86	.18	(.17-.20)	$\Delta\chi^2_{(13)} = 407.88^{**}$
4- factor [a]	185.16	48	3.86	.07	.90	.96	.10	(.09-.12)	$\Delta\chi^2_{(10)} = 86.56^{**}$
4-factor [b]	98.60	38	2.60	.03	.94	.98	.08	(.06-.10)	-
Thai (N = 242)									
1-factor	304.14	54	5.63	.10	.80	.91	.14	(.12-.15)	$\Delta\chi^2_{(16)} = 219.14^{**}$
2-factor	233.51	53	4.22	.05	.85	.94	.12	(.10-.13)	$\Delta\chi^2_{(15)} = 148.51^{**}$
3-factor	177.04	51	3.47	.04	.88	.95	.10	(.09-.12)	$\Delta\chi^2_{(13)} = 92.04^{**}$
4- factor [a]	138.64	48	2.89	.04	.91	.97	.09	(.07-.11)	$\Delta\chi^2_{(10)} = 53.64^{**}$
4-factor [b]	85.00	38	2.24	.03	.93	.98	.07	(.05-.09)	-

Note. NZ = New Zealand; [a] 4-factor model with 12 items; [b] 4-factor model with 11 items (item 7 in Appendix B, Section 4, was removed based on the R^2 values); $\Delta\chi^2$ refers to the chi-square difference between models.
$^{**}p < .01$.

Consistent with the CFA results of Liden and Maslyn (1998), the four-factor model produced the best fit to the data. Table 5.5 shows that the four-factor model had a significantly better fit than the other three competing models in both

samples at both times. This indicated that both samples had the same factor structure. The overall fit statistics of the four-factor model were within the satisfactory range and all parameter estimates > 1.96, except the RMSEA value of .10 in the Time 2 New Zealand sample. One item of the contribution dimension (item 7 in Appendix B, Section 4) with low R^2 (lower than .49) was therefore dropped in the two samples at both times. This led to a significant improvement in fit statistics across the two samples at both times (see Table 5.5). Hence, the four-factor model with eleven items was used for further analysis. The standardised factor loadings in both samples exceeded .45 at both times (see Table 5.6).

Table 5.6

Standardised factor loadings for the final four-factor model of LMX

Items	Factor loadings			
	Time 1		Time 2	
	NZ (*N* = 624)	Thai (*N* = 480)	NZ (*N* = 276)	Thai (*N* = 242)
Affect				
1	.89	.88	.87	.91
2	.90	.91	.92	.92
3	.89	.85	.87	.86
Loyalty				
4	.87	.84	.89	.83
5	.94	.90	.95	.84
6	.89	.82	.86	.82
Contribution				
8	.76	.76	.73	.87
9	.97	.86	1.03	.89
Professional respect				
10	.92	.86	.93	.91
11	.96	.91	.95	.92
12	.90	.88	.89	.87

Note. NZ = New Zealand; Items 1-6 and 8-12 in Appendix B, Section 4.

Opportunity to voice was a one-factor model with three items. To run CFA using AMOS on the scale with less than four items, the parameters of two items were initially constrained equally to 1. The fit indices were out of the acceptable

range in the New Zealand (χ^2/df = 26.45, RMSEA =.20) and Thai samples at Time 1 (χ^2/df = 5.70), while GFI, CFI and factor loadings appeared to be satisfactory in the two samples. As noted by Kline (2010), models with less than four indicators per latent variable tend to fail to converge and error estimates can be unreliable.

Although there is no consensus on how to handle this issue, some researchers (e.g. Garver & Mentzer, 1999) have performed CFA on the scale with three items with other scales at the same time. Following D. Hemsworth (personal communication, April 29, 2011), I ran CFA on opportunity to voice with other predictors. As opportunity to voice, LMX and communication quality were predictors of justice perceptions, LMX and communication quality were included in the model. The fit indices were within the acceptable range in both samples at both times (see Table 5.7).

Table 5.7

Fit indices of measurement models of opportunity to voice, LMX and communication quality

	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval
Time 1								
NZ (*N* = 624)	407.32	121	3.37	.03	.93	.97	.06	(.05-.07)
Thai (*N* = 480)	328.27	121	2.71	.03	.93	.97	.06	(.05-.07)
Time 2								
NZ (*N* = 276)	241.23	121	1.99	.03	.91	.97	.06	(.05-.07)
Thai (*N* = 242)	216.22	121	1.79	.03	.90	.98	.06	(.05-.06)

Note. NZ = New Zealand.

The standardised factor loadings of opportunity to voice items were high, ranging from .80 to .89 at Time 1 and .74 to .89 at Time 2 in the New Zealand sample, from .79 to .86 at Time 1 and .87 to .89 at Time 2 in the Thai sample (see Table 5.8).

Table 5.8

Standardised factor loadings for opportunity to voice

Items	Factor loadings			
	Time 1		Time 2	
	NZ (*N* = 624)	Thai (*N* = 480)	NZ (*N* = 276)	Thai (*N* = 242)
1	.80	.79	.74	.89
2	.86	.86	.85	.88
3	.89	.84	.89	.87

Note. NZ = New Zealand; Items 1-3 in Appendix B, Section 3.

Agreeableness was a one-factor model containing six positively worded items and four negative items. Its overall goodness-of-fit was outside of the recommended range in the New Zealand and Thai samples at both times (Table 5.9). In particular, none of the parameter estimates was significant in the Time 2 Thai sample. As noted by Spector, Katwyk, Brannick, and Chen (1997), many scales in organisational research (e.g. employee personality and job satisfaction scales) that contain items written in opposite directions can produce two factor structures. This is not caused by underlying constructs, but by the way people respond to items that vary in direction. In other words, the patterns of response to the items can produce an artifactual two-factor structure. Thus, I followed the recommendation noted by Spector et al. (1997). A two-factor model (one positive and one negative) was tested across the two samples at both times.

Compared to the one-factor model, the two-factor model was significantly better, with significant differences in the χ^2 values in both samples at Time 1 and Time 2 (see Table 5.9). The fit statistics of the two-factor model were satisfactory in the Thai sample, but those in the New Zealand sample were out of the acceptable range at both times. One positively worded item (item 1 in Appendix B, Section 5) with low R^2 was therefore deleted, which led to a substantial improvement (e.g. decrease in the χ^2/df ratio in the two samples at both times).

Other fit indices in both samples at both times were within the recommended range.

Table 5.9

Fit indices of measurement models of agreeableness

Structure	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Compared $\Delta\chi^2$ of 2-factor[b] with the competing models
Time 1									
NZ (N = 624)									
1-factor	560.85	35	16.02	.08	.83	.79	.16	(.14-.17)	$\Delta\chi^2_{(9)} = 431.87^{**}$
2-factor [a]	388.21	34	11.42	.07	.89	.86	.13	(.12-.14)	$\Delta\chi^2_{(8)} = 259.23^{**}$
2-factor [b]	128.98	26	4.96	.05	.96	.95	.08	(.07-.09)	-
Thai (N = 480)									
1-factor	598.17	35	17.09	.13	.77	.76	.18	(.17-.20)	$\Delta\chi^2_{(9)} = 536.99^{**}$
2-factor [a]	129.36	34	3.54	.04	.95	.96	.07	(.06-.09)	$\Delta\chi^2_{(8)} = 68.18^{**}$
2-factor [b]	61.18	26	2.35	.04	.97	.98	.05	(.04-.07)	-
Time 2									
NZ (N = 276)									
1-factor	231.23	35	6.61	.08	.83	.83	.14	(.13-.16)	$\Delta\chi^2_{(9)} = 166.83^{**}$
2-factor [a]	159.79	34	4.70	.06	.90	.89	.12	(.10-.13)	$\Delta\chi^2_{(8)} = 95.39^{**}$
2-factor [b]	64.40	26	2.48	.05	.95	.96	.07	(.05-.10)	-
Thai (N = 242)									
1-factor	351.65	35	10.05	.16	.74	.79	.19	(.18-.21)	$\Delta\chi^2_{(9)} = 297.92^{**}$
2-factor [a]	85.62	34	2.52	.05	.93	.97	.08	(.06-.10)	$\Delta\chi^2_{(8)} = 31.89^{**}$
2-factor [b]	53.73	26	2.07	.05	.96	.98	.07	(.04-.09)	-

Note. NZ = New Zealand; [a] 2-factor model with 10 items; [b] 2-factor model with 9 items (item 1 in Appendix B, Section 5, was removed based on the inter-item correlations and R^2 values); $\Delta\chi^2$ refers to the chi-square difference between models.
$^{**}p < .01$

There were significant differences in the χ^2 values between the two-factor model with ten items and the two-factor model with nine items in both samples at Time 1 and Time 2 (see Table 5.9). These confirmed the better fit of the two-factor model with nine items. Thus, I used the two-factor model with nine items for further analysis. The positive factor was labelled ‘agreeableness’, which

included five positive items. The negative factor was labelled ‘disagreeableness’, which included four negative items.

The standardised factor loadings are shown in Table 5.10. The positive factor of agreeableness (five items) had factor loadings ranging from .53 to .82 at Time 1 and .56 to .83 at Time 2 in the New Zealand sample, and from .67 to .84 at Time 1 and .79 to .89 at Time 2 in the Thai sample. The factor loadings for the negative factor (disagreeableness, four items) were above .45 at both times in the two samples.

Table 5.10

Standardised factor loadings for the final two-factor model of agreeableness

Items	Factor loadings			
	Time 1		Time 2	
	NZ (*N* = 624)	Thai (*N* = 480)	NZ (*N* = 276)	Thai (*N* = 242)
Agreeableness				
2	.79	.81	.83	.89
3	.70	.80	.67	.87
4	.70	.78	.68	.83
5	.82	.84	.73	.86
6	.53	.67	.56	.79
Disagreeableness				
7	-.64	-.61	-.82	-.62
8	-.50	-.78	-.50	-.78
9	-.74	-.85	-.71	-.80
10	-.74	-.58	-.74	-.60

Note. NZ = New Zealand; Items 2-10 in Appendix B, Section 5.

Conscientiousness was a one-factor model that consisted of six positive items and four negative items. Its fit indices were all outside of the acceptable range (Table 5.11) in both samples at both times. In the Thai sample, the parameter estimates of the positively worded items were not significant at Time 1 and none of the items was above 1.96 at Time 2. Just like the agreeableness scale, a two-factor model including positive items as one factor and negative items as another factor was tested.

Table 5.11

Fit indices of measurement models of conscientiousness

Structure	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Compared $\Delta\chi^2$ of 2-factor [c] with the competing models
Time 1									
NZ (N = 624)									
1-factor	497.68	35	14.22	.08	.85	.77	.15	(.13-.16)	$\Delta\chi^2_{(16)} = 421.56^{**}$
2-factor [a]	259.28	34	7.63	.06	.92	.89	.10	(.09-.12)	$\Delta\chi^2_{(15)} = 183.16^{**}$
2-factor [b]	145.02	26	5.58	.05	.95	.93	.09	(.07-.10)	$\Delta\chi^2_{(7)} = 68.90^{**}$
2-factor [c]	76.12	19	4.01	.04	.97	.96	.07	(.05-.09)	-
Thai (N = 480)									
1-factor	979.68	35	27.99	.19	.67	.60	.24	(.23-.25)	$\Delta\chi^2_{(16)} = 901.33^{**}$
2-factor [a]	177.05	34	5.21	.05	.93	.94	.09	(.08-.11)	$\Delta\chi^2_{(15)} = 98.70^{**}$
2-factor [b]	137.40	26	5.28	.05	.94	.94	.10	(.08-.11)	$\Delta\chi^2_{(7)} = 59.05^{**}$
2-factor [c]	78.35	19	4.12	.04	.96	.96	.08	(.06-.10)	-
Time 2									
NZ (N = 276)									
1-factor	265.14	35	7.58	.09	.82	.76	.16	(.14-.17)	$\Delta\chi^2_{(16)} = 222.25^{**}$
2-factor [a]	143.23	34	4.21	.06	.91	.89	.11	(.09-.13)	$\Delta\chi^2_{(15)} = 100.34^{**}$
2-factor [b]	77.71	26	2.99	.05	.94	.93	.09	(.06-.11)	$\Delta\chi^2_{(7)} = 34.82^{**}$
2-factor [c]	42.89	19	2.26	.04	.97	.96	.07	(.04-.10)	-
Thai (N = 242)									
1-factor	500.56	35	14.31	.20	.68	.68	.24	(.22-.25)	$\Delta\chi^2_{(16)} = 456.48^{**}$
2-factor [a]	95.37	34	2.81	.05	.93	.96	.09	(.07-.11)	$\Delta\chi^2_{(15)} = 51.29^{**}$
2-factor [b]	72.42	26	2.79	.05	.94	.96	.09	(.06-.11)	$\Delta\chi^2_{(7)} = 28.34^{**}$
2-factor [c]	44.08	19	2.32	.05	.95	.97	.07	(.05-.10)	-

Note. NZ = New Zealand; [a] 2-factor model with 10 items; [b] 2-factor model with 9 items (item 15 in Appendix B, Section 5, was removed based on the inter-item correlations; [c] 2-factor model with 8 items (items 12 & 15 in Appendix B, Section 5, were removed based on the inter-item correlations and R^2 values); $\Delta\chi^2$ refers to the chi-square difference between models.
$^{**}p < .01$.

As shown in Table 5.11, all other indices of fit confirmed the better fit of the two-factor model of conscientiousness in both samples at both times. Despite the substantial and significant improvement in the fit indices in the two samples at both times, the χ^2/df ratio in both samples at Time 1 and the RMSEA values in the New Zealand sample at both times were still outside of the satisfactory range.

Based on the inter-item correlations, item 15 (in Appendix B, Section 5) that appeared to be less correlated with other items was removed first. Even though several indices of fit were satisfactory, the χ^2/df ratio in both samples at

Time 1 was still out of the acceptable range. Another item (item 12 in Appendix B, Section 5) with a low R^2 value was dropped. Overall indices of fit yielded that the 8 items, 2-factor model was significantly better than the 9 items, 2-factor model (see Table 5.11). In particular, the decrease in χ^2/df values in both samples at Time 1 indicated a considerable improvement to the model fit, and the values of RMSEA considerably decreased in both samples at both times.

Thus I used the 2-factor model with 8 items for further analysis. The positive factor was labelled 'conscientiousness', which included four positive items. The negative factor was named 'negligence', which contained four negative items. The positive factor of conscientiousness had standardised factor loadings ranging from .49 to .83 at both times in the New Zealand sample, and from .67 to .85 at both times in the Thai sample (see Table 5.12). For the negative factor, four items had factor loading above .45 in both samples at both times, except item 20 (in Appendix B, Section 5) in the New Zealand sample at both times. Item 20 was initially deleted, but it did not lead to a considerable improvement. The item was, therefore, retained.

Table 5.12

Standardised factor loadings for the final two-factor model of conscientiousness

Items	Factor loadings			
	Time 1		Time 2	
	NZ (N = 624)	Thai (N = 480)	NZ (N = 276)	Thai (N = 242)
Conscientiousness				
11	.62	.67	.67	.83
13	.83	.74	.71	.76
14	.58	.79	.67	.85
16	.49	.74	.53	.79
Negligence				
17	-.70	-.74	-.77	-.73
18	-.75	-.91	-.78	-.86
19	-.74	-.72	-.77	-.78
20	-.36	-.70	-.36	-.70

Note. NZ = New Zealand; Items 11, 13, 14, 16 and 17-20 in Appendix B, Section 5.

Self-control was a one-factor model which comprised three positive items and seven negative items. Its overall goodness-of-fit indices in both samples at both times were outside of the acceptable range (see Table 5.13). In particular, the parameter estimates for some of the three positive items (items 21-23 in Appendix B, Section 5) were not significant, and their factor loadings were lower than .45 in the two samples at both times.

Table 5.13

Fit indices of measurement models of self-control

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Compared $\Delta\chi^2$ of Model D with the competing models
Time 1									
NZ (*N* = 624)									
Model A	370.65	35	10.59	.08	.89	.78	.12	(.11-.14)	$\Delta\chi^2_{(30)} = 355.66^{**}$
Model B	226.55	14	16.18	.08	.90	.84	.16	(.14-.17)	$\Delta\chi^2_{(9)} = 211.56^{**}$
Model C	102.12	9	11.35	.06	.94	.92	.13	(.11-.15)	$\Delta\chi^2_{(4)} = 87.13^{**}$
Model D	14.99	5	3.00	.03	.99	.99	.06	(.03-.09)	-
Thai (*N* = 480)									
Model A	445.69	35	12.73	.10	.83	.76	.16	(.14-.17)	$\Delta\chi^2_{(30)} = 355.66^{**}$
Model B	243.64	14	17.40	.07	.87	.85	.19	(.17-.21)	$\Delta\chi^2_{(9)} = 211.56^{**}$
Model C	115.47	9	12.83	.06	.93	.90	.16	(.13-.18)	$\Delta\chi^2_{(4)} = 87.13^{**}$
Model D	20.31	5	4.06	.03	.98	.98	.08	(.05-.12)	-
Time 2									
NZ (*N* = 276)									
Model A	195.96	35	5.60	.09	.87	.79	.13	(.11-.15)	$\Delta\chi^2_{(30)} = 189.11^{**}$
Model B	104.79	14	7.49	.07	.90	.86	.15	(.13-.18)	$\Delta\chi^2_{(9)} = 97.94^{**}$
Model C	44.88	9	4.99	.06	.94	.94	.13	(.09-.16)	$\Delta\chi^2_{(4)} = 38.03^{**}$
Model D	6.85	5	1.37	.02	.99	.99	.04	(.00-.10)	-
Thai (*N* = 242)									
Model A	313.55	35	8.96	.11	.80	.76	.18	(.16-.20)	$\Delta\chi^2_{(30)} = 306.07^{**}$
Model B	127.51	14	9.11	.07	.88	.87	.18	(.16-.21)	$\Delta\chi^2_{(9)} = 120.03^{**}$
Model C	29.33	9	3.26	.03	.97	.97	.10	(.06-.14)	$\Delta\chi^2_{(4)} = 21.85^{**}$
Model D	7.48	5	1.50	.02	.99	1.00	.05	(.00-.11)	-

Note. NZ = New Zealand; Model A = 1-factor model with 10 items; Model B = 1-factor model with 7 items (all positive items/items 21-23 in Appendix B, Section 5, were removed as they were nonsignificant to the factor); Model C = 1-factor model with 6 items (items 21-23 and item 29 in Appendix B, Section 5, were removed based on the inter-item correlations and R^2 values); Model D = 1-factor model with 5 items (items 21-24 and item 29 in Appendix B, Section 5, were removed based on the inter-item correlations and R^2 values); $\Delta\chi^2$ refers to the chi-square difference between models.

$^{**}p < .01$.

Even though deletion of the three positive items revealed significant differences in the χ^2 values across two different samples at both times, the fit indices were still out of the satisfactory range (see in Table 5.13). Thus, another two items (items 24 and 29 in Appendix B, Section 5) with negative wordings were removed based on the R^2 values and inter-item correlations. Compared with Models A (with 10 items), B (with 7 items) and C (with 6 items), Model D (with 5 items) presented a significantly better fit in both samples at both times.

As only negative items were remained, they were labelled 'lack of self-control'. The standardised factor loadings for five negative items ranged from -.56 to -.69 at Time 1 and -.40 to -.71 at Time 2 for the New Zealand sample, while from -.50 to -.78 at Time 1 and -.53 to -.84 at Time 2 for the Thai sample (see Table 5.14). Item 27 (Appendix B, Section 5) with factor loading below .45 in the Time 2 New Zealand sample was initially removed but there was no substantial change in the fit statistics. Thus, the item was retained.

Table 5.14

Standardised factor loadings for the final model of self-control

Items	Factor loadings			
	Time 1		Time 2	
	NZ (N = 624)	Thai (N = 480)	NZ (N = 276)	Thai (N = 242)
Lack of self-control				
25	-.69	-.50	-.71	-.70
26	-.67	-.78	-.70	-.84
27	-.56	-.68	-.40	-.80
28	-.59	-.72	-.67	-.78
30	-.61	-.70	-.61	-.53

Note. NZ = New Zealand; Items 25-28 and 30 in Appendix B, Section 5.

For ***collectivism***, the initial goodness-of-fit indices of a one-factor model with six items were out of the recommended range in both samples at Time 1 and in the New Zealand sample at Time 2 (see Table 5.15). All parameter estimates,

however, were C.R. > 1.96. Thus, two items (items 1 and 3 in Appendix B, Section 6), were dropped based on the inter-item correlations and R^2 values.

Comparison of Model C (with 4 items) with Model A (with 6 items) and Model B (with 5 items) (see Table 5.15) yielded a significant difference in the χ^2 values in both samples at both times. These results confirmed that the removal of items 1 and 3 (in Appendix B, Section 6) made a substantial improvement to model fit. Thus, the one-factor model with four items (Model C) was used for further analysis.

Table 5.15

Fit indices of measurement models of collectivism

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Compared $\Delta\chi^2$ of Model C with the competing models
Time 1									
NZ (*N* = 624)									
Model A	283.40	9	31.49	.09	.85	.75	.22	(.20-.24)	$\Delta\chi^2_{(7)} = 277.95^{**}$
Model B	21.87	5	4.37	.03	.99	.97	.07	(.04-.11)	$\Delta\chi^2_{(3)} = 16.42^{**}$
Model C	5.45	2	2.73	.02	1.00	.99	.05	(.00-.11)	-
Thai (*N* = 480)									
Model A	128.57	9	14.29	.06	.91	.91	.17	(.14-.19)	$\Delta\chi^2_{(7)} = 127.13^{**}$
Model B	39.29	5	7.86	.03	.97	.97	.12	(.09-.16)	$\Delta\chi^2_{(3)} = 37.85^{**}$
Model C	1.44	2	.72	.01	1.00	1.00	.00	(.00-.08)	-
Time 2									
NZ (*N* = 276)									
Model A	115.10	9	12.79	.10	.86	.78	.21	(.17-.24)	$\Delta\chi^2_{(7)} = 113.17^{**}$
Model B	14.68	5	2.94	.05	.98	.97	.08	(.04-.14)	$\Delta\chi^2_{(3)} = 12.75^{**}$
Model C	1.93	2	.96	.02	1.00	1.00	.00	(.00-.12)	-
Thai (*N* = 242)									
Model A	28.66	9	3.18	.02	.96	.98	.10	(.06-.14)	$\Delta\chi^2_{(7)} = 23.66^{**}$
Model B	13.96	5	2.79	.02	.98	.99	.09	(.03-.14)	$\Delta\chi^2_{(3)} = 8.96^{*}$
Model C	5.00	2	2.50	.01	.99	1.00	.08	(.00-.17)	-

Note. NZ = New Zealand; Model A = 1-factor model with 6 items; Model B = 1-factor model with 5 items (item 1 in Appendix B, Section 6, was removed based on the inter-item correlations); Model C = 1-factor model with 4 items (items 1 and 3 were removed based on the inter-item correlations and R^2 values); $\Delta\chi^2$ refers to the chi-square difference between models.
$^{**}p < .01$. $^{*}p < .05$.

The standardised factor loadings of the four remaining items exceeded .45 for both samples at both times (shown in Table 5.16). The four items had factor loadings ranging from .53 to .82 in the New Zealand sample, while from .66 to .88 in the Thai sample.

Table 5.16

Standardised factor loadings for the final model of collectivism

Items	Factor loadings			
	Time 1		Time 2	
	NZ (N = 624)	Thai (N = 480)	NZ (N = 276)	Thai (N = 242)
2	.54	.66	.53	.88
4	.62	.70	.58	.86
5	.82	.81	.80	.86
6	.70	.74	.75	.82

Note. NZ = New Zealand; Items 2 and 4-6 in Appendix B, Section 6.

Power distance was a one-factor model with six items. In the New Zealand sample at both times, its overall results were within the acceptable range, while the values of χ^2/df were out of the recommended range in the Thai sample at both times (Table 5.17). Item 8 (in Appendix B, Section 6) was deleted in both samples based on the inter-item correlations and R^2 values, as equivalence in item numbers was required across the two samples.

Goodness-of-fit statistics related to Model B (with 5 items) in Table 5.17 yielded a significant improvement in model fit in both samples at both times. Even though the RMSEA value in the Time 2 Thai sample was slightly out of the recommended range, other indices were within a satisfactory range.

The standardised factor loadings for the model with five items in the two samples at both times are shown in Table 5.18. I initially removed another item (item 10 in Appendix B, Section 6) which had factor loadings of .34 and .32 in the New Zealand sample at Time 1 and Time 2 respectively, but no substantial

improvement was found in the goodness-of-fit indices across the two samples at both times. The item was therefore retained.

Table 5.17

Fit indices of measurement models of power distance

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Compared $\Delta\chi^2$ of Model B with Model A
Time 1									
NZ (*N* = 624)									
Model A	32.34	9	3.59	.04	.98	.95	.07	(.04-.09)	$\Delta\chi^2_{(4)} = 9.94^{*}$
Model B	22.40	5	4.48	.04	.99	.95	.08	(.05-.11)	-
Thai (*N* = 480)									
Model A	111.40	9	12.38	.08	.93	.86	.15	(.13-.18)	$\Delta\chi^2_{(4)} = 99.02^{**}$
Model B	19.35	5	3.87	.04	.98	.98	.08	(.04-.12)	-
Time 2									
NZ (*N* = 276)									
Model A	22.44	9	2.49	.04	.97	.95	.07	(.04-.11)	$\Delta\chi^2_{(4)} = 10.49^{*}$
Model B	11.95	5	2.39	.04	.98	.97	.07	(.02-.12)	-
Thai (*N* = 242)									
Model A	67.04	9	7.45	.06	.92	.91	.16	(.13-.20)	$\Delta\chi^2_{(4)} = 46.02^{**}$
Model B	21.02	5	4.20	.04	.97	.97	.12	(.07-.17)	-

Note. NZ = New Zealand; Model A = 1-factor model with 6 items; Model B = 1-factor model with 5 items (item 8 in Appendix B, Section 6, was removed based on the inter-item correlations and R^2 values); $\Delta\chi^2$ refers to the chi-square difference between models. $^{**}p < .01$. $^{*}p < .05$.

Table 5.18

Standardised factor loadings for the final model of power distance

Items	Factor loadings			
	Time 1		Time 2	
	NZ (*N* = 624)	Thai (*N* = 480)	NZ (*N* = 276)	Thai (*N* = 242)
7	.50	.65	.58	.73
9	.68	.19	.77	.53
10	.34	.60	.32	.74
11	.53	.76	.54	.86
12	.51	.78	.50	.80

Note. NZ = New Zealand; Items 7, 9 and 10-12 in Appendix B, Section 6.

5.3 Cronbach's alphas for the revised measures

After conducting CFA, the Cronbach's alphas for each revised measure were calculated using SPSS. The alpha coefficients of all variables exceeded .7 in both samples, except power distance for Time 1 and Time 2 in the New Zealand sample (see Table 5.19 on p. 123). The reliability of all measures ranged from .62 to .95 at Time 1 and .66 to .95 at Time 2 for the New Zealand sample. As mentioned in Chapter 2, the reliability of some cultural dimensions related to work was below .7 in previous studies (e.g. Wu, 2006). For the Thai sample, all measures had acceptable alpha coefficients from .73 to .98 at Time 1 and .79 to .98 at Time 2.

5.4 Chapter summary

This chapter presents the results of confirmatory factor analysis of the research instruments, except the outcome satisfaction and CWB measures, which contain distinct items rather than latent factors. The results indicated that the New Zealand and Thai samples yielded the same factor structure at both times. Organisational justice perceptions comprise four dimensions: procedural justice (6 items), distributive justice (4 items), interpersonal justice (4 items) and informational justice (5 items). The quality of communication with employees (4 items), opportunity to voice (3 items), lack of self-control (5 items), collectivism (4 items), and power distance (5 items) are unidimensional scales. LMX includes four dimensions: affect (3 items), loyalty (3 items), contribution (2 items) and professional respect (3 items). Agreeableness (9 items) and conscientiousness (8 items) comprise two dimensions: positive and negative items. All of these measurement models were used for the theoretical model testing in Chapter 6, 7 and 8.

Table 5.19

Cronbach's alphas for the revised measures

Variables	Sources	No. of items	Reliability			
			Time 1		Time 2	
			NZ (*N* = 624)	Thai (*N* = 480)	NZ (*N* = 276)	Thai (*N* = 242)
1. Distributive justice	Colquitt's (2001) Organisational Justice Measure	4	.93	.91	.95	.91
2. Procedural justice	Colquitt's (2001) Organisational Justice Measure	7	.89[a]	.87[a]	.89[a]	.91[a]
3. Interpersonal justice	Colquitt's (2001) Organisational Justice Measure	4	.95	.91	.95	.92
4. Informational justice	Colquitt's (2001) Organisational Justice Measure	5	.92	.90	.91	.92
5. Outcome satisfaction	O'Driscoll and Randall (1999)	7	.84	.91	.83	.95
6. Opportunity to voice	Kernan and Hanges (2002)	3	.89	.87	.87	.91
7. Communication	Kernan and Hanges (2002)	6	.80[b]	.79[b]	.79[b]	.85[b]
8. Leader-member exchange						
- Affect	Liden and Maslyn's (1998) LMX-MDM	3	.92	.91	.91	.92
- Loyalty		3	.93	.89	.93	.87
- Contribution		3	.85[c]	.79[c]	.86[c]	.87[c]
- Professional respect		3	.95	.92	.94	.93
9. Agreeableness						
- Agreeableness/ Positive items	Goldberg's (1999) IPIP	6	.83[d]	.89[d]	.82[d]	.93[d]
- Disagreeableness/ Negative items		4	.75	.80	.79	.79
10. Conscientiousness						
- Conscientiousness/ Positive items	Goldberg's (1999) IPIP	6	.73[e]	.82[e]	.74[e]	.88[e]
- Negligence/ Negative items		4	.73	.85	.75	.85
11. Lack of self-control	Goldberg's (1999) IPIP	10	.76[f]	.81[f]	.75[f]	.85[f]
12. Collectivism	Dorfman and Howell's (1988) work-related cultural values scale	6	.76[g]	.82[g]	.76[g]	.92[g]
13. Power distance	Dorfman and Howell's (1988) work-related cultural values scale	6	.62[h]	.73[h]	.66[h]	.85[h]
14. CWBO	Spector and Fox's (2002) CWB-Checklist	21	.81	.96	.89	.96
15. CWBI	Spector and Fox's (2002) CWB-Checklist	22	.86	.98	.89	.98

Note. NZ = New Zealand; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; [a] One item was removed from the procedural justice dimension based on CFA results; [b] Two items were removed from communication quality with employees based on CFA results; [c] One item was removed from the contribution dimension of LMX based on CFA results; [d] One item was removed from agreeableness based on CFA results; [e] Two items were removed from conscientiousness based on CFA results; [f] Five items were removed from self-control based on CFA results; [g] Two items were removed from collectivism based on CFA results; [h] One item was removed from power distance based on CFA results.

Chapter 6

Time 1 Results

This chapter describes the cross-sectional results of the Time 1 analyses in the New Zealand and Thai samples. The descriptive statistics are presented first, followed by correlations among the study variables and the correlations of demographic variables with the relevant other variables. Multivariate analyses of mediating effects for the antecedent-perceived justice-CWB links, and the main effect and moderating effect hypotheses concerning individual differences are described last. The results of hypothesis testing for the Time 2 data are presented in Chapter 7 and the longitudinal data in Chapter 8.

6.1 Descriptive analysis

This section presents the means, standard deviations and *t*-tests for the Time 1 data in the New Zealand and Thai samples (Table 6.1). Independent samples *t*-tests were used to examine whether there was a significant difference between the two samples in mean scores on each variable. All measures were on a 5-point response scale, except outcome satisfaction and CWB, which were on a 7-point response scale (see Chapter 4).

The New Zealand sample obtained higher mean scores than the Thai sample on interpersonal justice, outcome satisfaction, three out of four LMX dimensions (affect, loyalty and contribution), agreeableness (the positive factor) and conscientiousness (the positive factor) (Table 6.1). The Thai respondents, on the other hand, obtained significantly higher scores than their New Zealand counterparts on distributive justice, disagreeableness (the negative factor of agreeableness), negligence (the negative factor of conscientiousness), lack of self-

control, collectivism, power distance and two outcome variables (CWB directed toward the organisation and CWB directed toward the individual).

Table 6.1

Means, standard deviations and t-tests for the Time 1 New Zealand and Thai samples

Variables	NZ (N = 624)		Thai (N = 480)		t-test
	M	*SD*	*M*	*SD*	
1. Procedural justice	2.84	0.88	2.87	0.75	0.62
2. Distributive justice	2.72	1.10	2.98	0.85	4.45***
3. Interpersonal justice	3.78	1.15	3.20	0.89	9.40***
4. Informational justice	3.13	1.06	3.12	0.80	0.13
5. Outcome satisfaction	4.67	1.30	4.41	1.21	3.43**
6. Opportunity to voice	2.93	1.11	3.00	0.81	1.28
7. Affect	3.44	1.10	3.21	0.91	3.80***
8. Loyalty	3.37	1.16	3.13	0.85	3.99***
9. Contribution	3.95	0.88	3.31	0.84	12.24***
10. Professional respect	3.47	1.26	3.42	0.91	0.65
11. Communication quality	3.15	0.84	3.09	0.65	1.45
12. Agreeableness	4.07	0.68	3.51	0.72	13.16***
13. Disagreeableness	1.66	0.71	2.30	0.78	14.22***
14. Conscientiousness	3.83	0.67	3.39	0.75	10.21***
15. Negligence	1.96	0.79	2.24	0.89	5.50***
16. Lack of self-control	1.89	0.72	2.19	0.79	-6.37***
17. Collectivism	2.96	0.75	3.42	0.71	10.35***
18. Power distance	1.87	0.54	2.87	0.69	26.22***
19. CWBO	1.54	0.41	2.02	0.98	10.14***
20. CWBI	1.18	0.29	1.76	0.98	12.66***

Note. NZ = New Zealand; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; all measures were on a 5-point response scale, except outcome satisfaction, CWBO and CWBI which were on a 7-point response scale. ** $p < .01$. *** $p < .001$.

6.2 Cross-sectional correlations among study variables

Due to the large sample sizes, a significance level of .01 was adopted for correlations. The correlations between study variables for both samples are

displayed in Tables 6.2 and 6.3, respectively. Scale reliabilities are presented on the diagonal, ranging from .62 to .95 in the New Zealand sample and from .73 to .98 in the Thai sample.

The correlations between all variables were in the expected direction for the two samples, except the power distance-CWBI relationship for the New Zealand sample (r = .15). A strong correlation was found between CWBO and CWBI in the Thai sample, indicating the co-occurrence of these two components (e.g. Mount et al., 2006).

Justice antecedents (outcome satisfaction, opportunity to voice, communication quality and LMX) had strong positive correlations with each form of justice perception in both samples. Distributive and informational justice were significantly negatively correlated only with CWBO, while interpersonal justice had a significant negative correlation with both CWBO and CWBI in the New Zealand sample. Interpersonal and informational justice perceptions were significantly related to CWBO and CWBI in the Thai sample.

Agreeableness and conscientiousness had significant negative correlations with both CWBO and CWBI in both samples. Disagreeableness (the negative factor of agreeableness), negligence (the negative factor of conscientiousness), and lack of self-control were significantly positively related to both forms of CWB in the two samples. Collectivism was negatively related to the two CWB measures in the Thai sample. Power distance was not significantly related to both forms of CWB in the Thai sample, whereas it was positively related to CWBI (opposite to the expected direction) in the New Zealand sample.

In brief, correlations among study variables generally provided similar pattern of directions (consistent to what was expected) across the two samples.

Table 6.2

Cross-sectional correlations among the study variables at Time 1 (New Zealand sample, N = 624)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Procedural justice	*.89*												
2. Distributive justice	.69**	*.93*											
3. Interpersonal justice	.65**	.43**	*.95*										
4. Informational justice	.70**	.52**	.78**	*.92*									
5. Outcome satisfaction	.69**	.61**	.56**	.62**	*.84*								
6. Opportunity to voice	.75**	.62**	.57**	.66**	.69**	*.89*							
7. Communication	.73**	.57**	.58**	.68**	.66**	.75**	*.80*						
8. Affect	.52**	.29**	.68**	.64**	.47**	.50**	.49**	*.92*					
9. Loyalty	.58**	.39**	.73**	.69**	.53**	.56**	.53**	.74**	*.93*				
10. Contribution	.36**	.21**	.43**	.39**	.37**	.38**	.36**	.52**	.48**	*.85*			
11. Professional respect	.54**	.38**	.63**	.66**	.49**	.55**	.53**	.74**	.71**	.52**	*.95*		
12. Agreeableness [a]	-.03	.04	-.03	.00	.10**	.05	.03	.04	-.03	.10**	.02	*.83*	
13. Disagreeableness [b]	-.06	-.10**	-.06	-.06	-.17**	-.09	-.07	-.07	-.04	-.17**	-.09	-.53**	*.75*
14. Conscientiousness [c]	-.09	-.10**	-.07	-.06	-.05	-.04	-.06	-.04	-.09	.03	-.09	.16**	-.10**
15. Negligence [d]	.06	.04	.06	.10**	.02	.02	.04	.10**	.11**	-.02	.12**	-.12**	.21**
16. Lack of self-control	.10**	.10**	.02	.05	.10**	.12**	.08	.06	.08	.04	.04	-.10**	.28**
17. Collectivism	.03	.05	-.01	.02	.01	-.00	.03	-.04	.01	.00	.04	.01	-.01
18. Power distance	-.04	.02	-.06	-.02	-.08	-.05	-.03	-.05	-.02	-.08	.02	-.12**	-.18**
19. CWBO	-.07	-.10**	-.12**	-.11**	-.19**	-.13**	-.17**	-.07	-.10**	-.23**	-.12**	-.13**	.28**
20. CWBI	-.08	-.08	-.10**	-.09	-.18**	-.12**	-.13**	-.06	-.07	-.13**	-.10**	-.23**	.32**

Note. [a] the positive factor of agreeableness; [b] the negative factor of agreeableness; [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal. ** $p < .01$ (one-tailed).

Table 6.2 (Continued)

	Variables	14	15	16	17	18	19	20
14.	Conscientiousness [c]	*.73*						
15.	Negligence [d]	-.51**	*.73*					
16.	Lack of self-control	-.23**	.34**	*.76*				
17.	Collectivism	-.09	.12**	.02	*.76*			
18.	Power distance	.01	.07	.06	.10**	*.62*		
19.	CWBO	-.24**	.28**	.30**	.04	.09	*.81*	
20.	CWBI	-.18**	.21**	.21**	.02	.15**	.56**	*.86*

Note. [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal. $^{**}p < .01$ (one-tailed).

Table 6.3

Cross-sectional correlations among the study variables at Time 1 (Thai sample, N = 480)

	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1.	Procedural justice	*.87*												
2.	Distributive justice	.70**	*.91*											
3.	Interpersonal justice	.60**	.54**	*.91*										
4.	Informational justice	.65**	.54**	.78**	*.90*									
5.	Outcome satisfaction	.58**	.56**	.55**	.56**	*.91*								
6.	Opportunity to voice	.65**	.56**	.56**	.56**	.61**	*.87*							
7.	Communication	.56**	.51**	.48**	.52**	.54**	.70**	*.79*						
8.	Affect	.43**	.39**	.59**	.62**	.58**	.56**	.51**	*.91*					
9.	Loyalty	.48**	.39**	.57**	.60**	.53**	.58**	.55**	.71**	*.89*				
10.	Contribution	.42**	.39**	.52**	.52**	.47**	.55**	.53**	.65**	.57**	*.79*			
11.	Professional respect	.43**	.38**	.57**	.61**	.49**	.53**	.52**	.73**	.60**	.70**	*.92*		
12.	Agreeableness [a]	.24**	.18**	.28**	.30**	.35**	.32**	.27**	.39**	.28**	.49**	.41**	*.89*	
13.	Disagreeableness [b]	-.05	-.03	-.19**	-.16**	-.09	-.08	-.05	-.18**	-.12**	-.27**	-.23**	-.35**	*.80*
14.	Conscientiousness [c]	-.10	-.07	.10	.06	.05	.03	.06	.16**	.05	.19**	.16**	.45**	-.09
15.	Negligence [d]	.07	.04	-.12**	-.08	-.03	.02	-.01	-.08	-.05	-.15**	-.12**	-.20**	.55**
16.	Lack of self-control	-.12**	-.05	-.13**	-.10	-.03	-.04	-.06	-.08	-.06	-.15**	-.14**	-.17**	.49**
17.	Collectivism	.20**	.18**	.27**	.27**	.34**	.30**	.32**	.34**	.29**	.37**	.34**	.45**	.30**
18.	Power distance	.32**	.27**	.20**	.24**	.20**	.36**	.31**	.23**	.25**	.21**	.23**	.07	-.09
19.	CWBO	-.03	-.04	-.23**	-.18**	-.06	-.08	-.08	-.15**	-.09	-.24**	-.21**	-.27**	.48**
20.	CWBI	-.08	-.04	-.28**	-.23**	-.09	-.12**	-.12**	-.18**	-.13**	-.24**	-.22**	-.29**	.45**

Note. [a] the positive factor of agreeableness; [b] the negative factor of agreeableness; [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal. ** $p < .01$ (one-tailed).

Table 6.3 (Continued)

Variables	14	15	16	17	18	19	20
14. Conscientiousness [c]	*.82*						
15. Negligence [d]	-.19**	*.85*					
16. Lack of self-control	-.10	.54**	*.81*				
17. Collectivism	.23**	-.19**	-.24**	*.82*			
18. Power distance	-.11**	.13**	-.04	.31**	*.73*		
19. CWBO	-.18**	.43**	.38**	-.28**	.03	*.96*	
20. CWBI	-.21**	.40**	.38**	-.32**	.00	.89**	*.98*

Note. [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal. $^{**}p < .01$ (one-tailed).

6.3 Correlations between demographic variables and study variables

According to Cohen-Charash and Spector (2001), demographic characteristics, such as gender, ethnicity, and tenure might influence justice perceptions and their outcomes. Correlations were conducted to examine the relationships of age, education and tenure with justice perceptions and CWB at Time 1 (see Appendix D.1). Age was significantly and negatively related to procedural justice, distributive justice and CWBO in the New Zealand sample, while it had a negative correlation with informational justice in the Thai sample.

Education had a significant positive relationship with procedural and distributive justice in the two samples at Time 1, whereas it was positively related to interpersonal justice and negatively related to both forms of CWB only in the New Zealand sample. Organisational tenure was significantly and negatively related to CWBO in the Thai sample, but not in the New Zealand sample. Job tenure was negatively related to both CWBO and CWBI in the Thai sample, but was not significantly related to CWB in the New Zealand sample.

To examine gender differences in justice perceptions and CWB at Time 1 (Appendix E.1), independent-samples *t*-tests were performed. A gender difference in CWBI was found in both New Zealand ($t = 3.86$, $p < .01$) and Thai ($t = 4.20$, $p < .01$) samples, with males reporting higher scores on CWBI ($M = 1.28$ for the New Zealand sample; $M = 1.98$ for the Thai sample) than females ($M = 1.15$ for the New Zealand sample; $M = 1.59$ for the Thai sample). However, gender differences in CWBO ($t = 4.68$, $p < .01$) and procedural justice ($t = 2.39$, $p < .05$) were found only in the Thai sample, with males reporting higher scores on CWBO ($M = 2.27$) and procedural justice ($M = 2.96$) than females ($M = 1.83$ for CWBO; $M = 2.79$ for procedural justice).

Ethnic group differences in justice perceptions and CWB were examined using ANOVAs only in the New Zealand sample (not for the Thai sample which had only one ethnic group). Even though the overall ANOVA results (Appendix F) indicated a significant difference between ethnic groups in distributive justice and both forms of CWB, none of the post hoc multiple comparisons was significant for the Time 1 New Zealand sample.

In sum, the demographic variables across the New Zealand and Thai samples were partially associated with different sets of study variables. Age, gender, education and tenure, therefore, were included in further regression analyses as control variables. Due to only one ethnicity in the Thai sample and no significant post hoc multiple comparisons between ethnic group in distributive justice and CWB for the New Zealand sample, ethnicity was not included as a control variable in this research.

In the Thai data, some significant differences between fourteen organisations were found in a few variables (M = 2.69-3.27 for procedural justice; M = 3.29-5.22 for outcome satisfaction; M = 1.57-2.58 for CWBO; and M = 1.13-2.21 for CWBI). However, including organisation as a control variable made little difference to the findings (the biggest difference was .06). In the New Zealand sample, although the ANOVA results indicated significant differences in outcome satisfaction ($F = 2.33$, $p < .05$) and the two forms of CWB ($F = 2.01$, $p < .05$ for CWBO; and $F = 2.63$, $p < .01$ for CWBI) between industry types, none of the post-hoc multiple comparisons was significant. Therefore, organisation and industry type were not included as control variables in the further analyses for both samples.

6.4 Hypothesis testing

The Time 1 results are presented in two main sections: (a) mediation analyses for the antecedent-perceived justice-CWB links, and (b) moderation analyses for individual differences. In the first set of analyses, SEM was conducted to examine four forms of justice perceptions as mediators between justice antecedents and CWB (Figure 6.1).

The second set of analyses involves examining individual differences as moderators of the perceived justice-CWB relationships, and the direct relationships of individual differences with perceived justice and CWB. To assess the unique contribution of justice perceptions and individual differences and to control for potential confounding variables, a series of hierarchical regression analyses was performed to examine the moderation effect hypotheses (see p. 152).

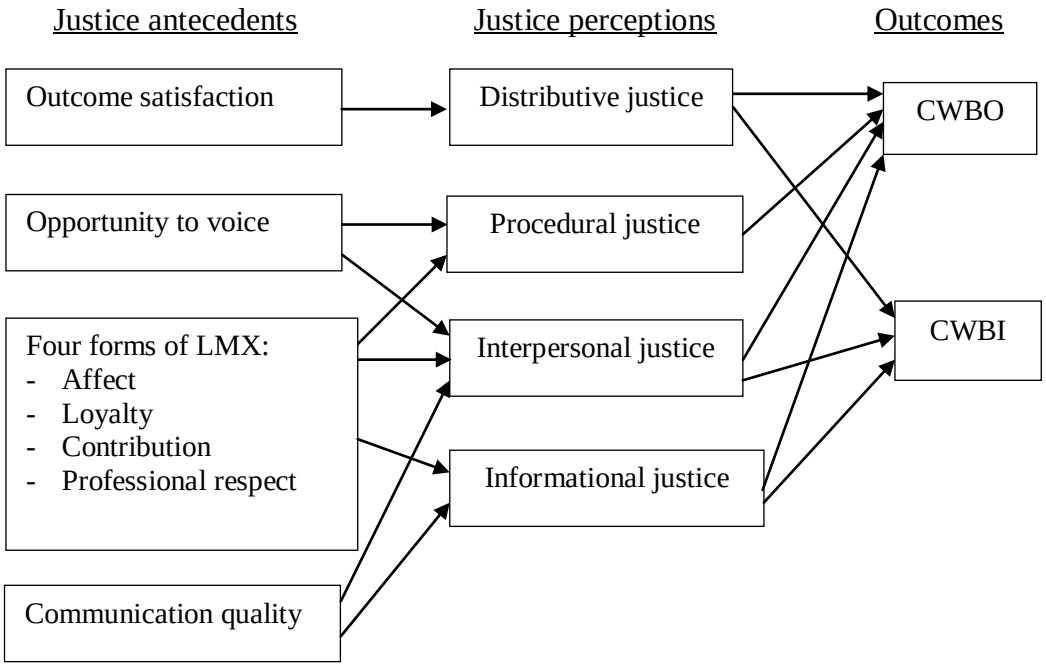

Figure 6.1. Hypothesised overall mediation model.

Note. LMX = leader-member exchange; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.

A. Mediation testing

To examine the mediation model, SEM was employed using the AMOS program version 20. AMOS does not provide significance tests for the individual mediation relationships. As there were four mediators, the overall model (Figure 6.1) was, therefore, broken down into four sub-models: (a) Model A: the mediation effect of distributive justice, (b) Model B: the mediation effect of procedural justice, (c) Model C: the mediation effect of interpersonal justice, and (d) Model D: the mediation effect of informational justice. The model fit for the mediation model in the New Zealand and Thailand data at Time 1 is discussed in the following section.

SEM offers the ability to assess full versus partial mediation models. Prior to testing for partial mediation, full mediation should be assessed first because complete mediation is the most parsimonious form of mediation (Lance & Vandenberg, 2009). As noted by James, Mulaik and Brett (2006), alternative models examining partial mediation can be explored if the full mediation model has a poor fit to the observed data. In the current research, the chi-square difference test, fit statistics (χ^2/df, SRMR, GFI, CFI, and RMSEA) and parameter estimates were used to compare competing models. When the hypothesised model provided an unacceptable fit, model re-specification which involves model trimming or adding direct paths based on modification indices was applied (Kline, 2010). The chi-square difference statistic was used to decide which model (full or partial mediation) had a statistically better fit to the data.

A precondition for mediation testing is that the predictor (X) → mediator (M) and mediator (M) → criterion (Y) path coefficients must be statistically significant. If either path is not significant or if both are not, testing indirect effects would not be required and it can be concluded that there is no mediation

(Iacobucci et al., 2007). As noted by many researchers (e.g. Iacobucci et al., 2007; Shrout & Bolger, 2002), the statistical significance of X → Y path coefficients should not be a requirement because the relationship between X and Y might be suppressed by M. Following the recommendation by Shrout and Bolger (2002), the bootstrap method with 1,000 replications was used to assess mediation and estimate the significance level of indirect effects. The following sections display the analyses of mediation Models A-D for the individual mediating effects of distributive, procedural, interpersonal and informational justice in both samples.

Model A: Distributive justice as a mediator

Results for the New Zealand sample are presented first, followed by those for the Thai sample. Model A presents the first mediation sub-model, which examined the mediating effect of distributive justice in the relationships between outcome satisfaction and two forms of CWB (Hypotheses 15a and 15b). Hypotheses that outcome satisfaction would predict distributive justice (Hypothesis 1) and that distributive justice would predict both CWBO and CWBI (Hypotheses 9a and 9b) were also examined in both samples.

New Zealand sample

Before adding distributive justice, outcome satisfaction had a significant direct relationship with CWBO (β = -.22, p < .001) and CWBI (β = -.20, p < .001). After including the mediator (distributive justice), both of the outcome satisfaction → distributive justice and distributive justice → CWBO and CWBI paths were significant (see Figure 6.2). These suggest that the precondition for mediation testing was met. The standardised path coefficients for the full mediation model are presented in Figure 6.2. Outcome satisfaction explained 41% of the variance in distributive justice, while this form of justice explained 1% of

the variance in CWBO and CWBI. Outcome satisfaction was significantly related to distributive justice (β = .64, p < .001), supporting Hypothesis 1. This form of justice was significantly related to both CWBO (β = -.11, p < .01) and CWBI (β = -.10, p < .05), supporting Hypotheses 9a and 9b, in the New Zealand sample.

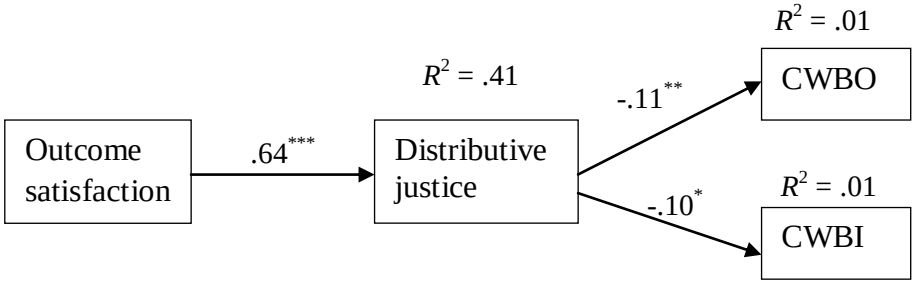

Figure 6.2. Standardised path coefficients for the full mediation Model A in the Time 1 New Zealand sample.
*p < .05. **p < .01. ***p < .001, one-tailed test.

The results (Table 6.4) show that there was a statistical difference in fit statistics between the model without the mediator (Model 1) and the full mediation model (Model 2) ($\Delta\chi^2_{(13)}$ = 207.19, p < .001). Model 2 yielded moderately good fit (e.g. χ^2/df = 2.92, SRMR = .03, RMSEA = .06), whereas the model without the mediator had a poor fit. As the full mediation model provided a good fit, it was accepted.

Table 6.4

Fit indices of Model A in the New Zealand sample at Time 1 (N = 624)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2
Model 1 [a]	245.10	26	9.45	.06	.91	.88	.12	(.10-.13)	$\Delta\chi^2_{(13)}$ = 207.19***
Model 2 [b]	37.91	13	2.92	.03	.98	.99	.06	(.04-.08)	-

Note. [a] model with the direct path from the predictor to the outcome variables excluding the mediator; [b] full mediation model; $\Delta\chi^2$ refers to the chi-square difference between models.
***p < .001.

The bootstrap analysis was conducted to examine the indirect effects for the full mediation Model A, with distributive justice as a mediator (Table 6.5). The results in Table 6.5 indicate that distributive justice significantly mediated the relationships between outcome satisfaction and the two forms of CWB, supporting Hypotheses 15a and 15b.

Table 6.5

Mediation effects of distributive justice in the New Zealand sample at Time 1 (N = 624)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
OS→DJ→CWBO	-.07**	H15a
OS→DJ→CWBI	-.06*	H15b

Note. OS= outcome satisfaction; DJ = distributive justice; CWBO = CWB directed toward the organisation; CWBI = CWB directed toward the individual. $^{*}p < .05$, $^{**}p < .001$.

Thai sample

Model A, distributive justice mediating the relationships between outcome satisfaction and both forms of CWB, was also examined in the Thai sample. Prior to adding distributive justice, the direct relationships between outcome satisfaction and both forms of CWB (β = -.06, *ns* for CWBO; β = -.09, *ns* for CWBI) were not significant. This indicated no direct relationship between outcome satisfaction and both forms of CWB. After adding distributive justice, outcome satisfaction was significantly related to distributive justice (β = .58, p < .001), supporting Hypothesis 1. However, this form of justice had no significant relationship with CWBO (β = -.04, *ns*) and CWBI (β = -.05, *ns*), failing to support Hypotheses 9a and 9b. These suggest no mediation effect.

Due to finding no significant path from the mediator to criterion variables, the bootstrap analysis was not performed. It can be concluded that there was no mediation effect for distributive justice in the Thai sample, failing to support

Hypotheses 15a and 15b, that distributive justice would mediate the relationships between outcome satisfaction and both forms of CWB.

Overall, it can be concluded that a significant mediation effect for distributive justice in the relationships between outcome satisfaction and the two forms of CWB was found in the New Zealand data, but not in the Thai data.

Model B: Procedural justice as a mediator

Figure 6.1 (p.133) shows that procedural justice was expected to be related to only CWBO, not CWBI. The second analysis examined the mediating effect of procedural justice in the relationships between its antecedents (opportunity to voice and four LMX dimensions) and CWBO (Hypotheses 17a and 17b). The main effect hypotheses that opportunity to voice (Hypothesis 2) and four forms of LMX (Hypotheses 6a-d) would predict procedural justice, and that procedural justice would predict CWBO (Hypothesis 11), were also examined.

New Zealand sample

Before including procedural justice (the mediator), only contribution (one out of four LMX dimensions) had a significant direct relationship with CWBO (β = -.28, p < .001). After adding the mediator, both of the predictor → mediator and mediator → criterion path coefficients were significant. The standardised estimates for the full mediation model are shown in Figure 6.3. Opportunity to voice and four LMX dimensions together explained 68% of the variance in procedural justice, while this form of justice explained 1% of the variance in CWBO. Opportunity to voice (β = .66, p < .001) and loyalty (β = .16, p < .01) were significantly related to procedural justice, supporting Hypotheses 2 and 6b respectively. Procedural justice was significantly related to CWBO (β = -.10, p <

.05), supporting Hypothesis 11. Hypotheses 6a, 6c and 6d, that affect, contribution and professional justice would predict procedural justice, were not supported.

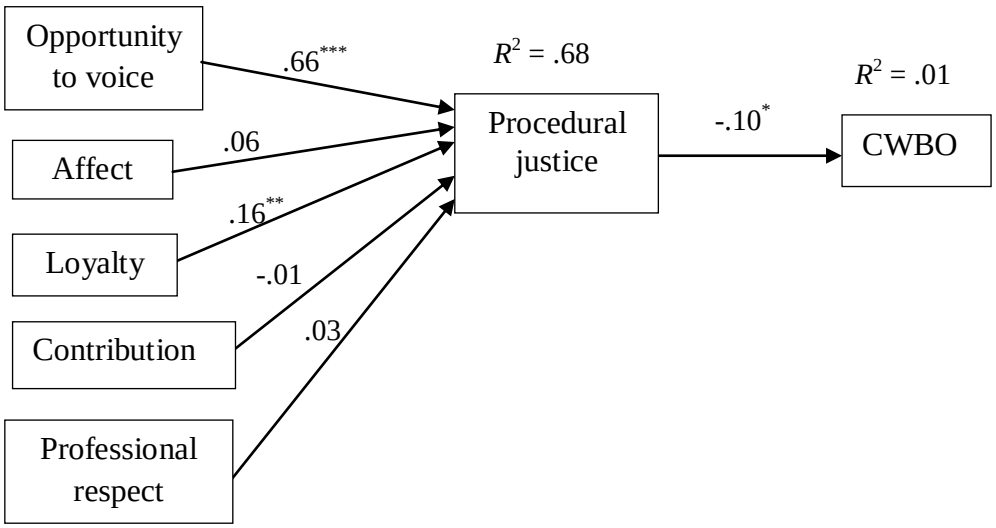

Figure 6.3. Standardised path coefficients for the full mediation Model B in the Time 1 New Zealand sample.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$, one-tailed test.

Models 1 and 2 (Table 6.6) both had a good fit to the data, with a minimal difference in fit statistics. As significant path coefficients from predictors (opportunity to voice and loyalty) to the mediator and from the mediator to the criterion variable were found in Model 2, the full mediation model was accepted.

Table 6.6

Fit indices of Model B in the New Zealand sample at Time 1 (N = 624)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2
Model 1 [a]	249.69	76	3.29	.03	.95	.98	.06	(.05-.07)	$\Delta\chi^2_{(98)} = 335.98^{***}$
Model 2 [b]	605.67	174	3.48	.04	.91	.96	.06	(.06-.07)	-

Note. [a] model with the direct path from the predictors to the outcome variable excluding the mediator; [b] full mediation model; $\Delta\chi^2$ refers to the chi-square difference between models.
$^{***}p < .001$.

The bootstrap analysis was performed to examine the indirect effects of opportunity to voice and loyalty on CWBO. The results in Table 6.7 show that procedural justice significantly mediated the relationships of opportunity to voice

and loyalty with CWBO in the New Zealand sample, supporting Hypotheses 17a and 17b(ii). No support was found for Hypotheses 17b(i, iii and iv), that procedural justice would mediate the relationships between the other three forms of LMX (affect, contribution and professional respect) and CWBO.

Table 6.7

Mediation effects of procedural justice in the New Zealand sample at Time 1 (N = 624)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
Voice→PJ→CWBO	-.06*	H17a
Affect→PJ→CWBO	-.00	H17b(i)
Loyalty→PJ→CWBO	-.01*	H17b(ii)
Contribution→PJ→CWBO	.00	H17b(iii)
Professional respect→PJ→CWBO	-.00	H17b(iv)

Note. Voice = opportunity to voice; PJ = procedural justice; CWBO = CWB directed toward the organisation. *$p < .05$.

Thai sample

Before adding procedural justice, only contribution had a significant direct relationship with CWBO (β = -.34, $p < .01$). The fit statistics of the model without the mediator were satisfactory (e.g. χ^2/df = 2.87, SRMR = .06, CFI = .97, RMSEA = .06). After adding procedural justice, opportunity to voice (β = .68, $p < .001$) and loyalty (β = .15, $p < .05$) were significantly related to procedural justice, supporting Hypotheses 2 and 6b. However, procedural justice was not significantly related to CWBO (β = -.05, *ns*), failing to support Hypothesis 11. This indicated no mediation effect.

Due to the failure to meet the mediation precondition (no significant procedural justice → CWBO path), the bootstrap analysis was not required. It can be concluded that there was no mediating effect for procedural justice, failing to support Hypotheses 17a and 17b(i-iv) in the Thai sample.

Overall, it appears that there was partial support for the mediating role of procedural justice in the antecedents-CWBO relationships in the New Zealand sample, but not in the Thai sample.

Model C: Interpersonal justice as a mediator

In Model C, the mediating effect of interpersonal justice in the relationships between its antecedents (opportunity to voice, LMX and communication quality) and two forms of CWB (Hypotheses 19a-f), was examined in both samples. The main effect hypotheses that opportunity to voice (Hypothesis 3), four LMX dimensions (Hypotheses 4a-d) and communication quality (Hypothesis 8) would predict interpersonal justice, and that interpersonal justice would predict CWBO and CWBI (Hypotheses 13a and 13b), were also examined.

New Zealand sample

Before adding interpersonal justice, contribution had a significant direct relationship with both CWBO (β = -.28, p < .001) and CWBI (β = -.14, p < .01), while affect was significantly positively related to CWBO (β = .19, p < .05) (which was opposite to what was expected). After the mediator inclusion, the predictor → mediator and mediator → criterion path coefficients were significant. Figure 6.4 presents the parameter estimates for the full mediation model. Opportunity to voice, four LMX dimensions and communication quality together explained 67% of the variance in interpersonal justice, while this form of justice explained 2% and 1% of the variance in CWBO and CWBI respectively. Affect (β = .26, p < .001), loyalty (β = .42, p < .001), and communication quality (β = .23, p < .01) were significantly related to interpersonal justice, supporting Hypotheses

4a, 4b and 8. Interpersonal justice was significantly related to CWBO (β = -.13, p < .001) and CWBI (β = -.10, p < .05), supporting Hypotheses 13a and 13b.

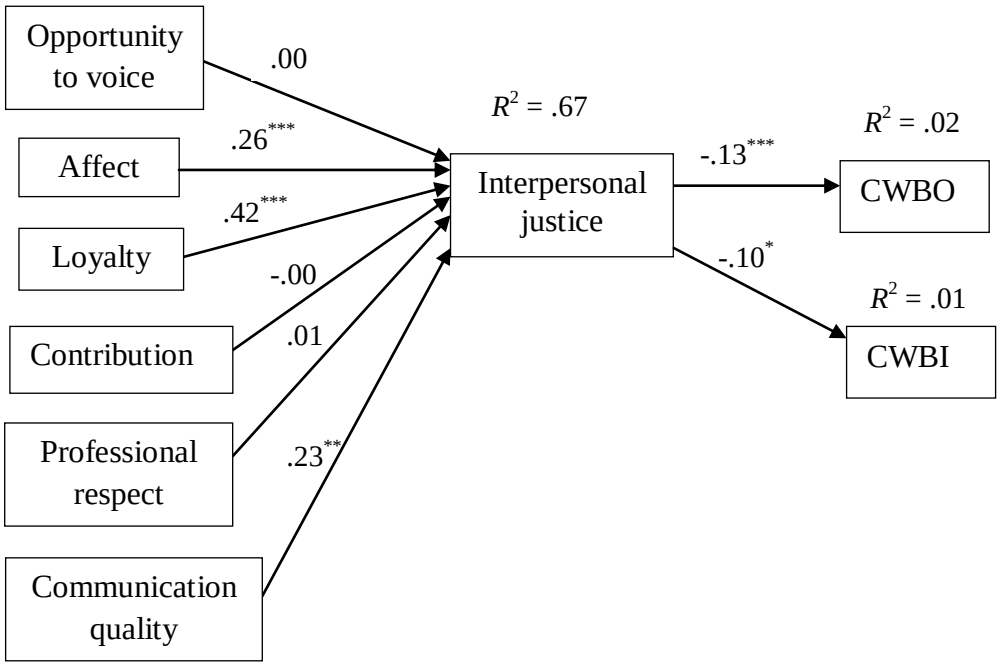

Figure 6.4. Standardised path coefficients for the full mediation Model C in the Time 1 New Zealand sample.

$^{*}p$ < .05. $^{**}p$ < .01. $^{***}p$ < .001, one-tailed test.

The results in Table 6.8 indicate that both the mediation and no-mediation models had a good fit, with a statistical difference in model fit between the two models ($\Delta\chi^2_{(86)}$ = 153.54, p < .001). As the full mediation model (Model 2) had better fit based on the values of χ^2/df and RMSEA, it was adopted.

Table 6.8

Fit indices of Model C in the New Zealand sample at Time 1 (N = 624)

Model	χ^2	df	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2
Model 1 [a]	464.05	144	3.22	.03	.93	.97	.06	(.05-.07)	$\Delta\chi^2_{(86)}$ = 153.54***
Model 2 [b]	617.59	230	2.69	.03	.92	.97	.05	(.05-.06)	-

Note. [a] model with the direct path from the predictors to the outcome variables excluding the mediator; [b] full mediation model; $\Delta\chi^2$ refers to the chi-square difference between models.
$^{***}p$ < .001.

As the precondition for mediation testing was met, the bootstrap analysis was performed to examine the indirect effects of predictors on criterion variables. Six out of twelve mediation paths were significant (Table 6.9).

Table 6.9

Mediation effects of interpersonal justice in the New Zealand sample at Time 1 (N = 624)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
Voice→ITJ→CWBO	.00	H19a
Voice→ITJ→CWBI	.00	H19b
Affect→ITJ→CWBO	-.04**	H19c(i)
Affect→ITJ→CWBI	-.03**	H19d(i)
Loyalty→ITJ→CWBO	-.06**	H19c(ii)
Loyalty→ITJ→CWBI	-.04*	H19d(ii)
Contribution→ITJ→CWBO	.00	H19c(iii)
Contribution→ITJ→CWBI	.00	H19d(iii)
Professional respect→ITJ→CWBO	-.00	H19c(iv)
Professional respect→ITJ→CWBI	-.00	H19d(iv)
Communication→ITJ→CWBO	-.03**	H19e
Communication→ITJ→CWBI	-.02*	H19f

Note. Voice = opportunity to voice; ITJ = interpersonal justice; CWBO = CWB directed toward the organisation; CWBI = CWB directed toward the individual.
*$p < .05$. **$p < .01$.

The results showed that interpersonal justice significantly mediated the relationships of affect, loyalty and communication quality with the two forms of CWB. These findings were supportive of Hypotheses 19c(i and ii), 19d(i and ii), 19e and 19f, in the New Zealand sample (see Table 6.9).

Thai sample

Prior to the inclusion of interpersonal justice, only contribution had a significant direct relationship with both CWBO (β = -.35, $p < .01$) and CWBI (β = -.25, $p < .05$), while other predictors (opportunity to voice, affect, loyalty, professional respect and communication quality) had no significant direct relationships with both forms of CWB. After adding the mediator (interpersonal

justice), significant paths from predictors to the mediator and from the mediator to the criterion variables were observed (see Figure 6.5).

The parameter estimates for the full mediation model in the Thai sample are presented in Figure 6.5. Opportunity to voice, four LMX dimensions and communication quality together explained 49% of the variance in interpersonal justice, while this form of justice explained 6% and 9% of the variance in CWBO and CWBI respectively. Opportunity to voice (β = .29, p < .001), affect (β = .19, p < .05), loyalty (β = .16, p < .05), and professional respect (β = .17, p < .05) had significant positive relationships with interpersonal justice, supporting Hypotheses 3, 4a, 4b and 4d. However, contribution and communication quality had no significant relationships with interpersonal justice, failing to support Hypotheses 4c and 8. Interpersonal justice was significantly related to both CWBO (β = -.25, p < .001) and CWBI (β = -.31, p < .001), supporting Hypotheses 13a and 13b.

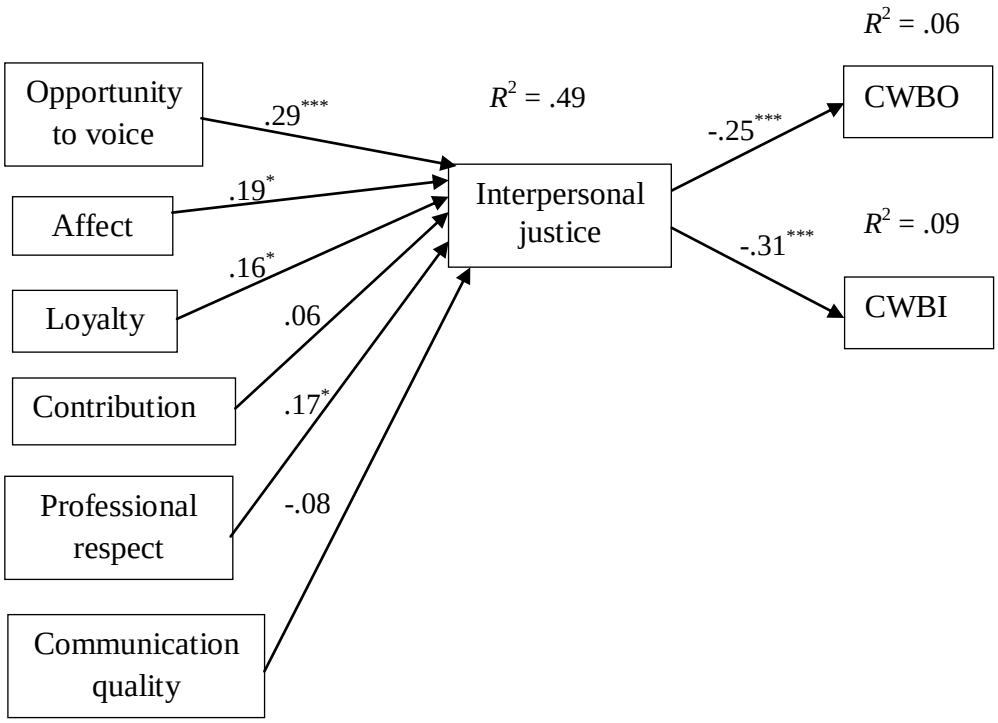

Figure 6.5. Standardised path coefficients for the full mediation Model C in the Time 1 Thai sample.

*p < .05. ***p < .001, one-tailed test.

The results (in Table 6.10) yielded a good fit for the two models with a significant difference in fit statistics ($\Delta\chi^2_{(86)} = 191$, $p < .001$). Based on the value of χ^2/df, the full mediation model (Model 2) had a slightly better fit compared to the model without the mediator (Model 1). Thus, Model 2 was adopted.

Table 6.10

Fit indices of Model C in the Thai sample at Time 1 (N = 480)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2
Model 1 [a]	375.30	144	2.61	.04	.93	.97	.06	(.05-.07)	$\Delta\chi^2_{(86)} = 191.00^{***}$
Model 2 [b]	566.30	230	2.46	.04	.92	.96	.05	(.05-.06)	-

Note. [a] model with the direct path from the predictors to the outcome variables excluding the mediator; [b] full mediation model; $\Delta\chi^2$ refers to the chi-square difference between models.
$^{***}p < .001$.

The bootstrap analysis showed that six out of twelve mediation paths were significant (Table 6.11). Interpersonal justice significantly mediated the relationships of opportunity to voice, affect and loyalty with the two forms of CWB, supporting Hypotheses 19a, 19b, 19c(i and ii), and 19d(i and ii).

Table 6.11

Mediation effects of interpersonal justice in the Thai sample at Time 1 (N = 480)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
Voice→ITJ→CWBO	$-.07^{**}$	H19a
Voice→ITJ→CWBI	$-.09^{**}$	H19b
Affect→ITJ→CWBO	$-.05^{*}$	H19c(i)
Affect→ITJ→CWBI	$-.06^{*}$	H19d(i)
Loyalty→ITJ→CWBO	$-.05^{*}$	H19c(ii)
Loyalty→ITJ→CWBI	$-.04^{*}$	H19d(ii)
Contribution→ITJ→CWBO	-.02	H19c(iii)
Contribution→ITJ→CWBI	-.02	H19d(iii)
Professional respect→ITJ→CWBO	-.04	H19c(iv)
Professional respect→ITJ→CWBI	-.03	H19d(iv)
Communication→ITJ→CWBO	.02	H19e
Communication→ITJ→CWBI	.02	H19f

Note. Voice = opportunity to voice; ITJ = interpersonal justice; CWBO = CWB directed toward the organisation; CWBI = CWB directed toward the individual.
$^{*}p < .05$. $^{**}p < .01$.

Contribution, professional respect and communication quality had no significant indirect effects on both forms of CWB in the Thai sample (see Table 6.11), failing to support Hypotheses 19c(iii and iv), 19d(iii and iv), 19e, and 19f.

To conclude, the full mediation model was found for interpersonal justice in both samples. Interpersonal justice consistently mediated the relationships between two LMX dimensions (affect and loyalty) and both forms of CWB in both samples. This form of justice had a significant mediating role in the relationships between opportunity to voice and the two forms of CWB only in the Thai data, while the mediating effects of interpersonal justice in the relationships between communication quality and the two forms of CWB were observed only in the New Zealand data.

Model D: Informational justice as a mediator

In Model D, the mediating role of informational justice in the relationships between its antecedents (four LMX dimensions and communication quality) and both forms of CWB (Hypotheses 21a-d) was explored in both samples. The main effect hypotheses, that four LMX dimensions (Hypotheses 5a-d) and communication quality (Hypothesis 7) would predict informational justice, and that informational justice would predict CWBO and CWBI (Hypotheses 13c and 13d), were also examined.

New Zealand sample

Prior to adding informational justice, the direct relationships between contribution and both forms of CWB were significant (β = -.28, p < .001 for CWBO; β = -.14, p < .01 for CWBI). Communication quality also had a significant negative direct relationship with CWBO (β = -.11, p < .05), while affect had a positive direct relationship with CWBO (β = .19, p < .05) (opposite to

what was expected). After including the mediator (informational justice), both of the predictor → mediator and mediator → criterion path coefficients were significant (see Figure 6.6).

Figure 6.6 presents the parameter estimates for the full mediation model in the New Zealand sample. Five antecedents (four LMX dimensions and communication quality) together explained 71% of the variance in informational justice, while this form of justice explained 2% of the variance in CWBO and 1% of that in CWBI. Three dimensions of LMX: affect (β = .11, p < .05), loyalty (β = .27, p < .001) and professional respect (β = .17, p < .001), and communication quality (β = .47, p < .001) were significantly related to informational justice, supporting Hypotheses 5a, 5b, 5d and 7. This form of justice was significantly related to CWBO (β = -.12, p < .01) and CWBI (β = -.10, p < .05), supporting Hypotheses 13c and 13d.

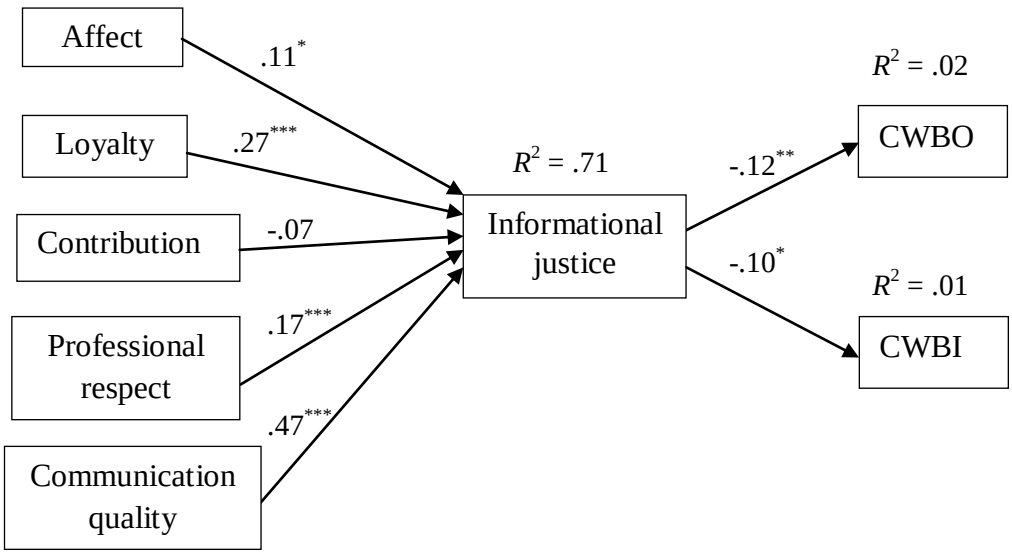

Figure 6.6. Standardised path coefficients for the full mediation Model D in the Time 1 New Zealand sample.

*p < .05. **p < .01. ***p < .001, one-tailed test.

Models 1 and 2 (in Table 6.12) both had a good fit, with the full mediation model (Model 2) having a slightly better fit based on the value of χ^2/df. Thus, the full mediation model was accepted.

Table 6.12

Fit indices of Model D in the New Zealand sample at Time 1 (N = 624)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2
Model 1 [a]	305.82	100	3.06	.03	.95	.98	.06	(.05-.07)	$\Delta\chi^2_{(93)} = 269.21^{***}$
Model 2 [b]	575.03	193	2.97	.04	.92	.97	.06	(.05-.06)	-

Note. [a] model with the direct path from the predictors to the outcome variables excluding the mediator; [b] full mediation model; $\Delta\chi^2$ refers to the chi-square difference between models.
$^{***}p < .001$.

To test the specific mediation effects of informational justice in the relationships between predictors and criterion variables, the bootstrap analysis was conducted to examine the indirect effect statistics. Eight out of ten mediation paths for informational justice were significant (Table 6.13).

Table 6.13

Mediation effects of informational justice in the New Zealand sample at Time 1 (N = 624)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
Communication→IFJ→CWBO	$-.06^{**}$	H21a
Communication→IFJ→CWBI	$-.05^{*}$	H21b
Affect→IFJ→CWBO	$-.01^{*}$	H21c(i)
Affect→IFJ→CWBI	$-.01^{*}$	H21d(i)
Loyalty→IFJ→CWBO	$-.03^{**}$	H21c(ii)
Loyalty→IFJ→CWBI	$-.03^{**}$	H21d(ii)
Contribution→IFJ→CWBO	.00	H21c(iii)
Contribution→IFJ→CWBI	.00	H21d(iii)
Professional respect→IFJ→CWBO	$-.02^{**}$	H21c(iv)
Professional respect→IFJ→CWBI	$-.02^{**}$	H21d(iv)

Note. IFJ = informational justice; CWBO = CWB directed toward the organisation; CWBI = CWB directed toward the individual. $^{*}p < .05$. $^{**}p < .01$.

Informational justice significantly mediated the relationships between communication quality and both forms of CWB, and between three LMX dimensions (affect, loyalty and professional respect) and both forms of CWB. Hypotheses 21a, 21b, 21c(i, ii and iv) and 21d(i, ii and iv) were supported in the New Zealand sample. Informational justice, however, had no significant mediation effect in the relationships between contribution and the two forms of CWB, failing to support Hypotheses 21c(iii) and 21d(iii).

Thai sample

Before including informational justice, only contribution had a significant direct relationship with CWBO (β = -.33, p < .05), while other predictors (affect, loyalty, professional respect and communication quality) had no significant direct relationships with the two forms of CWB. After the inclusion of informational justice, significant paths from predictors to the mediator and from the mediator to the criterion variables were observed (see Figure 6.7).

The parameter estimates for the full mediation model are presented in Figure 6.7. Five antecedents (four forms of LMX and communication quality) together explained 55% of the variance in informational justice, while this form of justice explained 4% of the variance in CWBO and 6% of that in CWBI. Three dimensions of LMX: affect (β = .20, p < .05), loyalty (β = .24, p < .001) and professional respect (β = .29, p < .001), and communication quality (β = .18, p < .01) were significantly related to informational justice, supporting Hypotheses 5a, 5b, 5d and 7. Informational justice was significantly related to both CWBO (β = -.19, p < .001) and CWBI (β = -.24, p < .001). These results were supportive of Hypotheses 13c and 13d.

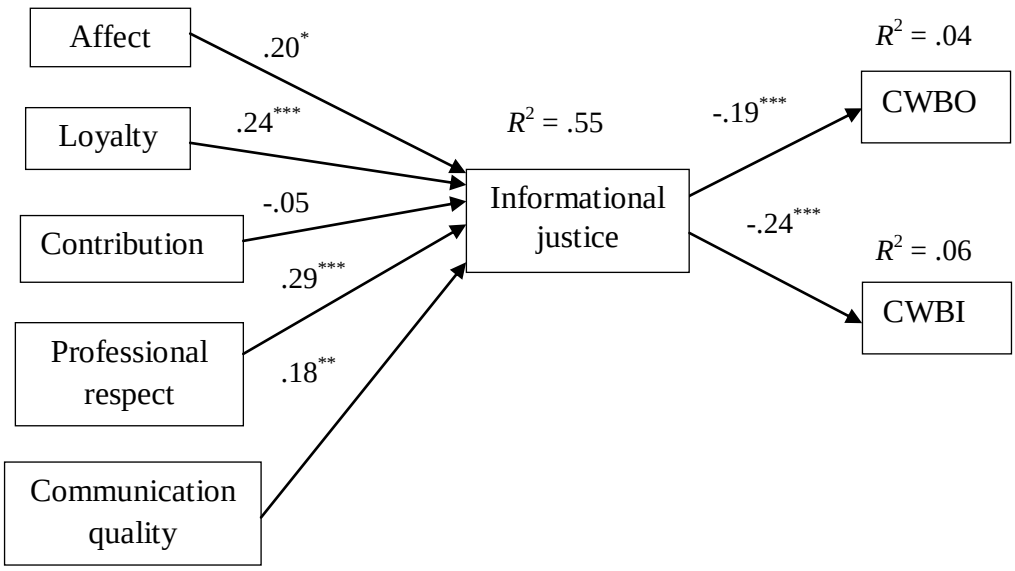

Figure 6.7. Standardised path coefficients for the full mediation Model D in the Time 1 Thai sample.

$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$, one-tailed test.

The two models in Table 6.14 both fitted well to the observed data. There was a significant difference between the model without the mediator (Model 1) and the full mediation model (Model 2), with the latter having a better fit based on the values of χ^2/df and RMSEA. Thus, the full mediation model was accepted.

Table 6.14

Fit indices of Model D in the Thai sample at Time 1 (N = 480)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2
Model 1 [a]	283.64	100	2.84	.03	.94	.97	.06	(.05-.07)	$\Delta\chi^2_{(93)} = 140.63^{***}$
Model 2 [b]	424.27	193	2.20	.03	.93	.97	.05	(.04-.06)	-

Note. [a] model with the direct path from the predictors to the outcome variables excluding the mediator; [b] full mediation model; $\Delta\chi^2$ refers to the chi-square difference between models.
$^{***}p < .001$.

The bootstrap analysis was conducted to test the indirect effect statistics. Eight out of ten mediation paths for informational justice were significant (Table 6.15). Significant mediating effects of informational justice were found in the

relationships of three LMX dimensions (affect, loyalty and professional respect) and communication quality with the two forms of CWB. Support was found for Hypotheses 21a, 21b, 21c(i, ii and iv) and 21d(i, ii and iv) in the Thai sample.

Table 6.15

Mediation effects of informational justice in the Thai sample at Time 1 (N = 480)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
Communication→IFJ→CWBO	-.03**	H21a
Communication→IFJ→CWBI	-.04**	H21b
Affect→IFJ→CWBO	-.04*	H21c(i)
Affect→IFJ→CWBI	-.05*	H21d(i)
Loyalty→IFJ→CWBO	-.05**	H21c(ii)
Loyalty→IFJ→CWBI	-.06**	H21d(ii)
Contribution→IFJ→CWBO	.01	H21c(iii)
Contribution→IFJ→CWBI	.01	H21d(iii)
Professional respect→IFJ→CWBO	-.06**	H21c(iv)
Professional respect→IFJ→CWBI	-.07**	H21d(iv)

Note. IFJ = informational justice; CWBO = CWB directed toward the organisation; CWBI = CWB directed toward the individual. $^{*}p < .05$. $^{**}p < .01$.

Overall, the New Zealand and Thai data yielded consistency in the findings for Model D. The full mediation model was found for informational justice in both samples. Informational justice was a significant mediator of the relationships between communication quality and both forms of CWB, and between three LMX dimensions (affect, loyalty and professional respect) and both forms of CWB in both samples.

Summary of the mediation results

The full mediation model was supported for Models A-D in the New Zealand sample but only for Models C and D in the Thai sample (Table 6.16). The mediating effects of interpersonal and informational justice in the antecedents-CWB relationships were observed in both samples, whereas the mediating effects

of distributive and procedural justice were found only in the New Zealand sample. No partial mediation effect was found in both samples.

Table 6.16

Significant full mediation effects of four justice components in both samples at Time 1

Four forms of justice	New Zealand	Thai
Distributive justice (Model A)	√	-
Procedural justice (Model B)	√	-
Interpersonal justice (Model C)	√	√
Informational justice (Model D)	√	√

B. Moderation testing

This section reports analyses examining the moderating effects of individual differences (agreeableness, conscientiousness, lack of self-control, collectivism and power distance) in the relationships between justice perceptions and both forms of CWB (see Figure 6.8). The direct relationships of those individual differences with justice perceptions and CWB were also explored in the following analyses.

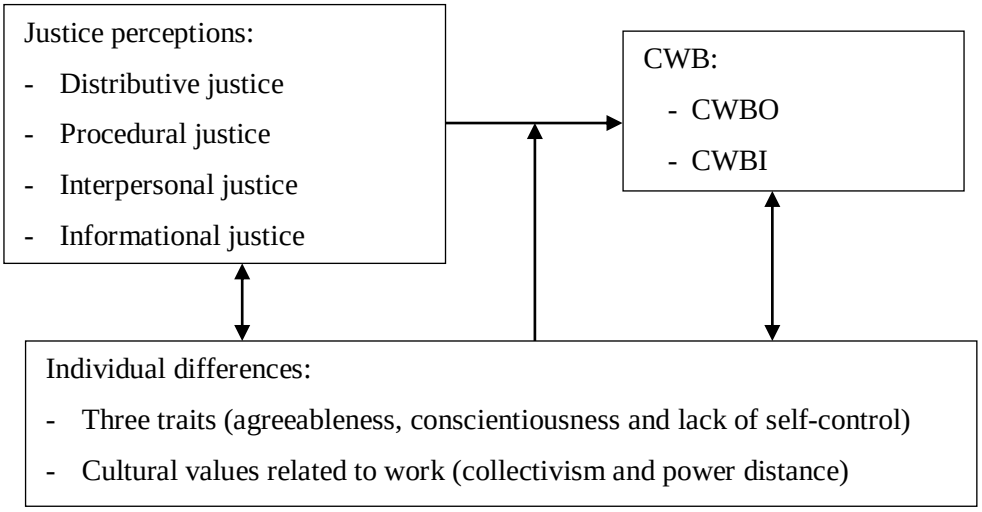

Figure 6.8. Model for moderated effect relationships.

Note. CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.

The predictors and moderators were mean-centred before computing the interaction product terms (Aiken & West, 1991). Five-step hierarchical regressions were employed. In Step 1, five demographic variables were entered as control variables, followed by justice perceptions. Following previous justice research, which found empirical support for interactions among justice dimensions (e.g. Colquitt et al., 2006), interactions among the four forms of justice perceptions were entered in Step 3 to control their interactive effects. The last two steps entered individual differences and the two-way interactions between justice perceptions and individual differences. The *F* change value was assessed to examine the contribution of interaction effects when the product terms were entered into the equation (Jaccard & Turrisi, 2003). If the *F* change was significant, the significant interactions were plotted and the simple slopes tests with maximum and minimum observed values of the moderator (Preacher, Curran, & Bauer, 2006) were performed to examine the interaction effects.

Other than using one standard deviation above and below the mean, there are other specific meaningful values of the moderator (Cohen, Cohen, West, & Aiken, 2003). As noted by Grace and Bollen (2005), the observed value range of a variable provides a more meaningful basis for standardised estimates than the sample standard deviations. More extreme values of the moderator (maximum and minimum observed values) may provide more statistical power to detect the moderation effect. Thus, the maximum and minimum observed values of the moderator (Preacher et al., 2006) were used as the conditional values for testing the moderation effects.

The direct relationships between personality traits (two factors of agreeableness and conscientiousness, and lack of self-control) and four forms of justice perceptions are explored first, followed by moderation analyses.

Direct relationships between personality traits and justice perceptions

This section involves separate regression analyses for four forms of justice perceptions. The direct relationships of personality traits with perceived justice were examined by using hierarchical regression analyses (Tables 6.17-6.20). In Step 1, all five demographic variables (age, gender, education, organisational and job tenure) were entered as control variables, followed by two factors of agreeableness (agreeableness and disagreeableness), two factors of conscientiousness (conscientiousness and negligence) and lack of self-control.

Analysis 1: The direct relationships between personality traits and distributive justice

Table 6.17 displays the direct relationships of five personality traits with distributive justice in both samples. The regression results showed that those personality traits together explained 3% and 6% of the variance in distributive justice in the New Zealand and Thai samples, respectively.

Table 6.17

Hierarchical regression analysis for personality traits predicting distributive justice in the New Zealand and Thai samples at Time 1

Predictors	NZ sample (N = 624)				Thai sample (N = 480)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.03	.03	3.63**		.03	.03	2.14	
Gender				-0.02				-0.05
Age				-0.10*				-0.11
Education				0.13**				0.11*
Organisational tenure				0.01				0.03
Job tenure				-0.04				0.00
Step 2	.06	.03	3.40**		.09	.06	5.10***	
Agreeableness				0.01				0.26*
Disagreeableness				-0.13*				0.09
Conscientiousness				-0.11*				-0.16**
Negligence				-0.05				0.09
Lack of self-control				0.08				-0.08

Note. NZ = New Zealand. *p < .05. **p < .01. ***p < .001 (one-tailed).

After controlling for demographic differences, disagreeableness (the negative factor of agreeableness) significantly negatively predicted distributive justice (β = -.13) in the New Zealand sample, while agreeableness significantly positively predicted distributive justice (β = .26) in the Thai sample. These results were supportive of Hypothesis 23a. Conscientiousness significantly negatively predicted distributive justice in both New Zealand (β = -.11) and Thai (β = -.16) samples, supporting Hypothesis 25a. However, lack of self-control had no significant relationship with distributive justice in both samples, failing to support Hypothesis 27a.

Analysis 2: The direct relationships between personality traits and procedural justice

Table 6.18 shows the regression analyses of five personality traits on procedural justice in both samples. Those personality traits together explained 2% and 12% of the variance in procedural justice in the New Zealand and Thai samples, respectively. Disagreeableness (the negative factor of agreeableness) significantly negatively predicted procedural justice (β = -.12) in the New Zealand sample, while agreeableness significantly positively predicted this justice (β = .33) in the Thai sample. These results were supportive of Hypothesis 23b.

However, conscientiousness (β = -.21), negligence (the negative factor of conscientiousness) (β = .19), and lack of self-control (β = -.20) significantly predicted procedural justice only in the Thai sample, supporting Hypotheses 25b and 27b.

Table 6.18

Hierarchical regression analysis for personality traits predicting procedural justice in the New Zealand and Thai samples at Time 1

Predictors	NZ sample (N = 624)				Thai sample (N = 480)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.05	.05	5.57***		.06	.06	5.05***	
Gender				-0.02				-0.11*
Age				-0.11*				-0.19*
Education				0.17***				0.15**
Organisational tenure				0.02				0.03
Job tenure				-0.06				0.07
Step 2	.07	.02	2.30*		.18	.12	11.91***	
Agreeableness				-0.06				0.33***
Disagreeableness				-0.12*				0.06
Conscientiousness				-0.07				-0.21**
Negligence				-0.02				0.19**
Lack of self-control				0.09				-0.20**

Note. NZ = New Zealand. *p < .05. **p < .01. ***p < .001 (one-tailed).

Analysis 3: The direct relationships between personality traits and interpersonal justice

Table 6.19 presents the regression analyses of five personality traits on interpersonal justice in both samples. Those personality traits together explained 2% and 7% of the variance in interpersonal justice in the New Zealand and Thai samples, respectively. Disagreeableness (the negative factor of agreeableness) significantly negatively predicted interpersonal justice (β = -.11) in the New Zealand sample, while agreeableness significantly positively predicted this justice (β = .24) in the Thai sample. There results were supportive of Hypothesis 23c. However, Hypotheses 25c and 27c, that conscientiousness and lack of self-control would predict interpersonal justice, were not supported in both samples.

Table 6.19

Hierarchical regression analysis for personality traits predicting interpersonal justice in the New Zealand and Thai samples at Time 1

Predictors	NZ sample (N = 624)				Thai sample (N = 480)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.02	.02	2.58*		.03	.03	2.66*	
Gender				-0.04				-0.03
Age				-0.06				-0.25**
Education				0.12**				0.06
Organisational tenure				0.09				0.05
Job tenure				-0.08				0.14
Step 2	.03	.02	1.31		.10	.07	6.19***	
Agreeableness				-0.05				0.24***
Disagreeableness				-0.11*				-0.02
Conscientiousness				-0.02				-0.02
Negligence				-0.05				-0.04
Lack of self-control				-0.01				-0.04

Note. NZ = New Zealand. *p < .05. **p < .01. ***p < .001 (one-tailed).

Analysis 4: The direct relationships between personality traits and informational justice

The regression analyses in Table 6.20 show the direct relationships of five personality traits with informational justice in both samples. Those personality traits together explained 2% and 7% of the variance in informative justice in the New Zealand and Thai samples, respectively. Disagreeableness (the negative factor of agreeableness) significantly negatively predicted informational justice (β = -.11) in the New Zealand sample, while agreeableness significantly positively predicted this justice (β = .28) in the Thai sample. These results were supportive of Hypothesis 23d. However, negligence (the negative factor of conscientiousness) significantly predicted informational justice (β = .11) only in the New Zealand sample, supporting Hypothesis 25d.

Table 6.20

Hierarchical regression analysis for personality traits predicting informational justice in the New Zealand and Thai samples at Time 1

Predictors	NZ sample (N = 624)				Thai sample (N = 480)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.02	.02	1.86		.03	.03	2.18	
Gender				-0.01				-0.04
Age				-0.09				-0.21**
Education				0.09*				-0.02
Organisational tenure				0.07				-0.05
Job tenure				-0.06				0.13
Step 2	.03	.02	1.95		.10	.07	6.03***	
Agreeableness				-0.03				0.28***
Disagreeableness				-0.11*				-0.00
Conscientiousness				0.02				-0.07
Negligence				0.11*				-0.02
Lack of self-control				0.01				-0.02

Note. NZ = New Zealand. *p < .05. **p < .01. ***p < .001 (one-tailed).

Overall, disagreeableness was a significant predictor of the four forms of justice perceptions in the New Zealand sample, whereas agreeableness predicted the four forms of perceived justice in the Thai sample. Conscientiousness significantly predicted distributive justice in both samples. Negligence predicted informational justice only in the New Zealand sample, while both factors of conscientiousness and lack of self-control significantly predicted procedural justice only in the Thai sample.

Individual differences as moderators of the perceived justice-CWB relationships

The following analyses examine the direct relationships between individual differences and both forms of CWB (Hypotheses 29, 31, 33, 35 and 37a, b) and the moderating effects of agreeableness (Hypotheses 39a-g), conscientiousness (Hypotheses 41a-g), lack of self-control (Hypotheses 43a-g), collectivism (Hypotheses 45a-g) and power distance (Hypotheses 47a-g) in the relationships between perceived justice and CWB in both samples. The five-step

hierarchical regressions used to test those hypotheses are shown in Tables 6.21 (for CWBO) and 6.22 (for CWBI). If the *F* change value was significant when the product terms were entered, the simple slopes test was employed to examine significant interactions.

Predicting CWBO

The results in Table 6.21 show that disagreeableness (the negative factor of agreeableness) (β = .17 in the New Zealand sample and β = .23 in the Thai sample), negligence (the negative factor of conscientiousness) (β =.15 in both samples), and lack of self-control (β = .14 in the New Zealand sample and β = .10 in the Thai sample) consistently predicted CWBO across both samples, supporting Hypotheses 29a, 31a and 33a, respectively.

Table 6.21

Hierarchical regression analysis of CWBO on justice perceptions and individual differences at Time 1

Predictors	NZ sample (*N* = 624)				Thai sample (*N* = 480)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.07	.07	9.19***		.09	.09	7.42***	
Gender				-0.06				-0.21***
Age				-0.25***				0.14
Education				-0.12**				0.07
Organisational tenure				0.11				-0.04
Job tenure				-0.04				-0.21*
Step 2	.10	.03	4.77**		.16	.07	8.09***	
PJ				0.13				0.10
DJ				-0.12*				0.07
ITJ				-0.14*				-0.32***
IFJ				-0.05				-0.01
Step 3	.12	.02	1.82		.17	.02	1.49	
PJ×DJ				0.09				-0.13
PJ×ITJ				0.05				0.15
PJ×IFJ				-0.07				-0.05
DJ×ITJ				-0.00				-0.19
DJ×IFJ				-0.07				0.16
ITJ×IFJ				-0.11				0.03

Table 6.21 (Continued)

Predictors	NZ sample (N = 624)				Thai sample (N = 480)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 4	.25	.13	13.90***		.40	.23	20.45***	
AGREE				0.03				-0.07
DISAGREE				0.17***				0.23***
CONS				-0.12**				0.04
NEG				0.15**				0.15**
LSC				0.14**				0.10*
COL				-0.01				-0.17**
PD				0.03				0.06
Step 5	.28	.03	0.89		.49	.09	2.34***	
PJ×AGREE				-0.01				-0.05
PJ×DISAGREE				0.11				-0.04
PJ×CONS				0.02				0.12
PJ×NEG				-0.04				0.09
PJ×LSC				0.04				-0.16
PJ×COL				0.10				-0.03
PJ×PD				-0.07				-0.01
DJ×AGREE				-0.01				-0.10
DJ×DISAGREE				-0.06				0.08
DJ×CONS				-0.07				-0.04
DJ×NEG				-0.00				-0.07
DJ×LSC				-0.04				0.14
DJ×COL				-0.08				0.12
DJ×PD				0.07				0.03
ITJ×AGREE				0.05				0.18
ITJ×DISAGREE				-0.12				0.03
ITJ×CONS				0.02				0.13
ITJ×NEG				0.01				-0.04
ITJ×LSC				0.01				-0.08
ITJ×COL				-0.04				0.05
ITJ×PD				-0.07				0.15
IFJ×AGREE				0.02				-0.11
IFJ×DISAGREE				0.03				-0.03
IFJ×CONS				0.09				-0.16
IFJ×NEG				0.13				0.05
IFJ×LSC				-0.03				-0.10
IFJ×COL				-0.00				0.09
IFJ×PD				0.08				-0.21*
Total R^2	.28				.49			

Note. NZ = New Zealand; PJ = procedural justice; DJ = distributive justice; ITJ = interpersonal justice; IFJ = informational justice; AGREE = agreeableness; DISAGREE = disagreeableness; CONS = conscientiousness; NEG = negligence; LSC = lack of self-control; COL = collectivism; PD = power distance. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$ (one-tailed).

However, conscientiousness significantly predicted CWBO (β = -.12) only in the New Zealand sample, supporting Hypothesis 31a. Collectivism (β = -.17) significantly predicted CWBO only in the Thai data, supporting Hypothesis 35a.

The two-way interactions between justice perceptions and individual differences on CWBO are presented in Table 6.21. The *F* change value in Step 5 was not significant and no significant interactions were found in the New Zealand sample. One out of twenty-eight interaction terms and the *F* change value were significant in the Thai sample. The significant informational justice × power distance interaction was plotted for the Thai sample (Figure 6.9).

The simple slopes test (Figure 6.9) revealed a significant positive relationship between informational justice and CWBO among those low in power distance (t = 2.17, p < .05), which was opposite to what was expected, while the relationship was not significant when levels of power distance were high (t = -1.88, *ns*). Hence, Hypothesis 47f, that power distance would moderate the informational justice-CWBO relationship, with a stronger negative effect among those low in power distance, was not supported in the Thai sample.

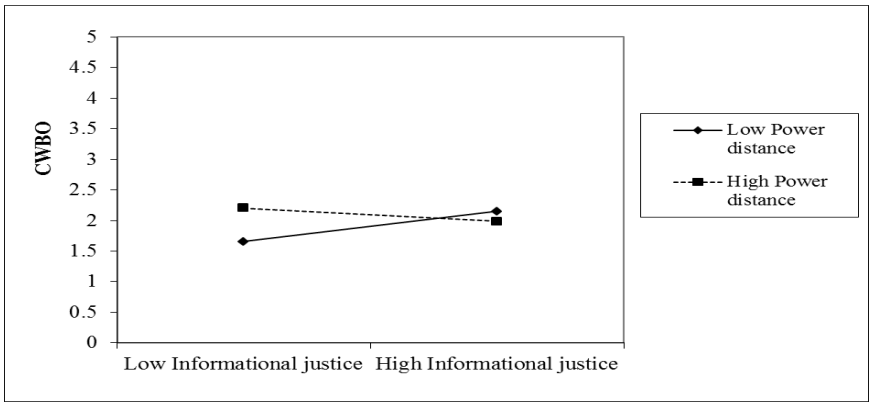

Figure 6.9. Informational justice × power distance for CWBO in Thailand at Time 1.

Overall, none of interaction terms for predicting CWBO was found in the expected direction in both samples.

Predicting CWBI

The results in Table 6.22 show that disagreeableness (the negative factor of agreeableness) consistently predicted CWBI in both samples (β = .17 in New Zealand and β = .21 in Thailand), supporting Hypotheses 29b, However, negligence (the negative factor of conscientiousness) (β = .13), lack of self-control (β = .11) and collectivism (β = -.20) predicted CWBI only in the Thai sample. These results were supportive of Hypotheses 31b, 33b and 35b in the Thai sample. Power distance had no significant relationship with CWBI in both samples, failing to support Hypothesis 37b.

Table 6.22

Hierarchical regression analysis of CWBI on justice perceptions and individual differences at Time 1

Predictors	NZ sample (N = 624)				Thai sample (N = 480)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.08	.08	10.17***		.07	.07	6.03***	
Gender				-0.20***				-0.20***
Age				-0.16**				0.18*
Education				-0.14**				0.02
Organisational tenure				0.07				-0.03
Job tenure				0.03				-0.20*
Step 2	.09	.01	1.65		.18	.11	13.02***	
PJ				0.04				0.06
DJ				-0.06				0.14*
ITJ				-0.08				-0.39***
IFJ				-0.02				-0.02
Step 3	.11	.02	1.70		.20	.02	1.82	
PJ×DJ				0.04				-0.04
PJ×ITJ				-0.05				0.13
PJ×IFJ				-0.07				0.00
DJ×ITJ				-0.04				-0.17
DJ×IFJ				0.05				0.05
ITJ×IFJ				-0.07				0.09

Table 6.22 (Continued)

Predictors	NZ sample (N = 624)				Thai sample (N = 480)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 4	.21	.10	10.28***		.42	.22	19.98***	
AGREE				-0.07				-0.06
DISAGREE				0.17**				0.21***
CONS				-0.08				0.01
NEG				0.09				0.13*
LSC				0.09				0.11*
COL				-0.04				-0.20***
PD				0.09				0.05
Step 5	.27	.06	1.58*		.52	.11	2.85***	
PJ×AGREE				0.17				-0.06
PJ×DISAGREE				0.18*				-0.03
PJ×CONS				-0.15				0.06
PJ×NEG				-0.12				0.11
PJ×LSC				0.02				-0.17
PJ×COL				0.13				0.04
PJ×PD				0.01				0.01
DJ×AGREE				-0.12				-0.08
DJ×DISAGREE				-0.11				0.09
DJ×CONS				0.07				-0.02
DJ×NEG				0.08				-0.06
DJ×LSC				-0.06				0.12
DJ×COL				-0.07				0.03
DJ×PD				-0.02				0.02
ITJ×AGREE				-0.06				0.26**
ITJ×DISAGREE				-0.21**				0.08
ITJ×CONS				0.14				0.11
ITJ×NEG				-0.05				-0.02
ITJ×LSC				0.11				-0.11
ITJ×COL				-0.07				0.04
ITJ×PD				-0.17**				0.17
IFJ×AGREE				0.04				-0.25**
IFJ×DISAGREE				0.07				-0.19
IFJ×CONS				-0.04				-0.07
IFJ×NEG				0.13				0.03
IFJ×LSC				-0.06				-0.02
IFJ×COL				-0.02				0.05
IFJ×PD				0.13*				-0.19
Total R^2	.27				.46			

Note. NZ = New Zealand; PJ = procedural justice; DJ = distributive justice; ITJ = interpersonal justice; IFJ = informational justice; AGREE = agreeableness; DISAGREE = disagreeableness; CONS = conscientiousness; NEG = negligence; LSC = lack of self-control; COL = collectivism; PD = power distance. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$ (one-tailed).

In Table 6.22, the F change values in Step 5 were significant in both samples. Four out of twenty-eight interaction terms were significant in the New Zealand sample (procedural justice × disagreeableness, interpersonal justice × disagreeableness, interpersonal justice × power distance and informational justice

× power distance), whereas only two significant interactions in the Thai sample (interpersonal justice × agreeableness and informational justice × agreeableness) were found. These significant interactions were plotted and examined using the simple slopes test.

Even though the procedural justice × disagreeableness interaction for CWBI was significant (β = .18, p < .05), this interaction was not hypothesised (procedural justice was expected to predict only CWBO, but not CWBI). The simple slopes test (Figure 6.10) revealed a significant positive relationship between procedural justice and CWBI among those high in disagreeableness (t = 2.05, p < .05) (in contrast to the expected direction), while no significant relationship between the two variables was found among those low in disagreeableness (t = -1.54, *ns*) in the New Zealand sample.

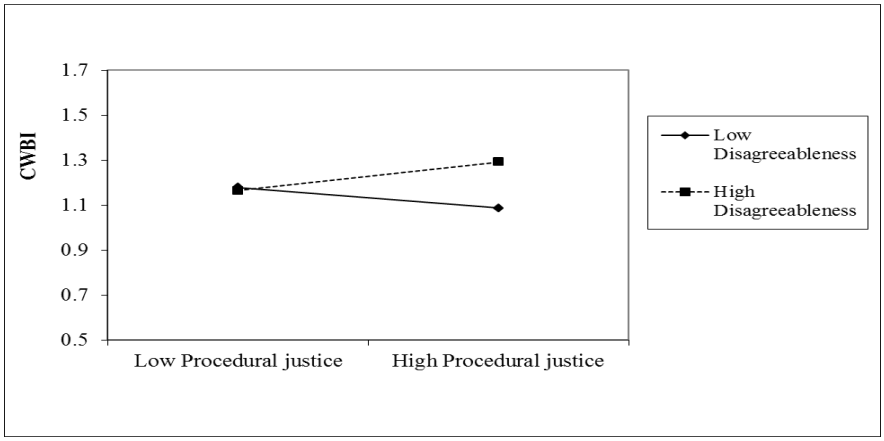

Figure 6.10. Procedural justice × disagreeableness for CWBI in New Zealand at Time 1.

Consistent with Hypothesis 39e predicting that agreeableness would moderate the interpersonal justice-CWBI relationship, a significant negative relationship between interpersonal justice and CWBI was found with a strong effect among those New Zealand respondents who scored high on disagreeableness (the negative factor of agreeableness) (t = -2.93, p < .01) (Figure

6.11). The trend was not significant when levels of disagreeableness were low (t = 0.63, *ns*).

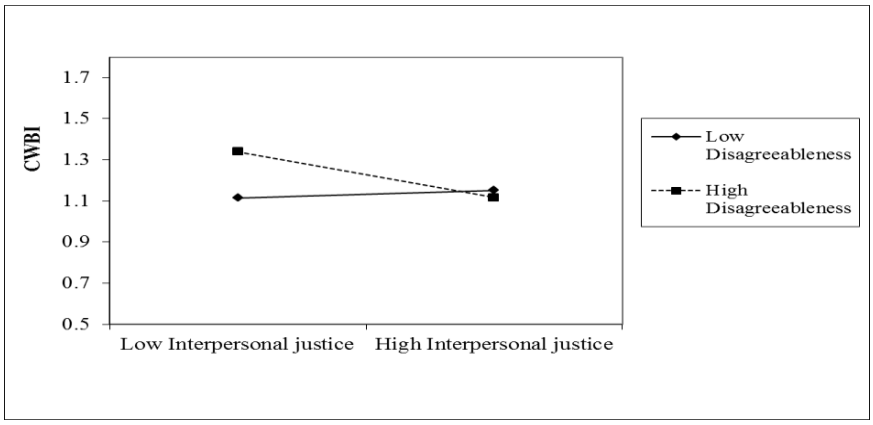

Figure 6.11. Interpersonal justice × disagreeableness for CWBI in New Zealand at Time 1.

Figures 6.12 and 6.13 show that interpersonal and informational justice were significantly related to CWBI only when power distance was high (t = -3.06, p < .01 for Figure 6.12 and t = 2.25, p < .05 for Figure 6.13), while there was no significant relationship between the two justice perceptions and CWBI among those low in power distance. Thus, Hypotheses 47e and 47g that power distance would moderate the interpersonal justice-CWBI relationship and the informational justice-CWBI relationship, with a stronger negative effect when power distance was low, were not supported.

Figure 6.12. Interpersonal justice × power distance for CWBI in New Zealand at Time 1.

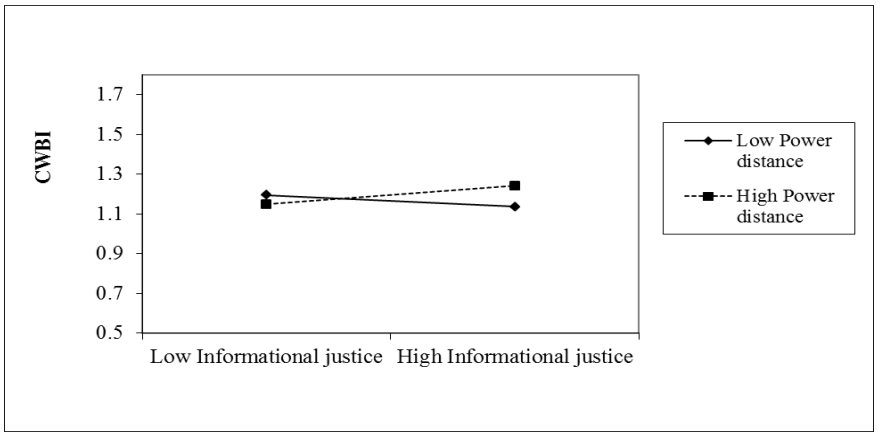

Figure 6.13. Informational justice × power distance for CWBI in New Zealand at Time 1.

Two significant interactions for the Thai sample were plotted in Figures 6.14 and 6.15. Simple slopes test revealed a negative relationship between interpersonal justice and CWBI (Figure 6.14) among those low in agreeableness (t = -3.58, p < .001), while the relationship was not significant among those high in agreeableness (t = 0.92, *ns*). This was supportive of Hypothesis 39e that agreeableness would moderate the interpersonal justice-CWBI relationship, with a stronger effect when agreeableness was low.

Figure 6.14. Interpersonal justice × agreeableness for CWBI in Thailand at Time 1.

The results in Figure 6.15 show a significant positive relationship between informational justice and CWBI among those Thai respondents who reported low scores on agreeableness (t = 2.74, p < .01), which was opposite to what was expected. Informational justice had a significant negative relationship with CWBI when levels of agreeableness were high (t = -2.15, p < .05). Hence, Hypothesis 39g that agreeableness would moderate the informational justice-CWBI relationship, with a stronger negative relationship when levels of agreeableness were low, was not supported.

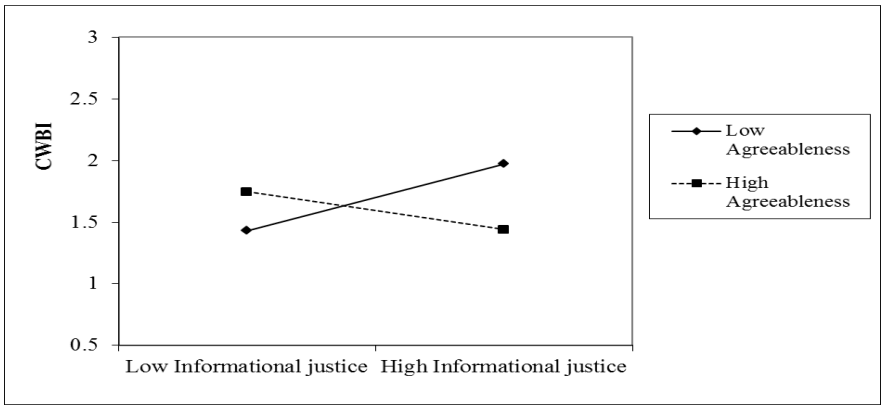

Figure 6.15. Informational justice × agreeableness for CWBI in Thailand at Time 1.

Overall, agreeableness was the only individual difference which had a significant moderating effect on the interpersonal justice-CWBI relationship in both samples in the expected direction at Time 1.

6.5 Chapter summary

This chapter reports the Time 1 cross-sectional analyses of mediating effect hypotheses for the antecedent-justice perception-CWB links, main and moderating effect hypotheses for individual differences in both New Zealand and Thai samples. To assess the individual mediation effects, the mediation model was decomposed into four sub-analyses (Models A-D) involving distributive,

procedural, interpersonal and informational justice as a mediator for each model. The full mediation model was supported in both samples. The percentages of supported mediation hypotheses were 62% and 48.3% for the New Zealand and Thai samples respectively. The findings yielded some consistency between the two samples. Interpersonal justice mediated the relationships between two LMX dimensions (affect and loyalty) and both forms of CWB, whereas informational justice significantly mediated the relationships between three LMX dimensions (affect, loyalty and professional respect) and both forms of CWB, and between communication quality and both forms of CWB in both samples. Significant mediating effects of distributive and procedural justice were found only in the New Zealand data.

SEM analyses also assessed the direct relationships between antecedents and perceived justice, and between perceived justice and CWB. The overall results were consistent across the two samples. Outcome satisfaction predicted distributive justice, while opportunity to voice and loyalty predicted procedural justice in both samples. Two dimensions of LMX (affect and loyalty) predicted interpersonal justice, whereas three LMX dimensions (affect, loyalty and professional respect) and communication quality were significant predictors of informational justice in both samples. Concerning the justice-CWB relationships, interpersonal and informational justice had significant negative relationships with both forms of CWB in the two samples. However, distributive justice was a significant predictor of both CWBO and CWBI, and procedural justice predicted CWBO only in the New Zealand sample.

The analyses of direct relationships between personality traits and justice perceptions showed that agreeableness (for the Thai sample) and disagreeableness (for the New Zealand sample) consistently predicted the four forms of justice

perceptions. Conscientiousness predicted distributive justice in both samples, while this trait predicted procedural justice only in the Thai sample and predicted informational justice only in the New Zealand sample. The direct relationship of lack of self-control with procedural justice was found only in the Thai sample, but not in the New Zealand sample.

Looking at the role of individual differences in predicting CWB, only disagreeableness (the negative factor of agreeableness) predicted both forms of CWB in both samples. Negligence (the negative factor of conscientiousness) and lack of self-control consistently predicted CWBO in both samples, while these two traits significantly predicted CWBI only in the Thai sample. Collectivism significantly predicted both forms of CWB only in the Thai sample, whereas power distance had no significant association with both forms of CWB in either sample.

Little support was found for the proposed moderation effects. Individual differences had no significant moderating effect on the perceived justice-CWBO relationships in the expected direction for both samples. Disagreeableness (the negative factor of agreeableness) was a significant moderator for interpersonal justice and CWBI in the New Zealand sample, while agreeableness was a significant moderator for interpersonal justice and CWBI in the Thai sample. Only 2.9% of the moderation hypotheses were supported in both samples.

The Time 2 cross-sectional analyses of mediating effect hypotheses for the antecedent-perceived justice-CWB links, main effect and moderating effect hypotheses for individual differences are explored in the next chapter (Chapter 7).

Chapter 7

Time 2 Results

This chapter presents the cross-sectional results of the Time 2 analyses in the New Zealand and Thai samples. The descriptive statistics and correlation results are described first, followed by multivariate analyses of mediating effects for the antecedent-perceived justice-CWB links, and the main effect and moderating effect hypotheses for individual differences. The longitudinal hypothesis testing for both samples is presented in Chapter 8.

7.1 Descriptive analysis

Table 7.1 presents the means and standard deviations for the Time 2 data in the New Zealand and Thai samples. Employees responded to all survey items on a 5-point response scale, except outcome satisfaction and CWB measures which were on a 7-point response scale. Independent samples *t*-tests were conducted to compare the mean levels of each variable across the two samples.

New Zealand respondents reported significantly higher scores than Thai respondents on three out of four forms of justice (procedural, interpersonal and informational justice), outcome satisfaction, opportunity to voice, communication quality with employees, all four dimensions of LMX (affect, loyalty, contribution and professional respect) and two personality traits: agreeableness (the positive factor) and conscientiousness (the positive factor). In contrast, the mean levels of disagreeableness (the negative factor of agreeableness), negligence (the negative factor of conscientiousness), lack of self-control, power distance and both forms of CWB (CWBO and CWBI) were significantly higher for the Thai sample than those for the New Zealand sample.

Table 7.1

Means, standard deviations and t-tests for the Time 2 New Zealand and Thai samples

Variables	NZ (N = 276)		Thai (N = 242)		t-test
	M	SD	M	SD	
1. Procedural justice	2.81	0.88	2.60	0.82	2.85**
2. Distributive justice	2.72	1.09	2.75	0.87	0.34
3. Interpersonal justice	3.70	1.14	2.85	0.97	9.23***
4. Informational justice	3.07	1.04	2.77	0.89	3.63***
5. Outcome satisfaction	4.68	1.28	3.64	1.40	8.84***
6. Opportunity to voice	2.85	1.07	2.63	0.99	2.45*
7. Affect	3.38	1.13	2.74	0.98	6.87***
8. Loyalty	3.38	1.18	2.79	0.88	6.48***
9. Contribution	3.89	0.98	2.82	1.03	12.09***
10. Professional respect	3.42	1.30	3.05	0.99	3.67***
11. Communication quality	3.04	0.83	2.83	0.80	2.95**
12. Agreeableness	4.02	0.67	3.20	0.88	11.80***
13. Disagreeableness	1.66	0.74	2.24	0.74	7.96***
14. Conscientiousness	3.78	0.70	3.00	0.87	11.24***
15. Negligence	1.96	0.79	2.27	0.82	4.07***
16. Lack of self-control	1.94	0.73	2.21	0.82	-4.01***
17. Collectivism	2.94	0.72	3.04	0.93	1.31
18. Power distance	1.85	0.54	2.70	0.82	13.81***
19. CWBO	1.58	0.54	2.00	0.89	6.41***
20. CWBI	1.18	0.34	1.83	0.92	10.39***

Note. NZ = New Zealand; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; all measures were on a 5-point response scale, except outcome satisfaction, CWBO and CWBI which were on a 7-point response scale. ** $p < .01$. *** $p < .001$.

7.2 Cross-sectional correlations among study variables

As at Time 1, a significance level of .01 was used for correlations due to the large sample sizes. The correlations between the Time 2 variables in the New Zealand and Thai samples are presented in Tables 7.2 and 7.3, respectively. Scale reliabilities are displayed on the diagonal, ranging from .66 to .95 in the former sample and from .79 to .98 in the latter sample. The correlations between all

variables were in the expected direction for both samples, except the relationship between power distance and CWBO (r = .16) in the New Zealand sample.

The very high correlation (r = .90) between the two subscales of CWB in the Thai sample and moderately high correlation between them (r = .61) in the New Zealand sample indicate the co-occurrence of these two components (Mount et al., 2006). As the CWB checklists consist of discrete items, no CFAs were performed on CWBO and CWBI (see more details in Chapter 4). There were also high correlations between some LMX subscales in the Time 2 Thai sample: between affect and professional respect (r = .84), and between contribution and professional respect (r = .81). However, the CFA results in Chapter 5 confirmed that a 4-factor model (affect, loyalty, contribution and professional respect) was the best solution for LMX in the Time 2 Thai sample and the Time 1 correlations among LMX subscales were below .75. Hence, the four factors were retained.

Significant positive relationships between justice antecedents (outcome satisfaction, opportunity to voice, LMX and communication quality) and four forms of justice were found in both samples. The four forms of justice were significantly negatively related to both CWBO and CWBI in the Thai sample, while only interpersonal justice was negatively related to the two forms of CWB in the New Zealand sample. Agreeableness was negatively related to the two forms of CWB in both samples, while conscientiousness was related to both forms of CWB only in the Thai sample. Consistent with the expected direction, disagreeableness (the negative factor of agreeableness), negligence (the negative factor of conscientiousness), and lack of self-control were positively related to both forms of CWB. Collectivism and power distance were negatively correlated with both forms of CWB only in the Thai sample. Overall, the correlations among study variables in the two samples were in the expected direction.

Table 7.2

Cross-sectional correlations among the study variables at Time 2 (New Zealand sample, N = 276)

	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1.	Procedural justice	*.89*												
2.	Distributive justice	.70**	*.95*											
3.	Interpersonal justice	.66**	.51**	*.95*										
4.	Informational justice	.69**	.56**	.76**	*.91*									
5.	Outcome satisfaction	.63**	.59**	.54**	.58**	*.83*								
6.	Opportunity to voice	.70**	.59**	.51**	.63**	.70**	*.87*							
7.	Communication	.71**	.59**	.54**	.63**	.64**	.82**	*.79*						
8.	Affect	.56**	.40**	.68**	.69**	.52**	.55**	.53**	*.91*					
9.	Loyalty	.62**	.48**	.68**	.71**	.58**	.62**	.59**	.77**	*.93*				
10.	Contribution	.36**	.23**	.42**	.41**	.37**	.39**	.41**	.55**	.54**	*.86*			
11.	Professional respect	.57**	.46**	.66**	.70**	.49**	.54**	.52**	.75**	.72**	.51**	*.94*		
12.	Agreeableness [a]	.00	.02	-.01	.00	.04	.03	.02	.06	.02	.23**	.06	*.82*	
13.	Disagreeableness [b]	.04	.05	-.02	-.01	-.03	.02	.01	-.01	.05	-.14	-.00	-.54**	*.79*
14.	Conscientiousness [c]	.01	-.02	-.00	-.01	.03	.03	.07	.03	.02	.21**	.04	.15**	.02
15.	Negligence [d]	.02	.06	.06	.06	.01	-.02	-.05	.03	.08	-.12	.05	-.16**	.34**
16.	Lack of self-control	.07	.08	.02	.01	-.03	-.02	-.03	.06	.05	-.06	.08	-.07	.38**
17.	Collectivism	.09	.03	.13	.09	.10	.04	.04	.09	.09	.10	.11	-.04	-.09
18.	Power distance	-.01	-.03	-.04	-.01	-.05	.03	-.01	.08	.08	-.03	.06	-.08	-.21**
19.	CWBO	-.10	-.06	-.17**	-.12	-.19**	-.13	-.14**	-.15**	-.12	-.26**	-.19**	-.15**	.32**
20.	CWBI	-.09	-.05	-.17**	-.05	-.14**	-.11	-.14	-.10	-.05	-.13	-.13	-.20**	.31**

Note. [a] the positive factor of agreeableness; [b] the negative factor of agreeableness; [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal. ** $p < .01$ (one-tailed).

Table 7.2 (Continued)

Variables	14	15	16	17	18	19	20
14. Conscientiousness [c]	*.74*						
15. Negligence [d]	-.54**	*.75*					
16. Lack of self-control	-.20**	.42**	*.75*				
17. Collectivism	-.06	.16**	.08	*.76*			
18. Power distance	-.10	.15**	.12	.17**	*.66*		
19. CWBO	-.16**	.31**	.35**	.05	.16**	*.89*	
20. CWBI	-.05	.15**	.23**	.03	.07	.61**	*.89*

Note. [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal. $^{**}p < .01$ (one-tailed).

Table 7.3

Cross-sectional correlations among the study variables at Time 2 (Thai sample, N = 242)

	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1.	Procedural justice	*.91*												
2.	Distributive justice	.77**	*.91*											
3.	Interpersonal justice	.74**	.69**	*.92*										
4.	Informational justice	.78**	.67**	.87**	*.92*									
5.	Outcome satisfaction	.73**	.70**	.71**	.74**	*.95*								
6.	Opportunity to voice	.77**	.68**	.75**	.71**	.70**	*.91*							
7.	Communication	.72**	.65**	.70**	.69**	.65**	.82**	*.85*						
8.	Affect	.62**	.56**	.75**	.72**	.66**	.78**	.74**	*.92*					
9.	Loyalty	.66**	.61**	.74**	.71**	.67**	.71**	.75**	.80**	*.87*				
10.	Contribution	.63**	.56**	.69**	.70**	.65**	.71**	.73**	.75**	.71**	*.87*			
11.	Professional respect	.63**	.52**	.73**	.73**	.65**	.75**	.72**	.84**	.73**	.81**	*.93*		
12.	Agreeableness [a]	.57**	.47**	.58**	.58**	.62**	.58**	.56**	.54**	.56**	.64**	.59**	*.93*	
13.	Disagreeableness [b]	-.14	-.04	-.18**	-.16**	-.06	-.14	-.01	-.16**	-.11	-.18**	-.21**	-.19**	*.79*
14.	Conscientiousness [c]	.28**	.24**	.43**	.44**	.44**	.36**	.38**	.43**	.40**	.43**	.44**	.65**	.04
15.	Negligence [d]	-.05	-.03	-.12	-.14	.01	-.02	.01	-.04	.02	-.07	-.09	-.06	.65**
16.	Lack of self-control	-.10	-.05	-.10	-.11	.01	-.00	.05	.03	.06	-.06	-.03	-.08	.68**
17.	Collectivism	.49**	.45**	.56**	.49**	.50**	.55**	.59**	.56**	.52**	.55**	.56**	.68**	.10
18.	Power distance	.51**	.41**	.50**	.46**	.39**	.56**	.55**	.51**	.46**	.46**	.47**	.48**	-.01
19.	CWBO	-.26**	-.20**	-.40**	-.34**	-.17**	-.30**	-.25**	-.30**	-.23**	-.32**	-.34**	-.31**	.50**
20.	CWBI	-.28**	-.15**	-.41**	-.33**	-.16**	-.31**	-.26**	-.33**	-.24**	-.30**	-.33**	-.34**	.48**

Note. [a] the positive factor of agreeableness; [b] the negative factor of agreeableness; [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal. ** $p < .01$ (one-tailed).

Table 7.3 (Continued)

Variables	14	15	16	17	18	19	20
14. Conscientiousness [c]	*.88*						
15. Negligence [d]	-.08	*.85*					
16. Lack of self-control	.05	.76**	*.85*				
17. Collectivism	.52**	.01	.00	*.92*			
18. Power distance	.23**	.23**	.12	.65**	*.85*		
19. CWBO	-.15**	.44**	.46**	-.32**	-.28**	*.96*	
20. CWBI	-.20**	.38**	.42**	-.37**	-.29**	.90**	*.98*

Note. [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal. **$p < .01$ (one-tailed).

7.3 Correlations between demographic variables and study variables

As age, gender, ethnicity, education, organisational and job tenure are relevant to justice perceptions and their outcomes (Cohen-Charash & Spector, 2001), the relationships of those demographic variables with perceived justice and CWB were examined. The correlations of age, education and tenure with perceived justice and CWB for both samples at Time 2 are shown in Appendix D.2. Only age was significantly negatively related to procedural justice, distributive justice and CWBO in the New Zealand sample, whereas no significant relationships of those demographic variables with perceived justice and CWB were found in the Thai sample.

Independent-samples *t*-tests indicated gender differences in CWBI in the Time 2 New Zealand sample, while gender differences in interpersonal and informational justice were found in the Time 2 Thai sample (see Appendix E.2). New Zealand male respondents reported significantly higher scores on CWBI (M = 1.30) than females (M = 1.15) (t = 2.11, p < .05). Thai female respondents had significant higher scores on interpersonal justice (M = 3.00) than males (M = 2.72) (t = -2.31, p < .05), and Thai females reported higher scores on informational justice (M = 2.90) than males (M =2.65) (t = -2.22, p < .05). In addition, ANOVA (see Appendix F) was conducted to examine ethnicity differences in justice perceptions and CWB for the New Zealand sample, but not for the Thai sample (as there was only one ethnic group). No significant ethnic group differences between study variables were found in the New Zealand sample at Time 2.

Even though education and tenure were not related to perceived justice and CWB at Time 2, they had significant correlations with those variables at Time 1. In sum, five demographic variables: age, gender, education, organisational tenure and job tenure were related to different sets of study variables at both times.

Hence, these five variables were included in the regression analyses as control variables at both times. As ethnicity consistently had no association with perceived justice and CWB at both times, it was not included as a control variable.

Regarding possible organisational effects on the Thai data, the ANOVA results revealed some significant differences between seven organisations in a few variables (M = 2.30-3.12 for procedural justice; M = 2.47-3.50 for interpersonal justice; M = 2.37-3.40 for informational justice; and M = 1.30-2.01 for CWBI). However, similar to the Time 1 data, including organisation as a control variable made a minor difference to the findings (the biggest difference was .07). In the New Zealand sample, although the ANOVA results indicated significant differences in CWBO (F = 2.48, p < .05) between industry types, none of the post-hoc multiple comparisons was significant. Thus, organisation and industry type were not included as control variables in the further analyses of Time 2 data for both samples.

7.4 Hypothesis testing

The Time 2 results are presented in two main sections: (a) mediation testing for the antecedent-justice-CWB links, and (b) moderation testing for individual differences. SEM was conducted to examine the mediating model (Figure 6.1 on p. 133) and a series of hierarchical regression analyses was performed to explore the proposed moderation models (Figure 6.8 on p. 152).

A. Mediation testing

The same statistical strategies used for the mediation hypotheses testing at Time 1 in Chapter 6 were employed to explore Time 2 mediation effects. The bootstrap method with 1,000 replications (Shrout & Bolger, 2002) was conducted to assess mediating relationships. To test the specific mediation effects for the

model with multiple mediators, the overall model (see Figure 6.1 on p. 133) was decomposed into four sub-models (Models A-D) involving distributive, procedural, interpersonal and informational justice as mediators in each analysis.

To assess the mediation models, two models were assessed: (a) the model of the direct path from the predictors to the criterion variables without the mediator, and (b) the full mediation model. As noted by James et al. (2006), the full mediation model is the most parsimonious and a baseline model in evaluating mediation, while partial mediation is an alternative model when the former provides a poor fit. Thus, I used a full mediation model as the foundation for my investigation. The chi-square difference test was employed to compare competing models.

Model A: Distributive justice as a mediator

The first analysis was conducted to test the hypotheses that outcome satisfaction would predict distributive justice (Hypothesis 1), and that distributive justice would predict CWBO and CWBI (Hypotheses 9a and 9b). Hypotheses that distributive justice would mediate the outcome satisfaction-CWBO relationship (Hypothesis 15a) and the outcome satisfaction-CWBI relationship (Hypothesis 15b) were also assessed in both samples.

New Zealand sample

Prior to adding distributive justice, the direct relationships of outcome satisfaction with both forms of CWB (β = -.21, p < .01 for CWBO; β = -.16, p < .05 for CWBI) were significant in the expected direction. However, the fit statistics for the model without mediation were slightly outside of the acceptable range (χ^2/df = 4.78, CFI = .88, RMSEA = .12). After adding distributive justice,

outcome satisfaction had a significant relationship with distributive justice (β = .61, p < .001), supporting Hypothesis 1. This form of justice, however, was not related to both CWBO (β = -.07, *ns*) and CWBI (β = -.06, *ns*), failing to support Hypotheses 9a and 9b. This indicated no mediation effect for distributive justice.

The indirect effects testing using the bootstrap method was not required due to no significant relationship between the proposed mediator (distributive justice) and the criterion variables (CWBO and CWBI). Thus, Hypotheses 15a and 15b, that distributive justice would mediate the relationships between outcome satisfaction and the two forms of CWB, were not supported.

Thai sample

Model A, with distributive justice as a mediator, was also assessed in the Thai data. Prior to including distributive justice, outcome satisfaction had a significant negative relationship with both forms of CWB (β = -.16, p < .05 for both CWBO and CWBI), which was in the expected direction. After adding the mediator, significant path coefficients from the predictor to the mediator and from the mediator to the criterion variables were observed.

Standardised parameters are presented in Figure 7.1. Outcome satisfaction explained 53% of the variance in distributive justice, while this form of justice explained 5% of the variance in CWBO and 3% of that in CWBI. Hypothesis 1, that outcome satisfaction would predict distributive justice (β = .73, p < .001), was supported. This justice predicted both CWBO (β = -.22, p < .01) and CWBI (β = -.17, p < .05), supporting Hypotheses 9a and 9b.

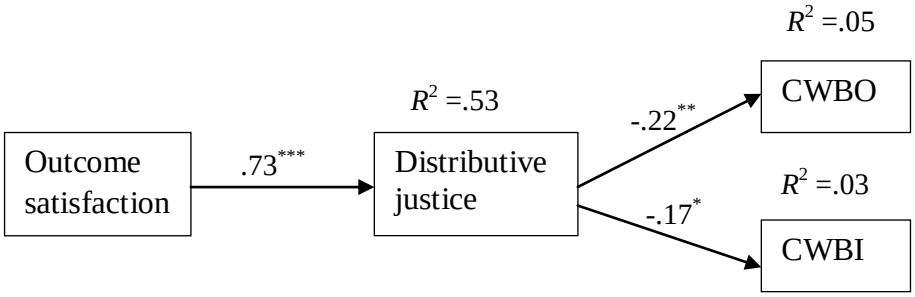

Figure 7.1. Standardised path coefficients for the full mediation Model A in the Time 2 Thai sample.

$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$, one-tailed test.

The full mediation model (Model 2 in Table 7.4) had a good fit, while the fit statistics of model without the mediator (Model 1) were outside of the acceptable range (e.g. χ^2/df = 5.60, RMSEA = .14). Hence, the full mediation model was adopted.

Table 7.4

Fit indices of Model A in the Thai sample at Time 2 (N = 242)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2
Model 1 [a]	145.65	26	5.60	.04	.87	.94	.14	(.12-.16)	$\Delta\chi^2_{(13)} = 128.64^{***}$
Model 2 [b]	17.01	13	1.31	.02	.98	1.00	.04	(.00-.08)	-

Note. [a] model with the direct path from the predictor to the outcome variables excluding the mediator; [b] full mediation model; $\Delta\chi^2$ refers to the chi-square difference between models.
$^{***}p < .001$.

The precondition for mediation testing was met, as the predictor (outcome satisfaction) → mediator (distributive justice) path and the mediator → criterion variable (both forms of CWB) path were significant. Therefore, the bootstrap analysis was used to assess the indirect effects. The results in Table 7.5 indicate that distributive justice significantly mediated the relationships between outcome satisfaction and both forms of CWB, supporting Hypotheses 15a and 15b.

Table 7.5

Mediation effects of distributive justice in the Thai sample at Time 2 (N = 242)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
OS→DJ→CWBO	-.16**	H15a
OS→DJ→CWBI	-.12**	H15b

Note. OS= outcome satisfaction; DJ = distributive justice; CWBO = CWB directed toward the organisation; CWBI = CWB directed toward the individual. $^{**}p < .01$.

Overall, it appears that the mediating role of distributive justice in the outcome satisfaction-CWB relationship was found only in the Thai sample, but not in the New Zealand sample.

Model B: Procedural justice as a mediator

As procedural justice was expected to be related to only CWBO, not CWBI (see Figure 6.1 on p.133), the second analysis involves the model with procedural justice as a mediator of the relationships between its antecedents (opportunity to voice and four forms of LMX) and CWBO. This model was also analysed to test the main effect hypotheses that opportunity to voice (Hypothesis 2), four forms of LMX (Hypotheses 6a-d): affect, loyalty, contribution and professional respect would predict procedural justice, and that procedural justice would predict CWBO (Hypothesis 11).

Hypothesis 17a, that procedural justice would mediate the relationship between opportunity to voice and CWBO, and Hypotheses 17b(i-iv), that procedural justice would mediate the relationships between four forms of LMX and CWBO, were assessed.

New Zealand sample

Before including procedural justice (the mediator), only contribution (one out of four LMX dimensions) had a significant direct relationship with CWBO

(β = -.20, p < .05). After including procedural justice, the predictor → mediator and mediator → criterion variable path coefficients were significant (see Figure 7.2). This indicated that the precondition for mediation testing was met.

Figure 7.2 shows that opportunity to voice and four LMX dimensions together explained 64% of the variance in procedural justice, while this form of justice explained 2% of the variance in CWBO. Opportunity to voice (β = .48, p < .001) and loyalty (β = .23, p < .05) were significantly related to procedural justice, supporting Hypotheses 2 and 6b. Support was also found for Hypothesis 11 that procedural justice was related to CWBO (β = -.14, p < .05).

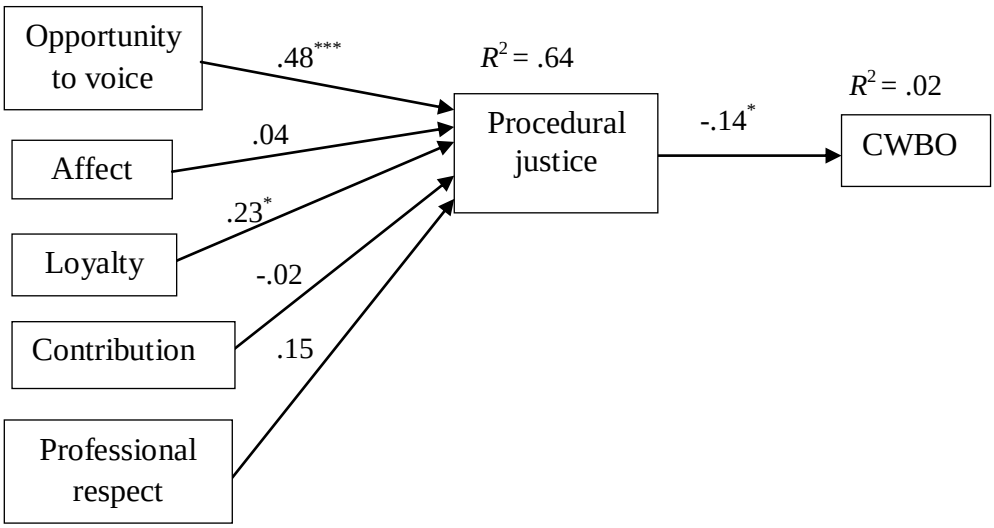

Figure 7.2. Standardised path coefficients for the full mediation Model B in the Time 2 New Zealand sample.
*p < .05. ***p < .001, one-tailed test.

The two models (Models 1 and 2) in Table 7.6 both provided a good fit to the observed data with minimal differences in model fit. As the two paths from predictors to the mediator and from the mediator to the criterion variable were significant in Model 2, the full mediation model was accepted.

Table 7.6

Fit indices of Model B in the New Zealand sample at Time 2 (N = 276)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2
Model 1 [a]	163.35	76	2.15	.03	.93	.98	.07	(.05-.08)	$\Delta\chi^2_{(98)} = 222.55^{***}$
Model 2 [b]	385.90	174	2.22	.05	.88	.96	.07	(.05-.08)	-

Note. [a] model with the direct path from the predictors to the outcome variable excluding the mediator; [b] full mediation model; $\Delta\chi^2$ refers to the chi-square difference between models.
$^{***}p < .001$.

The bootstrap analysis was conducted to assess the indirect effects of opportunity to voice and loyalty on CWBO. Table 7.7 shows that procedural justice significantly mediated the relationships between opportunity to voice and CWBO, and between loyalty and CWBO, supporting Hypotheses 17a and 17b(ii). The other three LMX subscales (affect, contribution and professional respect) had no significant indirect effects on CWBO through procedural justice, failing to support Hypotheses 17b(i, iii and iv).

Table 7.7

Mediation effects of procedural justice in the New Zealand sample at Time 2 (N = 276)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
Voice→PJ→CWBO	$-.07^{*}$	H17a
Affect→PJ→CWBO	-.01	H17b(i)
Loyalty→PJ→CWBO	$-.03^{*}$	H17b(ii)
Contribution→PJ→CWBO	.00	H17b(iii)
Professional respect→PJ→CWBO	-.02	H17b(iv)

Note. Voice = opportunity to voice; PJ = procedural justice; CWBO = CWB directed toward the organisation. $^{*}p < .05$.

Thai sample

Prior to including the mediator (procedural justice), none of the predictors (opportunity to voice and four forms of LMX) had a significant direct relationship with CWBO. After adding procedural justice, coefficient paths from predictors to

the mediator and from the mediator to the criterion variable were significant. The parameter estimates for the full mediation model are presented in Figure 7.3. Five antecedents (opportunity to voice and four LMX dimensions) together explained 79% of the variance in procedural justice, while 8% of the variance in CWBO was explained by procedural justice. Opportunity to voice (β = .86, p < .001) and loyalty (β = .49, p < .01) had significant positive relationships with procedural justice, supporting Hypotheses 2 and 6b. Affect was significantly negatively related to procedural justice (β = -.65, p < .01), which was in the opposite direction to what was expected. Thus, Hypothesis 6a that affect would be positively related to procedural justice, was not supported. Procedural justice had a significant relationship with CWBO (β = -.28, p < .001), supporting Hypothesis 11.

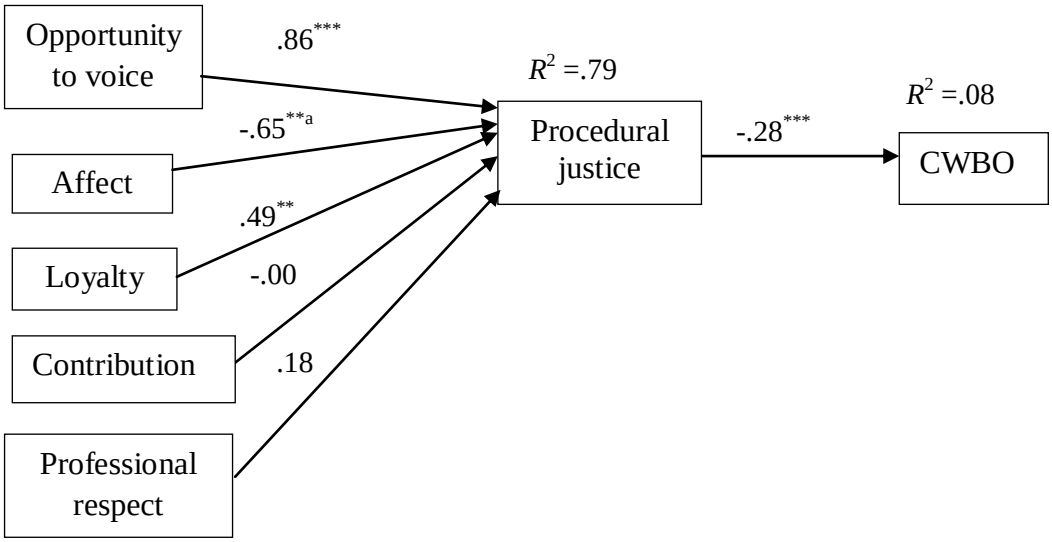

Figure 7.3. Standardised path coefficients for the full mediation Model B in the Time 2 Thai sample.

**p < .01. ***p < .001, one-tailed test.

Note: [a]The signs of this path were not hypothesised.

Based on the value of χ^2/df, the full mediation model (Model 2 in Table 7.8) had a slightly better fit compared to the model without the mediator (Model 1). Hence, the full mediation model was adopted.

Table 7.8

Fit indices of Model B in the Thai sample at Time 2 (N = 242)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2
Model 1 [a]	151.77	76	2.00	.02	.91	.98	.06	(.05-.08)	$\Delta\chi^2_{(98)} = 185.08^{***}$
Model 2 [b]	336.85	174	1.94	.04	.87	.96	.06	(.05-.07)	-

Note. [a] model with the direct path from the predictors to the outcome variable excluding the mediator; [b] full mediation model; $\Delta\chi^2$ refers to the chi-square difference between models.
$^{***}p < .001$.

As the precondition for mediation testing was met, the bootstrap analysis was performed to assess specific indirect effects. Table 7.9 shows two significant mediating effects of procedural justice in the relationships of opportunity to voice and loyalty with CWBO in the expected direction, supporting Hypotheses 17a and 17b(ii). Even though the indirect path from affect to CWBO through procedural justice was significant, it was in the opposite direction to what was predicted. This suggests that no support was found for Hypotheses 17b(i, iii and iv).

Table 7.9

Mediation effects of procedural justice in the Thai sample at Time 2 (N = 242)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
Voice→PJ→CWBO	$-.24^{**}$	H17a
Affect→PJ→CWBO	$.18^{*a}$	H17b(i)
Loyalty→PJ→CWBO	$-.14^{**}$	H17b(ii)
Contribution→PJ→CWBO	.00	H17b(iii)
Professional respect→PJ→CWBO	-.05	H17b(iv)

Note. Voice = opportunity to voice; PJ = procedural justice; CWBO = CWB directed toward the organisation. [a] The signs of this path were not hypothesised.
$^{**}p < .01$. $^{*}p < .05$.

Overall, it can be concluded that the full mediation model was found for Model B in both samples. Support for procedural justice as a mediator was partially found in both samples. The mediating effects of procedural justice in the relationships between opportunity to voice and CWBO, and between loyalty and CWBO were consistently observed in both samples.

Model C: Interpersonal justice as a mediator

The third analysis was performed to test the mediating effect of interpersonal justice in the relationships between its antecedents (opportunity to voice, four forms of LMX and communication quality) and both forms of CWB (Hypotheses 19a-f). The hypotheses that opportunity to voice (Hypothesis 3), four forms of LMX (Hypotheses 4a-d), communication quality (Hypothesis 8) would predict interpersonal justice, and that interpersonal justice would predict CWBO (Hypothesis 13a) and CWBI (Hypothesis 13b) were also examined in both samples.

New Zealand sample

The model without the mediator revealed no significant direct relationships of the predictors (opportunity to voice, LMX and communication quality) with both CWBO and CWBI. After including the mediator (interpersonal justice), significant path coefficients from predictors to the mediator and from the mediator to the two forms of CWB were found.

However, due to very high correlation between opportunity to voice and communication quality (r = .82), multicollinearity may affect parameter estimates. The opportunity to voice → interpersonal justice path was -.84, which was in the opposite direction to what was expected and not significant. One solution for

multicollinearity is to delete a variable which may lead to a misspecification error or seems not essential to the model (Grewal, Cote, & Baumgartner, 2004), and this was adopted. Thus, the opportunity to voice was omitted. After deleting the opportunity to voice, the communication quality → interpersonal justice path became significant (see Figure 7.4).

Figure 7.4 presents the parameter estimates of the modified full mediation model. Five antecedents (four LMX dimensions and communication quality) together explained 61% of the variance in interpersonal justice, while this form of justice explained 3% of the variance in both forms of CWB. Three dimensions of LMX: affect (β = .30, p < .01), loyalty (β = .27, p < .01) and professional respect (β = .19, p < .05), and communication quality (β = .14, p < .05) were significantly related to interpersonal justice, supporting Hypotheses 4(a, b, d) and 8. Support was found for Hypotheses 13a and 13b, predicting that interpersonal justice was significantly related to CWBO (β = -.18, p < .01) and CWBI (β = -.17, p < .01).

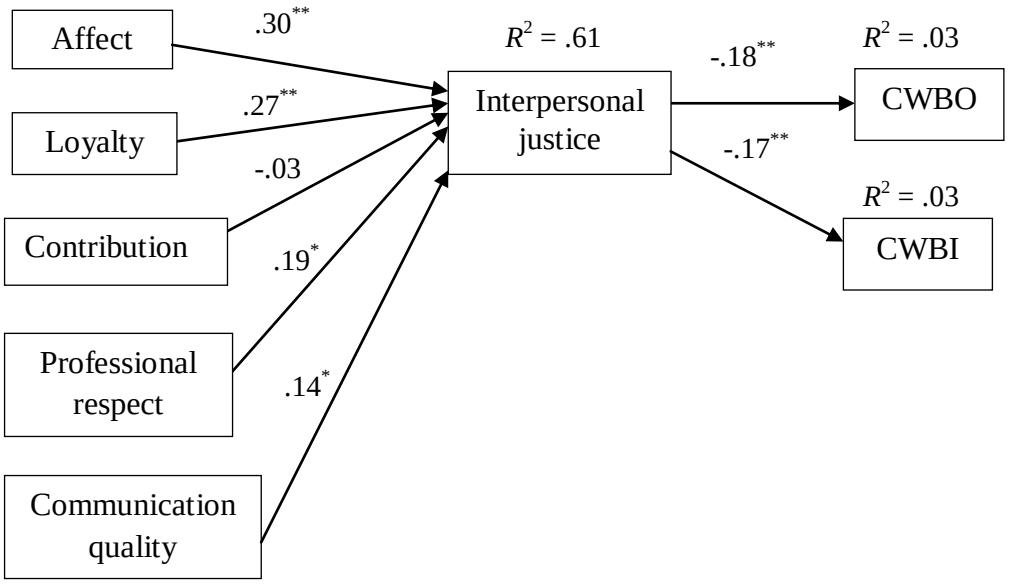

Figure 7.4. Standardised path coefficients for the modified full mediation Model C in the Time 2 New Zealand sample.

*p < .05. **p < .01. , one-tailed test.

The results for modified Model 2[c] (after deleting opportunity to voice) are shown in Table 7.10, indicating a good fit. Hence, Model 2[c] was accepted.

Table 7.10

Fit indices of Model C in the New Zealand sample at Time 2 (N = 276)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2[b]
Model 1[a]	282.92	144	1.97	.04	.91	.97	.06	(.05-.07)	$\Delta\chi^2_{(86)} = 147.92^{***}$
Model 2[b]	430.84	230	1.87	.04	.89	.97	.06	(.05-.07)	-
Modified Model 2[c]	324.85	173	1.88	.04	.90	.97	.06	(.05-.07)	$\Delta\chi^2_{(57)} = 105.99^{***}$

Note. [a] model with the direct path from the predictors to the outcome variables excluding the mediator; [b] full mediation model; [c] deleting opportunity to voice from Model 2[b]; $\Delta\chi^2$ refers to the chi-square difference between models.
$^{***}p < .001$.

The bootstrap analysis was conducted to assess the specific indirect effects of significant paths from predictors to both forms of CWB through interpersonal justice. Eight out of ten mediation effects of interpersonal justice were significant and in the expected direction (see Table 7.11).

Table 7.11

Mediation effects of interpersonal justice in the New Zealand sample at Time 2 (N = 276)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
Affect→ITJ→CWBO	$-.05^{**}$	H19c(i)
Affect→ITJ→CWBI	$-.05^{**}$	H19d(i)
Loyalty→ITJ→CWBO	$-.05^{**}$	H19c(ii)
Loyalty→ITJ→CWBI	$-.05^{**}$	H19d(ii)
Contribution→ITJ→CWBO	.01	H19c(iii)
Contribution→ITJ→CWBI	.01	H19d(iii)
Professional respect→ITJ→CWBO	$-.04^{*}$	H19c(iv)
Professional respect→ITJ→CWBI	$-.03^{*}$	H19d(iv)
Communication→ITJ→CWBO	$-.03^{*}$	H19e
Communication→ITJ→CWBI	$-.02^{*}$	H19f

Note. ITJ = interpersonal justice; CWBO = CWB directed toward the organisation; CWBI = CWB directed toward the individual. $^{*}p < .05$. $^{**}p < .01$.

The results showed that interpersonal justice significantly mediated the relationships of three LMX dimensions (affect, loyalty and professional respect)

and communication quality with both forms of CWB (Table 7.11). These findings were supportive of Hypotheses 19c(i, ii and iv), 19d (i, ii and iv), and 19e and 19f, in the New Zealand sample.

Thai sample

Before including the mediator (interpersonal justice), there was no significant direct relationship between the predictors (opportunity to voice, LMX and communication quality) and CWB. After adding the mediator, the predictor → mediator and mediator → criterion path coefficients were significant. Consistent with Model C in the Time 2 New Zealand sample, opportunity to voice and communication quality were highly correlated (r = .82) indicating multicollinearity. Nonsignificant path from communication quality to interpersonal justice (β = -.49) was in the opposite direction to what was expected. Following Grewal et al. (2004)'s recommendation, the variable which may lead to a misspecification error was deleted. After omitting communication quality, the opportunity to voice → interpersonal justice path was significant (see Figure 7.5).

Figure 7.5 presents the parameter estimates for the modified full mediation model. Five antecedents together explained 75% of the variance in interpersonal justice, while this justice explained 17% and 18% of the variance in CWBO and CWBI respectively. Opportunity to voice (β = .33, p < .01) and loyalty (β = .30, p < .05) were significantly related to interpersonal justice, supporting Hypotheses 3 and 4b. Support was found for Hypotheses 13a and 13b, as interpersonal justice was significantly related to CWBO (β = -.43, p < .001) and CWBI (β = -.41, p < .001).

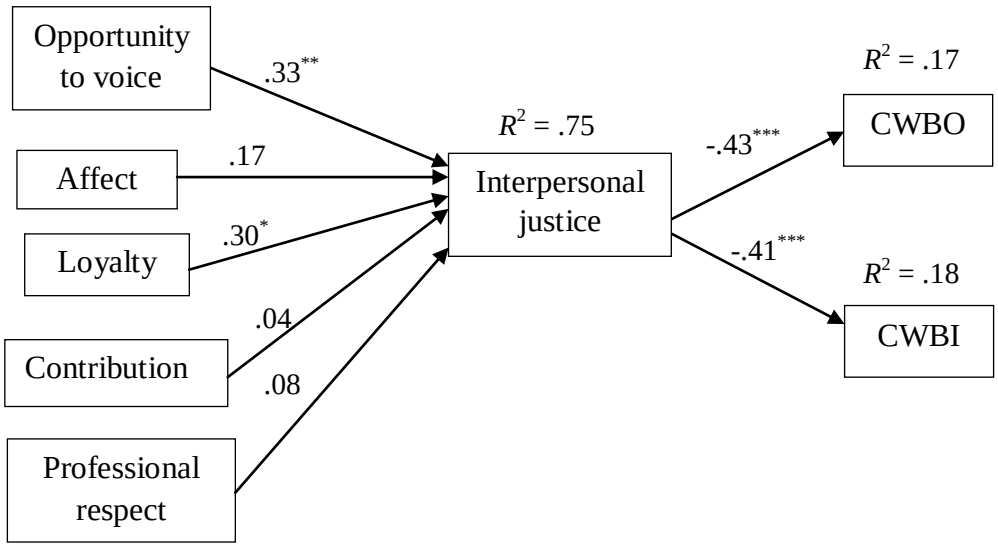

Figure 7.5. Standardised path coefficients for the modified full mediation Model C in the Time 2 Thai sample.

$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$, one-tailed test.

As the fit statistics for modified Model 2[c] (after the deletion of communication quality) had a good fit with a minimal difference compared to Model 2[b] (see Table 7.12), it was adopted.

Table 7.12

Fit indices of Model C in the Thai sample at Time 2 (N = 242)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2[b]
Model 1[a]	256.43	144	1.78	.03	.90	.98	.06	(.05-.07)	$\Delta\chi^2_{(86)} = 153.97^{***}$
Model 2[b]	410.40	230	1.78	.03	.87	.97	.06	(.05-.07)	-
Modified Model 2[c]	291.37	154	1.89	.03	.88	.97	.06	(.05-.07)	$\Delta\chi^2_{(76)} = 119.03^{***}$

Note. [a] model with the direct path from the predictors to the outcome variables excluding the mediator; [b] full mediation model; [c] deleting communication quality from Model 2[b]; $\Delta\chi^2$ refers to the chi-square difference between models.

$^{***}p < .001$.

To examine the indirect effects of opportunity to voice and loyalty, the bootstrap analysis was conducted. Four out of ten mediation paths for interpersonal justice were significant. Interpersonal justice significantly mediated

the relationships between opportunity to voice and the two forms of CWB, and between loyalty and the two forms of CWB. These results in Table 7.13 provide support for Hypotheses 19a, 19b, 19c(ii) and 19d(ii).

Table 7.13

Mediation effects of interpersonal justice in the Thai sample at Time 2 (N = 242)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
Voice→ITJ→CWBO	-.13**	H19a
Voice→ITJ→CWBI	-.14**	H19b
Affect→ITJ→CWBO	-.07	H19c(i)
Affect→ITJ→CWBI	-.07	H19d(i)
Loyalty→ITJ→CWBO	-.12*	H19c(ii)
Loyalty→ITJ→CWBI	-.13*	H19d(ii)
Contribution→ITJ→CWBO	-.02	H19c(iii)
Contribution→ITJ→CWBI	-.02	H19d(iii)
Professional respect→ITJ→CWBO	-.03	H19c(iv)
Professional respect→ITJ→CWBI	-.03	H19d(iv)

Note. Voice = opportunity to voice; ITJ = interpersonal justice; CWBO = CWB directed toward the organisation; CWBI = CWB directed toward the individual. $^{*}p < .05$. $^{**}p < .01$.

Overall, the full mediation model was adopted for Model C in both samples. Support for the mediating effect of interpersonal justice in the antecedents-CWB relationships was partially found. More support was found for the mediating role of interpersonal justice in the New Zealand sample. Interpersonal justice significantly mediated the three LMX dimensions-CWB relationships in the New Zealand sample, while this justice mediated the relationship between only one LMX dimension (loyalty) and CWB in the Thai sample. The communication quality-CWB relationship was mediated by interpersonal justice in the New Zealand sample, whereas this justice mediated the relationship between opportunity to voice and CWB in the Thai sample.

Model D: Informational justice as a mediator

Model D was examined to test whether informational justice would mediate the relationships between its antecedents (communication quality and LMX) and both forms of CWB (Hypotheses 21a-d). The hypotheses that four forms of LMX (Hypotheses 5a-d) and communication quality (Hypothesis 7) would predict informational justice, and that informational justice would predict CWBO and CWBI (Hypotheses 13c and 13d), were examined.

New Zealand sample

Before adding informational justice, only contribution was significantly related to CWBO (β = -.20, p < .05). Other predictors (affect, loyalty, professional respect, and communication quality) had no direct relationships with both forms of CWB. After adding informational justice, the paths from predictors to the mediator and from the mediator to the criterion variables were significant (see Figure 7.6).

Figure 7.6 presents the parameter estimates for the full mediation model. Four LMX dimensions and communication quality together explained 71% of the variance in informational justice, while this justice explained 2% and 1% of the variance in CWBO and CWBI respectively. Three LMX dimensions: affect (β = .20, p < .05), loyalty (β = .21, p < .05) and professional respect (β = .29, p < .001), and communication quality (β = .33, p < .001) were significantly related to informational justice, supporting Hypotheses 5(a, b and d) and 7. Informational justice was significantly related to CWBO (β = -.13, p < .05) (supporting Hypothesis 13c), but not to CWBI (failing to support Hypothesis 13d).

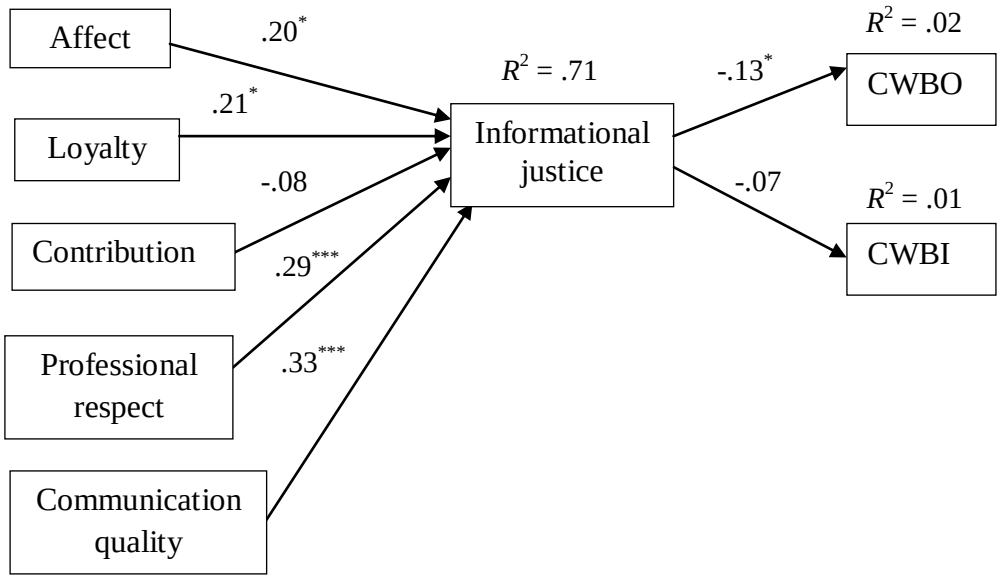

Figure 7.6. Standardised path coefficients for the full mediation Model D in the Time 2 New Zealand sample.

$^{*}p < .05$. $^{***}p < .001$, one-tailed test.

The two models in Table 7.14 both provide a good fit to the observed data with minimal differences in fit statistics. As significant paths from predictors to the mediator and the mediator to the criterion variable (CWBO) were observed in Model 2, the full mediation model was accepted.

Table 7.14

Fit indices of Model D in the New Zealand sample at Time 2 (N = 276)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2
Model 1 [a]	205.48	100	2.06	.04	.92	.97	.06	(.05-.07)	$\Delta\chi^2_{(93)} = 213.25^{***}$
Model 2 [b]	418.73	193	2.17	.05	.88	.96	.07	(.06-.07)	-

Note. [a] model with the direct path from the predictors to the outcome variables excluding the mediator; [b] full mediation model; $\Delta\chi^2$ refers to the chi-square difference between models.
$^{***}p < .001$.

To test the specific mediation effects of informational justice, the bootstrap analysis was conducted to examine the indirect effects (see Table 7.15). Four out of ten mediation paths for informational justice were significant. This

justice significantly mediated the relationships between communication and CWBO, and between three LMX dimensions (affect, loyalty and professional respect) and CWBO. Hypotheses 21a and 21c(i, ii and iv) were supported.

Table 7.15

Mediation effects of informational justice in the New Zealand sample at Time 2 (N = 276)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
Communication→IFJ→CWBO	-.04*	H21a
Communication→IFJ→CWBI	-.02	H21b
Affect→IFJ→CWBO	-.03*	H21c(i)
Affect→IFJ→CWBI	-.01	H21d(i)
Loyalty→IFJ→CWBO	-.03*	H21c(ii)
Loyalty→IFJ→CWBI	-.01	H21d(ii)
Contribution→IFJ→CWBO	.01	H21c(iii)
Contribution→IFJ→CWBI	.01	H21d(iii)
Professional respect→IFJ→CWBO	-.04*	H21c(iv)
Professional respect→IFJ→CWBI	-.02	H21d(iv)

Note. IFJ = informational justice; CWBO = CWB directed toward the organisation; CWBI = CWB directed toward the individual. $^{*}p < .05$, one-tailed test.

Thai sample

Prior to adding informational justice, no significant direct paths from the predictors to both forms of CWB were found. After including informational justice, this form of justice was significantly related to both CWBO (β = -.36, p < .001) and CWBI (β = -.35, p < .001) (supporting Hypotheses 13c and 13d). However, all predictors (LMX and communication quality) were not significantly related to informational justice, failing to support Hypotheses 5a-d and 7 and to meet the precondition for mediation testing. The bootstrap analysis was not required to assess the specific indirect effects because all predictors were not related to informational justice (the mediator). Hence, no support was found for mediation Hypotheses 21a-d in the Thai sample.

For Model D, the mediating effects of informational justice in the antecedents-CWB relationships were found in the New Zealand sample, but not in the Thai sample.

Summary of the mediation results

Overall, the SEM results revealed that the full mediation model was observed in both samples. The mediation hypotheses were partially supported (see Table 7.16). The mediating effects of procedural justice (Model B) and interpersonal justice (Model C) were found in both samples. The mediating role of distributive justice (Model A) was found only in the Thai sample, while support for the mediating role of informational justice (Model D) was found only in the New Zealand sample. No partial mediation effect was found in both samples.

Table 7.16

Significant full mediation effects of four justice components in both samples at Time 2

Four forms of justice	New Zealand	Thai
Distributive justice (Model A)	-	√
Procedural justice (Model B)	√	√
Interpersonal justice (Model C)	√	√
Informational justice (Model D)	√	-

B. Moderation testing

The moderation model (see Figure 6.8 on p. 152) examined individual differences as moderators of the perceived justice-CWB relationships along with the direct relationships of individual differences with justice perceptions and CWB. Prior to computing the interaction product terms, all predictors and moderators were mean-centred. Five-step hierarchical regressions were employed. The relevant demographic variables were entered first as control variables. The

second step assessed the direct relationships of justice perceptions with CWB. Following previous studies (e.g. Colquitt, et al., 2006) and the procedure used at Time 1, interactions among justice perceptions were entered in Step 3 to control their possible interactive effects. The fourth step assessed the direct relationships of individual differences with both forms of CWB. The two-way interactions between justice perceptions and individual differences were entered last. If the *F* change value when entering the product terms was significant, the interactions were plotted (Jaccard & Turrisi, 2003). The simple slopes test with maximum and minimum observed values of the moderator was conducted to assess specific interactions which were significant (Preacher et al., 2006).

The following section describes the direct relationships between personality traits and perceived justice first, followed by moderation analyses.

Direct relationships between personality traits and justice perceptions

Hierarchical regression analyses for each justice perception (distributive, procedural, interpersonal and informational justice) were conducted separately to examine the direct relationships of personality traits with justice perceptions (Tables 7.17-7.20). In Step 1, all five demographic variables (age, gender, education, organisational and job tenure) were entered as control variables, followed by two factors of agreeableness (agreeableness and disagreeableness), two factors of conscientiousness (conscientiousness and negligence), and lack of self-control.

Analysis 1: The direct relationships between personality traits and distributive justice

Table 7.17 shows the direct relationships of five personality traits with distributive justice in both samples. The regression results showed that those

personality traits together explained 1% and 23% of the variance in distributive justice in the New Zealand and Thai samples, respectively.

No support was found for Hypotheses 23a, 25a and 27a, that agreeableness, conscientiousness and lack of self-control would predict distributive justice in the New Zealand sample. On the other hand, agreeableness significantly positively predicted distributive justice (β = .58) in the Thai sample, supporting Hypotheses 23a.

Table 7.17

Hierarchical regression analysis for personality traits predicting distributive justice in the New Zealand and Thai samples at Time 2

Predictors	NZ sample (N = 276)				Thai sample (N = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.05	.05	2.39*		.02	.02	1.10	
Gender				0.04				0.10
Age				-0.14*				-0.01
Education				0.13*				0.07
Organisational tenure				0.09				0.11
Job tenure				-0.10				-0.15
Step 2	.06	.01	0.64		.25	.23	13.18***	
Agreeableness				0.12				0.58***
Disagreeableness				0.10				0.17
Conscientiousness				-0.04				-0.13
Negligence				-0.01				-0.06
Lack of self-control				0.01				-0.06

Note. NZ = New Zealand. *p < .05. ***p < .001 (one-tailed).

Analysis 2: The direct relationships between personality traits and procedural justice

The regression analyses (Table 7.18) showed that five personality traits together explained 1% and 33% of the variance in procedural justice in the New Zealand and Thai samples, respectively. None of those personality traits significantly predict procedural justice in the New Zealand sample, failing to

support Hypotheses 23b, 25b and 27b. On the other hand, agreeableness (β = .68) and conscientiousness (β = -.16) significantly predicted procedural justice in the Thai sample. Hypotheses 23b and 25b were supported in the Thai sample.

Table 7.18

Hierarchical regression analysis for personality traits predicting procedural justice in the New Zealand and Thai samples at Time 2

Predictors	NZ sample (N = 276)				Thai sample (N = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.05	.05	2.51*		.01	.01	0.65	
Gender				-0.09				0.08
Age				-0.18*				-0.10
Education				0.06				0.05
Organisational tenure				0.06				0.06
Job tenure				-0.10				0.02
Step 2	.05	.01	0.42		.34	.33	21.72***	
Agreeableness				0.09				0.68***
Disagreeableness				0.02				0.08
Conscientiousness				-0.03				-0.16*
Negligence				-0.06				0.01
Lack of self-control				0.03				-0.10

Note. NZ = New Zealand. *p < .05. ***p < .001 (one-tailed).

Analysis 3: The direct relationships between personality traits and interpersonal justice

Table 7.19 displays the regression analyses of five personality traits on interpersonal justice in both samples. Those personality traits together explained 1% of the variance in interpersonal justice for the New Zealand sample and 31 % of that for the Thai sample.

Those personality traits had no significant relationships with interpersonal justice in the New Zealand sample, failing to support Hypotheses 23c, 25c and 27c. Only agreeableness (β = .46) significantly predicted interpersonal justice in the Thai sample, supporting Hypothesis 23c.

Table 7.19

Hierarchical regression analysis for personality traits predicting interpersonal justice in the New Zealand and Thai samples at Time 2

Predictors	NZ sample (N = 276)				Thai sample (N = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.02	.02	1.14		.04	.04	1.79	
Gender				-0.07				0.12
Age				-0.05				-0.19*
Education				0.07				-0.08
Organisational tenure				0.00				0.10
Job tenure				-0.09				0.03
Step 2	.03	.01	0.01		.34	.31	20.29***	
Agreeableness				0.02				0.46***
Disagreeableness				-0.08				-0.08
Conscientiousness				0.07				0.13
Negligence				0.11				-0.04
Lack of self-control				-0.01				0.03

Note. NZ = New Zealand. *p < .05. ***p < .001 (one-tailed).

Analysis 4: The direct relationships between personality traits and informational justice

Table 7.20 shows the direct relationships of five personality variables with informational justice in both samples. Those personality variables together explained 1% and 34% of the variance in informative justice in the New Zealand and Thai samples, respectively. No support was found for Hypotheses 23d, 25d and 27d, that agreeableness, conscientiousness and lack of self-control would predict informational justice in the New Zealand sample. Agreeableness significantly positively predicted informational justice (β = .50) in the Thai sample, supporting Hypothesis 23d.

Table 7.20

Hierarchical regression analysis for personality traits predicting informational justice in the New Zealand and Thai samples at Time 2

Predictors	NZ sample (N = 276)				Thai sample (N = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.02	.02	1.24		.03	.03	1.36	
Gender				-0.10				0.12
Age				-0.05				-0.09
Education				0.02				-0.10
Organisational tenure				-0.04				0.06
Job tenure				-0.07				-0.04
Step 2	.03	.01	0.52		.37	.34	23.06***	
Agreeableness				0.05				0.50***
Disagreeableness				-0.05				-0.02
Conscientiousness				0.03				0.12
Negligence				0.08				-0.08
Lack of self-control				-0.03				-0.01

Note. NZ = New Zealand. ***p < .001 (one-tailed).

To conclude, no support was found for the direct relationships of personality traits (two factors of agreeableness and conscientiousness, and lack of self-control) with the four forms of justice in the New Zealand sample. For the Thai sample, agreeableness predicted all forms of perceived justice while conscientiousness significantly predicted procedural justice.

Individual differences as moderators of the perceived justice-CWB relationships

The hypotheses that agreeableness (Hypotheses 39a-g), conscientiousness (Hypotheses 41a-g), lack of self-control (Hypotheses 43a-g), collectivism (Hypotheses 45a-g) and power distance (Hypotheses 47a-g) would moderate the justice-CWB relationships are explored in Tables 7.21 (for CWBO) and 7.22 (for CWBI). The main effect hypotheses of five individual differences on both forms of CWB (Hypotheses 29, 31, 33, 35 and 37) were also assessed.

Predicting CWBO

The results (Table 7.21) were supportive of Hypotheses 31a and 33a that conscientiousness and lack of self-control would predict CWBO in both samples. Negligence (the negative factor of conscientiousness) was significantly related to CWBO (β = .16 in the New Zealand sample and .19 in the Thai sample), while lack of self-control was significantly related to CWBO in the New Zealand (β = .18) and Thai samples (β = .23). However, Hypothesis 37a that power distance would predict CWBO was supported only in the Thai sample (β = -.21). Consistent with prior justice research (e.g. Colquitt et al., 2006), there were some significant interactions among justice perceptions on CWBO in both New Zealand (interpersonal justice × informational justice) and Thai (procedural justice × distributive justice and procedural justice × interpersonal justice) samples.

Table 7.21

Hierarchical regression analysis of CWBO on justice perceptions and individual differences at Time 2

Predictors	NZ sample (N = 276)				Thai sample (N = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.09	.09	4.86***		.07	.07	3.53**	
Gender				-0.14*				-0.07
Age				-0.29***				0.35***
Education				-0.02				0.07
Organisational tenure				0.14				-0.00
Job tenure				-0.03				-0.32**
Step 2	.13	.05	3.31*		.21	.14	9.41***	
PJ				-0.09				0.05
DJ				0.04				0.10
ITJ				-0.18				-0.41**
IFJ				0.01				-0.08
Step 3	.15	.02	0.93		.27	.06	3.05**	
PJ×DJ				0.04				-0.27*
PJ×ITJ				0.09				0.48*
PJ×IFJ				-0.02				-0.39
DJ×ITJ				0.02				-0.23
DJ×IFJ				0.01				0.27
ITJ×IFJ				-0.20*				0.07

Table 7.21 (Continued)

Predictors	NZ sample (N = 276)				Thai sample (N = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 4	.29	.14	6.85***		.49	.22	12.49***	
AGREE				0.04				-0.05
DISAGREE				0.16				0.13
CONS				-0.02				0.06
NEG				0.16*				0.19*
LSC				0.18**				0.23**
COL				-0.01				-0.09
PD				0.09				-0.21**
Step 5	.37	.08	1.04		.61	.12	1.90**	
PJ×AGREE				-0.14				0.25
PJ×DISAGREE				-0.06				-0.28
PJ×CONS				0.18				-0.21
PJ×NEG				0.06				-0.04
PJ×LSC				0.06				-0.14
PJ×COL				0.02				0.06
PJ×PD				0.27*				-0.18
DJ×AGREE				0.04				-0.28
DJ×DISAGREE				0.09				0.13
DJ×CONS				-0.10				0.07
DJ×NEG				-0.06				-0.02
DJ×LSC				0.06				-0.03
DJ×COL				0.10				0.11
DJ×PD				-0.24*				0.17
ITJ×AGREE				-0.21				0.20
ITJ×DISAGREE				-0.15				-0.18
ITJ×CONS				-0.26*				0.09
ITJ×NEG				-0.11				0.10
ITJ×LSC				0.02				0.35
ITJ×COL				0.05				-0.03
ITJ×PD				-0.06				0.10
IFJ×AGREE				0.33*				-0.26
IFJ×DISAGREE				0.19				0.29
IFJ×CONS				0.20				-0.07
IFJ×NEG				0.06				-0.04
IFJ×LSC				-0.08				-0.08
IFJ×COL				-0.12				0.14
IFJ×PD				0.03				0.07
Total R^2	.37				.61			

Note. NZ = New Zealand; PJ = procedural justice; DJ = distributive justice; ITJ = interpersonal justice; IFJ = informational justice; AGREE = agreeableness; DISAGREE = disagreeableness; CONS = conscientiousness; NEG = negligence; LSC = lack of self-control; COL = collectivism; PD = power distance. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$ (one-tailed).

Four out of twenty-eight interaction terms were significant in predicting CWBO in the New Zealand sample (procedural justice × power distance, distributive justice × power distance, interpersonal justice × conscientiousness and informational justice × agreeableness), while no significant interaction terms were

observed in the Thai sample. However, the *F* change value in Step 5 was not significant in the New Zealand sample, indicating no significant contribution of those interactions.

It can be concluded that individual differences had no overall significant moderating effect in the relationships between justice perceptions and CWBO in the New Zealand sample, while no specific interactions were significant in the Thai sample. These results failed to support Hypotheses 39, 41, 43, 45 and 47(a, c, d and f) in both samples.

Predicting CWBI

Table 7.22 shows that the negative factor of agreeableness (labelled as disagreeableness) was significantly related to CWBI in both samples (β = .19), supporting Hypothesis 29b. Support was also found for Hypothesis 33b that lack of self-control would positively predict CWBI in both New Zealand (β = .14) and Thai samples (β = .25). Hypothesis 35b, that collectivism would negatively predict CWBI, was supported only in the Thai sample (β = -.19).

Table 7.22

Hierarchical regression analysis of CWBI on justice perceptions and individual differences at Time 2

Predictors	NZ sample (*N* = 276)				Thai sample (*N* = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.06	.06	3.30**		.07	.07	3.14**	
Gender				-0.19**				-0.08
Age				-0.19**				0.32**
Education				-0.02				0.02
Organisational tenure				0.04				-0.07
Job tenure				0.05				-0.27*
Step 2	.11	.05	3.61**		.24	.18	12.88***	
PJ				-0.11				-0.09
DJ				0.04				0.28**
ITJ				-0.28**				-0.54***
IFJ				0.19				0.03

Table 7.22 (Continued)

Predictors	NZ sample (N = 276)				Thai sample (N = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 3	.16	.05	2.44*		.29	.05	2.51*	
PJ×DJ				0.05				-0.13
PJ×ITJ				0.14				0.51**
PJ×IFJ				-0.15				-0.35
DJ×ITJ				-0.13				-0.25
DJ×IFJ				0.09				0.15
ITJ×IFJ				-0.23*				0.08
Step 4	.23	.07	3.37**		.49	.20	11.43***	
AGREE				-0.05				-0.04
DISAGREE				0.19*				0.19*
CONS				0.02				0.03
NEG				0.03				0.07
LSC				0.14*				0.25**
COL				0.02				-0.19*
PD				-0.02				-0.12
Step 5	.37	.14	1.71*		.62	.13	2.08**	
PJ×AGREE				-0.21				0.17
PJ×DISAGREE				-0.18				-0.36
PJ×CONS				0.05				-0.26
PJ×NEG				0.01				0.09
PJ×LSC				0.20				-0.06
PJ×COL				-0.02				0.01
PJ×PD				0.18				-0.11
DJ×AGREE				0.10				-0.14
DJ×DISAGREE				0.09				0.13
DJ×CONS				-0.05				0.11
DJ×NEG				-0.10				-0.19
DJ×LSC				-0.16				0.24
DJ×COL				0.05				-0.01
DJ×PD				-0.20*				0.16
ITJ×AGREE				-0.00				-0.07
ITJ×DISAGREE				-0.26				-0.11
ITJ×CONS				-0.25				0.09
ITJ×NEG				-0.45**				-0.02
ITJ×LSC				0.07				-0.20
ITJ×COL				0.03				0.12
ITJ×PD				-0.07				0.17
IFJ×AGREE				0.25				-0.01
IFJ×DISAGREE				0.35*				0.19
IFJ×CONS				0.19				-0.05
IFJ×NEG				0.36*				0.15
IFJ×LSC				-0.13				-0.06
IFJ×COL				-0.06				-0.01
IFJ×PD				0.01				0.00
Total R^2	.37				.62			

Note. NZ = New Zealand; PJ = procedural justice; DJ = distributive justice; ITJ = interpersonal justice; IFJ = informational justice; AGREE = agreeableness; DISAGREE = disagreeableness; CONS = conscientiousness; NEG = negligence; LSC = lack of self-control; COL = collectivism; PD = power distance. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$ (one-tailed).

Consistent with previous justice research (e.g. Skarlicki et al., 1999), some significant interactions among justice perceptions on CWBO were observed in both New Zealand (interpersonal justice × informational justice) and Thai (procedural justice × interpersonal justice) samples. The *F* change value in Step 5 and significant interactions for CWBI were found in the New Zealand sample. Four out of twenty-eight interaction terms were significant in the New Zealand sample: distributive justice × power distance, interpersonal justice × negligence, informational justice × disagreeableness, and informational justice × negligence. These were plotted and assessed by the simple slopes test (Figures 7.7-7.10). Even though the *F* change value was significant in the Thai sample, no significant interactions in Step 5 were observed.

The simple slopes test in Figure 7.7 showed a significant positive relationship between distributive justice and CWBI among those low in power distance ($t = 2.00$, $p < .05$) (which was opposite to what was expected) in the New Zealand sample. On the other hand, distributive justice was significantly negatively related to CWBI when levels of power distance were high ($t = -1.98$, $p < .05$). Hence, Hypothesis 47b that power distance would moderate the distributive justice-CWBI relationship, with a stronger negative relationship among those low in power distance, was not supported.

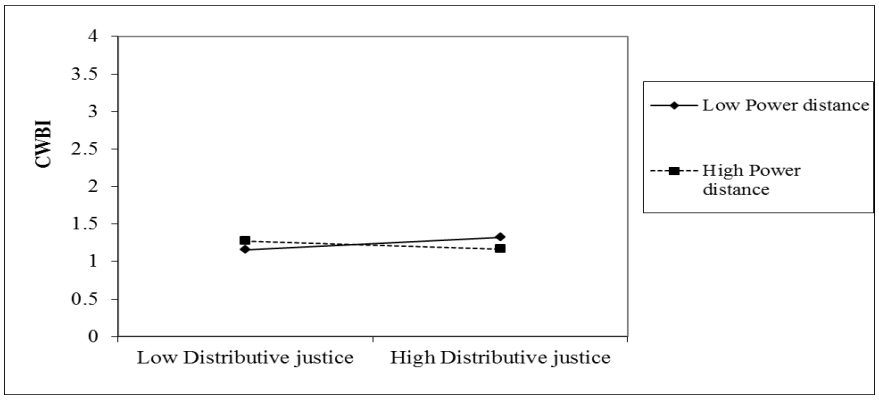

Figure 7.7. Distributive justice × power distance for CWBI in New Zealand at Time 2.

Hypothesis 41e that conscientiousness would moderate the interpersonal justice-CWBI relationship was supported, with a stronger negative relationship among those high in negligence (the negative factor of conscientiousness) (t = -3.90, p < .001) (in Figure 7.8). Interpersonal justice was not significantly related to CWBI among those low in negligence (t = 1.13, *ns*).

Figure 7.8. Interpersonal justice × negligence for CWBI in New Zealand at Time 2.

The results of the simple slopes test (Figures 7.9 and 7.10) are not supportive of the hypotheses that agreeableness (Hypothesis 39g) and conscientiousness (Hypothesis 41g) would moderate the informational justice-CWBI relationship in the New Zealand sample. A stronger relationship between informational justice and CWBI was found for individuals high in disagreeableness (the negative factor of agreeableness) (t = 2.49, p < .05) (Figure 7.9) and high in negligence (the negative factor of conscientiousness) (t = 2.92, p < .01) (Figure 7.10). However, informational justice was positively related to CWBI (opposite to the expected direction) among those high in disagreeableness and negligence.

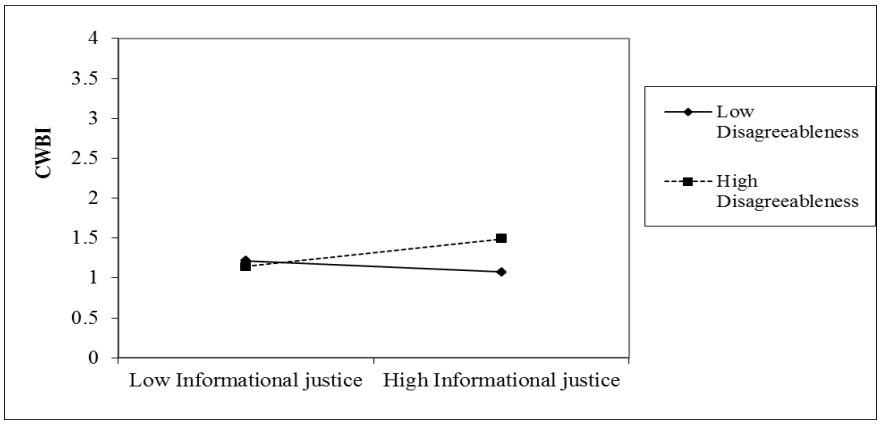

Figure 7.9. Informational justice × disagreeableness for CWBI in New Zealand at Time 2.

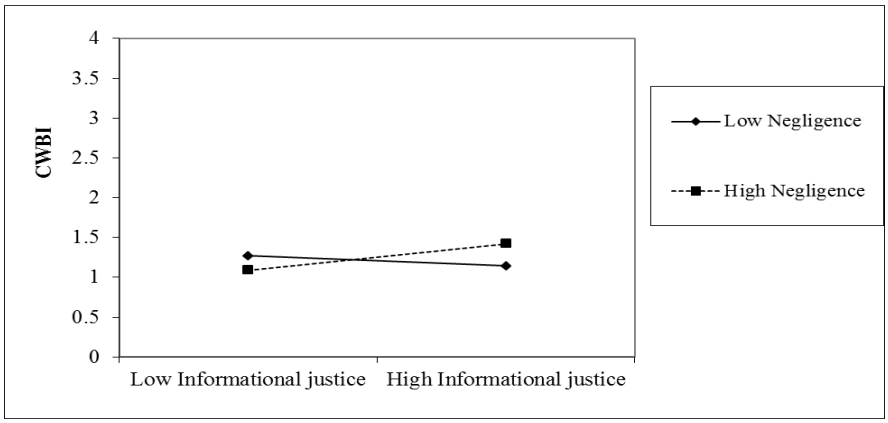

Figure 7.10. Informational justice × negligence for CWBI in New Zealand at Time 2.

To conclude, no significant interactions between individual differences and justice perceptions for predicting CWBO and CWBI were found in the Thai sample, while only negligence (the negative factor of conscientiousness) was a significant moderator of the relationship between interpersonal justice and CWBI in the New Zealand sample in the expected direction.

7.5 Chapter summary

This chapter reports the Time 2 results of mediating effects for the antecedent-justice-CWB links, and main and moderating effect hypotheses for

individual differences. The mediation analyses were divided into four sub-models (Models A-D) to assess the specific mediating effects of each justice perception. Full mediation was found in both New Zealand and Thai data. 48.3% of the mediating hypotheses were supported in New Zealand, while 27.6% were supported in the Thai sample. The results yielded some consistency between the two samples. Procedural justice mediated the relationships between opportunity to voice and CWBO and between loyalty and CWBO across the two samples, while interpersonal justice mediated the relationships between loyalty and both forms of CWB in both samples.

There was some consistency between the two samples in the justice antecedent-justice perception relationships. Outcome satisfaction was a predictor of distributive justice and opportunity to voice was a predictor of procedural justice, and loyalty was a predictor of procedural and interpersonal justice across the two samples. Additionally, the results for the justice perception-CWB relationships yielded some consistency across both samples. Interpersonal justice predicted both CWBO and CWBI, while procedural justice and informational justice predicted CWBO.

Similar to the Time 1 analyses for the antecedent-justice-CWB links, more support for mediation hypotheses was found in the New Zealand sample than the Thai sample at Time 2. There was also more consistency between Time 1 and Time 2 findings for the links between antecedents and justice perceptions in the New Zealand sample than the Thai sample. However, the Time 2 Thai sample yielded more support for the main effect hypotheses of perceived justice on CWB relative to the Time 1 data.

In contrast with the Time 1 findings, none of personality traits (agreeableness, conscientiousness and lack of self-control) significant predicted

the four forms of justice perceptions in the Time 2 New Zealand sample. On the other hand, agreeableness significantly predicted the four forms of justice perceptions and conscientiousness significantly predicted procedural justice perceptions in the Thai sample at both times.

Regarding the direct relationships between individual differences and CWB, there was some consistency across both samples. Similar to the Time 1 findings, disagreeableness predicted CWBI and negligence predicted CWBO in both samples. However, lack of self-control positively predicted both CWBO and CWBI in the Time 2 New Zealand sample and in the Thai sample at both times. The relationships between cultural values (collectivism and power distance) and CWB were found only in the Thai sample at both times.

Little support was found for the proposed moderation model (see Figure 6.8 on p. 152), which predicted individual differences as moderators of the relationships between perceived justice and both forms of CWB. Only negligence (the negative factor of conscientiousness) significantly moderated the interpersonal justice-CWBI relationship in the New Zealand sample in the expected direction, while no support was found for moderation effects in the Thai sample. These results were similar to the Time 1 findings which found almost no support for the moderation hypotheses.

In the following chapter (Chapter 8), the results of the longitudinal analyses are presented.

Chapter 8

Longitudinal Results

This chapter describes the results of longitudinal analyses in the New Zealand and Thai samples. Paired samples *t*-tests for Time 1 and Time 2 and the longitudinal correlations are presented first, followed by the results of longitudinal mediation analyses for the antecedent-perceived justice-CWB links, and main effect and moderation analyses for individual differences.

8.1 Descriptive analysis

This section presents the results of paired samples *t*-tests for the Time 1 and Time 2 data in the New Zealand and Thai samples (see Table 8.1). Paired samples *t*-tests were used to examine whether there was a change in each study variable from Time 1 to Time 2 over the six-month lag time.

In the New Zealand sample, there was a significant reduction in levels of seven (out of twenty) variables at Time 2 relative to Time 1. New Zealand respondents at Time 2 reported significantly lower levels of procedural justice, interpersonal justice, opportunity to voice, communication quality with employees and three out of four LMX components (affect, contribution, and professional respect) than those at Time 1. The means of CWBO and CWBI, however, indicated no significant difference between Time 1 and Time 2 responses.

Similarly, Thai respondents at both times did not differ in the mean levels of CWBO and CWBI. There was a reduction in fourteen variables at Time 2 for the Thai sample relative to Time 1. Compared to Time 1 data, Thai respondents at Time 2 reported significantly lower scores on four forms of justice, outcome satisfaction, opportunity to voice, communication quality, and four LMX

components, agreeableness (the positive factor of agreeableness), conscientiousness (the positive factor of conscientiousness), and collectivism (Table 8.1). There were no any increases in the Time 2 mean variables.

Table 8.1

Paired samples t-tests in the New Zealand and Thai samples

Variables	Time 1 NZ (*N* = 624)		Time 2 NZ (*N* = 276)			Time 1 Thai (*N* = 480)		Time 2 Thai (*N* = 242)		
	M	*SD*	*M*	*SD*	*t*-test	*M*	*SD*	*M*	*SD*	*t*-test
Procedural justice	3.01	0.91	2.81	0.88	2.61**	2.99	0.73	2.60	0.82	5.45***
Distributive justice	2.89	1.11	2.72	1.09	1.83	3.08	0.86	2.75	0.87	4.23***
Interpersonal justice	3.95	1.08	3.70	1.14	2.62**	3.30	0.92	2.85	0.97	5.22***
Informational justice	3.21	1.07	3.07	1.04	1.56	3.20	0.83	2.77	0.89	5.67***
Outcome satisfaction	4.84	1.35	4.68	1.28	1.42	4.66	1.17	3.64	1.40	8.47***
Opportunity to voice	3.13	1.16	2.85	1.07	2.94**	3.10	0.77	2.63	0.99	5.85***
Communication	3.32	0.85	3.04	0.83	3.93***	3.17	0.61	2.83	0.80	5.27***
Affect	3.58	1.06	3.38	1.13	2.15*	3.26	0.93	2.74	0.98	6.31***
Loyalty	3.51	1.14	3.38	1.18	1.40	3.18	0.85	2.79	0.88	5.05***
Contribution	4.05	0.87	3.89	0.98	2.05*	3.34	0.81	2.82	1.03	6.29***
Professional respect	3.63	1.20	3.42	1.30	2.02*	3.47	0.91	3.05	0.99	4.87***
Agreeableness	4.06	0.64	4.02	0.67	0.76	3.51	0.75	3.20	0.88	4.41***
Disagreeableness	1.63	0.68	1.66	0.74	-1.46	2.31	0.75	2.24	0.74	-1.04
Conscientiousness	3.80	0.68	3.78	0.70	0.25	3.38	0.73	3.00	0.87	5.39***
Negligence	1.97	0.80	1.96	0.79	-0.08	2.29	0.86	2.27	0.82	-0.29
Lack of self-control	1.94	0.73	1.94	0.73	0.03	2.20	0.76	2.21	0.82	-0.15
Collectivism	2.99	0.74	2.94	0.72	0.73	3.47	0.68	3.04	0.93	5.91***
Power distance	1.91	0.55	1.85	0.54	1.29	2.78	0.70	2.70	0.82	1.11
CWBO	1.53	0.42	1.58	0.54	-1.20	2.17	1.04	2.00	0.89	1.92
CWBI	1.18	0.32	1.18	0.34	-0.07	1.82	1.03	1.83	0.92	-0.17

Note. NZ = New Zealand; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; all measures were on a 5-point response scale, except outcome satisfaction, CWBO and CWBI which were on a 7-point response scale. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

It seems that the levels of perceived justice and justice antecedents in the New Zealand sample were more consistent in terms of Time 1 and Time 2 scores than those in the Thai sample. Overall, the results indicated that the mean levels of

some predictor variables had decreased over the six-month period in the two samples, while the means of the outcome variables (CWBO and CWBI) were stable over time in both samples.

8.2 Longitudinal correlation analysis

Correlations between the study variables at Time 1 and at Time 2 for the New Zealand and Thai samples are presented in Tables 8.2 and 8.3, respectively. Significant correlations between the variables were all in the expected direction across the two samples. Four justice antecedents at Time 1 (outcome satisfaction, opportunity to voice, LMX and communication quality) were significantly positively correlated with the Time 2 justice perceptions in both samples. Interpersonal justice at Time 1 was significantly negatively correlated with both CWBO and CWBI at Time 2 in the New Zealand sample, while Time 1 informational justice was significantly related to only Time 2 CWBO in the New Zealand sample. For the Thai sample, all forms of justice perceptions except distributive justice at Time 1 were significantly correlated with both forms of CWB at Time 2.

Regarding the correlations between Time 1 individual differences and Time 2 CWB, disagreeableness (the negative factor of agreeableness) and lack of self-control at Time 1 was positively related to both forms of CWB at Time 2 in both samples. However, agreeableness, collectivism and power distance at Time 1 were negatively related to both measures of CWB at Time 2 and negligence (the negative factor of conscientiousness) was significantly positively related to the two measures of CWB at Time 2 only in the Thai sample.

Table 8.2

Longitudinal correlations between the study variables at Time 1 and Time 2 (New Zealand sample, N = 276)

	Time 1 variables	Time 2 variables											
		1	2	3	4	5	6	7	8	9	10	11	12
1.	Procedural justice	.70**	.56**	.49**	.51**	.53**	.57**	.60**	.44**	.46**	.24**	.46**	-.03
2.	Distributive justice	.53**	.60**	.36**	.44**	.48**	.49**	.51**	.35**	.40**	.22**	.40**	.05
3.	Interpersonal justice	.59**	.45**	.68**	.58**	.48**	.48**	.53**	.52**	.54**	.28**	.50**	-.01
4.	Informational justice	.65**	.54**	.64**	.69**	.52**	.56**	.56**	.56**	.56**	.34**	.57**	.01
5.	Outcome satisfaction	.56**	.55**	.47**	.50**	.75**	.59**	.51**	.44**	.47**	.31**	.46**	.08
6.	Opportunity to voice	.67**	.55**	.49**	.52**	.58**	.70**	.64**	.49**	.50**	.32**	.49**	.04
7.	Communication	.61**	.48**	.43**	.48**	.53**	.60**	.65**	.43**	.44**	.35**	.44**	.03
8.	Affect	.47**	.34**	.55**	.56**	.38**	.42**	.43**	.72**	.52**	.33**	.57**	.03
9.	Loyalty	.52**	.38**	.56**	.53**	.45**	.49**	.49**	.57**	.68**	.30**	.54**	.01
10.	Contribution	.30**	.23**	.30**	.31**	.27**	.30**	.32**	.38**	.33**	.57**	.34**	.20**
11.	Professional respect	.50**	.41**	.56**	.57**	.37**	.41**	.44**	.57**	.50**	.37**	.71**	.06
12.	Agreeableness [a]	-.07	-.04	-.08	-.05	.00	.01	-.03	-.03	-.07	.13	-.06	.70**
13.	Disagreeableness [b]	.02	-.02	-.05	-.01	-.07	-.02	-.02	-.03	.02	-.17**	-.04	-.54**
14.	Conscientiousness [c]	.00	-.03	-.05	-.01	.02	.04	.04	.06	.01	.16**	-.01	.08
15.	Negligence [d]	.03	.08	.11	.07	.00	-.02	-.03	.04	.06	-.11	.12	-.15**
16.	Lack of self-control	.11	.16**	-.01	.04	.05	.06	.07	.06	.04	-.08	.06	-.11
17.	Collectivism	.13	.13	.12	.14	.08	.08	.13	.08	.11	.06	.12	-.04
18.	Power distance	-.09	-.08	-.14	-.02	-.10	-.11	-.06	-.02	-.04	-.12	.00	-.11
19.	CWBO	-.11	-.08	-.14**	-.12	-.13	-.10	-.14	-.12	-.14	-.21**	-.17**	-.07
20.	CWBI	-.10	-.06	-.15**	-.07	-.14	-.06	-.09	-.08	-.03	-.11	-.11	-.21**

Note. [a] the positive factor of agreeableness; [b] the negative factor of agreeableness; [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.
**$p < .01$ (one-tailed).

Table 8.2 (Continued)

	Time 1 variables	Time 2 variables							
		13	14	15	16	17	18	19	20
1.	Procedural justice	.02	-.03	.05	.06	.06	.01	-.03	-.07
2.	Distributive justice	-.05	.03	.02	.02	-.01	.03	-.07	-.09
3.	Interpersonal justice	.01	.03	.06	-.00	.07	-.03	-.18**	-.17**
4.	Informational justice	-.01	.00	.08	.02	.11	.02	-.16**	-.14
5.	Outcome satisfaction	-.09	.01	.01	-.03	.07	.01	-.16**	-.16**
6.	Opportunity to voice	.01	.01	.02	.01	.05	.03	-.08	-.10
7.	Communication	.01	.05	.02	.01	.08	.02	-.11	-.08
8.	Affect	.01	.04	.05	.05	.01	.03	-.08	-.05
9.	Loyalty	.05	.00	.11	.04	.11	.06	-.11	-.14
10.	Contribution	-.15**	.13	-.12	-.06	.03	-.06	-.26**	-.16**
11.	Professional respect	-.06	.04	.06	.01	.13	.03	-.13	-.13
12.	Agreeableness [a]	-.45**	.05	-.10	-.07	-.10	-.03	-.05	-.16**
13.	Disagreeableness [b]	.69**	-.03	.19**	.23**	.02	.12	.22**	.28**
14.	Conscientiousness [c]	-.06	.65**	-.49**	-.20**	-.11	.00	-.12	-.04
15.	Negligence [d]	.25**	-.47**	.68**	.34**	.10	.06	.18**	.03
16.	Lack of self-control	.33**	-.16**	.34**	.66**	.06	.07	.27**	.21**
17.	Collectivism	.03	-.10	.12	-.04	.49**	.06	-.01	.03
18.	Power distance	.12	-.02	.09	.11	.06	.50**	.07	.10
19.	CWBO	.25**	-.16**	.24**	.30**	-.08	.08	.68**	.40**
20.	CWBI	.36**	-.14**	.19**	.26**	-.04	.03	.47**	.70**

Note. [a] the positive factor of agreeableness; [b] the negative factor of agreeableness; [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.
**$p < .01$ (one-tailed).

Table 8.3

Longitudinal correlations between the study variables at Time 1 and Time 2 (Thai sample, N = 242)

	Time 1 variables	Time 2 variables											
		1	2	3	4	5	6	7	8	9	10	11	12
1.	Procedural justice	.51**	.39**	.35**	.30**	.20**	.43**	.31**	.30**	.31**	.27**	.29**	.01
2.	Distributive justice	.33**	.55**	.27**	.20**	.18**	.27**	.21**	.17**	.18**	.18**	.12	-.06
3.	Interpersonal justice	.35**	.33**	.58**	.45**	.27**	.37**	.28**	.40**	.39**	.33**	.37**	.05
4.	Informational justice	.34**	.27**	.44**	.48**	.21**	.33**	.24**	.37**	.35**	.28**	.36**	.02
5.	Outcome satisfaction	.32**	.33**	.31**	.27**	.40**	.38**	.29**	.33**	.33**	.22**	.29**	-.01
6.	Opportunity to voice	.39**	.34**	.34**	.28**	.21**	.55**	.37**	.37**	.32**	.31**	.35**	.02
7.	Communication	.30**	.27**	.27**	.23**	.19**	.38**	.46**	.31**	.30**	.31**	.26**	.01
8.	Affect	.29**	.29**	.43**	.38**	.27**	.41**	.35**	.62**	.46**	.41**	.50**	.08
9.	Loyalty	.34**	.30**	.38**	.36**	.28**	.37**	.35**	.45**	.55**	.33**	.38**	.06
10.	Contribution	.30**	.29**	.39**	.34**	.26**	.38**	.35**	.40**	.38**	.56**	.45**	.16
11.	Professional respect	.32**	.25**	.41**	.40**	.30**	.37**	.32**	.48**	.37**	.44**	.59**	.12
12.	Agreeableness [a]	.27**	.21**	.28**	.24**	.26**	.24**	.19**	.27**	.25**	.34**	.33**	.48**
13.	Disagreeableness [b]	-.26**	-.19**	-.28**	-.28**	-.30**	-.23**	-.15	-.23**	-.25**	-.34**	-.34**	-.37**
14.	Conscientiousness [c]	-.14	-.12	-.01	-.05	-.08	-.06	-.08	.03	.00	.00	-.01	.09
15.	Negligence [d]	-.08	-.05	-.16	-.14	-.13	-.11	-.06	-.15	-.12	-.15	-.18**	-.22**
16.	Lack of self-control	-.19**	-.10	-.20**	-.14	-.08	-.18**	-.10	-.17**	-.16	-.15	-.16	-.23**
17.	Collectivism	.24**	.25**	.28**	.22**	.16	.22**	.23**	.24**	.21**	.21**	.26**	.20**
18.	Power distance	.22**	.16	.16	.13	.03	.22**	.21**	.16	.14	.14	.16	.05
19.	CWBO	-.23**	-.16	-.26**	-.27**	-.25**	-.10	-.08	-.15	-.09	-.22**	-.22**	-.22**
20.	CWBI	-.20**	-.08	-.25**	-.23**	-.18**	-.10	-.07	-.14	-.09	-.17**	-.19**	-.17**

Note. [a] the positive factor of agreeableness; [b] the negative factor of agreeableness; [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.
**$p < .01$ (one-tailed).

Table 8.3 (Continued)

	Time 1 variables	Time 2 variables							
		13	14	15	16	17	18	19	20
1.	Procedural justice	-.23**	-.25**	-.06	-.13	.06	.22**	-.19**	-.17**
2.	Distributive justice	-.14	-.25**	-.08	-.14	-.02	.12	-.13	-.05
3.	Interpersonal justice	-.31**	-.01	-.21**	-.20**	.11	.15	-.39**	-.37**
4.	Informational justice	-.26**	-.10	-.17**	-.15	.04	.11	-.33**	-.30**
5.	Outcome satisfaction	-.14	-.15	-.01	.04	.03	.13	-.18**	-.12
6.	Opportunity to voice	-.23**	-.14	-.11	-.11	.05	.22**	-.24**	-.22**
7.	Communication	-.17**	-.14	-.11	-.10	.07	.17**	-.18**	-.16
8.	Affect	-.30**	.04	-.18**	-.11	.13	.18	-.30**	-.28**
9.	Loyalty	-.17**	-.04	-.03	-.02	.05	.18**	-.22**	-.21**
10.	Contribution	-.33**	-.05	-.18**	-.17	.10	.16	-.38**	-.33**
11.	Professional respect	-.33**	.02	-.21**	-.15	.12	.12	-.30**	-.25**
12.	Agreeableness [a]	-.36**	.29**	-.28**	-.26**	.27**	.08	-.33**	-.33**
13.	Disagreeableness [b]	.53**	-.23**	.35**	.41**	-.23**	-.11	.37**	.36**
14.	Conscientiousness [c]	-.07	.49**	-.19**	-.05	.02	-.22**	-.15	-.18**
15.	Negligence [d]	.38**	-.25**	.60**	.46**	-.16	.06	.39**	.37**
16.	Lack of self-control	.36**	-.09	.32**	.45**	-.22**	-.13	.33**	.33**
17.	Collectivism	-.24**	.12	-.21**	-.19**	.56**	.31**	-.39**	-.38**
18.	Power distance	-.11	-.15	.07	-.07	.24**	.61**	-.25**	-.22**
19.	CWBO	.35**	-.15	.43**	.44**	-.17	-.06	.60**	.55**
20.	CWBI	.35**	-.15	.39**	.41**	-.16	-.05	.56**	.64**

Note. [a] the positive factor of agreeableness; [b] the negative factor of agreeableness; [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.
** $p < .01$ (one-tailed).

In sum, the longitudinal correlation results indicated that several significant correlations between the Time 1 and Time 2 study variables were observed in both samples in the expected direction. Longitudinal multivariate analyses were performed to examine possible longitudinal relationships in the two samples.

8.3 Longitudinal hypothesis testing

The longitudinal results are presented in two main sections: (a) longitudinal mediation analyses for the antecedent-justice-CWB links, and (b) longitudinal moderation analyses for individual differences. Similar to the cross-sectional analyses, SEM and hierarchical regression analyses were conducted to examine the longitudinal hypotheses.

Following Cole and Maxwell (2003), the time-effect method which examines whether Time 1 variables can predict variance in Time 2 variables, was employed to test the longitudinal mediation model (Figure 8.1). This approach involves estimating the effect of predictors and mediators at Time 1 on criterion variables at Time 2, while controlling for the Time 1 scores on criterion variables. Following previous justice research (e.g. Kernan & Hanges, 2002), I examined whether the longitudinal effect of predictors at Time 1 on criterion variables at Time 2 occur through the Time 1 mediators. This analysis involved examining (a) the contemporaneous relations between Time 1 predictors and Time 1 mediators, and (b) the longitudinal relations between Time 1 mediators and Time 2 criterion variables.

The time-effect method was also adopted for longitudinal moderation analyses (see p. 236). Criterion variables at Time 2 were regressed on predictors at Time 1, while controlling for the confounding effects from the initial levels of

the criterion variables. Under this method, Time 2 criterion variables were regressed on the interaction effect of predictor × moderator variables at Time 1 while controlling the Time 1 criterion variables (the initial levels of criterion variables).

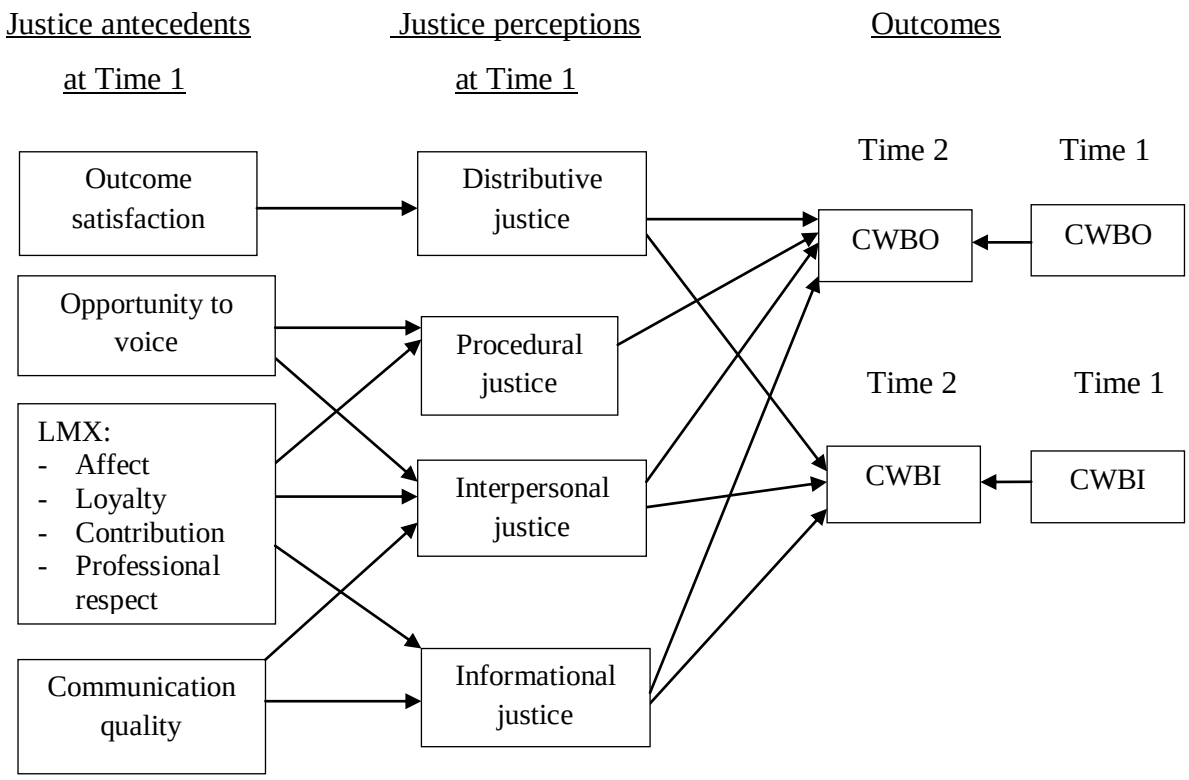

Figure 8.1. Analytical approach for longitudinal mediation analyses.

Note. LMX = leader-member exchange; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.

A. Longitudinal mediation analyses

As in the cross-sectional mediation analyses, the model in Figure 8.1 was decomposed into four sub-models (Models A-D) for each mediator (distributive, procedural, interpersonal and informational justice) to examine their specific mediating effects. The chi-square difference test, fit statistics and parameter estimates were used to compare competing models (full mediation model versus

partial mediation model) (Lance & Vandenberg, 2009). Following James et al. (2006), the full mediation serves as the baseline model in evaluating mediation while the partial mediation is an alternative model in case that the former has a poor fit. If the precondition for mediation was met (paths from the predictor to the mediator and from the mediator to the criterion variable were significant), the bootstrap method with 1,000 replications (Shrout & Bolger, 2002) was employed to assess specific mediating effects.

Model A: Time 1 distributive justice as a mediator of the Time 1 outcome satisfaction-Time 2 CWB relationships

Model A, with Time 1 distributive justice mediating the relationships between Time 1 outcome satisfaction and both forms of Time 2 CWB (Hypotheses 16a and 16b), was examined in both samples. The longitudinal main effect hypotheses (Hypotheses 10a and 10b) that distributive justice at Time 1 would predict the two measures of CWB at Time 2 were also assessed. Both CWBO and CWBI at Time 1 were controlled to prevent the potential confounding effect of Time 1 criterion variables on Time 2 criterion variables.

New Zealand sample

Prior to entering distributive justice, Time 1 outcome satisfaction had no significant direct effects on both Time 2 CWBO (β = -.07, *ns*) and CWBI (β = -.08, *ns*). After the mediator inclusion, outcome satisfaction significantly predicted distributive justice (β = .62, p < .001). However, the paths from Time 1 distributive justice to CWBO (β = -.01, *ns*) at Time 2 and CWBI (β = -.06, *ns*) at Time 2 were not significant, failing to support Hypotheses 10a and 10b that Time

1 distributive justice would predict both forms of CWB at Time 2. These results indicated no mediation effect.

Due to finding no significant path from distributive justice to both forms of CWB, the bootstrap method was not required to assess specific mediating effects. The results failed to support Hypotheses 16a and 16b, that Time 1 distributive justice would mediate the relationship between Time 1 outcome satisfaction and Time 2 CWBO or CWBI in the New Zealand sample.

Thai sample

Model A, with distributive justice as a mediator, was also examined in the Thai sample. Before adding distributive justice, Time 1 outcome satisfaction had a significant direct effect on Time 2 CWBO (β = -.15, p < .01), but not Time 2 CWBI (β = -.09, *ns*). After adding distributive justice at Time 1 (the mediator), the predictor → mediator and mediator → criterion (Time 2 CWBO) path coefficients were significant (see Figure 8.2).

The standardized coefficients for the full mediation model are presented in Figure 8.2. Time 1 outcome satisfaction explained 37% of the variance in Time 1 distributive justice. Time 1 distributive justice and CWBO together explained 38% of the variance in Time 2 CWBO, while this form of justice and CWBI at Time 1 together explained 40% of that in CWBI at Time 2. Time 1 outcome satisfaction significantly predicted Time 1 distributive justice (β = .61, p < .001). Support was found for Hypothesis 10a, as Time 1 distributive justice significantly predicted Time 2 CWBO (β = -.11, p < .05). However, there was no support for Hypothesis 10b, that Time 1 distributive justice would predict Time 2 CWBI.

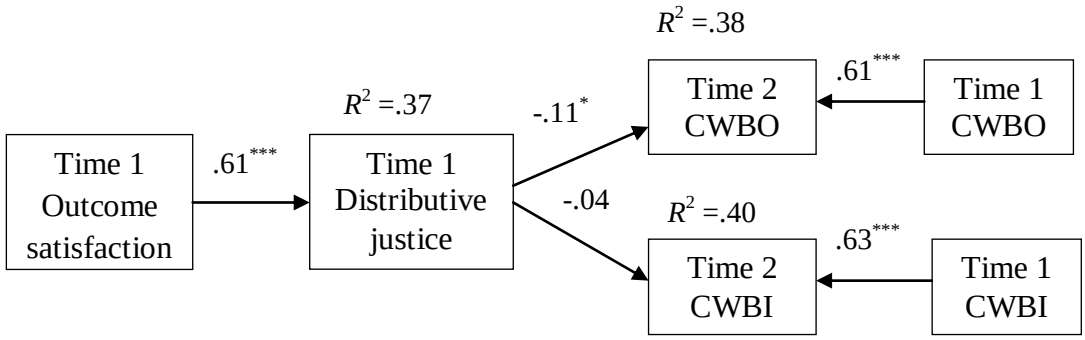

Figure 8.2. Standardised path coefficients for the longitudinal full mediation Model A in the Thai sample.

$^{*}p < .05$. $^{***}p < .001$, one-tailed test.

The two models (Models 1 and 2 in Table 8.4) both had a good fit with no statistical difference in fit statistics. As the paths from the predictor to the mediator and from the mediator to the criterion variable (CWBO) were found, the full mediation model was accepted.

Table 8.4

Fit indices of longitudinal Model A in the Thai sample (N = 242)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2
Model 1 [a]	1.58	4	.40	.02	.99	1.00	.00	(.11-.15)	$\Delta\chi^2_{(21)} = 21.34$
Model 2 [b]	22.92	25	.92	.04	.98	1.00	.00	(.00-.05)	-

Note. [a] model with the direct path from the predictor to the outcome variables excluding the mediator; [b] full mediation model; $\Delta\chi^2$ refers to the chi-square difference between models.

The bootstrap method was used to assess the indirect effects. The results (Table 8.5) indicate that distributive justice significantly mediated the longitudinal relationship between outcome satisfaction and CWBO over the six-month period in the Thai sample, supporting Hypothesis 16a, whereas no significant indirect effect of outcome satisfaction at Time 1 on CWBI at Time 2 was found (Hypothesis 16b).

Table 8.5

Longitudinal mediation effects of distributive justice in the Thai sample (N = 242)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
OS→DJ→CWBO	-.07**	H16a
OS→DJ→CWBI	-.02	H16b

Note. OS= outcome satisfaction; DJ = distributive justice; CWBO = CWB directed toward the organisation; CWBI = CWB directed toward the individual. $^{**}p < .01$.

Overall, it appears that the longitudinal full mediating effect of distributive justice was found only for CWBO in the Thai sample, and not at all in the New Zealand sample.

Model B: Time 1 Procedural justice as a mediator of the Time 1 antecedents-Time 2 CWB relationships

Model B, with procedural justice as a mediator, was assessed in both samples. In the proposed research model (see Figure 8.1 on p. 219), only procedural justice was predicted to have an association with CWBO but not CWBI. Thus, Hypotheses that procedural justice would longitudinally mediate the relationships between its antecedents (opportunity to voice and LMX) and CWBO (Hypotheses 18a and 18b), that this justice would longitudinally predict CWBO (Hypothesis 12), were examined.

New Zealand sample

Prior to adding procedural justice, none of the Time 1 predictors (opportunity to voice and four LMX components) had significant direct effects on Time 2 CWBO. After adding procedural justice, only Time 1 opportunity to voice significantly predicted Time 1 procedural justice ($\beta = .68$, $p < .001$). However, the path from Time 1 procedural justice (the mediator) to Time 2 CWBO (the criterion variable) was not significant ($\beta = -.03$, *ns*), failing to support Hypothesis

12 and to meet the precondition for mediation testing. Thus, the bootstrap method for testing indirect effects was not required. It can be concluded that Hypotheses 18a and 18b(i-iv) that procedural justice would longitudinally mediate the relationships between opportunity to voice and CWBO and between four LMX dimensions and CWBO, were not supported.

Thai sample

Before including procedural justice, only two forms of LMX, contribution (β = -.41, p < .05) and professional respect (β = .28, p < .05) at Time 1, had significant direct effects on Time 2 CWBO. After the inclusion of procedural justice, significant coefficient paths from predictors to the mediator and from the mediator to the criterion variable were observed (see Figure 8.3). This indicated that the precondition for mediation testing was met.

Five antecedents at Time 1 (opportunity to voice and four LMX dimensions) together explained 67% of the variance in procedural justice at Time 1, while this form of justice and CWBO at Time 1 together explained 39% of the variance in CWBO at Time 2 (Figure 8.3). Two out of five paths from antecedents to procedural justice in the full mediation model were significant. Opportunity to voice (β = .73, p < .001) and loyalty (β = .21, p < .05) at Time 1 significantly positively predicted procedural justice at Time 1. In turn, this justice at Time 1 had a significant negative effect on Time 2 CWBO (β = -.18, p < .001), supporting Hypothesis 12.

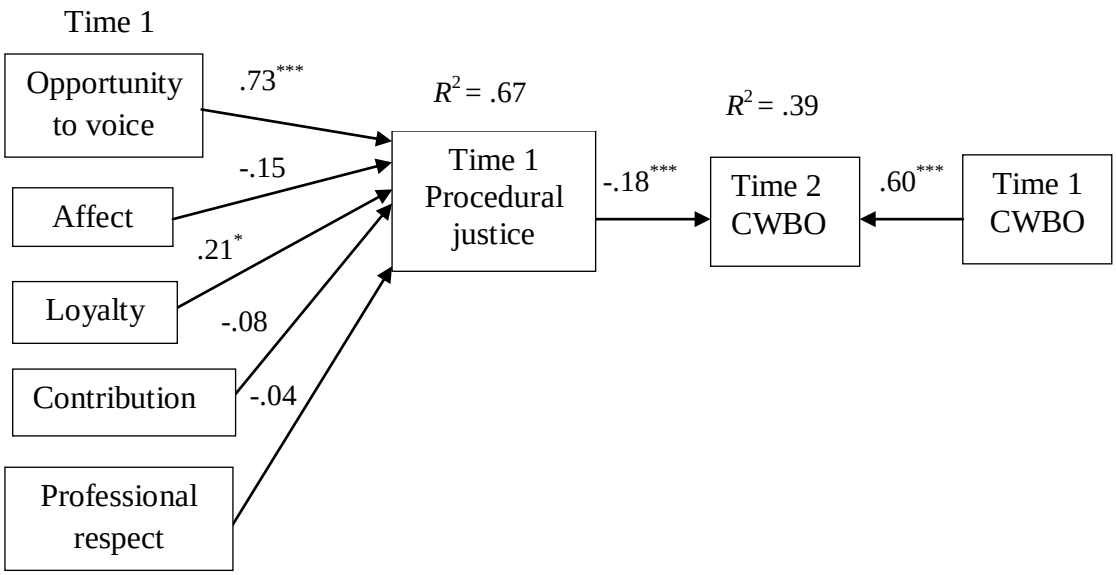

Figure 8.3. Standardised path coefficients for the longitudinal full mediation Model B in the Thai sample.

$^{*}p < .05$. $^{***}p < .001$, one-tailed test.

The results (Table 8.6) indicate a satisfactory goodness-of-fit for the two models, with Model 2 (full mediation model) having a better fit because it had lower values of χ^2/df and RMSEA. Thus, the full mediation model (Model 2) was accepted.

Table 8.6

Fit indices of longitudinal Model B in the Thai sample (N = 242)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2
Model 1 [a]	198.34	90	2.20	.07	.91	.96	.07	(.06-.08)	$\Delta\chi^2_{(104)} = 180.07^{***}$
Model 2 [b]	378.41	194	1.95	.07	.88	.95	.06	(.05-.07)	-

Note. [a] model with the direct path from the predictors to the outcome variable excluding the mediator; [b] full mediation model; $\Delta\chi^2$ refers to the chi-square difference between models.
$^{***}p < .001$.

As the precondition for mediation testing was met, the indirect effect was assessed using the bootstrap method. Two out of five mediation paths (Table 8.7) were significant. Hypotheses 18a and 18b(ii), that procedural justice would

longitudinally mediate the relationships between opportunity to voice and CWBO, and between loyalty and CWBO, were supported.

Table 8.7

Longitudinal mediation effects of procedural justice in the Thai sample (N = 242)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
Voice→PJ→CWBO	-.13**	18a
Affect→PJ→CWBO	-.03	18b(i)
Loyalty→PJ→CWBO	-.04*	18b(ii)
Contribution→PJ→CWBO	-.02	18b(iii)
Professional respect→PJ→CWBO	.01	18b(iv)

Note. Voice = opportunity to voice; PJ = procedural justice; CWBO = CWB directed toward the organisation. $^{*}p < .05$ $^{**}p < .01$.

It can be concluded that the longitudinal full mediating effect of procedural justice was found for CWBO in the Thai sample. Procedural justice longitudinally mediated the relationships between opportunity to voice and CWBO, and between loyalty and CWBO over the six-month period in the Thai sample, whereas no significant longitudinal mediating effects of procedural justice were found in the New Zealand sample.

Model C: Time 1 interpersonal justice as a mediator of the Time 1 antecedents-Time 2 CWB relationships

Model C examining the longitudinal mediating effect of interpersonal justice in the relationships between its antecedents (opportunity to voice, LMX and communication quality) at Time 1 and both forms of CWB at Time 2 (Hypotheses 20a-f) was explored in both samples. The longitudinal main effect hypotheses that interpersonal justice at Time 1 would predict CWBO (Hypothesis 14a) and CWBI (Hypothesis 14b) at Time 2 were also assessed.

New Zealand sample

Before adding Time 1 interpersonal justice, none of the Time 1 predictors had significant direct effects on both forms of CWB at Time 2. After the inclusion of interpersonal justice (the mediator), both paths from predictors to the mediator and from the mediator to the criterion variable (CWBI) were significant.

However, as in the Time 2 cross-sectional mediation analysis Model C (in Chapter 7), a correlation between opportunity to voice and communication quality was high (r = .75). One solution for multicollinearity is to delete a variable which seems not essential to the model (Grewal et al., 2004). As the path from opportunity to voice to interpersonal justice was not significant (β = .03, *ns*), opportunity to voice was deleted from the full mediation model.

The standardised coefficients for the modified full mediation model are presented in Figure 8.4. Four LMX dimensions and communication quality at Time 1 together explained 61% of the variance in interpersonal justice at Time 1, while this form of justice and both forms of CWB at Time 1 together explained 43% of the variance in both forms of CWB at Time 2. Affect (β = .21, p < .05), loyalty (β = .45, p < .001) and communication quality (β = .25, p < .001) at Time 1 significantly positively predicted Time 1 interpersonal justice. This form of justice at Time 1 had a significant negative effect only on Time 2 CWBI (β = -.10, p < .05), supporting Hypothesis 14b but not Hypothesis 14a (CWBO).

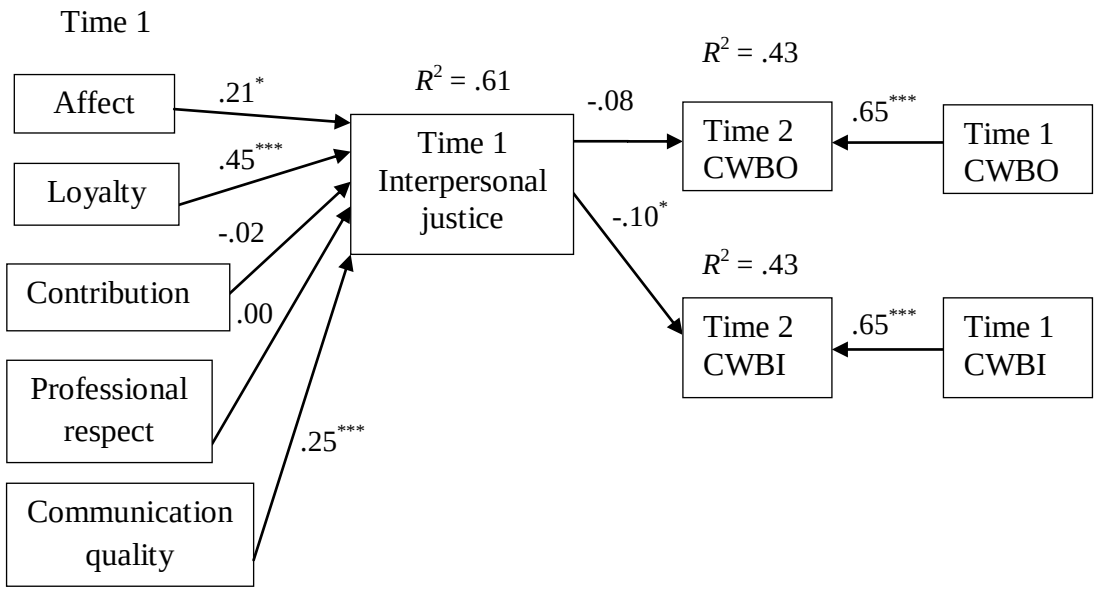

Figure 8.4. Standardised path coefficients for the modified longitudinal full mediation Model C in the New Zealand sample.
$^{*}p < .05$. $^{***}p < .001$, one-tailed test.

The results for the modified Model 2[c] (after the deletion of opportunity to voice) yielded a good fit with a minimal difference in fit statistics compared to Model 2[b] (see Table 8.8). Thus, Model 2[c] was accepted.

Table 8.8

Fit indices of longitudinal Model C in the New Zealand sample (N = 276)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2[b]
Model 1 [a]	385.01	182	2.12	.07	.89	.96	.06	(.06-.07)	$\Delta\chi^2_{(94)} = 129.86$
Model 2 [b]	514.87	276	1.87	.06	.88	.96	.06	(.05-.06)	-
Modified Model 2 [c]	397.36	213	1.87	.07	.89	.97	.05	(.05-.06)	$\Delta\chi^2_{(63)} = 117.52^{***}$

Note. [a] model with the direct path from the predictors to the outcome variables excluding the mediator; [b] full mediation model; [c] deleting opportunity to voice from Model 2 [b]; $\Delta\chi^2$ refers to the chi-square difference between models.
$^{***}p < .001$.

As the precondition for mediation was met, the bootstrap analysis was employed to assess specific mediating effects for CWBI (Hypotheses 20d and

20f). Table 8.9 shows that interpersonal justice significantly mediated the relationships between affect and CWBI, between loyalty and CWBI, and between communication quality and CWBI over the six-month period, supporting Hypotheses 20d(i and ii) and 20f in the New Zealand sample. These three significant mediating paths were in the expected direction (negative relationships).

Table 8.9

Longitudinal mediation effects of interpersonal justice in the New Zealand sample (N = 276)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
Affect→ITJ→CWBI	-.02*	H20d(i)
Loyalty→ITJ→CWBI	-.05**	H20d(ii)
Contribution→ITJ→CWBI	.00	H20d(iii)
Professional respect→ITJ→CWBI	.00	H20d(iv)
Communication→ITJ→CWBI	-.03**	H20f

Note. ITJ = interpersonal justice; CWBI = CWB directed toward the individual. *$p < .05$. **$p < .01$.

No significant path from Time 1 interpersonal justice to Time 2 CWBO was obtained, indicating no significant mediating effect of interpersonal justice for CWBO. Thus, Hypotheses 20c(i-iv) and 20e, that interpersonal justice would longitudinally mediate the relationships between four LMX dimensions and CWBO, and between communication quality and CWBO over time, were not supported in the New Zealand sample.

Thai sample

Prior to adding interpersonal justice, only professional respect at Time 1 had a significant direct effect on both CWBO ($\beta = .32$, $p < .05$) and CWBI ($\beta = .32$, $p < .05$) at Time 2 (which was opposite to the expected direction). After including interpersonal justice (the mediator), the paths from predictors to the mediator and from the mediator to the criterion variables were found.

Consistent with the longitudinal mediation Model C in the New Zealand sample and Time 2 cross-sectional mediation Model C in the Thai sample (in Chapter 7), opportunity to voice and communication quality were highly correlated (r = .74), indicating multicollinearity. Similar to the Model C in the Time 2 Thai data, the path from communication quality (β = -.27, *ns*) to interpersonal justice in the full mediation model was not significant and in an opposite direction to what was expected. Following Grewal et al. (2004), communication quality was deleted from the full mediation model as it may lead to a misspecification error. Standardised path coefficients for the modified full mediation model are presented in Figure 8.5. Opportunity to voice and four LMX dimensions at Time 1 together explained 61% of the variance in interpersonal justice at Time 1. Time 1 interpersonal justice and CWBO together explained 40% of the variance in Time 2 CWBO, while this form of justice and CWBI at Time 1 together explained 41% of that in Time 2 CWBI.

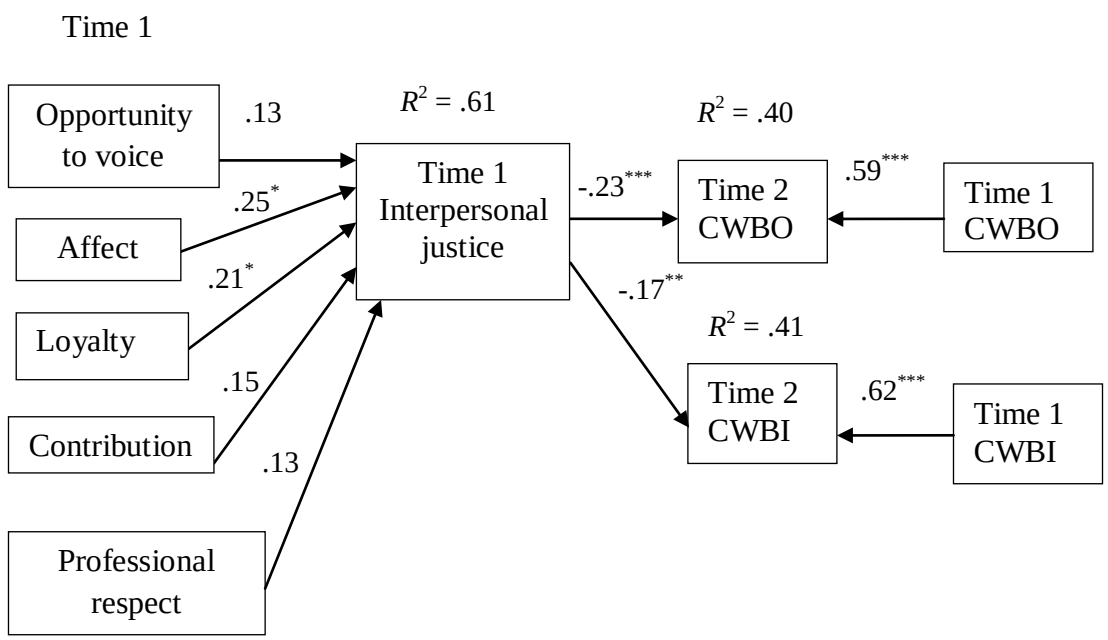

Figure 8.5. Standardised path coefficients for the modified longitudinal full mediation Model C in the Thai sample.

$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$, one-tailed test.

Affect (β = .25, p < .05) and loyalty (β = .21, p < .05) at Time 1 significantly positively predicted interpersonal justice at Time 1, while this form of justice at Time 1 had a significant negative effect on both CWBO (β = -.23, p < .001) and CWBI (β = -.17, p < .01) at Time 2. These results supported Hypotheses 14a and 14b, that interpersonal justice would longitudinally predict CWBO and CWBI over the six-month period, in the Thai sample. The results for the modified Model 2[c] (Table 8.10) provided a good fit with a minimal difference compared to Model 2[b], therefore Model 2[c] was accepted.

Table 8.10

Fit indices of longitudinal Model C in the Thai sample (N = 242)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2[b]
Model 1 [a]	365.57	182	2.01	.07	.89	.96	.07	(.06-.07)	$\Delta\chi^2_{(94)} = 184.63^{***}$
Model 2 [b]	550.19	276	1.99	.09	.86	.95	.06	(.06-.07)	-
Modified Model 2 [c]	381.14	192	1.99	.09	.88	.96	.06	(.06-.07)	$\Delta\chi^2_{(84)} = 169.05^{***}$

Note. [a] model with the direct path from the predictors to the outcome variables excluding the mediator; [b] full mediation model; [c] deleting communication quality from Model 2 [b] ; $\Delta\chi^2$ refers to the chi-square difference between models.
$^{***}p$ < .001.

As both predictor → mediator and mediator → criterion path coefficients were significant, the bootstrap analysis was used to assess the indirect effects. Four out of ten indirect effects (Table 8.11) were significant and in the expected direction. Interpersonal justice significantly mediated the longitudinal relationships between affect and both forms of CWB, and between loyalty and both forms of CWB, supporting Hypotheses 20c(i and ii) and 20d(i and ii) in the Thai sample.

The indirect effects of Time 1 opportunity to voice, contribution and professional respect on both forms of Time 2 CWB were not significant, failing to

support Hypotheses 20a, 20b, 20c(iii and iv) and 20d(iii and iv) in the Thai sample.

Table 8.11

Longitudinal mediation effects of interpersonal justice in the Thai sample (N = 242)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
Voice→ITJ→CWBO	-.03	H20a
Voice→ITJ→CWBI	-.02	H20b
Affect→ITJ→CWBO	-.06*	H20c(i)
Affect→ITJ→CWBI	-.04*	H20d(i)
Loyalty→ITJ→CWBO	-.05*	H20c(ii)
Loyalty→ITJ→CWBI	-.04*	H20d(ii)
Contribution→ITJ→CWBO	-.03	H20c(iii)
Contribution→ITJ→CWBI	-.03	H20d(iii)
Professional respect→ITJ→CWBO	-.03	H20c(iv)
Professional respect→ITJ→CWBI	-.02	H20d(iv)

Note. Voice = opportunity to voice; ITJ = interpersonal justice; CWBO = CWB directed toward the organisation; CWBI = CWB directed toward the individual. $^{*}p < .05$.

In sum, support for the longitudinal full mediation model was found for Model C in both samples. Interpersonal justice consistently mediated the effects of two LMX dimensions (affect and loyalty) on CWBI in both samples, while the mediating effects of this justice for the two LMX dimensions-CWBO relationships were found only in the Thai sample. However, interpersonal justice longitudinally mediated the effect of communication quality on CWBI only in the New Zealand sample.

Model D: Time 1 informational justice as a mediator of the Time 1 antecedents-Time 2 CWB relationships

Model D examines the longitudinal mediating effect of informational justice in the relationships between its antecedents (four LMX dimensions and communication quality) and both forms of CWB in both samples (Hypotheses

22a-22d). The longitudinal main effect hypotheses (Hypotheses 14c and 14d) that informational justice at Time 1 would predict both forms of CWB at Time 2 were also examined.

New Zealand sample

None of the Time 1 predictors (LMX and communication quality) had significant direct effects on CWBO and CWBI at Time 2 before adding informational justice. After adding Time 1 informational justice, communication quality (β = .40, p < .001), loyalty (β = .26, p < .001) and professional respect (β = .27, p < .001) at Time 1 significantly predicted informational justice at Time 1. However, the standardised paths from informational justice (the mediator) at Time 1 to CWBO (β = -.07, *ns*) and CWBI (β = -.06, *ns*) at Time 2 were not significant, failing to support Hypotheses 14c and 14d and indicating no longitudinal mediation effect.

Due to finding nonsignificant paths from informational justice to both forms of CWB, the bootstrap analysis was not required to examine the indirect effects. The results indicated that the longitudinal mediating role of informational justice in the relationships between its antecedents (four LMX dimensions and communication) and both forms of CWB was not observed in the New Zealand sample, failing to support Hypotheses 22a-22d.

Thai sample

Prior to the mediator inclusion, Time 1 contribution (β = -.46, p < .05 for CWBO; β = -.37, p < .05 for CWBI) and professional respect (β = .32, p < .05 for CWBO; β = -31, p < .05 for CWBI) had significant direct effects on both forms of CWB at Time 2, whereas Time 1 affect (β = -.22, p < .05) had a significant direct

effect on Time 2 CWBI. Communication quality and loyalty at Time 1 had no direct effects on both forms of CWB at Time 2. After including informational justice, significant paths from predictors to the mediator and from the mediator to the criterion variables were observed (see Figure 8.6).

The standardised coefficients of the full mediation model are presented in Figure 8.6. Four LMX dimensions and communication quality at Time 1 together explained 59% of the variance in Time 1 informational justice. Informational justice and CWBO at Time 1 together explained 41% of the variance in Time 2 CWBO, while this form of justice and CWBI at Time 1 together explained 42% of that in Time 2 CWBI. Only two forms of LMX, Time 1 loyalty (β = .26, p < .01) and professional respect (β = .31, p < .01), significantly positively predicted Time 1 informational justice. This form of justice at Time 1 had a significant negative effect on Time 2 CWBO (β = -.23, p < .001) and CWBI (β = -.17, p < .01), supporting Hypotheses 14c and 14d.

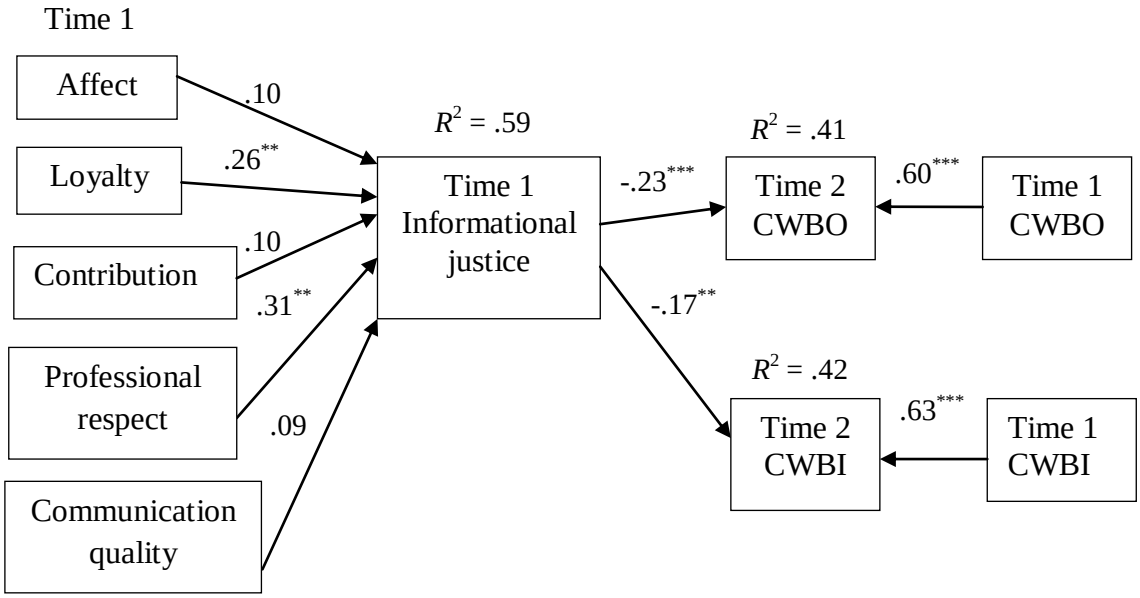

Figure 8.6. Standardised path coefficients for the longitudinal full mediation Model D in the Thai sample.

**p < .01. ***p < .001, one-tailed test.

The full mediation model (Model 2 in Table 8.12) had a slightly better fit compared to the model without the mediator (Model 1) based on the values of χ^2/df and RMSEA. Hence, the full mediation model was accepted.

Table 8.12

Fit indices of longitudinal Model D in the Thai sample (N = 242)

Model	χ^2	*df*	χ^2/df	SRMR	GFI	CFI	RMSEA	RMSEA confidence interval	Comparison with Model 2
Model 1 [a]	302.32	132	2.29	.08	.89	.96	.07	(.06-.08)	$\Delta\chi^2_{(103)} = 155.72^{***}$
Model 2 [b]	458.03	235	1.95	.08	.87	.95	.06	(.05-.07)	-

Note. [a] model with the direct path from the predictors to the outcome variables excluding the mediator; [b] full mediation model; $\Delta\chi^2$ refers to the chi-square difference between models.
$^{***}p < .001$.

As the precondition for mediation was met, the bootstrap method was performed to assess specific mediation effects. Four out of ten mediation routes (Table 8.13) were significant and in the expected direction. The indirect effects of loyalty and professional respect at Time 1 on CWBO and CWBI at Time 2 were significant, supporting Hypotheses 22c(ii and iv) and 22d(ii and iv) in the Thai sample.

Table 8.13

Longitudinal mediation effects of informational justice in the Thai sample (N = 242)

Predictor→Mediator→Criterion	Indirect effect	Hypothesis
Communication→IFJ→CWBO	-.02	22a
Communication→IFJ→CWBI	-.02	22b
Affect→IFJ→CWBO	-.02	22c(i)
Affect→IFJ→CWBI	-.02	22d(i)
Loyalty→IFJ→CWBO	$-.06^{*}$	22c(ii)
Loyalty→IFJ→CWBI	$-.05^{*}$	22d(ii)
Contribution→IFJ→CWBO	-.03	22c(iii)
Contribution→IFJ→CWBI	-.02	22d(iii)
Professional respect→IFJ→CWBO	$-.07^{*}$	22c(iv)
Professional respect→IFJ→CWBI	$-.05^{*}$	22d(iv)

Note. IFJ = informational justice; CWBO = CWB directed toward the organisation; CWBI = CWB directed toward the individual. $^{*}p < .05$.

However, Hypotheses 22a, 22b, 22c(i and iii) and 22d(i and iii), that informational justice at Time 1 would mediate the effects of communication quality, affect and contribution at Time 1 on both forms of CWB at Time 2, were not supported in the Thai sample (see Table 8.13).

Summary of longitudinal mediation analyses

Full mediation effects were found for Models A-D in the Thai sample, while only for Model C (with interpersonal justice as a mediator) in the New Zealand sample. Interpersonal justice longitudinally mediated the effects of affect, loyalty and communication on CWBI in the New Zealand sample, whereas in the Thai sample more support was found for the longitudinal mediating effects of the four forms of justice in the relationships between Time 1 antecedents and Time 2 CWB (Table 8.14). No partial mediation effect was found in both samples.

Table 8.14

Significant longitudinal full mediation effects of four justice components

Four forms of justice	New Zealand	Thai
Distributive justice	-	√
Procedural justice	-	√
Interpersonal justice	√	√
Informational justice	-	√

B. Longitudinal moderation analyses

This section involves longitudinal moderation hypothesis tests, which explored the moderating effects of individual differences (two factors of agreeableness and conscientiousness, lack of self-control, collectivism, and power distance) in the relationships between perceived justice and CWB over the six-month period (see Figure 8.7). The following analyses also examined the

longitudinal main effects of those individual differences on perceived justice and CWB.

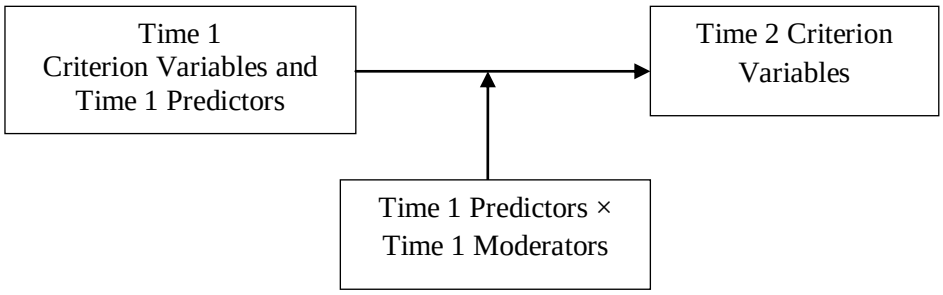

Figure 8.7. Analytical approach for longitudinal moderation analyses.

Prior to the interaction term calculation, all predictors and moderators were mean-centred to avoid multicollinearity (Aiken & West, 1991). Hierarchical moderated regression was performed to estimate the longitudinal interaction effects. The predictor variables were entered in the regression equation in six steps. In Step 1, two forms of CWB at Time 1 were entered to control for their possible confounding effect on CWB at Time 2, followed by demographic variables. In Step 3, four forms of justice were entered to assess the main effect of perceived justice. Following previous studies (e.g. Colquitt et al., 2006), the interactions among perceived justice were entered in Step 4 to control their interactive effects on CWB. In Step 5, individual differences were entered, followed by the two-way interactions between justice perceptions and individual differences.

Significant interactions were plotted if the *F* change value in Step 6 was significant (Jaccard & Turrisi, 2003). As in cross-sectional analyses (Chapter 6 and 7), the simple slopes test, using maximum and minimum values of the moderator (Preacher et al., 2006), was conducted to assess specific interactions which might be significant.

The longitudinal main effects of personality traits (two factors of agreeableness and conscientiousness, and lack of self-control) on justice perceptions were examined first, followed by the longitudinal main effects of those personality traits and two cultural values (collectivism and power distance) on CWB and their moderating effects in the perceived justice-CWB relationships.

Personality traits as direct determinants of justice perceptions

Hierarchical regression analyses were conducted separately for each justice perception (distributive, procedural, interpersonal and informational justice) to examine the longitudinal main effects of personality traits at Time 1 on those justice perceptions at Time 2 (see Tables 8.15-8.18). In Step 1, perceived justice at Time 1 was entered to control for their possible confounding effect on perceived justice at Time 2. In the next two steps, all five demographic variables (age, gender, education, organisational and job tenure) were entered as control variables, followed by two factors of agreeableness (agreeableness and disagreeableness), two factors of conscientiousness (conscientiousness and negligence) and lack of self-control at Time 1.

Analysis 1: The longitudinal main effects of personality traits on distributive justice

Table 8.15 displays the main effects of five personality traits at Time 1 on distributive justice at Time 2 in both samples. Distributive justice at Time 1 explained 36% and 31% of the variance in this form of justice at Time 2 in the New Zealand and Thai samples, respectively. Those personality traits at Time 1 together explained 1% and 5 % of the variance in distributive justice at Time 2 in the former and in the latter, respectively.

Table 8.15

Longitudinal hierarchical regression analysis for personality traits at Time 1 predicting distributive justice at Time 2 in the New Zealand and Thai samples

Predictors	NZ sample (N = 276)				Thai sample (N = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.36	.36	147.11***	0.60***	.31	.31	102.62***	
Time 1 distributive justice								0.56***
Step 2	.38	.02	1.60		.33	.02	1.49	
Gender				0.02				0.12*
Age				-0.09				0.02
Education				0.09				-0.00
Organisational tenure				0.07				0.11
Job tenure				-0.07				-0.11
Step 3	.38	.01	0.55		.38	.05	3.64**	
Agreeableness				-0.06				0.14*
Disagreeableness				-0.05				-0.12
Conscientiousness				0.02				-0.15*
Negligence				0.03				-0.02
Lack of self-control				0.06				0.03

Note. NZ = New Zealand. *p < .05. **p < .01. ***p < .001 (one-tailed).

No support was found for Hypotheses 24a, 26a and 28a, that agreeableness, conscientiousness and lack of self-control at Time 1 would predict distributive justice at Time 2 in the New Zealand sample. However, agreeableness (β = .14) and conscientiousness at Time 1 (β = -.15) significantly predicted distributive justice at Time 2 in the Thai sample in the expected direction, supporting Hypotheses 24a and 26a.

Analysis 2: The longitudinal main effects of personality traits on procedural justice

The regression analyses (Table 8.16) showed that procedural justice at Time 1 explained 48% and 26% of the variance in Time 2 procedural justice in the New Zealand and Thai samples, respectively. Five personality traits at Time 1 together explained 1% and 8% of the variance in procedural justice at Time 2 in the New Zealand and Thai samples, respectively. All of the personality traits at Time 1 had no significant main effects on procedural justice at Time 2 in the New Zealand sample, failing to support Hypotheses 24b, 26b and 28b. On the other hand, agreeableness (β = .16), disagreeableness (β = -.17) and conscientiousness (β = -.18) at Time 1 significantly predicted procedural justice at Time 2 in the Thai sample in the expected direction. These results were supportive of Hypotheses 24b and 26b in the Thai sample.

Table 8.16

Longitudinal hierarchical regression analysis for personality traits at Time 1 predicting procedural justice at Time 2 in the New Zealand and Thai samples

Predictors	NZ sample (N = 276)				Thai sample (N = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.48	.48	245.08***		.26	.26	80.48***	
Time 1 procedural justice				0.69***				0.51***
Step 2	.49	.01	0.79		.28	.02	1.33	
Gender				-0.03				0.12*
Age				-0.07				-0.06
Education				0.01				-0.04
Organisational tenure				0.04				0.09
Job tenure				-0.05				-0.03
Step 3	.50	.01	0.56		.36	.08	5.15***	
Agreeableness				-0.03				0.16*
Disagreeableness				-0.05				-0.17*
Conscientiousness				0.06				-0.18**
Negligence				0.01				0.06
Lack of self-control				-0.01				0.00

Note. NZ = New Zealand. *p < .05. **p < .01. ***p < .001 (one-tailed).

Analysis 3: The longitudinal main effects of personality traits on interpersonal justice

Table 8.17 displays the main effects of five personality traits at Time 1 on interpersonal justice at Time 2 in both samples. Interpersonal justice at Time 1 explained 46% and 33% of the variance in this justice at Time 2 in New Zealand and Thai samples, respectively. Those personality traits at Time 1 together explained 2% and 3% of the variance in interpersonal justice at Time 2 in the former and in the latter, respectively.

No longitudinal main effect was observed for those personality traits in the New Zealand sample, failing to support Hypotheses 24c, 26c and 28c. On the other hand, agreeableness (β = .13) and conscientiousness (β = -.12) at Time 1 significantly predicted interpersonal justice at Time 2 in the Thai sample in the expected direction, supporting Hypotheses 24c and 26c.

Table 8.17

Longitudinal hierarchical regression analysis for personality traits at Time 1 predicting interpersonal justice at Time 2 in the New Zealand and Thai samples

Predictors	NZ sample (N = 276)				Thai sample (N = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.46	.46	223.22***		.33	.33	115.23***	
Time 1 interpersonal justice				0.68***				0.58***
Step 2	.46	.01	0.52		.37	.03	2.35*	
Gender				-0.03				0.14*
Age				-0.03				-0.06
Education				0.04				-0.10
Organisational tenure				-0.00				0.06
Job tenure				-0.04				-0.03
Step 3	.48	.02	1.69		.40	.03	2.42*	
Agreeableness				-0.04				0.13*
Disagreeableness				-0.11				-0.07
Conscientiousness				0.01				-0.12*
Negligence				0.11				0.03
Lack of self-control				-0.05				-0.06

Note. NZ = New Zealand. *p < .05. ***p < .001 (one-tailed).

Analysis 4: The longitudinal main effects of personality traits on informational justice

The longitudinal main effects of five personality traits on informational justice are presented in Table 8.18. Informational justice at Time 1 explained 48% and 23% of the variance in this justice at Time 2 in the New Zealand and Thai samples, respectively. Those personality traits at Time 1 together explained 0% and 5% of the variance in informative justice at Time 2 in the New Zealand and Thai samples, respectively. No support was found for Hypotheses 24d, 26d and 28d that Time 1 agreeableness, conscientiousness and lack of self-control would predict informational justice at Time 2 in the New Zealand sample. In the Thai sample, disagreeableness (β = -.15) and conscientiousness (β = -.14) at Time 1 significantly predicted informational justice at Time 2 in the expected direction, supporting Hypotheses 24d and 26d.

Table 8.18

Longitudinal hierarchical regression analysis for personality traits at Time 1 predicting informational justice at Time 2 in the New Zealand and Thai samples

Predictors	NZ sample (N = 276)				Thai sample (N = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.48	.48	240.12***		.23	.23	70.32***	
Time 1 informational justice				0.69***				0.48***
Step 2	.49	.01	0.86		.27	.03	2.00	
Gender				-0.06				0.12*
Age				-0.01				-0.03
Education				-0.01				-0.11
Organisational tenure				-0.06				0.06
Job tenure				-0.02				-0.06
Step 3	.49	.00	0.18		.32	.05	3.26**	
Agreeableness				0.02				0.11
Disagreeableness				-0.02				-0.15*
Conscientiousness				0.02				-0.14*
Negligence				0.02				-0.01
Lack of self-control				-0.03				0.01

Note. NZ = New Zealand. *p < .05. **p < .01. ***p < .001 (one-tailed).

Overall, no support was found for the longitudinal main effects of five personality traits on four forms of justice in the New Zealand sample. In the Thai sample, conscientiousness at Time 1 predicted all forms of perceived justice at Time 2. Agreeableness longitudinally predicted three forms of justice (distributive, procedural and interpersonal justice), while disagreeableness (the negative factor of agreeableness) longitudinally predicted procedural and informational justice in the Thai sample.

Individual differences as moderators of the perceived justice-CWB relationships

Hierarchical moderated regressions were conducted separately for each criterion variable (see Table 8.19 for CWBO and Table 8.20 for CWBI) to explore the longitudinal moderating effects of individual differences in the relationships between Time 1 justice perceptions and Time 2 CWB in both samples. The analytical approach in Figure 8.7 (p. 237) was adopted for longitudinal moderation. Under this approach, the effects of Time 1 predictors and Time 1 moderators on Time 2 criterion variable were assessed while controlling the Time 1 criterion variable, to avoid the confounding effect of the initial levels of the criterion variable.

Time 2 CWBO

Table 8.19 shows that 46% and 37% of the variance in Time 2 CWBO were explained by Time 1 CWBO in the New Zealand and Thai samples, respectively. Five demographic variables (gender, age, education, organisational and job tenure) together explained 2% and 4% of the variance in Time 2 CWBO in the former and the latter. Four forms of justice at Time 1 together explained 1% and 4% of the variance in CWBO at Time 2 in the New Zealand and Thai

samples, whereas the interactions among justice at Time 1 explained 1% and 3% of the variance in Time 2 CWBO in the former and the latter, respectively. Time 1 individual differences together explained 0% and 4% of the variance in Time 2 CWBO in the New Zealand and Thai samples, respectively.

Table 8.19

Longitudinal hierarchical regression analysis of Time 2 CWBO on Time 1 justice perceptions and Time 1 individual differences

Predictors	NZ sample (N = 276)				Thai sample (N = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.46	.46	221.72***		.37	.37	133.82***	
Time 1 CWBO				0.68***				0.61***
Step 2	.48	.02	2.30*		.40	.04	2.62*	
Gender				-0.12**				0.07
Age				-0.10				0.26**
Education				-0.01				0.03
Organisational tenure				0.01				-0.01
Job tenure				-0.03				-0.17
Step 3	.49	.01	1.35		.44	.04	4.02**	
PJ				-0.02				0.03
DJ				0.05				0.02
ITJ				-0.08				-0.10
IFJ				-0.03				-0.15
Step 4	.50	.01	0.75		.48	.03	2.32*	
PJ×DJ				-0.06				-0.12
PJ×ITJ				0.18				0.23*
PJ×IFJ				-0.09				-0.07
DJ×ITJ				-0.01				-0.01
DJ×IFJ				0.05				-0.01
ITJ×IFJ				-0.10				0.06
Step 5	.50	.00	0.30		.51	.04	2.28*	
AGREE				0.01				-0.06
DISAGREE				0.00				-0.07
CONS				-0.01				-0.00
NEG				-0.07				0.13
LSC				0.05				0.04
COL				0.00				-0.06
PD				-0.00				-0.12*

Table 8.19(Continued)

Predictors	NZ sample (N = 276)				Thai sample (N = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 6	.55	.05	0.78		.60	.09	1.50	
PJ×AGREE				-0.04				0.14
PJ×DISAGREE				-0.07				-0.07
PJ×CONS				-0.04				0.07
PJ×NEG				0.10				0.02
PJ×LSC				0.05				0.02
PJ×COL				-0.04				-0.06
PJ×PD				-0.01				-0.14
DJ×AGREE				-0.01				-0.06
DJ×DISAGREE				0.17*				-0.01
DJ×CONS				0.14				0.01
DJ×NEG				-0.04				0.01
DJ×LSC				-0.07				0.07
DJ×COL				0.03				0.04
DJ×PD				-0.06				0.15
ITJ×AGREE				-0.10				0.01
ITJ×DISAGREE				-0.19				-0.12
ITJ×CONS				0.02				0.03
ITJ×NEG				0.15				0.07
ITJ×LSC				0.04				-0.34*
ITJ×COL				-0.10				-0.12
ITJ×PD				-0.09				0.05
IFJ×AGREE				0.11				-0.08
IFJ×DISAGREE				0.10				0.33*
IFJ×CONS				-0.09				-0.08
IFJ×NEG				-0.18				-0.19
IFJ×LSC				0.00				0.24
IFJ×COL				0.04				0.30
IFJ×PD				0.11				0.09
Total R^2	.55				.60			

Note. NZ = New Zealand; PJ = procedural justice; DJ = distributive justice; ITJ = interpersonal justice; IFJ = informational justice; AGREE = agreeableness; DISAGREE = disagreeableness; CONS = conscientiousness; NEG = negligence; LSC = lack of self-control; COL = collectivism; PD = power distance; CWBO = counterproductive work behaviour toward the organisation.
*p < .05. **p < .01. ***p < .001 (one-tailed).

Consistent with Colquitt et al. (2006), the combination of procedural and interpersonal justice significantly created high CWBO in the Thai sample in Step 4. In Step 5, only Time 1 power distance had a significant main effect (β = -.12, p < .05) on Time 2 CWBO in the Thai sample, supporting Hypothesis 38a that Time 1 power distance would negatively predict Time 2 CWBO. However, Hypotheses

30a, 32a, 34a, and 36a, that Time 1 agreeableness, conscientiousness, lack of self-control and collectivism would predict Time 2 CWBO, were not supported in both samples.

The *F* change value in Step 6 was not significant in both samples, indicating no overall significant interactions. Although one out of twenty-eight interaction terms was significant in the New Zealand sample (distributive justice × disagreeableness), and two interactions were significant in the Thai sample (interpersonal justice × lack of self-control and informational justice × disagreeableness), these were not plotted or examined by the simple slopes test.

Overall, no support was found for the overall longitudinal moderation role of individual differences in the relationships between justice perceptions and CWBO in both samples. Thus, Hypotheses 40(a, c, d and f), 42(a, c, d and f), 44(a, c, d and f), 46(a, c, d and f) and 48(a, c, d and f) were not supported in both samples.

Time 2 CWBI

The results (Table 8.20) show that Time 1 CWBI explained 48% and 41% of the variance in Time 2 CWBI in the New Zealand and Thai samples, respectively. Five demographic variables together explained 1% and 3% of the variance in Time 2 CWBI in the former and the latter. Four forms of justice at Time 1 together explained 1% and 3% of the variance in Time 2 CWBI in the New Zealand and Thai samples, while the interaction terms among justice at Time 1 together explained 1% and 3% of the variance in CWBI at Time 2 in the former and the latter samples, respectively. Individual differences at Time 1 together explained 3% of the variance in Time 2 CWBI in both samples.

In Step 5, no individual differences (two factors of agreeableness and conscientiousness, lack of self-control, collectivism and power distance) at Time 1 had significant main effects on Time 2 CWBI in both samples, failing to support Hypotheses 30b, 32b, 34b, 36b and 38b. No significant interactions were observed in the New Zealand sample, while one out of twenty-eight interaction terms (informational justice × disagreeableness) was significant in the Thai sample. However, the *F* change value in Step 6 was not significant in both samples. Thus, the one significant interaction in the Thai sample was not plotted or assessed with the simple slopes test.

Table 8.20

Longitudinal hierarchical regression analysis of Time 2 CWBI on Time 1 justice perceptions and Time 1 individual differences

Predictors	NZ sample (N = 276)				Thai sample (N = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 1	.48	.48	247.49***		.41	.41	160.91***	
Time 1 CWBI				0.70***				0.64***
Step 2	.49	.01	0.62		.44	.03	2.00	
Gender				-0.04				0.05
Age				-0.02				0.22**
Education				0.02				-0.00
Organisational tenure				-0.06				-0.05
Job tenure				-0.01				-0.15
Step 3	.50	.01	1.66		.46	.03	2.85*	
PJ				-0.02				0.01
DJ				-0.02				0.09
ITJ				-0.14				-0.11
IFJ				0.06				-0.12
Step 4	.51	.01	0.91		.49	.03	2.04	
PJ×DJ				-0.04				-0.02
PJ×ITJ				0.07				0.21
PJ×IFJ				-0.01				-0.09
DJ×ITJ				0.04				0.01
DJ×IFJ				-0.07				-0.05
ITJ×IFJ				-0.11				0.07

Table 8.20(Continued)

Predictors	NZ sample (N = 276)				Thai sample (N = 242)			
	R^2	ΔR^2	ΔF	β	R^2	ΔR^2	ΔF	β
Step 5	.54	.03	2.12*		.53	.03	2.07*	
AGREE				-0.02				-0.07
DISAGREE				0.03				-0.03
CONS				0.08				-0.02
NEG				-0.11				0.08
LSC				0.04				0.05
COL				0.04				-0.07
PD				0.04				-0.10
Step 6	.58	.04	0.62		.59	.06	0.95	
PJ×AGREE				-0.00				0.09
PJ×DISAGREE				-0.02				-0.10
PJ×CONS				0.07				0.09
PJ×NEG				0.05				0.07
PJ×LSC				-0.05				-0.00
PJ×COL				0.02				-0.07
PJ×PD				-0.10				-0.10
DJ×AGREE				-0.10				-0.04
DJ×DISAGREE				0.03				0.02
DJ×CONS				-0.04				-0.02
DJ×NEG				-0.07				-0.09
DJ×LSC				-0.05				0.11
DJ×COL				0.00				-0.02
DJ×PD				0.03				0.09
ITJ×AGREE				0.08				-0.13
ITJ×DISAGREE				-0.06				-0.17
ITJ×CONS				0.04				0.06
ITJ×NEG				0.03				0.11
ITJ×LSC				0.07				-0.23
ITJ×COL				-0.03				0.04
ITJ×PD				-0.02				0.01
IFJ×AGREE				0.02				0.04
IFJ×DISAGREE				0.05				0.28*
IFJ×CONS				-0.00				-0.06
IFJ×NEG				-0.03				-0.12
IFJ×LSC				-0.06				0.14
IFJ×COL				-0.02				0.11
IFJ×PD				0.04				0.16
Total R^2	.58				.59			

Note. NZ = New Zealand; PJ = procedural justice; DJ = distributive justice; ITJ = interpersonal justice; IFJ = informational justice; AGREE = agreeableness; DISAGREE = disagreeableness; CONS = conscientiousness; NEG = negligence; LSC = lack of self-control; COL = collectivism; PD = power distance; CWBI = counterproductive work behaviour toward the individual.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$ (one-tailed).

Hypotheses 40(b, e and g), 42(b, e and g), 44(b, e and g), 46(b, e and g) and 48(b, e and g) that Time 1 individual differences (agreeableness, conscientiousness, lack of self-control, collectivism and power distance) would moderate the relationships between Time 1 justice perceptions (distributive, procedural, interpersonal and informational justice) and Time 2 CWBI over the six-month period, were not supported in both samples.

In sum, it can be concluded that none of the longitudinal moderation hypotheses was supported in both samples. Power distance was the only individual difference which had a significant main effect on CWBO over the six-month time in the Thai sample, while no significant longitudinal main effects of individual differences on CWBI were observed in both samples.

8.4 Chapter summary

This chapter has described the longitudinal main effect, mediation and moderation results in both New Zealand and Thai samples. The full mediation model was found for Models A-D (four forms of justice as a mediator in each model) in the Thai sample and for Model C in the New Zealand sample. Ten percent of the longitudinal mediation hypotheses were supported in the New Zealand sample. Interpersonal justice longitudinally mediated the effects of affect, loyalty and communication quality on CWBI, while no mediating effects were observed for the other three forms of justice (distributive, procedural and informational justice) in the New Zealand sample.

More support was found for the longitudinal mediation hypotheses in the Thai sample with 38% of mediation significant. Distributive justice longitudinally mediated the effect of outcome satisfaction on CWBO, while procedural justice longitudinally mediated the effects of opportunity to voice and loyalty on CWBO.

Interpersonal justice longitudinally mediated the effects of affect and loyalty on both CWBO and CWBI, whereas informational justice mediated the effects of loyalty and professional respect on the two forms of CWB over time in the Thai sample.

Four forms of justice perceptions had long-term effects on CWB in the Thai sample, while only interpersonal justice longitudinally predicted CWBI in the New Zealand sample. Two personality traits (agreeableness and conscientiousness) longitudinally predicted the four forms of perceived justice in the Thai sample, while no longitudinal main effects of personality traits on perceived justice were found in the New Zealand sample.

Additionally, only power distance had a significant longitudinal main effect on CWBO in the Thai sample, whereas none of individual differences (agreeableness, conscientiousness, lack of self-control, collectivism and power distance) had significant main effects on both measured CWB over time in the New Zealand sample. No support was observed in both samples for the longitudinal moderation analyses examining the interactions between Time 1 justice perceptions and Time 1 individual differences on Time 2 CWB.

Chapter 9 discusses all cross-sectional and longitudinal findings, followed by the current research's limitations, implications for future research, and the conclusions.

Chapter 9

Discussion

The main objective of this research was to examine whether a model of linkages among antecedents of justice, perceptions of justice, individual differences and counterproductive work behaviour (CWB) would be generalizable to New Zealand and Thailand. The current research extended Cullen and Sackett's (2003) model of personality and CWB, which proposes empirical links among organisational events, work perceptions, personality and CWB. My study extended this model by examining specific justice perceptions, justice antecedents, and individual differences to predict the occurrence of two forms of CWB. The research model included two main parts: perceived justice mediating the relationships between antecedents and CWB, and the moderating influence of individual differences on the relationships between justice perceptions and CWB. This chapter discusses the following topics: (a) research design, (b) psychometric properties of measures, (c) research findings, (d) theoretical significance, (e) practical implications, (f) research limitations and recommendations for future research.

9.1 Research design

The current research used a longitudinal design which enables more rigorous inferences about causal relationships among the study variables. Due to limitations with the use of a cross-sectional design, a two-wave longitudinal design was employed to test the main effect, mediation and moderation analyses in this research. Gollob and Reichardt (1987) outlined two main problems in cross-sectional research. First, some variables may take time to exert their effects.

Measuring variables at the same time may not be sufficient to unfold any causal relationships among them. Second, conclusions drawn from cross-sectional data can be in error because previous levels of criterion variables may influence later levels. That is, a criterion variable can have an effect on itself at a later time (autoregressive effect). Thus, if previous levels of the criterion variables are not controlled for, this may lead to over- or underestimated values of parameters. Using cross-sectional data in the mediation model not only assumes that any causes are instantaneous but also that the magnitude of the effect does not vary over time. To address these concerns, the hypotheses of the current research were examined both cross-sectionally and longitudinally.

Two waves of data collection were used to test the longitudinal mediating effects of justice perceptions in the relationships between their antecedents and behavioural outcomes (i.e. CWB). Following previous longitudinal justice research (e.g. Kernan & Hanges, 2002), contemporaneous relations between antecedents and perceived justice were examined while the relationships between justice perceptions and CWB were examined longitudinally. Thus, Time 2 CWB was regressed on Time 1 antecedents and Time 1 justice perceptions while controlling for Time 1 levels of CWB.

Due to insufficient theoretical or empirical arguments on the appropriate time lag for the effects of particular predictors on criterion variables, a six-month lag time was selected based on organisational reasons (e.g. time constraints) (Zapf et al., 1996). Overall, the findings showed that a six-month lag was sufficient to detect the effects of justice perceptions on CWB for the Thai sample, but might be too long for the New Zealand sample. In the latter sample, justice perceptions seemed to have an immediate effect on CWB rather than a long-term effect.

9.2 Psychometric properties of measures

The measures of the research variables demonstrated good reliabilities in both samples at both times. Even though the reliability of power distance was below .7 in the New Zealand sample (α = .62 at Time 1 and α = .66 at Time 2), the alpha coefficient of some cultural dimensions has also appeared to be below .7 in some previous studies (e.g. Hui & Au, 2001; Wu, 2006). Confirmatory factor analysis (CFA) was conducted to validate the factorial structure for all of the latent variables, except the measures of outcome satisfaction and CWB. As noted by Spector et al. (2006), measures with non-interchangeable or discrete items and differences in item distribution may cause distortion in factor structures. As both measures of outcome satisfaction and CWB contained discrete items, reflecting different facets of extrinsic outcomes received from work (e.g. financial rewards, job security or physical working conditions) and different harmful behaviours directed toward the organisation (e.g. being absent from work or destroying organisational physical property) and other individuals (e.g. ignoring someone at work or stealing from another person at work), CFA was not conducted on these measures.

The results of CFA provided the same factor structure for all of the latent constructs in both samples at both times. Based on the results of CFA, I assessed organisational justice as four constructs (distributive, procedural, interpersonal and informational justice), LMX as four constructs (affect, loyalty, contribution and professional respect), agreeableness as two constructs (agreeableness and disagreeableness), and conscientiousness as two constructs (conscientiousness and negligence) for further analyses in this research. On the other hand, the CFA results showed a single factor for the opportunity to voice, communication quality, lack of self-control, collectivism and power distance measures. The CFA

results indicated that all of these measures had a good fit to the observed data in both samples at both times.

As the aim of the present research was to investigate the unique effects of four justice dimensions on specific targets of CWB, CWB was differentiated into two constructs reflecting the target (CWBO and CWBI), based on Spector et al. (2006). Consistent with previous research (Mount et al., 2006), there were very high correlations (r = .80 at Time 1 and r = .90 at Time 2) among the two subscales of CWB in the Thai sample and moderately high correlations (r = .56 at Time 1 and r = .60 at Time 2) in the New Zealand sample, indicating that these two subscales were inter-related. However, previous studies (e.g. Aquino et al., 1999; Fox et al., 2001) indicated that each form of justice had unique effects on CWBO and CWBI.

9.3 Research findings

Overall, the results of this research showed that the justice antecedent-justice-CWB model was generalizable to both samples. Four antecedents (outcome satisfaction, opportunity to voice, LMX and communication quality) had unique associations with four forms of justice perceptions, while those justice perceptions had differential impacts on CWBO and CWBI. The mediation analyses indicated that all types of justice fully mediated the relationships between their antecedents and CWB. However, the direct effects of individual differences (agreeableness, conscientiousness, lack of self-control, collectivism and power distance) on justice perceptions and CWB were more substantial than their moderating effects.

To some extent, the cross-sectional results at Time 1 and Time 2 were not consistent. This might be because the levels of employees' perceptions were not

stable across time (especially in the Thai sample). The mean levels of fourteen predictor variables (four forms of justice perceptions, four LMX dimensions, outcome satisfaction, opportunity to voice, communication quality, agreeableness, conscientiousness and collectivism) significantly decreased at Time 2 in the Thai sample. In contrast, in the New Zealand sample there was significant reduction in levels of seven predictor variables (procedural justice, interpersonal justice, opportunity to voice, communication quality and three LMX dimensions: affect, contribution and professional respect) at Time 2. However, scores on CWBO and CWBI were relatively stable across time in both samples.

One plausible reason for inconsistency in employees' perceptions might be changes occurring within organisations (e.g. organisational restructuring) during the data collection period, which might have altered employees' perceptions of organisational features and fairness. For example, at the second round of the data collection, two out of fourteen organisations in Thailand restructured their division format to improve their workflow and merged some work units. These changes within organisations might have affected work conditions and employees' perceptions of fairness. However, the results of intra-class correlation coefficients (ICC) showed significant consistency (ICC values above .7 for all measures) between Time 1 and Time 2 for those two organisations which exercised restructuring within their organisations.

Another possible reason for a significant reduction in the mean levels of several variables in the Thai sample is the difference in gender proportions between Time 1 (42% were male and 55% were female) and Time 2 (52% were male and 47% were female). At Time 1 the proportion of females was significantly higher than that of males (χ^2 = 8.79, p <.01), while gender proportions at Time 2 were not significantly different (χ^2 = .42, *ns*). In the Thai

sample, there were gender differences in some of the research variables (e.g. outcome satisfaction, professional respect, interpersonal and informational justice, agreeableness, conscientiousness and collectivism), with Thai males reporting significantly lower scores on these variables than females (see Appendices E.1 and E.2). The difference in gender proportions may have resulted in inconsistent mean levels of these variables across time in the Thai sample.

On the other hand, there was less inconsistency in variable mean levels (only seven out of twenty variables) across time in the New Zealand sample. Gender proportions at both times in this sample were similar, with females outnumbering males (72.1% at Time 1 and 79% at Time 2). Even though there was insufficient information about any possible changes within organisations in New Zealand during the Time 2 data collection, those changes may have influenced employees' perceptions of fairness and resulted in inconsistent mean levels of those variables.

The research hypotheses are discussed in the following two main parts: (a) the antecedent-justice-CWB relationships and (b) the importance of individual differences as direct predictors and moderators of justice perceptions and CWB. Four forms of justice perceptions, their antecedents (outcome satisfaction, opportunity to voice, LMX and communication quality) and individual differences (two factors of agreeableness and conscientiousness, lack of self-control, collectivism and power distance) were included to predict CWB.

A. The antecedent-justice-CWB relationships

The relationships among justice antecedents, justice perceptions and CWB are presented in three subsections - main effects of justice antecedents on justice perceptions (Table 9.1), main effects of justice perceptions on CWB (Table 9.2),

and mediating effects of justice perceptions (Table 9.3). Following previous justice research (Kernan & Hanges, 2002), the relationships between justice antecedents and perceived justice were examined only cross-sectionally, while the direct relationships between perceived justice and CWB were examined both cross-sectionally and longitudinally. The longitudinal analytical approach for the current research involved estimating the effects of predictors and mediators at Time 1 on Time 2 criterion variables.

Direct relationships between justice antecedents and justice perceptions

A summary of cross-sectional relationships between justice antecedents and justice perceptions in both samples is displayed in Table 9.1. The specific relationships between four forms of justice and their antecedents (outcome satisfaction, opportunity to voice, four dimensions of LMX and communication quality) were fairly consistent across the two samples.

The overall findings showed that both samples had similar antecedents of justice perceptions. Outcome satisfaction was related to distributive justice, opportunity to voice was predominantly related to procedural justice, three forms of LMX (affect, loyalty and professional respect) were related to interpersonal justice and informational justice, and communication quality was related to informational justice. These results were supportive of the notion that each form of justice perception had unique antecedents (Greenberg & Colquitt, 2005). However, cultural differences between the two samples appeared to alter the magnitude of justice antecedents' influence on justice perceptions.

Table 9.1

Summary of results for the direct relationships between antecedents and justice perceptions

Antecedents		Justice perceptions	Time 1		Time 2	
			NZ	Thai	NZ	Thai
Outcome satisfaction	→	DJ	√	√	√	√
Voice	→	PJ	√	√	√	√
Voice	→	ITJ	-	√	-	√
LMX→ITJ						
Affect	→	ITJ	√	√	√	-
Loyalty	→	ITJ	√	√	√	√
Contribution	→	ITJ	-	-	-	-
Professional respect	→	ITJ	-	√	√	-
LMX→IFJ						
Affect	→	IFJ	√	√	√	-
Loyalty	→	IFJ	√	√	√	-
Contribution	→	IFJ	-	-	-	-
Professional respect	→	IFJ	√	√	√	-
LMX→PJ						
Affect	→	PJ	-	-	-	-
Loyalty	→	PJ	√	√	√	√
Contribution	→	PJ	-	-	-	-
Professional respect	→	PJ	-	-	-	-
Communication	→	IFJ	√	√	√	-
Communication	→	ITJ	√	-	√	-

Note. NZ = New Zealand; DJ = distributive justice; PJ= procedural justice; ITJ = interpersonal justice; IFJ = informational justice; Voice = opportunity to voice; LMX = leader-member exchange.
√ = significant standardised estimates in the expected direction

Similar to previous research (Cohen-Charash & Spector, 2001), the cross-sectional analyses showed that outcome satisfaction was positively related to distributive justice in both samples at both times. The SEM results of the present research revealed that outcome satisfaction was a predictor of distributive justice, supporting the notion that judgements about resources (anything individuals value at work, such as pay, benefit or promotion) shape distributive justice judgements (Tyler, 1994). In other words, when individuals were satisfied with the outcomes they received from their workplace, they tended to perceive that they received resource gains and consequently perceived distributive justice.

Opportunity to voice was a strong predictor of procedural justice in both New Zealand (β = .66 at Time 1, β = .48 at Time 2) and Thailand (β = .68 at Time 1, β = .86 at Time 2). These results are in line with previous studies in Western

countries, especially the USA (Cohen-Charash & Spector, 2001; Greenberg & Colquitt, 2005; Kernan & Hanges, 2002), suggesting that opportunity to provide information (voice) during the decision-making process increases perceptions of procedural justice. The self-interest model (Lind & Tyler, 1988) provides an explanation for the effect of opportunity to voice on procedural justice in terms of instrumental consequences. Individuals believe that if they are given an opportunity to voice or express their views, it may help them control outcomes or increase the probability of a favourable outcome.

The cross-sectional findings are also consistent with previous studies (Erdogan, 2002; Lee, 2001) proposing that LMX may be an antecedent of procedural justice and interactional justice. The latter was conceptualised as two distinct dimensions (interpersonal and informational justice). The present research identified the individual effects of four LMX dimensions on procedural, interpersonal and informational justice. The findings in both samples revealed that three out of four LMX dimensions had an association with interpersonal and informational justice: (a) affect (the mutual positive affection between supervisor and subordinates), (b) loyalty (the loyalty members of the dyad have for each other by supporting each other's actions publicly), and (c) professional respect (perceptions of the degree to which supervisor has built a reputation within or outside the organisation).

However, only one LMX dimension - loyalty - positively predicted procedural justice at both times in the two samples. This suggests that greater exchange of loyalty between leader and followers (e.g. defend each other's actions publicly) can enhance employees' perceptions of procedural justice. The conceptualisation of loyalty may be responsible for these findings. The loyalty dimension is more like social support for each other (Liden & Maslyn, 1998),

while the other three LMX dimensions are based on three dyadic exchange relationships between leader and subordinates - liking (affect), task-related behaviours (contribution), and respect for professional capabilities (professional respect). Subordinates scoring high in LMX-loyalty might believe that they have received more leader support and perceive greater procedural justice than those scoring low in LMX-loyalty. Additionally, loyalty appeared to be the most consistent predictor of justice perceptions in this research, as it was positively related to all three forms of justice (procedural, interpersonal and informational justice) in both samples.

Another form of LMX, contribution (perceptions of the amount or quality of work-oriented activity members of the dyad contribute to the mutual goals), was not related to any of the three forms of justice perceptions, but it was found to have a direct relationship with CWB in both samples. These results are in line with previous research (Liden & Maslyn, 1998), in which contribution was related to behavioural outcomes (e.g. employees' commitment) rather than work attitudes or perceptions. LMX-contribution is more like work-related behaviours, whereas the other three LMX dimensions (affect, loyalty and professional respect) focus more on social exchange between leader and members (Bhal & Ansari, 2007).

Unexpectedly, affect was found to have a strong negative relationship (β = -.65) with procedural justice in the Time 2 Thai data. However, the relationship was not significant in either the Time 1 data or the longitudinal data for the Thai sample. These results may be partially due to sample-specific attributes and relationships. Relationships among some LMX dimensions in the Time 2 Thai data were quite high (e.g. the correlation between affect and professional respect was .81). Multicollinearity may affect parameters estimates (e.g. the signs of the

coefficients being opposite to what was expected or nonsignificant coefficient estimates) (Grewal et al., 2004).

Similar to prior justice research (Kernan & Hanges, 2002), the cross-sectional results showed that communication quality with employees predicted informational justice in both samples. However, the relationship between communication quality and informational justice was more pronounced in the New Zealand sample (β = .47 at Time 1 and β = .33 at Time 2, p < .001) than in the Thai sample (β = .18, p < .01 at Time 1 and β = .13, *ns* at Time 2). As noted by Greenberg and Colquitt (2005), cultural differences in preferences for justice rules, criteria and practices may alter the influence of similar antecedents on justice perceptions. Compared to the Thai sample, effective communication (based on timeliness, accuracy and value of the information) provided by management during decision-making procedures appeared to be more strongly predictive of informational justice among the New Zealand sample. As the Thai sample had significantly higher scores on power distance than the New Zealand sample, the impact of communication quality on employees' perceptions may be less pronounced in a high power distance society.

Interestingly, some antecedents of justice showed cultural differences between New Zealand and Thailand. Opportunity to voice had an association with interpersonal justice at both times only in the Thai sample, while the relationship between communication quality and interpersonal justice was found at both times only in the New Zealand sample. Cultural context may again influence these findings. It seems that effective communication from management was more important for the New Zealand sample than their Thai counterparts. As inequalities are accepted and a strict chain of command is observed in a high power distance society, the attitude towards managers is more formal and the

information flow between employees and managers tends to be hierarchical and controlled (Hofstede, 1984). This may explain the lack of influence of communication quality on interpersonal justice in the Thai sample.

However, allowing input during an important decision-making process may make Thai workers perceive that they are valued members and increase their perceptions of interpersonal justice. Surprisingly, opportunity to voice had no significant impact on interpersonal justice in the New Zealand sample. A high correlation between opportunity to voice and communication quality (r = .75 at Time 1 and r = .82 at Time 2) might affect parameter estimates (i.e. nonsignificant coefficient estimates even though coefficient estimates were high). It is desirable to further explore these two measures in future research.

Overall, however, the cross-sectional analyses revealed that both samples had similar antecedents of justice perceptions and each form of justice perception had unique antecedents. Outcome satisfaction predicted distributive justice, opportunity to voice predicted procedural justice, three forms of LMX (affect, loyalty and professional respect) predicted interpersonal and informational justice, and communication quality predicted informational justice. Cultural differences (especially in power distance) may have varied the magnitude of influence on justice perceptions in the two samples. The relationship between communication quality and informational justice was less pronounced in the Thai sample than in the New Zealand sample.

Direct relationships between justice perceptions and CWB

The overall results are in line with previous studies (e.g. Aquino et al., 1999; Hershcovis et al., 2007), which found differential impacts of each justice perception on two forms of CWB. Distributive, interpersonal and informational

justice predicted both forms of CWB, while procedural justice predicted only CWBO in both samples. In brief, the directions of relationships between justice perceptions and CWB were consistently in the expected pattern (i.e. negative relationships) across time in both samples.

Cross-sectional analyses provided more support for the direct relationships between justice perceptions and CWB than did longitudinal analyses in the New Zealand sample, but more support was observed in the Time 2 and longitudinal analyses for the Thai sample (see Table 9.2). A plausible explanation why justice perceptions had immediate relationships with CWB in the New Zealand sample could be the cultural context. As noted by Leung and Bond (1984) and Tyler et al. (2000), people in an individualistic and low power distance culture are less tolerant of violations of fairness. Thus, they tend to respond promptly to the source of injustice. The effects of perceived injustice might have faded over the six-month lag time in the New Zealand sample.

Table 9.2

Summary of results for the main effects of justice perceptions on CWB

Justice		**CWB**	**Time 1**		**Time 2**		**Longitudinal**	
			NZ	**Thai**	**NZ**	**Thai**	**NZ**	**Thai**
DJ	→	CWBO	√	-	-	√	-	√
DJ	→	CWBI	√	-	-	√	-	-
PJ	→	CWBO	√	-	√	√	-	√
ITJ	→	CWBO	√	√	√	√	-	√
ITJ	→	CWBI	√	√	√	√	√	√
IFJ	→	CWBO	√	√	√	√	-	√
IFJ	→	CWBI	√	√	-	√	-	√

Note. NZ = New Zealand; DJ = distributive justice; PJ= procedural justice; ITJ = interpersonal justice; IFJ = informational justice; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.
√ = significant standardised estimates in the expected direction

For the Thai sample, justice perceptions had both immediate and longer-term relationships with CWB. Compared to interpersonal aspects of justice (interpersonal and informational justice), the effects of distributive and procedural justice on CWB were not consistent across time in the Thai sample. This is in line

with the notion that people in a collectivist society tend to be less sensitive to the fairness of individual reward allocations and procedures (Markus & Kitayama, 1991). This may make the impact of distributive and procedural justice less pronounced in the Thai sample.

Based on theories of relative deprivation (Crosby, 1984), many researchers (e.g. Aquino et al., 1999) argued that distributive justice has an association with CWBI rather than CWBO, such that when people perceive distributive injustice they tend to blame the source of the decision rather than the system. However, the cross-sectional results of the current research show that distributive justice was predictive of both CWBO and CWBI in both samples. The relationship between distributive justice and CWBO can be explained by equity theory (Adams, 1965), which suggests that employees' perceptions of unfair outcome distribution lead them to restore justice by reducing their input or efforts. Distributive justice had both immediate and long-term effects on CWBO in the Thai sample, while the effect of this justice on both forms of CWB appeared in the short-term in the New Zealand sample.

Similar to previous studies (Hershcovis et al., 2007; Skarlicki & Folger, 1997), the relationship between procedural justice and CWBO was found in cross-sectional analyses for both samples and in longitudinal analyses for the Thai sample. As procedures are implemented at the organisational level, perceptions of procedural injustice trigger employees to retaliate against the organisation. Additionally, the cross-sectional results in both samples revealed that two sub-dimensions of interactional justice (interpersonal and informational justice) were related to both CWBO and CWBI. These findings are congruent with the suggestion by Tyler and Bies (1990) that interactional justice arouses more

intense emotional reactions and a wider range of behavioural responses, compared to other aspects of justice (e.g. fairness of outcome distribution and procedures).

Very weak support was found for the main effects of perceived justice on CWB in the longitudinal New Zealand data, while more support was found in the longitudinal Thai data. Only interpersonal justice influenced CWBI in the long-term for the New Zealand sample. These results were consistent with the notion that interpersonal justice may have the strongest effects on employee job responses (Mikula, Petri, & Tanzer, 1990). Also, the conceptualisation of interpersonal justice may be responsible for these findings. Interpersonal justice captures more of the domain associated with interpersonal treatment. As a result, this justice may have had a stronger effect on person-targeted CWB than organisation-targeted CWB in the New Zealand sample.

In sum, the relationships between justice perceptions and CWB perhaps were short-term rather than long-term in the New Zealand sample, while the relationships between justice perceptions and CWB were both immediate- and long-term in the Thai sample. Future research should identify the appropriate temporal lag for the effects of justice perceptions on CWB in different societies.

Mediating effects of justice perceptions

Analyses were performed to examine whether four forms of justice perceptions (distributive, procedural, interpersonal and informational justice) mediated the relationships between their antecedents and CWB. Consistent with Cullen and Sackett's (2003) model of CWB (which proposes linkages among organisational features, perceptual variables, personality and CWB), the overall cross-sectional and longitudinal findings revealed that justice perceptions had full mediating effects in the links between justice antecedents and CWB in both samples. Justice antecedents (outcome satisfaction, opportunity to voice, LMX

and communication quality) first influenced employees' justice perceptions, which then resulted in their behavioural responses (i.e. CWB). The cross-sectional analyses provided more support for full mediation effects in the New Zealand sample (55.17%) than in the Thai sample (37.93%), while more support was found for the longitudinal full mediation effects in the latter sample (38%) than in the former sample (10%). Table 9.3 provides a summary of the mediation effects.

Table 9.3

Summary of results for the mediating effects of justice perceptions

Antecedents		**Justice**		**CWB**	**Time 1**		**Time 2**		**Longitudinal**	
					NZ	**Thai**	**NZ**	**Thai**	**NZ**	**Thai**
Outcome satisfaction	→	DJ	→	CWBO	√	-	-	√	-	√
Outcome satisfaction	→	DJ	→	CWBI	√	-	-	√	-	-
Voice	→	PJ	→	CWBO	√	-	√	√	-	√
LMX→PJ→CWBO										
Affect	→	PJ	→	CWBO	-	-	-	-	-	-
Loyalty	→	PJ	→	CWBO	√	-	√	√	-	√
Contribution	→	PJ	→	CWBO	-	-	-	-	-	-
Professional respect	→	PJ	→	CWBO	-	-	-	-	-	-
Voice	→	ITJ	→	CWBO	-	√	-	√	-	-
Voice	→	ITJ	→	CWBI	-	√	-	√		-
LMX→ITJ→CWBO										
Affect	→	ITJ	→	CWBO	√	√	√	-	-	√
Loyalty	→	ITJ	→	CWBO	√	√	√	√	-	√
Contribution	→	ITJ	→	CWBO	-	-	-	-	-	-
Professional respect	→	ITJ	→	CWBO	-	-	√	-	-	-
LMX→ITJ→CWBI										
Affect	→	ITJ	→	CWBI	√	√	√	-	√	√
Loyalty	→	ITJ	→	CWBI	√	√	√	√	√	√
Contribution	→	ITJ	→	CWBI	-	-	-	-	-	-
Professional respect	→	ITJ	→	CWBI	-	-	√	-	-	-
Communication	→	ITJ	→	CWBO	√	-	√	-	-	-
Communication	→	ITJ	→	CWBI	√	-	√	-	√	-
Communication	→	IFJ	→	CWBO	√	√	√	-	-	-
Communication	→	IFJ	→	CWBI	√	√	-	-	-	-
LMX→IFJ→CWBO										
Affect	→	IFJ	→	CWBO	√	√	√	-	-	-
Loyalty	→	IFJ	→	CWBO	√	√	√	-	-	√
Contribution	→	IFJ	→	CWBO	-	-	-	-	-	-
Professional respect	→	IFJ	→	CWBO	√	√	√	-	-	√
LMX→IFJ→CWBI										
Affect	→	IFJ	→	CWBI	√	√	-	-	-	-
Loyalty	→	IFJ	→	CWBI	√	√	-	-	-	√
Contribution	→	IFJ	→	CWBI	-	-	-	-	-	-
Professional respect	→	IFJ	→	CWBI	√	√	-	-	-	√

Note. NZ = New Zealand; DJ = distributive justice; PJ= procedural justice; ITJ = interpersonal justice; IFJ = informational justice; Voice = opportunity to voice; LMX = leader-member exchange; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.
√ = significant standardised estimates in the expected direction

Compared to the Thai sample, more consistent results were observed for the full mediation effects in the cross-sectional New Zealand data. Interpersonal and informational justice served as important mediators for those relationships in the New Zealand sample. Interpersonal justice fully mediated the relationships of two LMX dimensions (affect and loyalty) and communication quality with both forms of CWB, while informational justice fully mediated the relationships of three LMX dimensions (affect, loyalty, and professional respect) and communication quality with CWBO at both times in the New Zealand sample. For the Thai sample, interpersonal justice also appeared to be an important mediator in the cross-sectional analyses, because it consistently mediated the relationships between its antecedents (opportunity to voice and loyalty) and both forms of CWB at both times.

The longitudinal results in the New Zealand sample revealed that only interpersonal justice mediated the effects of its antecedents (affect, loyalty and communication quality) on CWBI, while no mediating effect was detected for the other three forms of justice perceptions over time. As discussed previously, the cultural context may be responsible for these findings. People in an individualistic and low power distance society tend to be more sensitive to and less tolerant of violations of justice, and respond promptly to the source of injustice (Tyler et al., 2000). As a result, the mediating effects of justice perceptions in the relationships between antecedents and CWB were immediate-term rather than longer-term (six months). That is, when New Zealand respondents perceived injustice, they tended to have an immediate response to the source of injustice. The lack of longitudinal mediating effects in New Zealand suggests that a six-month lag may be too long because there was more evidence for the relationships between justice perceptions and CWB in the short-term than in the long-term.

The longitudinal results for the Thai sample demonstrated that several mediating effects were found for the four forms of justice. The key finding is that two distinct constructs of interactional justice - interpersonal and informational justice - served as mediators of the relationships between LMX and CWB, but not between other antecedents (opportunity to voice or communication quality) and CWB over the six-month lag. These findings are in line with previous studies (e.g. Hassan & Chandaran, 2005) which found that the quality of the dyadic relationship strongly influenced employees' attitudes, perceptions and behavioural tendencies in a collectivist society. Loyalty and sense of belonging are highly valued in a collectivistic society like Thailand. As a result, LMX indirectly influenced CWB through interpersonal and informational justice in the long-term, while the indirect effects of opportunity to voice and communication quality on CWB through those two justice perceptions emerged only in the short-term. This suggests that in the Thai sample the dyadic relationship quality was more highly valued than organisational practices (e.g. opportunity to voice or communication quality), which had indirect effects on CWB only in the short-term.

Overall, justice perceptions had a full mediating role in the relationships between their antecedents and CWB. The mediating effects of justice perceptions were immediate rather than long-term in the New Zealand sample, but vice versa in the Thai sample. This suggests that New Zealand respondents may be more sensitive to violations of justice and respond promptly to the source of injustice than Thai respondents.

B. The influence of individual differences on perceived justice and CWB

Based on the proposed model adapted from the personality and CWB model (Cullen & Sackett, 2003), individual differences can influence CWB via three main mechanisms: (a) personality may have a direct effect on perceptual

variables (i.e. justice perceptions), (b) personality and cultural values may have direct effects on CWB, and (c) personality and cultural values may moderate the perceived justice-CWB relationships. As cultural values have been mainly studied for their hypothesised role as moderators of justice perceptions and CWB, and as direct determinants of work outcomes (Clugston et al., 2000; Erdogan & Liden, 2006), the direct influence of cultural values on justice perceptions was not examined in the current research. Two cultural values (collectivism and power distance) were examined as the predictors of CWB (see p. 271) and moderators of the relationships between justice perceptions and CWB (see p. 273).

Overall, the direct effects of individual differences were more substantial than their moderating effects in both samples. Almost no support for the moderating effects was observed in cross-sectional analyses, and none was found in longitudinal moderation analyses.

Direct effects of personality traits on justice perceptions

Table 9.4 presents a summary of the cross-sectional and longitudinal results for the main effects of personality on justice perceptions. Based on the CFA results, agreeableness and conscientiousness had two factors (positive and negative) in each. Of all the personality variables, agreeableness showed most consistent relationships with the four forms of justice in the cross-sectional and longitudinal findings for the Thai sample. On the other hand, disagreeableness (the negative factor of agreeableness) negatively predicted the four forms of justice only in the Time 1 New Zealand data.

Table 9.4

Summary of results for the main effects of personality on justice perceptions

Personality		Justice	Time 1		Time 2		Longitudinal	
			NZ	Thai	NZ	Thai	NZ	Thai
Agreeableness	→	DJ	-	√	-	√	-	√
	→	PJ	-	√	-	√	-	√
	→	ITJ	-	√	-	√	-	√
	→	IFJ	-	√	-	√	-	-
Disagreeableness	→	DJ	√	-	-	-	-	-
	→	PJ	√	-	-	-	-	√
	→	ITJ	√	-	-	-	-	-
	→	IFJ	√	-	-	-	-	√
Conscientiousness	→	DJ	√	√	-	-	-	√
	→	PJ	-	√	-	√	-	√
	→	ITJ	-	-	-	-	-	√
	→	IFJ	-	-	-	-	-	√
Negligence	→	DJ	-	-	-	-	-	-
	→	PJ	-	√	-	-	-	-
	→	ITJ	-	-	-	-	-	-
	→	IFJ	√	-	-	-	-	-
Lack of self-control	→	DJ	-	-	-	-	-	-
	→	PJ	-	√	-	-	-	-
	→	ITJ	-	-	-	-	-	-
	→	IFJ	-	-	-	-	-	-

Note. NZ = New Zealand; DJ = distributive justice; PJ= procedural justice; ITJ = interpersonal justice; IFJ = informational justice; Disagreeableness = the negative factor of agreeableness; Negligence = the negative factor of conscientiousness.
√ = significant standardised estimates in the expected direction

Interestingly, disagreeableness predicted justice perceptions better than did the positive factor in the New Zealand sample, whereas agreeableness was a stronger predictor in the Thai sample. A possible reason is that the two samples perhaps responded differently to positively and negatively worded items. Schmitt and Allik (2005) found that people from certain regions of the world interpreted positively and negatively worded items differently.

As mentioned in Chapter 3, there is controversy over whether conscientiousness would have positive or negative associations with justice perceptions (Shi et al., 2009). In the current research, significant negative relationships between conscientiousness and justice perceptions were found in both samples. These findings are consistent with the notion that it may be difficult for conscientious people to perceive justice, due to their sensitivity to reward distribution and violations of moral standards (Schmidt & Hunter, 1998).

However, traits of agreeableness and conscientiousness appeared to have a short-term relationship with perceived justice in the New Zealand sample, but a longer-term relationship in the Thai sample. There were few effects of those two traits on perceived justice in the New Zealand sample (only at Time 1). They appeared to be more state-like than a stable trait. This might explain the lack of longitudinal effects of those two traits in the New Zealand sample.

In addition, there was little evidence for the effect of lack of self-control on perceived justice. Lack of self-control was negatively related to procedural justice only in the Time 1 Thai sample. Consistent with policing and crime research (Mastrofski et al., 2002), self-control can be a predictor of procedural justice, as people with low self-control (who may easily lose their temper and tend to resist or refuse to obey the authority) are more likely to be treated disrespectfully during decision-making procedures and consequently less likely to perceive fair procedures.

Direct effects of individual differences on CWB

Table 9.5 presents a summary of results for the main effects of individual differences on CWB. Consistent with the findings of previous research (e.g. Douglas & Martinko, 2001; Mount et al., 2006), three personality traits (disagreeableness, negligence and lack of self-control) predicted both forms of CWB in both samples. The cross-sectional findings highlight that disagreeableness (the negative factor of agreeableness) consistently predicted CWBI, while negligence (the negative factor of conscientiousness) consistently predicted CWBO in both samples at both times, but not in the longitudinal analyses. These results are in line with the notion that agreeableness is more associated with interpersonal-based CWB whereas conscientiousness has more

implications for task-based CWB (Mount et al., 2006). However, the effects of those traits on CWB were not stable over a six-month time in either sample. There were essentially no longitudinal effects of personality traits on CWB.

Table 9.5

Summary of results for the main effects of individual differences on CWB

Individual differences		CWB	Time 1		Time 2		Longitudinal	
			NZ	Thai	NZ	Thai	NZ	Thai
Agreeableness	→	CWBO	-	-	-	-	-	-
Disagreeableness	→	CWBO	√	√	-	-	-	-
Agreeableness	→	CWBI	-	-	-	-	-	-
Disagreeableness	→	CWBI	√	√	√	√	-	-
Conscientiousness	→	CWBO	√	-	-	-	-	-
Negligence	→	CWBO	√	√	√	√	-	-
Conscientiousness	→	CWBI	-	-	-	-	-	-
Negligence	→	CWBI	-	√	-	-	-	-
Lack of self-control	→	CWBO	√	√	√	√	-	-
Lack of self-control	→	CWBI	-	√	√	√	-	-
Collectivism	→	CWBO	-	√	-	-	-	-
Collectivism	→	CWBI	-	√	-	√	-	-
Power distance	→	CWBO	-	-	-	√	-	√
Power distance	→	CWBI	-	-	-	-	-	-

Note. NZ = New Zealand; Disagreeableness = the negative factor of agreeableness; Negligence = the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.
√ = significant standardised estimates in the expected direction

The effects of cultural values (collectivism and power distance) on CWB were observed only in the Thai sample. Collectivism negatively predicted CWBI at both times, while the relationship between power distance and CWBO was observed in the Time 2 and longitudinal data. However, this was the only longitudinal relationship found (between power distance and CWBO). These findings are congruent with previous findings that people high in collectivism and power distance are less likely to engage in any behaviour that harms their organisation or other people, due to their concern over group or organisational benefits and economic loss (Clugston et al., 2000; Triandis, 1994).

A possible reason for the failure to detect significant effects of collectivism and power distance in the New Zealand sample may be because only

two cultural values (collectivism and power distance) were included to predict outcomes in the present research. As noted by Shao et al. (2013), culture is a multidimensional concept and different cultural dimensions can exert joint effects in explaining the variation of justice perceptions and outcomes across countries. The results might differ for other cultural dimensions (e.g. masculinity and uncertainty avoidance). Multiple cultural dimensions simultaneously should be further examined in future research.

Moderating effects of individual differences on the perceived justice-CWB relationships

Overall, there was virtually no evidence of moderation in either sample. Two out of 112 interaction routes were significant in the New Zealand sample, while only one significant interaction was found in the Thai sample. The cross-sectional analyses found that agreeableness (for the Thai sample) and disagreeableness (for the New Zealand sample) moderated the relationship between interpersonal justice and CWBI in the expected direction. Negligence (the negative factor of conscientiousness) was found to moderate the interpersonal justice-CWBI relationship, but only in the Time 2 New Zealand sample. Lack of self-control, collectivism and power distance had no moderation effects for both CWBO and CWBI. No longitudinal moderation effects were found in either sample.

These findings suggest that the direct effects of individual differences were more substantial than their moderating effects. Consistent with Colquitt et al.'s (2006) study and Fox et al.'s (2001) study, almost no support was found for the moderating role of personality traits in the perceived justice-CWB

relationship. Moderator analyses often have low statistical power and larger samples may be needed to detect moderating effects (Fox et al., 2001).

Additionally, there were some unexpected findings for the moderation analyses at Time 2. Despite the fact that the variance of the overall interaction effects for CWBO in the Thai sample (12%) was much higher than that of the New Zealand sample (8%) at Time 2, no significant moderating effects were detected in the Thai sample (see Table 7.21, p. 202). Coefficients in both samples were similar, but significant interaction terms were observed only in the New Zealand sample. Multicollinearity may exist for complex moderated multiple regressions involving many interaction terms (Dunlap & Kemery, 1987). Another possible reason is a high correlation between interpersonal justice and informational justice for the Time 2 Thai sample. Collinearity can increase R^2 values and yield models in which no significant variable is found even though R^2 is large (O'Brien, 2007). O'Brien (2007) suggested that the combining of independent variable into a single index may be required when multicollinearity exists. However, I did not combine those two justice dimensions into a single construct for three reasons. First, before entering the interaction terms the Variance Inflation Factor (VIF) did not exceed threshold (10). After entering the interaction terms, VIF values rose to 25.9, suggesting multicollinearity. Second, the pattern of findings obtained at Time 2 was not replicated at the Time 1 and longitudinal data. Third, the CFA results at both times indicated that interpersonal justice and informational justice were distinct constructs.

9.4 Theoretical significance

The present research provides several important theoretical implications for justice and CWB research. First, this research extended the theoretical model

of linkages among organisational features, perceptual variables, personality and CWB (Cullen & Sackett, 2003) by including specific variables which prior research suggested might be important determinants of CWB. Extending the model helped uncover linkages among specific variables. The findings of this research partially support three mechanisms by which justice perceptions and individual differences affect CWB: (a) justice perceptions as mediators of the antecedents-CWB relationships, (b) personality as predictors of perceived justice, and (c) individual differences as predictors of CWB. However, virtually no support was found for the proposed moderating effects of individual differences.

The main theoretical implication is that the antecedent-justice-CWB model, which has been developed from previous research in Western cultures (mainly the USA), was generalizable to the present New Zealand and Thai samples. This research extended the range of countries used in organisational justice research by using one Western country, New Zealand, and one Eastern country, Thailand. The findings highlight that justice perceptions had a full mediating role in the relationships between their antecedents and CWB in both samples. Even though some similarities in justice antecedents were observed in both samples, there were differences in interpersonal justice antecedents and the magnitude of communication quality's influence on informational justice between the two samples. These findings provided empirical support for the notion that cultural differences may alter the influence of similar antecedents on justice perceptions (Greenberg & Colquitt, 2005).

Even though LMX has been examined as a direct determinant of justice perceptions in previous research (e.g. Hassan & Chandaran, 2005; Lee, 2001), the impacts of specific dimensions of LMX on four forms of justice have been rarely explored. The findings of this research revealed that one of the four LMX

dimensions, contribution, was not related to justice perceptions. These results reinforce the notion that contribution was more relevant to work outcomes or performance (Liden & Maslyn, 1998) rather than work attitudes or perceptions (i.e. perceived justice). Loyalty was found to be the most important predictor of justice perceptions, as it significantly predicted three forms of justice perceptions (procedural, interpersonal and informational justice).

As little is known about the links between personality and the four forms of justice perceptions, this research explored the effects of three personality traits (agreeableness, conscientiousness and lack of self-control) on perceived justice. Agreeableness and conscientiousness were divided into two components based on the CFA results (agreeableness and disagreeableness, and conscientiousness and negligence). The findings in both samples provided empirical support for the notion that conscientious people tend to perceive lower levels of justice, perhaps due to their sensitivity to violations of moral standards and reward allocations (Schmidt & Hunter, 1998). Replicating previous studies (Shi et al., 2009), the two components of agreeableness (disagreeableness for New Zealand and agreeableness for Thailand) were found to be very important predictors of the four forms of justice. These two traits had a long-term effect on the four forms of justice only in the Thai sample, but a short-term effect in the New Zealand sample. Additionally, very weak support was found for the role of lack of self-control in predicting procedural justice (only in the Time 1 Thai sample). Consistent with previous research (Bechtoldt et al., 2007), lack of self-control had a negative association with procedural justice but not with other forms of justice. However, the effect of lack of self-control was not stable across the six-month time. It seems that lack of self-control was directly related to CWB (see Table 9.5) rather than to justice (see Table 9.4).

The current research also highlights that the main effects of individual differences on CWB were more substantial than their moderating effects. In both samples, almost no support was found for cross-sectional moderation analyses, while no longitudinal moderating effects were found. However, only three personality traits and two cultural values were examined in this research. The moderating effects of other variables, such as risk aversion (Colquitt et al. 2006) and interpersonal justice values (Holtz & Harold, 2013), may differ.

One of the most surprising findings was that the effects of personality traits (agreeableness, conscientiousness and lack of self-control) on both forms of CWB were not stable over time in both samples. They appeared to be more state-like than a stable trait. It is desirable to explore the longitudinal effects of personality traits more in future research. On the other hand, one dimension of cultural values - power distance - had a long-term effect on CWBO, and collectivism was cross-sectionally related to both forms of CWB in the Thai sample. These results reinforce the notion in cross-cultural research that measures of cultural values can be predictors of important organisational variables (Bochner & Hesketh, 1994). As few studies (e.g. Clugston et al., 2000; Shao et al., 2013) have examined the influence of cultural values on organisational variables (e.g. organisational commitment and negative work behaviours), the findings of the current research provided empirical support for the relationships between cultural values and two forms of CWB.

Additionally, the findings provided additional information in relation to the unique impact of justice perceptions on CWB. As few studies have examined the relationships between two distinct components of interactional justice (interpersonal and informational justice) and both forms of CWB, the present research indicated that interpersonal and informational justice predicted both

CWBO and CWBI. Distributive justice also predicted both forms of CWB, while procedural justice predicted only CWBO. These findings are in line with the notion that the target of CWB depends on the perceived source of injustice (Aquino et al., 1999; Hershcovis et al., 2007).

Even though cross-cultural justice research has shown that culture is likely to play an important role in determining the magnitude of justice effects, a complete picture of how justice effects might differ across countries remains unclear (Shao et al., 2013). Interestingly, the present research found that the effects of justice perceptions on CWB were immediate rather than long-term in the New Zealand sample, while the effects of those justice perceptions on CWB were both immediate (especially at Time 2) and long-term in the Thai sample. The differences in collectivism and power distance between the two samples may alter the ways they react to injustice. As those in an individualistic and low power distance society tend to be less concerned about the consequences of their behaviours on other people and less tolerant of unfairness (Leung & Bond, 1984; Tyler et al., 2000), justice perceptions influence CWB in a short-term rather than long-term for the New Zealand sample. Another significant contribution is that the impact of interpersonal justice on CWBI was stable across time and long-term in both samples, supporting the notion that the interpersonal aspect of justice may be more salient to individuals and lead to the most intense behavioural responses (Bies & Moag, 1986).

Overall, the antecedent-justice-CWB model was generalizable to both samples. Extending the range of countries provides additional information on understanding the linkages among justice perceptions, their antecedents and behavioural outcomes (e.g. CWB). Consistent with previous research (e.g. Aquino et al., 1999; Kernan & Hanges, 2002), the full mediation model was found for

justice perceptions, and the findings were supportive of the notion that each form of justice has unique antecedents and impacts on CWB.

Summary of the major research contributions

- The antecedent-justice-CWB model developed in Western cultures (mainly the USA) was applicable to New Zealand and Thailand.
- The effects of justice perceptions on CWB appeared to be immediate rather than long-term in the New Zealand sample, but long-term in the Thai sample.
- Interpersonal aspects of justice were more salient to individuals than outcomes or procedural fairness.

9.5 Practical implications

There are many practical implications of the present findings for human resource professionals and organisations. First, the research findings indicated that justice perceptions were significant determinants of CWB among New Zealand and Thai employees in a wide range of industries. Justice perceptions were negatively associated with levels of CWB. Exposure to injustice encourages employees to engage in CWB, such as withdrawal of their efforts from work or being less committed to work, in order to reduce their stress (Bies & Tripp, 2005). Symptoms of CWB may include taking longer breaks than authorized, absence from work, being late, and failure to perform job tasks effectively (Spector et al., 2006). If these symptoms are observed, management could examine the fairness of outcome distribution, procedures, interpersonal treatment and practices within their organisation, or even develop procedures or outcomes which are perceived as fair to enhance perceptions of fairness and minimise CWB.

Second, the present research showed that the relationships of distributive and procedural justice with CWB were not consistent across time, while interpersonal and informational justice were related to CWB at both times in the Thai sample. These results might suggest that outcomes or procedures may be less salient than interpersonal aspects of justice for the Thai sample. However, distributive and procedural justice had a long-term effect on CWB. It perhaps took time for the impact of distributive and procedural justice to be felt in the Thai sample. People in a collectivistic society tend to be less sensitive to fairness of personal reward allocations and organisational practices (Markus & Kitayama, 1991). Thus, the delayed effect of perceived justice on CWB should be taken into account in the Thai workplace.

On the other hand, justice perceptions appeared to have an immediate effect on CWB in the New Zealand sample. Only interpersonal justice had a long-term effect on person-targeted CWB in the New Zealand sample. Distributive, procedural and informational justice had only a short-term relationship with CWB in the New Zealand sample. These results indicated that interpersonal concerns may be more salient for an individual than outcomes or procedures (Bies & Moag, 1986). Management should be most concerned about the interpersonal aspects of justice and talk regularly with employees about the resource and outcome allocations (e.g. workloads, work evaluation, benefits or promotions), the procedures used in making those allocations and other interpersonal practices (providing useful information about those allocations).

Third, the research findings provide practical implications for management staffs and policy-making agencies about the formation of justice perceptions, which may aid them in devising organisational policies of justice enhancement. Once injustice was detected, management can tackle the sources of injustice and

develop procedures or outcomes which are perceived as fair. Management responsibilities for implementing justice enhancement policies seem to vary along the sources of injustice. For instance, opportunity to voice was found to be strongly related to procedural justice. This might suggest that once procedural injustice was detected, the programs of encouraging employee participation in important decision-making procedures should be considered. As the quality of leader-member relationship was found to predict procedural, interpersonal and informational justice, managers should be trained to expand in-group memberships because they tend to develop different types of relationship or exchange with each subordinate. In an in-group exchange, leader and followers tend to develop a partnership and exchange high levels of mutual positive affect, respect and resources. On the other hand, in an out-group exchange, they are less likely to develop mutual trust and respect (Hassan & Chandaran, 2005). More importantly, communication quality was found to increase perceptions of informational justice in both samples. Managers should be encouraged to clearly communicate in order to diminish the likelihood that employees will perceive certain situations as ambiguous (Litzky, Eddleston, & Kidder, 2006). Ensuring employees' satisfaction with timely, accurate and valued information from management during the implementation of decision-making procedures can decrease perceived informational injustice (Kernan & Hanges, 2002).

Finally, the findings help practitioners better understand how individuals differ in the propensity to engage in CWB. The current research found that employees high in agreeableness (tendency to be cooperative and avoid arguments), conscientiousness (high motivation to achieve the tasks or goals and not break the rules) and self-control (ability to control their negative emotions and behaviours) may be predisposed to being good-natured and deal positively with

stressors (i.e. injustice) that may otherwise motivate them to engage in CWB. However, the likelihood of CWB may be higher among those at the low end of these three traits when exposed to injustice, due to their sensitivity to provocation and lack of emotional control.

9.6 Limitations, strengths and recommendations for future research

The current research contained some limitations that may affect the results. Firstly, the findings of this longitudinal research must be interpreted with caution due to a single time interval (six months) used to examine the linkages among justice perceptions, their antecedents and outcomes (CWB) in the research. As noted by Ployhart and Vandenberg (2010), the time lag should be well planned to address issues of causality and researchers should ensure that the lags are neither too long nor too short. Time lags that are too short may not reveal causal effects whereas time lags that are too long may lead to underestimation of the true causal effects (Zapf et al. 1996). However, there is insufficient theoretical or empirical evidence to suggest the most appropriate time lag for the effects of particular predictors on criterion variables. Zapf et al. (1996) stated that time lags of one month up to one year are widely used in most longitudinal studies and suggested that organisational reasons (e.g. time constraints) were often more important for selecting a particular time lag than theoretical considerations. Even though using one lag time may limit the generalizability of the current research, the findings provide additional information on a particular time lag used for both samples. The results showed that the six-month lag was long enough to detect the effects of justice perceptions on CWB in the Thai sample, while it might be too long for the New Zealand sample. It is recommended for future research that the

time lag for certain groups should be determined by comparisons of different time lag models (Zapf et al., 1996).

All of the data were collected by a self-report survey and common-method variance (CMV) may distort the results. However, the size of the relationships between predictors and criterion variables in both cross-sectional and longitudinal analyses suggested that CMV was not a major problem. It is difficult to assess CWB, which may occur in a covert manner, through objective measures (Penney & Spector, 2002). No significant differences between the results for self-report and those for other methods of CWB assessment (e.g. peer-reports or supervisor-ratings) were found in previous research (Fox et al., 2001). In addition, the use of a longitudinal research design can reduce the risks for CMV (Zapf et al., 1996).

The New Zealand sample in this research was predominantly female (only 25% at Time 1 and 19% at Time 2 were male) and the largest ethnic group was New Zealand European/Pakeha (69.7% at Time 1 and 72.8% at Time 2). Most of the sample (61% at Time 1 and 70% at Time 2) worked in education services or the government sector. On the other hand, most of the Thai respondents were employed in professional or business services (34% at Time 1 and 42% at Time 2), and the government sector (39% at Time 1 and 38% at Time 2). However, subgroup analyses indicated that there were significant differences in CWB between males and females, and no significant differences in CWB were observed among ethnic groups (in the New Zealand sample) and industry types in both samples. In hierarchical regression analyses, gender was included as a control variable. Also, the generalizability of the results may be enhanced by the samples being recruited from various industries in both countries, covering a wide range of organisational conditions.

Virtually no support was found for the moderating effects of individual differences in the perceived justice-CWB relationships in the current research. Moderated regression is known to suffer from low statistical power and larger samples may be needed (Fox et al., 2001). This research included three personality traits (agreeableness, conscientiousness and lack of self-control) and two cultural dimensions (collectivism and power distance) as moderators of four justice dimensions and two forms of CWB. Results might differ for other variables (e.g. trait anger, masculinity). As noted by Shao et al. (2013), the joint effects of four cultural dimensions (collectivism, power distance, uncertainty avoidance and masculinity) on justice should be assessed. Shao et al's (2013) meta-analytic results revealed that the magnitude of the moderating effects depended on which specific cultural moderators were considered simultaneously. This might be because culture is a multidimensional concept and different cultural dimensions could exert joint effects in explaining the variation of the link between justice and CWB. Future research should further explore how four cultural dimensions moderate the impacts of justice dimensions on CWB.

In addition, this research replicated the two-way interactive effects between two forms of justice on CWB (e.g. interpersonal justice × informational justice at Time 2 in both samples) found in Skarlicki et al.'s (1999) study. Due to the complexity of the research model, higher-order interaction patterns (more than two-way interactions) were not explored in this research. As significant interactions among some of the four forms of perceived justice were found in this research, personality moderators of the two-way justice interactions for CWB should be explored in future justice research.

A more crucial limitation is any possible changes occurring within the organisations (e.g. restructuring or downsizing) before the second data collection,

which may have affected employees' perceptions and work conditions. Those possible changes may have made respondents' perceptions inconsistent across time. Another limitation is that specific predictors of CWB were chosen in the present research. Based on the model underlying this research, I chose specific predictors of perceived justice and CWB which previous studies suggested might be important. Other important predictors of perceived justice, such as organisational support, level and structure (Ambrose, 2002), organisational culture (Neuman & Baron, 1998), and other significant job stressors (e.g. autonomy, organisational constraints, interpersonal conflict, role ambiguity, role conflict and workload) (Giacalone & Greenberg, 1997), which may predict CWB, should be further explored.

9.7 Conclusion

The primary purpose of the present research was to test whether a model of specific linkages among justice antecedents, justice perceptions, individual differences and CWB would be generalizable to New Zealand and Thailand, and to explore the moderating effects of individual differences. The model incorporated two main parts: justice perceptions as mediators of the antecedent-CWB relationships, and the moderating influence of individual differences on the relationships between justice perceptions and CWB.

Generally, the model of linkages among antecedents, justice perceptions and CWB was generalizable to both samples, but virtually no support was found for the moderating effects of individual differences. The results of this research revealed that justice perceptions, their antecedents and CWB were interrelated. Justice perceptions fully mediated the antecedent-CWB relationships. More support for the full mediating effects of justice perceptions was found in the short-

term for the New Zealand sample, but in the long-term for the Thai sample (see the summary provided in Table 9.3). These results indicated that New Zealand respondents may be more sensitive to violations of fairness and respond promptly to those perceptions than their Thai counterparts. Both samples had similar justice antecedents and each form of justice had unique effects on CWBO and CWBI.

Compared to the longitudinal analyses, more support was found for the hypothesised relationships between justice perceptions and CWB in the cross-sectional analyses for the New Zealand sample (see the summary provided in Table 9.2). These results indicated that the effect of justice perceptions on CWB may have dissipated over the six-month time, suggesting that perceived justice appeared to have an immediate effect on CWB in the New Zealand sample. For the Thai sample, justice perceptions influenced CWB both short-term and long-term, but it seems that the effects of interpersonal aspects of justice (interpersonal and informational justice) were more stable across time and salient than those of distributive and procedural justice. Based on these findings, cultural differences should be taken into consideration to understand the impact of justice perceptions on work performance (such as CWB).

Concerning the importance of personality traits on justice perceptions, this research adds empirical support for the impact of conscientiousness on justice perceptions. The findings revealed that conscientiousness had a negative association with justice perceptions in both samples (see Table 9.4). The main effects of individual differences on CWB were more substantial than their moderating effects in the links between justice perceptions and CWB.

In sum, the current research provides additional knowledge in relation to the impact of justice perceptions on CWB among employees from various organisations in New Zealand and Thailand. The findings help practitioners and

management better understand how to enhance employees' justice perceptions and minimize the costs of CWB by promoting fair organisational practices or procedures for outcome allocations, leader-member relationship and clear communication.

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Appendix A

Invitation letter to the organisations for participating in the research

Prapimpa Jarunratanakul
Psychology Department
University of Waikato
Telephone: 021 02724305, 07 8569291
E-mail: pj9@waikato.ac.nz.
Date……
Subject: Invitation to participate in the organisational fairness and work behaviour research.

To whom it may concern,

My name is Prapimpa Jarunratanakul. I am a doctoral student from the University of Waikato in New Zealand where I am conducting my PhD research. My research focuses on developing fairness in the workplace, and minimizing any harmful behaviour committed by employees. When employees face unfair organisational practices (i.e. the way management treat employees, such as providing not enough opportunities for employees to participate in an important decision, or treating employees without respect and dignity) and they are dissatisfied with the outcomes (e.g. pay, benefits, promotions) they receive from their job, they will be likely to respond to these unfair situations with engaging in any harmful behaviours in the workplace.

What you can expect from participation in this research:

- The research findings will provide your organisation with information regarding the significant factors, which affect employees' perceptions of fairness. This information will be beneficial to your organisation for designing organisational practices and systems in order to minimize any harmful behaviour of employees, which may affect work productivity and work environment.

- All responses will be treated in strict confidence and used for research purposes only.

I expect participation from a number of both public and private organisations within New Zealand/Thailand. Your organisation's participation will be valuable to my academic research, and will provide more comprehensive understanding of the issues facing New Zealand/Thai employees and their organisations. I will contact you in 10 days to discuss this research and your organisation's possible participation.

This research received ethics approval from the Research and Ethics Committee of the Psychology Department, Waikato University. My supervisors for this study are Professor Michael O'Driscoll and Dr. Donald Cable who work in the Department of Psychology at the University of Waikato. If you have any questions relating to this study, you may contact me or either of my supervisors through any of the following means:

Professor Michael O'Driscoll: Phone: 07 838 4466 ext: 8899 Email: m.odriscoll@waikato.ac.nz	Dr. Donald Cable: Phone: 07 838 4466 ext: 8296 Email: dcable@waikato.ac.nz

Your Sincerely,

Prapimpa Jarunratanakul

Appendix B: Time 1 and Time 2 Questionnaires

Organisational Working Attitudes

Introduction:

My name is Prapimpa Jarunratanakul. I am a doctoral student from the University of Waikato in New Zealand. I would like to invite you to participate in research on organisational fairness that I am conducting. The purpose of this research is to improve fairness in the workplace by investigating how fairly employees are treated by their organisation or management. This research will be beneficial to employees, because it will inform management and human resource staff about how to design fair organisational practices and system. You may have more opportunities to express your opinions for making important decisions related to your benefits, and you may be treated fairer.

This questionnaire will take about 20-25 minutes to complete. All responses will remain strictly confidential and will be used for research purposes only. Your organisation won't have access to individual responses. In any report I might publish, I will not include any information that will make it possible to identify a participant. Research records will be kept in a secured file, which only I will have access.

This research is a longitudinal study with two data collection point separated by a six-month interval. After completing this Time 1 online questionnaire, six months later you will be reminded by your Human Resource Managers to respond to Time 2 online questionnaire by accessing the follow-up link.

This research received ethics approval from the Research and Ethics Committee of the Psychology Department, Waikato University. You are ensured that the principles of ethical conduct of this research will be upheld in all respects. Participants' interests, comfort and safety will be protected. You can withdraw from this six-month research at any time for any reason.

In order to match the Time 1 and Time 2 questionnaires, you will need to create your own codeword. **Please be advised that the initials of your name, date of birth, month of birth and all responses you give won't be assessable by your organisation. There is no possibility that the information you provide can lead to your identification.**

How to create your codeword

1. Insert the initials of your name. For example, if your name is John Smith = js
2. Insert date of your birth. For example, if you were born on the 21th = 21, 5th = 05 etc.
3. Insert the first 3 letters of the month of your birth. For example, if you were born in October = oct

In this example, your codeword would then be: js/21/oct
Please insert your codeword here:
_____/_____/_____
(initials) (date of birth) (first 3 letters of the month of birth)

(For the Time 1 survey)
If you change your name during the next six months, please use your original name on the subsequent survey.

(For the Time 2 survey)
If you change your name during the last six months, please use your original name that you used in the Time 1 survey.

Please contact me with any questions relating to this study through any of the following means:
Prapimpa Jarunratanakul
Email: pj9@students.waikato.ac.nz.
Phone: 021 02724305, 07 8569291

Section 1

Instructions: In the following questions, the "outcome" refers to outcomes you receive from your job (e.g. pay, benefits, promotions, work performance evaluation etc.). The "procedures" in questions refer to the procedures used by your immediate supervisors in making decisions for allocating pay, benefits, promotions, workload, and work performance evaluation. Please use the rating scale below to indicate how you feel about each statement below:

1 = Very little extent 3 = Reasonable extent 5 = Very large extent
2 = Little extent 4 = Large extent

To what extent...					
1. Have you been able to express your views and feelings during those procedures?	1	2	3	4	5
2. Have you had influence over the outcome arrived at by those procedures?	1	2	3	4	5
3. Have those procedures been applied consistently?	1	2	3	4	5
4. Have those procedures been free of bias?	1	2	3	4	5
5. Have those procedures been based on accurate information?	1	2	3	4	5
6. Have you been able to appeal the outcome arrived at by those procedures?	1	2	3	4	5
7. Have those procedures upheld ethical and moral standards?	1	2	3	4	5
8. Does your outcome reflect the effort you put into your work?	1	2	3	4	5
9. Is your outcome appropriate for the work you have completed?	1	2	3	4	5
10. Does your outcome reflect what you have contributed to the organisation?	1	2	3	4	5
11. Is your outcome justified, given your performance?	1	2	3	4	5

To what extent...					
12. Has your immediate supervisor or manager treated you in a polite manner?	1	2	3	4	5
13. Has your immediate supervisor or manager treated you with dignity?	1	2	3	4	5
14. Has your immediate supervisor or manager treated you with respect?	1	2	3	4	5
15. Has your immediate supervisor or manager refrained from improper remarks or comments about you?	1	2	3	4	5
16. Has your immediate supervisor or manager been candid in his/her communications with you?	1	2	3	4	5
17. Has your immediate supervisor or manager explained the procedures thoroughly?	1	2	3	4	5
18. Were your immediate supervisor or manager's explanations regarding the procedures reasonable?	1	2	3	4	5
19. Has your supervisor or manager communicated details in a timely manner?	1	2	3	4	5
20. Has your immediate supervisor or manager seemed to tailor his/her communications to your specific needs?	1	2	3	4	5

Note. Items 1-7 = Procedural justice; Items 8-11 = Distributive justice; Items 12-15 = Interpersonal justice; Items 16-20 = Informational justice.

Section 2

Instructions: Now we would like to ask you how satisfied you are with various aspects of your present job. Please use the rating scale below to indicate how you feel about each of following aspects of your work.

1 = Very dissatisfied
2 = Moderately dissatisfied
3 = Slightly dissatisfied
4 = Neither satisfied nor dissatisfied
5 = Slightly satisfied
6 = Moderately satisfied
7 = Very satisfied

Please select your response	Degree of satisfaction						
1. Financial rewards (pay, fringe benefits)	1	2	3	4	5	6	7
2. Job security	1	2	3	4	5	6	7
3. Opportunities for promotion/advancement	1	2	3	4	5	6	7
4. Relations with my co-workers	1	2	3	4	5	6	7
5. Physical working conditions	1	2	3	4	5	6	7
6. Support from others	1	2	3	4	5	6	7
7. The praise I get from doing a good job	1	2	3	4	5	6	7

Section 3

Instructions: The "procedures" in these questions refer to formal procedures used by your immediate supervisors in making decisions for allocating pay, benefits, promotions, workload, and evaluating work performance. Please use the rating scale below to rate how you feel about your current jobs. Remember, there is no right or wrong answer.

1 = Strongly disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly agree

Please select your response					
1. I have an adequate opportunity to provide inputs during the decision-making procedures.	1	2	3	4	5
2. Management encourages people to participate in important decisions.	1	2	3	4	5
3. Management listens carefully to employee concerns about the procedures.	1	2	3	4	5
4. Employees receive information concerning all phases of procedures in timely manner.	1	2	3	4	5
5. Information I receive about procedures was often inaccurate.	1	2	3	4	5
6. Communication between management and employees is very open during the procedures.	1	2	3	4	5
7. Most of the information I receive during the procedures is helpful.	1	2	3	4	5
8. The amount of information I receive about the procedures is adequate.	1	2	3	4	5
9. I am aware of the goals for making decisions during various phases of procedures.	1	2	3	4	5

Note. Items 1-3 = Opportunity to voice; Items 4-9 = Communication quality.

Section 4

Instructions: Please use the rating scale below to indicate how you feel about the relationship between you and your current manger/supervisor. Remember, there is no right or wrong answer.

1 = Strongly disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly agree

Please select your response					
1. I like my supervisor as a person.	1	2	3	4	5
2. My supervisor is the kind of person one would like to have as a friend.	1	2	3	4	5
3. My supervisor is a lot of fun to work with.	1	2	3	4	5
4. My supervisor defends my work actions to a superior, even without complete knowledge of the issue in question.	1	2	3	4	5
5. My supervisor would come to my defense if I were "attacked" by others.	1	2	3	4	5

Please select your response					
6. My supervisor would defend me to others in the organisation if I made an honest mistake.	1	2	3	4	5
7. I do work for my supervisor that goes beyond what is specified in my job description.	1	2	3	4	5
8. I am willing to apply extra efforts, beyond those normally required, to meet my supervisor's work goals.	1	2	3	4	5
9. I do not mind working my hardest for my supervisor.	1	2	3	4	5
10. I am impressed with my supervisor's knowledge of his/her job.	1	2	3	4	5
11. I respect my supervisor's knowledge of and competence on the job.	1	2	3	4	5
12. I admire my supervisor's professional skills.	1	2	3	4	5

Note. Items 1-3 = Affect; Items 4-6 = Loyalty; Items 7-9 = Contribution; Items 10-12 = Professional respect.

Section 5

Please read each statement carefully, and use the rating scale below to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence.

1 = Very inaccurate
2 = Moderately inaccurate
3 = Neither inaccurate nor accurate
4 = Moderately accurate
5 = Very accurate

Please select your response					
1. I am interested in people.	1	2	3	4	5
2. I sympathize with others' feelings.	1	2	3	4	5
3. I have a soft heart.	1	2	3	4	5
4. I take time out for others.	1	2	3	4	5
5. I feel others' emotions.	1	2	3	4	5
6. I make people feel at ease.	1	2	3	4	5
7. I am not really interested in others.	1	2	3	4	5
8. I insult people.	1	2	3	4	5
9. I am not interested in other people's problems.	1	2	3	4	5
10. I feel little concern for others.	1	2	3	4	5
11. I am always prepared.	1	2	3	4	5
12. I pay attention to details.	1	2	3	4	5
13. I get chores done right away.	1	2	3	4	5
14. I like order.	1	2	3	4	5
15. I follow a schedule.	1	2	3	4	5
16. I am exacting in my work.	1	2	3	4	5
17. I leave my belongings around.	1	2	3	4	5
18. I make a mess of things.	1	2	3	4	5

Please select your response					
19. I often forget to put things back in their proper place.	1	2	3	4	5
20. I shirk my duties.	1	2	3	4	5
21. I am not easily affected by my emotions.	1	2	3	4	5
22. I never spend more than I can afford.	1	2	3	4	5
23. I experience very few emotional highs and lows.	1	2	3	4	5
24. I act wild and crazy.	1	2	3	4	5
25. I demand attention.	1	2	3	4	5
26. I do crazy things.	1	2	3	4	5
27. I use flattery to get ahead.	1	2	3	4	5
28. I make rash decisions.	1	2	3	4	5
29. I use swear words.	1	2	3	4	5
30. I make a lot of noise.	1	2	3	4	5

Note. Items 1-10 = Agreeableness; Items 11-20 = Conscientiousness; Items 21-30 = Self-control.

Section 6

In the following items, please use the rating scale below to indicate the extent to which you agree or disagree with each statement.

1 = Strongly disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly agree

Please select your response					
1. Group welfare is more important than individual rewards.	1	2	3	4	5
2. Group success is more important than individual success.	1	2	3	4	5
3. Being accepted by members of your work group is very important.	1	2	3	4	5
4. Employees should only pursue their goals after considering the welfare of the group.	1	2	3	4	5
5. Managers should encourage group loyalty even if individual goals suffer.	1	2	3	4	5
6. Individuals may be expected to give up their goals in order to benefit group success.	1	2	3	4	5
7. Managers should make most decisions without consulting subordinates.	1	2	3	4	5
8. It is frequently necessary for a manager to use authority and power when dealing with subordinates.	1	2	3	4	5
9. Managers should seldom ask for the opinions of employees.	1	2	3	4	5
10. Managers should avoid off-the-job social contacts with employees.	1	2	3	4	5
11. Employees should not disagree with management decisions.	1	2	3	4	5
12. Managers should not delegate important tasks to employees.	1	2	3	4	5

Note. Items 1-6 = Collectivism; Items 7-12 = Power distance.

Section 7

Please use the rating scale below to rate how often you engaged in each behaviour in the last year. Your responses will be kept in absolute confidence, so please answer in an honest manner.

1 = Never
2 = Once or twice a year
3 = Once or twice per month
4 = More than twice per month
5 = Once or twice per week
6 = More than twice per week
7 = Everyday

How often have you done each of the following things on your present job in the last year?							
1. Purposely wasted your employer's materials/supplies	1	2	3	4	5	6	7
2. Daydreamed rather than did your work	1	2	3	4	5	6	7
3. Complained about insignificant things at work	1	2	3	4	5	6	7
4. Told people outside the job what a lousy place you work for	1	2	3	4	5	6	7
5. Purposely did your work incorrectly	1	2	3	4	5	6	7
6. Came to work late without permission	1	2	3	4	5	6	7
7. Stayed home from work and said you were sick when you weren't	1	2	3	4	5	6	7
8. Purposely damaged a piece of equipment or property	1	2	3	4	5	6	7
9. Purposely dirtied or littered your place of work	1	2	3	4	5	6	7
10. Stolen something belonging to your employer	1	2	3	4	5	6	7
11. Purposely worked slowly when things needed to get done	1	2	3	4	5	6	7
12. Refused to take on an assignment when asked	1	2	3	4	5	6	7
13. Purposely came late to an appointment or meeting	1	2	3	4	5	6	7
14. Failed to report a problem so it would get worse	1	2	3	4	5	6	7
15. Taken a longer break than you were allowed to take	1	2	3	4	5	6	7
16. Purposely failed to follow instructions	1	2	3	4	5	6	7
17. Left work earlier than you were allowed to	1	2	3	4	5	6	7
18. Took supplies or tools home without permission	1	2	3	4	5	6	7
19. Tried to look busy while doing nothing	1	2	3	4	5	6	7
20. Put in to be paid for more hours than you worked	1	2	3	4	5	6	7
21. Took money from your employer without permission	1	2	3	4	5	6	7
22. Started or continued a damaging or harmful rumour at work	1	2	3	4	5	6	7
23. Insulted someone about their job performance	1	2	3	4	5	6	7
24. Made fun of someone's personal life	1	2	3	4	5	6	7
25. Ignored someone at work	1	2	3	4	5	6	7

How often have you done each of the following things on your present job in the last year?							
26. Refused to help someone at work	1	2	3	4	5	6	7
27. Withheld needed information from someone at work	1	2	3	4	5	6	7
28. Purposely interfered with someone at work doing his/her job	1	2	3	4	5	6	7
29. Blamed someone at work for an error you made	1	2	3	4	5	6	7
30. Started an argument with someone at work	1	2	3	4	5	6	7
31. Stole something belonging to someone at work	1	2	3	4	5	6	7
32. Verbally abused someone at work	1	2	3	4	5	6	7
33. Made an obscene gesture (the finger) to someone at work	1	2	3	4	5	6	7
34. Threatened someone at work with violence	1	2	3	4	5	6	7
35. Threatened someone at work, but not physically	1	2	3	4	5	6	7
36. Said something obscene to someone at work to make them feel bad	1	2	3	4	5	6	7
37. Hid something so someone at work couldn't find it	1	2	3	4	5	6	7
38. Did something to make someone at work look bad	1	2	3	4	5	6	7
39. Played a mean prank to embarrass someone at work	1	2	3	4	5	6	7
40. Destroyed property belonging to someone at work	1	2	3	4	5	6	7
41. Looked at someone at work's private mail/property without permission	1	2	3	4	5	6	7
42. Hit or pushed someone at work	1	2	3	4	5	6	7
43. Insulted or made fun of someone at work	1	2	3	4	5	6	7

Note. Items 1-21 = Counterproductive work behaviour directed toward the organisation/CWBO; Items 22-43 = Counterproductive work behaviour directed toward the individual/CWBI.

Section 8

Please select/insert your response	
1. What is your gender?	☐ Male ☐ Female
2. What is your ethnicity?	(For New Zealand sample) ☐ New Zealand European ☐ Other European ☐ Maori ☐ Asian ☐ Pacific Island ☐ Other_____ (For Thai sample) ☐ Thai ☐ Other_____
3. How old are you?	_____(years)
4. What is the highest level of education you have completed?	☐ Less than high school ☐ High school graduate ☐ Technical certificate or diploma ☐ Undergraduate degree/diploma ☐ Postgraduate degree/diploma (MA, PhD, etc.)
5. How long have you worked for this organisation/company?	_____(years/months)
6. How long have you been working in your present job?	_____(years/months)
7. What industry do you work in?	☐ Finance, insurance, real estate ☐ Wholesale and retail trade ☐ Transportation ☐ Education ☐ Professional and business services ☐ Government ☐ Manufacturing ☐ Agriculture, mining, construction ☐ Other_____

Thank you for your cooperation.

I sincerely appreciate your participation in this research.

How to Get a Summary of Research Results

- You can obtain a summary of research results via email from your organisation. Please be advised again that your organisation won't have access to your individual responses.

Appendix C

Tables of correlations between study variables

(after removing outliers and transformation)

Appendix C.1 Correlations among the study variables after removing outliers (NZ, *N* = 611, Time 1)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Procedural justice	*.89*												
2. Distributive justice	.70**	*.93*											
3. Interpersonal justice	.66**	.44**	*.95*										
4. Informational justice	.70**	.52**	.78**	*.92*									
5. Outcome satisfaction	.70**	.62**	.58**	.64**	*.84*								
6. Opportunity to voice	.76**	.62**	.58**	.67**	.69**	*.89*							
7. Communication quality	.74**	.57**	.58**	.69**	.67**	.76**	*.80*						
8. Affect	.52**	.30**	.69**	.66**	.47**	.50**	.49**	*.92*					
9. Loyalty	.59**	.40**	.74**	.70**	.54**	.57**	.54**	.75**	*.93*				
10. Contribution	.36**	.22**	.44**	.40**	.37**	.38**	.36**	.53**	.48**	*.85*			
11. Professional respect	.55**	.39**	.64**	.67**	.50**	.56**	.55**	.75**	.72**	.53**	*.95*		
12. Agreeableness [a]	-.03	.04	-.04	-.01	.07	.03	.02	.03	-.03	.11**	.00	*.83*	
13. Disagreeableness [b]	-.06	-.11**	-.05	-.05	-.17**	-.10**	-.08	-.06	-.06	-.17**	-.09	-.53**	*.75*
14. Conscientiousness [c]	-.10**	-.11**	-.08	-.06	-.08	-.07	-.09	-.07	-.10**	.02	-.10**	.10**	-.10**
15. Negligence [d]	.08	.05	.06	.11**	.05	.04	.06	.13**	.12**	-.00	.13**	-.08	.19**
16. Lack of self-control	.11**	.12**	.03	.06	.11**	.12**	.09	.07	.06	.03	.05	-.09	.27**
17. Collectivism	.02	.06	-.01	.02	.02	.01	.03	-.04	.01	-.01	.04	.04	-.01
18. Power distance	-.04	.02	-.06	-.02	-.07	-.05	-.02	-.05	-.02	-.07	.01	-.12**	-.15**
19. CWBO	-.07	-.08	-.11**	-.11**	-.17**	-.12**	-.18**	-.08	-.11**	-.25**	-.13**	-.10**	.24**
20. CWBI	-.11**	-.09	-.09	-.11**	-.17**	-.13**	-.16**	-.07	-.10**	-.15**	-.11**	-.17**	.29**

Note. [a] the positive factor of agreeableness; [b] the negative factor of agreeableness; [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal. $^{**}p < .01$ (one-tailed).

Appendix C.1 (Continued)

Variables	14	15	16	17	18	19	20
14. Conscientiousness [c]	*.73*						
15. Negligence [d]	-.49**	*.73*					
16. Lack of self-control	-.23**	.34**	*.76*				
17. Collectivism	-.10**	.13**	.02	*.76*			
18. Power distance	.03	.04	.06	.11**	*.62*		
19. CWBO	-.25**	.27**	.29**	.03	.04	*.81*	
20. CWBI	-.15**	.17**	.21**	.01	.06	.47**	*.86*

Note. [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal.
** $p < .01$ (one-tailed).

Appendix C.2 Correlations between transformed variables and non-transformed variables (NZ, *N* = 624, Time 1)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Procedural justice	*.89*												
2. Distributive justice	.69**	*.93*											
3. Interpersonal justice	.65**	.43**	*.95*										
4. Informational justice	.70**	.52**	.78**	*.92*									
5. Outcome satisfaction	.69**	.61**	.56**	.62**	*.84*								
6. Opportunity to voice	.75**	.62**	.57**	.66**	.69**	*.89*							
7. Communication quality	.73**	.57**	.58**	.68**	.66**	.75**	*.80*						
8. Affect	.52**	.29**	.68**	.64**	.47**	.50**	.49**	*.92*					
9. Loyalty	.58**	.39**	.73**	.69**	.53**	.56**	.53**	.74**	*.93*				
10. Contribution	.36**	.21**	.43**	.39**	.37**	.38**	.36**	.52**	.48**	*.85*			
11. Professional respect	.54**	.38**	.63**	.66**	.49**	.55**	.53**	.74**	.71**	.52**	*.95*		
12. Agreeableness [a]	-.03	.04	-.03	.00	.10**	.05	.03	.04	-.03	.10**	.02	*.83*	
13. Disagreeableness [b]	-.06	-.10**	-.06	-.06	-.17**	-.09	-.07	-.07	-.04	-.17**	-.09	-.53**	*.75*
14. Conscientiousness [c]	-.09	-.10**	-.07	-.06	-.05	-.04	-.06	-.04	-.09	.03	-.09	.16**	-.10**
15. Negligence [d]	.06	.04	.06	.10**	.02	.02	.04	.10**	.11**	-.02	.12**	-.12**	.21**
16. Lack of self-control	.10**	.10**	.02	.05	.10**	.12**	.09	.06	.08	.04	.04	-.10**	.28**
17. Collectivism	.03	.05	-.01	.02	.01	-.00	.03	-.04	.01	.00	.04	.01	-.01
18. Power distance	-.04	.02	-.06	-.02	-.08	-.05	-.03	-.05	-.02	-.08*	.02	-.12**	-.18**
19. CWBO	-.07	-.10**	-.12**	-.11**	-.19**	-.13**	-.17**	-.07	-.10**	-.23**	-.12**	-.13**	.28**
20. LGCWBI	-.11**	-.10**	-.11**	-.11**	-.20**	-.14**	-.16**	-.07	-.09	-.14**	-.12**	-.22**	.33**

Note. [a] the positive factor of agreeableness; [b] the negative factor of agreeableness; [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; LGCWBI = transformed counterproductive work behavior directed toward individual by log; coefficient alphas are shown on the diagonal. $^{**}p < .01$ (one-tailed).

Appendix C.2 (Continued)

Variables	14	15	16	17	18	19	20
14. Conscientiousness [c]	*.73*						
15. Negligence [d]	-.51**	*.73*					
16. Lack of self-control	-.23**	.34**	*.76*				
17. Collectivism	-.09	.12**	.02	*.76*			
18. Power distance	.01	.07	.06	.10**	*.62*		
19. CWBO	-.24**	.28**	.30**	.04	.09	*.81*	
20. LGCWBI	-.17**	.20**	.24**	.02	.13**	.56**	*.86*

Note. [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; LGCWBI = transformed counterproductive work behavior directed toward individual by log; coefficient alphas are shown on the diagonal. ** $p < .01$ (one-tailed).

Appendix C.3 Correlations among the study variables after removing outliers (NZ, *N* =269, Time 2)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Procedural justice	*.89*												
2. Distributive justice	.72**	*.95*											
3. Interpersonal justice	.66**	.54**	*.95*										
4. Informational justice	.70**	.60**	.77**	*.91*									
5. Outcome satisfaction	.65**	.59**	.56**	.61**	*.83*								
6. Opportunity to voice	.71**	.60**	.51**	.64**	.71**	*.87*							
7. Communication quality	.72**	.60**	.54**	.63**	.64**	.82**	*.79*						
8. Affect	.57**	.44**	.69**	.69**	.53**	.55**	.53**	*.91*					
9. Loyalty	.64**	.50**	.70**	.71**	.59**	.62**	.59**	.77**	*.93*				
10. Contribution	.37**	.27**	.41**	.40**	.38**	.39**	.41**	.53**	.54**	*.86*			
11. Professional respect	.58**	.49**	.66**	.71**	.51**	.54**	.52**	.75**	.73**	.50**	*.94*		
12. Agreeableness [a]	-.01	.02	-.02	.01	.03	.03	.01	.05	.02	.23**	.04	*.82*	
13. Disagreeableness [b]	.05	.05	-.00	-.02	-.03	.00	.00	-.04	.02	-.16**	-.02	-.58**	*.79*
14. Conscientiousness [c]	.01	-.04	.00	-.00	.01	.02	.06	.02	.01	.22**	.04	.14**	.04
15. Negligence [d]	.02	.07	.08	.05	.03	-.03	-.05	.03	.06	-.13	.04	-.16**	.31**
16. Lack of self-control	.06	.08	.02	.02	-.01	-.01	-.03	.08	.05	-.05	.09	-.07	.38**
17. Collectivism	.08	.06	.13	.10	.12	.03	.04	.09	.09	.10	.08	-.07	-.07
18. Power distance	-.02	-.01	-.04	-.04	-.04	.01	-.02	.05	.05	-.06	.05	-.08	-.16**
19. CWBO	-.12	-.06	-.19**	-.18**	-.15**	-.16**	-.16**	-.16**	-.18**	-.29**	-.21**	-.13	.31**
20. CWBI	-.09	-.04	-.15**	-.12	-.10	-.14**	-.13	-.09	-.10	-.13	-.13	-.15**	.31**

Note. [a] the positive factor of agreeableness; [b] the negative factor of agreeableness; [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal. $^{**}p < .01$ (one-tailed).

Appendix C.3 (Continued)

Variable	14	15	16	17	18	19	20
14. Conscientiousness [c]	*.74*						
15. Negligence [d]	-.56**	*.75*					
16. Lack of self-control	-.20**	.40**	*.75*				
17. Collectivism	-.06	.13	.05	*.76*			
18. Power distance	-.11	.10	.09	.16**	*.66*		
19. CWBO	-.15**	.25**	.32**	.04	.04	*.89*	
20. CWBI	.01	.06	.25**	.05	-.04	.56**	*.89*

Note. [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal.
** $p < .01$ (one-tailed).

Appendix C.4 Correlations between transformed variables and non-transformed variables (NZ, *N* = 276, Time 2)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Procedural justice	*.89*												
2. Distributive justice	.70**	*.95*											
3. Interpersonal justice	.66**	.51**	*.95*										
4. Informational justice	.69**	.56**	.76**	*.91*									
5. Outcome satisfaction	.63**	.59**	.54**	.58**	*.83*								
6. Opportunity to voice	.70**	.59**	.51**	.63**	.70**	*.87*							
7. Communication quality	.71**	.59**	.54**	.63**	.64**	.82**	.79						
8. Affect	.56**	.40**	.68**	.69**	.52**	.55**	.53**	*.91*					
9. Loyalty	.62**	.48**	.68**	.71**	.58**	.62**	.59**	.77**	*.93*				
10. Contribution	.36**	.23**	.42**	.41**	.37**	.39**	.41**	.55**	.54**	*.86*			
11. Professional respect	.57**	.46**	.66**	.70**	.49**	.54**	.52**	.75**	.72**	.51**	*.94*		
12. Agreeableness [a]	.00	.02	-.01	.00	.04	.03	.02	.06	.02	.23**	.06	*.82*	
13. Disagreeableness [b]	.04	.05	-.02	-.09	-.03	.02	.01	-.01	.05	-.14	-.00	-.54**	*.79*
14. Conscientiousness [c]	.01	-.02	-.00	-.01	.03	.03	.07	.03	.02	.21**	.04	.15**	.02
15. Negligence [d]	.02	.06	.06	.06	.01	-.02	-.05	.03	.08	-.12	.05	-.16**	.34**
16. Lack of self-control	.07	.08	.02	.01	-.03	-.02	-.03	.06	.05	-.06	.08	-.07	.38**
17. Collectivism	.09	.03	.13	.09	.10	.04	.04	.09	.09	.10	.11	-.04	-.09
18. Power distance	-.01	-.03	-.04	-.01	-.05	.03	-.01	.08	.08	-.03	.06	-.08	-.21**
19. CWBO	-.10	-.06	-.17**	-.12	-.19**	-.13	-.14**	-.15**	-.12	-.26**	-.19**	-.15**	.32**
20. LGCWBI	-.12	-.06	-.18**	-.08	-.16**	-.13	-.14**	-.10	-.08	-.15**	-.15**	-.20**	.34**

Note. [a] the positive factor of agreeableness; [b] the negative factor of agreeableness; [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; LGCWBI = transformed counterproductive work behavior directed toward the individual by log; coefficient alphas are shown on the diagonal. $^{**}p < .01$ (one-tailed).

Appendix C.4 (Continued)

Variables	14	15	16	17	18	19	20
14. Conscientiousness [c]	*.74*						
15. Negligence [d]	-.54**	*.75*					
16. Lack of self-control	-.20**	.42**	*.75*				
17. Collectivism	-.06	.16**	.08	*.76*			
18. Power distance	-.10	.15**	.12	.17**	*.66*		
19. CWBO	-.16**	.31**	.35**	.05	.16**	*.89*	
20. LGCWBI	-.04	.14	.27**	.03	.04	.63**	*.89*

Note. [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; LGCWBI = transformed counterproductive work behavior directed toward the individual by log; coefficient alphas are shown on the diagonal. ** $p < .01$ (one-tailed).

Appendix C.5 Correlations among the study variables after removing outliers (Thailand, *N* = 468, Time 1)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Procedural justice	*.87*												
2. Distributive justice	.70**	*.91*											
3. Interpersonal justice	.62**	.53**	*.91*										
4. Informational justice	.64**	.54**	.80**	*.90*									
5. Outcome satisfaction	.60**	.58**	.56**	.57**	*.91*								
6. Opportunity to voice	.67**	.57**	.57**	.56**	.63**	*.87*							
7. Communication quality	.58**	.52**	.49**	.53**	.56**	.69**	*.79*						
8. Affect	.45**	.41**	.60**	.65**	.58**	.57**	.51**	*.91*					
9. Loyalty	.49**	.40**	.58**	.61**	.54**	.57**	.53**	.71**	*.89*				
10. Contribution	.45**	.40**	.52**	.54**	.46**	.56**	.52**	.64**	.57**	*.79*			
11. Professional respect	.45**	.39**	.58**	.65**	.51**	.53**	.51**	.73**	.60**	.69**	*.92*		
12. Agreeableness [a]	.27**	.22**	.33**	.35**	.35**	.36**	.30**	.41**	.31**	.52**	.46**	*.89*	
13. Disagreeableness [b]	-.08	-.05	-.22**	-.19**	-.10	-.14**	-.12**	-.19**	-.15**	-.30**	-.28**	-.37**	*.80*
14. Conscientiousness [c]	-.10	-.07	.11**	.09	.06	.06	.10	.18**	.09	.22**	.18**	.45**	-.11**
15. Negligence [d]	.06	.03	-.15**	-.10	-.02	.02	-.05	.-09	-.07	-.17**	-.15**	-.23**	.56**
16. Lack of self-control	-.14**	-.07	-.15**	-.11**	-.03	-.09	-.11**	-.09	-.09	-.17**	-.17**	-.18**	.46**
17. Collectivism	.23**	.21**	.29**	.27**	.33**	.34**	.36**	.36**	.31**	.38**	.36**	.46**	.30**
18. Power distance	.34**	.28**	.22**	.26**	.20**	.37**	.30**	.24**	.26**	.21**	.22**	.09	-.07
19. CWBO	-.02	-.03	-.24**	-.17**	-.05	-.11**	-.11	-.17**	-.11**	-.25**	-.24**	-.28**	.48**
20. CWBI	-.07	-.04	-.29**	-.22**	-.09	-.15**	-.15**	-.20**	-.15**	-.26**	-.26**	-.31**	.46**

Note. [a] the positive factor of agreeableness; [b] the negative factor of agreeableness; [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal. $^{**}p < .01$ (one-tailed).

Appendix C.5 (Continued)

Variables	14	15	16	17	18	19	20
14. Conscientiousness [c]	*.82*						
15. Negligence [d]	-.22**	*.85*					
16. Lack of self-control	-.09	.54**	*.81*				
17. Collectivism	.24**	-.19**	-.21**	*.82*			
18. Power distance	-.11**	.14**	-.05	.32**	*.73*		
19. CWBO	-.18**	.44**	.37**	-.27**	.02	*.96*	
20. CWBI	-.21**	.41**	.38**	-.32**	-.01	.89**	*.98*

Note. [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal.
** $p < .01$ (one-tailed).

Appendix C.6 Correlations among the study variables after removing outliers (Thailand, *N* = 236, Time 2)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Procedural justice	*.91*												
2. Distributive justice	.79**	*.91*											
3. Interpersonal justice	.75**	.71**	*.92*										
4. Informational justice	.79**	.70**	.87**	*.92*									
5. Outcome satisfaction	.74**	.73**	.71**	.74**	*.95*								
6. Opportunity to voice	.77**	.69**	.75**	.72**	.71**	*.91*							
7. Communication quality	.73**	.67**	.70**	.69**	.66**	.82**	*.85*						
8. Affect	.65**	.60**	.77**	.73**	.66**	.82**	.75**	*.92*					
9. Loyalty	.70**	.67**	.76**	.72**	.68**	.75**	.77**	.80**	*.87*				
10. Contribution	.66**	.60**	.71**	.71**	.66**	.74**	.74**	.76**	.71**	*.87*			
11. Professional respect	.67**	.57**	.75**	.74**	.66**	.79**	.73**	.83**	.71**	.82**	*.93*		
12. Agreeableness [a]	.61**	.51**	.59**	.60**	.64**	.61**	.60**	.56**	.58**	.65**	.62**	*.93*	
13. Disagreeableness [b]	-.15	-.05	-.19**	-.16**	-.07	-.15**	-.02	-.17**	-.11	-.19**	-.21**	-.18**	*.79*
14. Conscientiousness [c]	.31**	.29**	.44**	.45**	.45**	.40**	.40**	.43**	.39**	.42**	.44**	.65**	.05
15. Negligence [d]	-.06	-.02	-.11	-.14	.01	-.01	.03	-.05	.01	-.07	-.10	-.06	.67**
16. Lack of self-control	-.09	-.05	-.09	-.11	-.00	.01	.05	.01	.03	-.08	-.06	-.08	.71**
17. Collectivism	.53**	.49**	.57**	.50**	.51**	.59**	.62**	.56**	.53**	.55**	.57**	.68**	.10
18. Power distance	.52**	.42**	.53**	.49**	.39**	.58**	.58**	.54**	.48**	.48**	.51**	.52**	.01
19. CWBO	-.28**	-.21**	-.41**	-.34**	-.19**	-.31**	-.26**	-.33**	-.25**	-.33**	-.37**	-.31**	.50**
20. CWBI	-.28**	-.16**	-.41**	-.33**	-.17**	-.31**	-.26**	-.33**	-.25**	-.31**	-.33**	-.34**	.49**

Note. [a] the positive factor of agreeableness; [b] the negative factor of agreeableness; [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal. $^{**}p < .01$ (one-tailed).

Appendix C.6 (Continued)

Variables	14	15	16	17	18	19	20
14. Conscientiousness [c]	*.88*						
15. Negligence [d]	-.06	*.85*					
16. Lack of self-control	.04	.78**	*.85*				
17. Collectivism	.51**	.00	.00	*.92*			
18. Power distance	.26**	.20**	.10	.70**	*.85*		
19. CWBO	-.15	.43**	.47**	-.34**	-.31**	*.96*	
20. CWBI	-.19**	.37**	.42**	-.37**	-.32**	.91**	*.98*

Note. [c] the positive factor of conscientiousness; [d] the negative factor of conscientiousness; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual; coefficient alphas are shown on the diagonal.
** $p < .01$ (one-tailed).

Appendix D

Appendix D.1 Correlations of age, education, organisational and job tenure with justice perceptions and CWB at Time 1

	NZ (*N* = 624)				Thai (*N* = 480)			
	1	2	3	4	1	2	3	4
1. Age	-				-			
2. Education	.02	-			-.21**	-		
3. Organisational tenure	.45**	-.21**	-		.72**	-.20**	-	
4. Job tenure	.38**	-.17**	.66**	-	.76**	-.12**	.83**	-
Procedural justice	-.12**	.15**	-.09	-.11**	-.10	.18**	-.05	-.05
Distributive justice	-.11**	.12**	-.08	-.09	-.10	.13**	-.06	-.08
Interpersonal justice	-.05	.10**	-.02	-.07	-.09	.09	.00	.00
Informational justice	-.08	.07	-.02	-.06	-.13**	.03	-.06	-.05
CWBO	-.21**	-.15**	-.01	-.04	-.07	.09	-.15**	-.16**
CWBI	-.09	-.16**	.06	.06	-.01	.03	-.10	-.11**

Note. NZ = New Zealand sample; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.
** $p < .01$.

Appendix D.2 Correlations of age, education, organisational and job tenure with justice perceptions and CWB at Time 2

	NZ (*N* = 276)				Thai (*N* = 242)			
	1	2	3	4	1	2	3	4
1. Age	-				-			
2. Education	.02	-			-.37**	-		
3. Organisational tenure	.43**	-.11	-		.66**	-.36**	-	
4. Job tenure	.37**	-.03	.55**	-	.70**	-.26**	.77**	-
Procedural justice	-.18**	.05	-.08	-.13	-.05	.04	.01	.02
Distributive justice	-.15**	.12	-.07	-.12	-.06	.05	-.04	-.08
Interpersonal justice	-.08	.08	-.09	-.11	-.06	-.08	.03	.04
Informational justice	-.09	.03	-.11	-.11	-.03	-.10	.02	.02
CWBO	-.21**	-.05	.02	-.04	.10	.04	-.07	-.11
CWBI	-.12	-.04	.01	.02	.07	.01	-.10	-.12

Note. NZ = New Zealand sample; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.
** $p < .01$.

Appendix E

Appendix E.1 The mean and standard deviations for gender differences between study variables in the New Zealand and Thai samples at Time 1

		NZ (N = 624)				Thai (N = 480)			
		N	*M*	*SD*	*t*	*N*	*M*	*SD*	*t*
Procedural justice	Male	154	2.82	0.86	-0.24	201	2.96	0.75	2.39*
	Female	450	2.84	0.88		265	2.79	0.75	
Distributive justice	Male	154	2.72	1.10	0.01	201	3.03	0.83	1.22
	Female	450	2.72	1.10		265	2.93	0.86	
Interpersonal justice	Male	154	3.86	1.04	1.00	201	3.23	0.90	0.52
	Female	450	3.76	1.19		265	3.18	0.89	
Informational justice	Male	154	3.12	1.01	-0.13	201	3.14	0.80	0.38
	Female	450	3.13	1.07		265	3.11	0.80	
Outcome satisfaction	Male	154	4.56	1.29	-1.09	201	4.48	1.19	0.72
	Female	450	4.69	1.31		265	4.40	1.21	
Opportunity to voice	Male	154	2.84	1.09	-1.06	201	3.03	0.85	0.62
	Female	450	2.95	1.11		265	2.99	0.77	
Communication quality	Male	154	3.09	0.84	-0.88	201	3.15	0.68	1.46
	Female	450	3.16	0.83		265	3.06	0.61	
Affect	Male	154	3.42	1.09	-0.39	201	3.17	0.91	-1.11
	Female	450	3.46	1.10		265	3.27	0.90	
Loyalty	Male	154	3.37	1.14	-0.01	201	3.17	0.88	0.69
	Female	450	3.38	1.17		265	3.11	0.84	
Contribution	Male	154	3.88	0.91	-0.18	201	3.27	0.86	-1.15
	Female	450	3.98	0.85		265	3.36	0.81	
Professional respect	Male	154	3.48	1.21	0.02	201	3.42	0.90	-0.30
	Female	450	3.47	1.27		265	3.45	0.91	
Agreeableness	Male	154	3.80	0.80	-5.10**	201	3.43	0.68	-2.53*
	Female	450	4.16	0.60		265	3.60	0.73	
Disagreeableness	Male	154	1.86	0.80	3.68**	201	2.39	0.77	2.46*
	Female	450	1.59	0.67		265	2.22	0.78	
Conscientiousness	Male	154	3.71	0.66	-2.51*	201	3.30	0.76	-2.75**
	Female	450	3.87	0.67		265	3.49	0.73	
Negligence	Male	154	2.07	0.84	2.27*	201	2.39	0.92	-3.03**
	Female	450	1.91	0.77		265	2.14	0.87	
Lack of self-control	Male	154	1.94	0.74	0.84	201	2.22	0.87	0.97
	Female	450	1.88	0.72		265	2.15	0.72	
Collectivism	Male	154	3.15	0.79	3.51**	201	3.39	0.70	-1.17
	Female	450	2.89	0.72		265	3.47	0.68	
Power distance	Male	154	1.93	0.63	1.31	201	2.88	0.71	0.09
	Female	450	1.85	0.50		265	2.87	0.68	
CWBO	Male	154	1.57	0.47	0.84	201	2.27	1.12	4.68**
	Female	450	1.54	0.39		265	1.83	0.83	
CWBI	Male	154	1.28	0.41	3.86**	201	1.98	1.10	4.20**
	Female	450	1.15	0.23		265	1.59	0.85	

Note. NZ = New Zealand sample; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.
* $p < .05$. ** $p < .01$.

Appendix E.2 The mean and standard deviations for gender differences between study variables in the New Zealand and Thai samples at Time 2

		NZ (*N* = 276)				Thai (*N* = 242)			
		N	*M*	*SD*	*t*	*N*	*M*	*SD*	*t*
Procedural justice	Male	55	2.90	0.90	0.77	125	2.54	0.81	-1.29
	Female	218	2.80	0.88		115	2.67	0.83	
Distributive justice	Male	55	2.60	1.04	-0.97	125	2.65	0.82	-1.86
	Female	218	2.76	1.09		115	2.86	0.91	
Interpersonal justice	Male	55	3.83	0.89	0.94	125	2.72	0.91	-2.31*
	Female	218	3.69	1.19		115	3.00	1.02	
Informational justice	Male	55	3.26	0.85	1.59	125	2.65	0.88	-2.22*
	Female	218	3.04	1.07		115	2.90	0.89	
Outcome satisfaction	Male	55	4.56	1.25	-0.75	125	3.42	1.38	-2.65**
	Female	218	4.71	1.29		115	3.89	1.39	
Opportunity to voice	Male	55	2.85	1.07	0.02	125	2.58	0.98	-0.75
	Female	218	2.85	1.07		115	2.68	1.01	
Communication quality	Male	55	3.00	0.92	-0.44	125	2.81	0.84	-0.47
	Female	218	3.05	0.81		115	2.86	0.75	
Affect	Male	55	3.36	1.17	-0.21	125	2.65	0.91	-1.60
	Female	218	3.40	1.11		115	2.85	1.06	
Loyalty	Male	55	3.48	1.06	0.64	125	2.78	0.84	-0.21
	Female	218	3.37	1.19		115	2.80	0.93	
Contribution	Male	55	3.66	1.01	-1.85	125	2.71	0.96	-1.79
	Female	218	3.94	0.97		115	2.94	1.08	
Professional respect	Male	55	3.44	1.21	0.05	125	2.93	0.85	-2.00*
	Female	218	3.43	1.31		115	3.19	1.11	
Agreeableness	Male	55	3.61	0.72	-5.26**	125	3.03	0.88	-3.19**
	Female	218	4.11	0.62		115	3.39	0.85	
Disagreeableness	Male	55	2.20	0.87	4.98**	125	2.31	0.74	1.40
	Female	218	1.58	0.63		115	2.17	0.74	
Conscientiousness	Male	55	3.65	0.63	-1.58	125	2.85	0.87	-2.92**
	Female	218	3.81	0.71		115	3.17	0.84	
Negligence	Male	55	2.18	0.84	2.19*	125	2.41	0.84	2.80**
	Female	218	1.92	0.76		115	2.12	0.77	
Lack of self-control	Male	55	2.01	0.73	0.82	125	2.34	0.85	2.39*
	Female	218	1.92	0.73		115	2.09	0.76	
Collectivism	Male	55	3.32	0.76	4.54**	125	2.92	0.92	-2.18*
	Female	218	2.85	0.68		115	3.18	0.92	
Power distance	Male	55	1.88	0.52	0.66	125	2.63	0.84	-1.35
	Female	218	1.83	0.54		115	2.78	0.79	
CWBO	Male	55	1.71	0.73	1.53	125	2.08	0.93	1.50
	Female	218	1.55	0.48		115	1.91	0.83	
CWBI	Male	55	1.30	0.48	2.11*	125	1.92	0.94	1.54
	Female	218	1.15	0.29		115	1.74	0.89	

Note. NZ = New Zealand sample; CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.
* $p < .05$. ** $p < .01$.

Appendix F Comparison of the differences between the criterion variables (justice and CWB) in ethnicity for the New Zealand sample using ANOVA

	New Zealand sample	
	Time 1 (*N* = 624)	Time 2 (*N* = 276)
Procedural justice	1.93	0.55
Distributive justice	3.21*	1.33
Interpersonal justice	1.81	0.27
Informational justice	1.48	0.15
CWBO	2.53*	1.15
CWBI	4.00**	0.72

Note. CWBO = counterproductive work behaviour directed toward the organisation; CWBI = counterproductive work behaviour directed toward the individual.
*$p < .05$. **$p < .01$.