

Managing Uncertainty During Organization  
Design Decision-Making Processes: The Moderating  
Effects of Different Types of Uncertainty

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## **ABSTRACT**

### **Managing Uncertainty During Organization Design Decision-Making Processes: The Moderating Effects of Different Types of Uncertainty**

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Uncertainty about one's job or work environment is a common and aversive experience that organizational members typically seek to reduce or manage. This study investigates whether different types of uncertainty - informational uncertainty (i.e., not having sufficient information to confidently form social judgments) and standing uncertainty (i.e., instability in one's perception of positive regard from relevant others) - are qualitatively distinct. The study also examines whether both types of uncertainty are heightened by ongoing organizational factors (i.e., organization role and tenure) as well as temporary factors (i.e., affiliation with a division undergoing redesign).

Implementing fair processes and procedures may be an effective way for organizational leaders to help organizational members address their uncertainty. Uncertainty has been shown to moderate the "fair process effect," such that the positive effect of higher process fairness (i.e., procedural, informational, and interpersonal fairness) on organizational members' attitudes is stronger when uncertainty is higher. Specifically, people's uncertainty about their standing in an organization has been shown to moderate the "process-outcome interaction effect," such that the positive effect of the interaction between higher process fairness and lower outcome fairness on organizational members' attitudes is stronger when uncertainty is higher. This study investigates whether informational uncertainty, like standing uncertainty, moderates the fair process effect and the process-outcome interaction effect.

Study hypotheses were tested through a longitudinal field research design that utilized web-based questionnaires involving responses from 500 students, faculty, and administrators of an urban university undergoing an organization redesign effort. Both ongoing and temporary organizational factors were found to significantly reduce rather than heighten uncertainty, which was the opposite of what was predicted. Higher informational and standing uncertainty were found to enhance the positive effect of process fairness on organizational members' attitudes as predicted. But lower informational and standing uncertainty were also found to enhance the positive effect of process fairness on organizational members' attitudes, which was the opposite of what was predicted. Lower informational uncertainty, but not standing uncertainty, was found to enhance the positive effect of higher process fairness and lower outcome favorability on organizational members' attitudes, which was the opposite of what was predicted.

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## Chapter I

### INTRODUCTION

People inevitably experience some degree of uncertainty while working in contemporary organizations. Uncertainty broadly refers to "when a person confronts an inability to predict the future" or "an incompatibility between different cognitions, between cognitions and experiences, or between cognitions and behavior" (Van den Bos & Lind, 2002, p. 4). Uncertainty about important aspects of people's lives, such as their jobs and work environments, is typically an aversive experience that organizational members seek to reduce or manage (De Cremer & Sedikides, 2009; Hogg, 2007; Van den Bos, 2009b). This means that decision-makers can increase their organization's success by helping members address and cope with uncertainty. Yet, the nature of different types of uncertainty, their antecedents, and how leaders effectively manage and reduce uncertainty are not well understood. Furthermore, the majority of research on these topics has been conducted in laboratory settings or in corporate settings, which means that what it takes to manage uncertainty in other organizational contexts is largely unknown.

Uncertainty management scholars have found that organizational members experience different types of uncertainty (Van den Bos & Lind, 2002; Van den Bos, 2009a), although the qualitative distinction between these different types of uncertainty has been contested (De Cremer & Sedikides, 2009; Sorrentino, Ye, & Szeto, 2009). Informational uncertainty has been previously defined as having limited information to form social judgments (Van den Bos, 2009). Specific examples include having limited information about one's role, the trustworthiness of leadership, the outcomes of one's actions and the actions of one's peers, and the fairness of a change process (Van den Bos, 2007; Van den Bos and Lind, 2009). Personal uncertainty has been defined as having unstable self-views, world-views or both (Van den Bos, 2009). Specific

examples include the perception that one's positive standing in an organization is unstable as well as the cognition and affect elicited by negative feedback from an important person.

Empirical research on uncertainty has primarily focused on personal uncertainty rather than on informational uncertainty because personal uncertainty is considered more aversive and intolerable (Van den Bos, 2009). Yet, in increasingly complex organizations, informational uncertainty is likely as common as personal uncertainty, and the assumption that informational uncertainty is less aversive has not been empirically verified. Furthermore, informational uncertainty is related to individuals' experience of their external environment, which would conceptually seem more straightforward for organizational leaders to address through systematic interventions. While personal uncertainty is related to individuals' internal experience, which would conceptually seem more difficult for organizational leaders to systematically address.

Uncertainty is presumably caused by ongoing organizational factors, such as how an organization is managed and operated, as well as temporary organizational factors, such as large-scale change efforts. However, previous research has primarily focused on uncertainty caused by temporary factors in the organization, such as major restructuring efforts (Hogg, 2007; Van den Bos, 2009a; Van den Bos, 2009c). Yet, the different types of antecedents of uncertainty need to be empirically investigated, because these antecedents have major implications for how organization decision-makers effectively manage and reduce uncertainty (De Cremer, 2010).

Different types of organizations are thought to operate under ongoing conditions of greater uncertainty than others (Alderfer, 1980, 2011; Weick, 2001). For example, loosely coupled organizations, which tend to be highly decentralized and have uneven authority structures and inconsistent processes presumably contribute to greater levels of ongoing



uncertainty than more tightly coupled organizations (Alderfer, 1980, 2011; Weick, 2001). However, the assumption that loosely coupled organizations promote greater uncertainty in general has not been empirically examined, nor has this assumption been tested on different types of uncertainty. Yet, ongoing antecedents of uncertainty need to be addressed very differently than temporary antecedents, and ongoing informational uncertainty may need to be addressed differently than ongoing personal uncertainty.

Large-scale organization change efforts have been found to temporarily heighten organizational members' uncertainty, particularly when their jobs and work environments may be affected (Burke, 2008; Van den Bos & Lind, 2002). One example of organization change is organization design efforts, which typically involve leadership decision-making processes conducted under the temporarily uncertain situation of having limited information and unpredictable outcomes (Kahneman, Slovic, & Tversky, 1982). Organization design efforts usually involve leadership decision-making about changes to structures, processes, reward systems, and people practices, which generally entail changes to management structures and people's jobs (Kates & Galbraith, 2007; Kesler & Kates, 2010). It is important to determine what types of uncertainty are temporarily heightened by such efforts, since different types of uncertainty may need to be managed and reduced by distinct means during organization design efforts. Furthermore, prior research on the impact of change efforts on uncertainty has primarily been conducted in corporate settings, and uncertainty may not work the same way during organization design efforts in other types of organizational contexts. Therefore, it is important to determine if both types of uncertainty are temporarily heightened for those directly affected by a redesign effort in the context of non-corporate organizations.

Organizations in general and organization change efforts in particular cannot avoid or eliminate uncertainty, which means their success depends on how effectively uncertainty is managed and reduced. Uncertainty management theory suggests that "process fairness," which refers to the perceived fairness of the decision-making process and the treatment people receive from decision-makers during that process (Brockner, Wiesenfeld, & Diekmann, 2009), and uncertainty are highly related (Van den Bos & Lind, 2002; Van den Bos & Lind, 2009). The "fair process effect" refers to the widely replicated finding in the organizational justice literature that organizational members are more likely to support the goals of decision-makers and the organizations they represent when process fairness is relatively high (Colquitt, 2001; Colquitt, Greenberg & Zapata-Phelan, 2005). Situations of higher uncertainty have been found to enhance the fair process effect, such that higher uncertainty is related to more positive effects of high process fairness and more negative effects of low process fairness on organizational members' attitudes (De Cremer & Sedikides, 2005; Diekmann, Barsness & Sondak, 2004; Van den Bos & Lind, 2002; Van den Bos & Lind, 2009).

In the search for conditions under which the fair process effect is more likely to occur, researchers have discovered the "process-outcome interaction effect," which refers to the finding that relatively low outcome desirability (i.e., outcome fairness and outcome favorability) enhances the fair process effect (Brockner & Wiesenfeld, 1996; Colquitt et al., 2005). Outcome desirability encompasses both outcome fairness, or the degree to which the outcomes of the decision-making process are perceived as fair, and outcome favorability, or the degree to which the outcomes are perceived as favorable (De Cremer, et al., 2010). Recent research has also found that people's uncertainty about their standing as organizational members moderates the process-outcome interaction, such that the aforementioned interactive relationship between

process fairness and outcome fairness is stronger when uncertainty is relatively high (De Cremer et al., 2010). The moderating effect of uncertainty on the fair process effect and on the process-outcome interaction suggest that uncertainty plays a pivotal role in how and when each of these effects occurs. But it also suggests that process fairness and the process-outcome interaction may play a pivotal role in helping organizational members address and cope with uncertainty.

"Fairness heuristic theory" explains the moderating influence of uncertainty on the fair process effect and the process-outcome interaction effect. According to fairness heuristic theory, when faced with heightened uncertainty, people's interest in and attention to fairness goes up, which means that uncertainty may drive affective and cognitive processes in how people respond to perceptions of fairness (Van den Bos, 2002; Van den Bos & Lind, 2009). In other words, organizational members in uncertain situations are more "tuned in" to process fairness, because fairness information helps them make sense of their situation and thereby potentially reduce or tolerate their uncertainty (De Cremer et al., 2010; Van den Bos & Lind, 2002). In addition, undesirable outcomes may increase uncertainty, which in turn enhances the need for organizational members to engage in sense-making by paying close attention to fairness information (De Cremer et al., 2010; Van den Bos & Lind, 2009).

However, most of the research about the moderating influence of uncertainty on the fair process effect and the process-outcome interaction effect has focused on personal uncertainty. Yet, the way personal uncertainty can enhance the need for fairness information and the way fairness information can be used to cope with personal uncertainty suggests there may be a similar relationship between fairness information and other forms of uncertainty as well (Van den Bos & Lind, 2002; Van den Bos & Lind, 2009). Furthermore, informational uncertainty is related to external conditions that would conceptually seem manageable to leadership on a

systematic level, such as how clearly people's roles are defined, the transparency of leadership decision-making, the consistency of compensation systems, and how much people know about the fairness of decision-making processes and procedures. Therefore, it is important to examine whether informational uncertainty also moderates the fair process effect and the process-outcome interaction effect.

While uncertainty is a common experience that can negatively affect organizational members' attitudes and behaviors, the nature and antecedents of different types of uncertainty as well as their differential impact on the fair process effect and process-outcome interaction effect have not been empirically investigated. Nor have these topics been studied across different organizational contexts. For example, higher education organizations are engaging more often than they have before in organization change efforts to adapt to the accelerated pace of technological and economic change (Friend, 2010; Foderaro, 2010; Honor, 2010). However, uncertainty may work differently in these loosely coupled organizations than in more tightly coupled corporate contexts. Therefore, the present study investigated the nature and antecedents of informational uncertainty and standing uncertainty (i.e., a specific example of personal uncertainty) experienced by organizational members undergoing a redesign process in a loosely coupled higher education organization. This study also examined the moderating effects of these different types of uncertainty on the fair process effect and the process-outcome interaction effect in this organizational context.

This study contributes to a greater theoretical understanding of the qualitative distinction between informational uncertainty and personal uncertainty as well as their ongoing and temporary antecedents in a non-corporate setting. It also expands on previous findings about the pivotal role personal uncertainty plays in the fair process effect and the process-outcome

interaction effect in laboratory settings and in corporate setting by testing these findings on both informational uncertainty and standing uncertainty in a non-corporate setting. Furthermore, the study practically informs leaders engaged in decision-making processes, particularly in loosely coupled organizations, about how to implement procedures and processes on an ongoing basis and during temporary organization design efforts that will effectively address different types of uncertainty. Chapter II presents a review of the literature on the qualitative distinction between informational uncertainty and personal uncertainty, ongoing and temporary antecedents to uncertainty, and the moderating effects of uncertainty on the fair process effect and the process-outcome interaction effect.

## Chapter II

### LITERATURE REVIEW AND STUDY HYPOTHESES

#### Overview

This chapter reviews relevant theory and research on uncertainty management, the antecedents of uncertainty, and the role uncertainty plays in organizational justice. This chapter begins with a review of the literature on the qualitative distinction between informational uncertainty and personal uncertainty. Next, previous research and theory on the ongoing and temporary antecedents of uncertainty is covered. Finally, the relevant scholarship on the moderating effects of uncertainty on the fair process effect and the process-outcome interaction effect is presented. Study hypotheses are provided throughout the chapter.

#### Distinguishing Between Different Types of Uncertainty

Uncertainty management theorists have emphasized that different types of uncertainty have qualitatively distinct characteristics (De Cremer & Sedikides, 2005; De Cremer & Sedikides, 2008; Van den Bos, 2001; Van den Bos, 2009c), but this has not been empirically examined. One type of uncertainty is informational uncertainty, which refers to "having less information available than one ideally would like to have in order to be able to confidently form a given social judgment" (Van den Bos, 2009a, p. 198). Another type of uncertainty is personal uncertainty, which refers to the "subjective sense of doubt or instability in self-views, worldviews, or the interrelation between the two" (Van den Bos, 2009a, p.198 ).

One example of informational uncertainty is not having adequate information to subjectively assess whether an organizational leader can be trusted, particularly to make fair decisions with fair outcomes (Van den Bos & Lind, 2002; Van den Bos & Lind, 2009). Organizational members typically care about whether their leaders are trustworthy, because leaders often have the authority to make decisions that have a major impact on organizational

members' material outcomes, such as promotions, compensation, work assignments, and layoffs (Mayer, Davis, & Schoorman, 1995). Moreover, ceding authority to leaders can raise organizational members' concerns about exploitation and exclusion, which are typically related to important social outcomes (Van den Bos, 2002).

Another example of informational uncertainty is the common situation of not having sufficient information about one's own outcomes (e.g., future success of a current work assignment) and/or the outcomes of similar others (e.g., coworkers' bonus compensation) (Van den Bos & Lind, 2002; Van den Bos, 2007; Van den Bos, 2009c) to judge whether these outcomes are fair. Equity theory suggests that even when people know whether their efforts will pay off and result in desirable outcomes, they often evaluate the fairness of these outcomes by comparing them to the outcomes of similar others (Van den Bos & Lind, 2002; Van den Bos, 2007).

A final example of informational uncertainty is not knowing enough about a decision-making process to subjectively evaluate the fairness of the process, regardless of whether the process objectively meets the fair process criteria (Van den Bos, 2007). For example, informational uncertainty is heightened when people do not know if there is a procedure for them to voice their opinion (i.e., implicit no-voice procedure) and reduced when people know whether they have a voice (i.e., voice procedure) or they do not have a voice (i.e., explicit no-voice procedure) (Van den Bos, 2007).

One example of personal uncertainty is the thoughts and feelings aroused by receiving negative feedback from important people (Van den Bos & Lind, 2002). Another example of personal uncertainty is the thoughts and feeling evoked by being reminded of one's mortality (Van den Bos & Lind, 2002). A final example of personal uncertainty is uncertainty about one's

social standing in an organization, which refers to the perception that positive regard from other organizational members is unstable. Organizational members care about their social standing, because their standing is related to their psychological needs for self-esteem and inclusion as well as their economic well-being (De Cremer et al., 2010; De Cremer & Sedikides, 2008). Hence, social standing is directly related to organizational members' social outcomes in the workplace as well as their material outcomes.

Informational uncertainty and personal uncertainty are thought to be characterized by a combination of cognitive as well as affective processes. However, informational uncertainty is considered less threatening to one's personal self and therefore less alarming and aversive than personal uncertainty (Van den Bos, 2007). The reason is that informational uncertainty has been predominantly associated with "cold-cognitive" processes, which refer to cognition characterized by the epistemic dimension of *knowing* one is uncertain (Hogg, 2007; Van den Bos, 2009a). This means informational uncertainty is expected to elicit a deliberate information-seeking response to reduce uncertainty, which may cause people to process information in rationalistic ways and to be more affected by relevant than irrelevant information (Van den Bos, 2007; Van den Bos, 2009a; Van den Bos & Lind, 2009). Informational uncertainty is thought to typically elicit cold-cognitive processes because of its stronger association with economic and material outcomes (e.g., rewards, promotions, work assignments) (Van den Bos, 2009c).

Personal uncertainty has been predominantly associated with "hot-cognitive" processes, which refer to cognition colored by the affective dimension of *feeling* uncertain (Hogg, 2007; Van den Bos, 2007; Van den Bos, 2009a). This means personal uncertainty is expected to elicit a quick intuitive reaction to reduce uncertainty, which may cause people to process information in experiential-intuitive ways and to be more affected by irrelevant information than relevant



information (Van den Bos, 2007). Personal uncertainty is thought to elicit hot-cognitive processes because of its stronger association with social outcomes (e.g., respect, value, and inclusion by social groups) (Van den Bos, 2009c).

Several issues have been raised about the qualitative distinctions previously made by between informational uncertainty and personal uncertainty as well as the behavioral reactions they each elicit. Sorrentino, Ye, & Szeto (2009) argue that informational uncertainty and personal uncertainty do not actually elicit qualitatively different cognitive processes and behavioral reactions, because personal uncertainty could elicit "cold-cognitive" processes and deliberate information seeking, and informational uncertainty could elicit "hot-cognitive" processes and a quick intuitive reaction. In addition, Sorrentino et al. (2009) posit that informational uncertainty could lead to personal uncertainty. For example, lacking information about the trustworthiness of a leader could lead to heightened self-doubt and uncertainty about one's standing. Furthermore, the qualitative distinction between these informational uncertainty and standing uncertainty is based on the untested assumption that informational uncertainty is primarily related to material outcomes and personal uncertainty is primarily related to social outcomes. However, in most organizational settings, material and social outcomes are highly interrelated.

Van den Bos' (2009) response to Sorrentino et al. (2009) and others is that although it is not always the case, informational uncertainty is simply more likely to elicit "cold-cognitive" processes, and personal uncertainty is simply more likely to elicit "hot-cognitive" processes. However, Van den Bos (2007) also speculates that informational uncertainty may be a crucial moderator for when people use affective information rather than cognitive information in their response to fairness perceptions. The reasoning behind this speculation is that when people

experience heightened informational uncertainty, for example, if they lack information about process fairness, they are more likely to respond to fairness perceptions on the basis of their affective states rather than their cognitive processes (Van den Bos, 2007). In other words, at least one form of informational uncertainty elicits what could be considered "hot-cognitive" processes.

### **Organizational Factors Influencing Levels of Uncertainty**

Uncertainty management theory suggests that both ongoing and temporary organizational factors contribute to the uncertainty of organizational members (Van den Bos, 2009a; Van den Bos & Lind, 2002). Organizational members are thought to experience greater levels of ongoing uncertainty in some types of organizations than in other types of organizations (Alderfer, 1980, 2011; Weick, 2001). However, this assumption has not been empirically tested. Yet, it is important to determine if ongoing factors contribute to uncertainty, because this can negatively affect organizational members' attitudes and behavior on a chronic basis and must be addressed through different types of interventions than temporary forms of uncertainty.

One type of organization that promotes heightened uncertainty on an ongoing basis has been described as "loosely coupled," which means there is not a single coherent system of authority holding subunits together (Weick, 2001). Loosely coupled organizations are defined by the following features: 1) "rules vary in severity, number, latitude for deviations, and clarity," 2) agreement is low on the "content of the rules, the nature of violations, and how violations will be handled," 3) long time lapse between people's actions and feedback about "the effects of their actions," and 4) "attention shifts due to salience or needs" (Weick, 2001, p. 43). The result of these features is that subunits have high autonomy and loose connections of variable strength between them, which means they tend to develop separately and at different rates from each other. Loose coupling promotes uncertainty in multiple aspects of organizational activity,

including leadership decision-making and the processes for implementing decision outcomes (Alderfer, 1980; Weick, 2001).

Prior research has found organizational role to be an important predictor of behavior (Katz & Kahn, 1966), and organizational members typically perform substantially different roles from each other. Previous research has also found that years of tenure in an organization serve as a proxy for uncertainty about standing, because newcomers tend to experience higher uncertainty about their standing than members with longer tenure (De Cremer et al., 2010). Furthermore, Kramer (2001) observed that relative newcomers in organizations are likely to engage in sense-making in order to reduce their uncertainty about their standing.

Therefore, this study examined whether ongoing organizational factors, such as organization role and tenure, contribute to the experience of different types of uncertainty.

**Hypothesis 1:** The level of informational uncertainty as well as standing uncertainty will significantly vary by organizational role and tenure, such that organizational members in less stable roles (i.e., students and newcomers) will have higher informational and standing uncertainty than those in more stable roles (i.e., employees and non-newcomers).

Organization change efforts also heighten organizational members' levels of uncertainty, particularly when they involve changes to management structures and people's jobs (Burke, 2008; Van den Bos, 2009b). Uncertainty may be heightened because decision-makers and organizational members have limited information about what the outcomes of the change process will be. But heightened uncertainty can also be related to the loss of control that organizational

members experience, particularly when they are not actively engaged in the change process (Burke, 2008). While prior research has shown that organization change efforts temporarily heighten people's general uncertainty, the impact of such changes on different types of uncertainty has not been examined. Therefore, this study investigates how organizational members' informational uncertainty and personal uncertainty changes when introducing a temporary factor, such as an organization design effort that directly affects their jobs and work environments.

**Hypothesis 2:** The level of informational uncertainty as well as standing uncertainty will be significantly higher among the organizational members affiliated with the divisions undergoing redesign relative to those who are not affiliated with the divisions undergoing redesign.

### **Managing Uncertainty through a Fair Process**

The organizational justice literature suggests that organizational decision-makers can address heightened uncertainty by implementing fair processes and procedures, because fairness will go a longer way with organizational members who are more uncertain. This is based on the widely replicated finding that the positive effect of higher process fairness on organizational members' attitudes is greater when uncertainty is relatively high (De Cremer, Brebels, & Sedikides, 2008; De Cremer & Sedikides, 2008; Van den Bos, 2001; Van den Bos, 2007; Van den Bos, 2009a). Process fairness includes both procedural fairness, which is the fairness of the decision-making procedures that leads to decision outcomes, and interactional fairness, which is the fairness of the interpersonal treatment people receive from decision-makers as procedures are

enacted (Brockner et al., 2009; Colquitt et al., 2005; Colquitt, 2001). Previous research has also found that when people are more certain, the process fairness effect is weaker, which suggests that uncertainty plays a critical role in the affective and cognitive processes by which people respond to fairness perceptions (Van den Bos, 2001; Van den Bos & Lind, 2009).

Procedural fairness is fostered through voice (i.e., process control) during the decision-making process or influence over the outcome (i.e., decision control) (Brockner et al., 2009; Colquitt, 2001; Thibaut & Walker, 1975). Procedural fairness is also promoted by implementing the fair process criteria or structural decision-making elements identified by Leventhal, Karuza, & Fry (1980), which include consistency, lack of bias, correctability, representation, accuracy, and ethicality (Colquitt, 2001). Interpersonal fairness is fostered when decision-makers treat people with respect and sensitivity, and informational fairness is fostered when leaders thoroughly explain the rationale for decisions (Bies, 1987; Colquitt, 2001). Some organizational justice scholars have posited that interpersonal fairness and informational fairness are two sub-dimensions of interactional fairness (Greenberg, 1993). However, other scholars posit that process fairness consists of three distinct dimensions: procedural fairness, interpersonal fairness, and informational fairness (Colquitt, 2001).

Many elements of procedural fairness, interpersonal fairness and informational fairness have created the fair process effect across different dependent variables related to attitudes of organizational members (Brockner, et al., 2009; De Cremer et al., 2010). Two important system-referenced dependent variables used in prior research on process fairness are trust in leadership and organizational commitment. Trust in leadership refers to the willingness of one party to be vulnerable to another party based on "the belief or expectation that the referent is reliable, has integrity, is predictable, will tell the truth, will act in a fair or just manner and so forth" (Dirks &

Ferrin, 2002, p. 628). This perspective assumes that trust in leadership is based on organizational members' subjective perception of the leader's character and behavior, independent from a special or unique relationship between any organizational and the leader (Dirks & Ferrin, 2002).

Organizational commitment refers to the "relative strength of an individual's identification with and involvement in a particular organization" (Mowday, Steers, & Porter, 1979, p. 226 ). Organizational commitment can be characterized by "1) a strong belief in and acceptance of the organization's goals and values; 2) a willingness to exert considerable effort on behalf of the organization; and 3) a strong desire to maintain membership in the organization (Mowday et al., 1979, p. 226). Both trust in leadership and organization commitment represent attitudes of organizational members that are important to ongoing organizational performance as well as organization change efforts, because they reflect the motivation of organizational members to further the goals of decision-makers and decision outcomes (De Cremer et al., 2010).

### **Moderating Effects of Different Types of Uncertainty**

Most previous research on the moderating effect of uncertainty on the fair process effect has focused on personal uncertainty. For example, the positive effect of a fair process on people's affect was stronger after they had been reminded of their mortality (Van den Bos & Lind, 2002). However, studies have also found informational uncertainty to similarly moderate the fair process effect. For example, in situations of informational uncertainty about leadership trustworthiness, people experienced greater outcome satisfaction when they had voice than when they had no voice, relative to situations of certainty about both negative and positive trust in leadership, in which the fair process effect was negligible (Van den Bos & Lind, 2002). Furthermore, recent studies have found that uncertainty about standing moderates the process-

outcome interaction effect, such that the positive effect of relatively high process fairness and relatively low outcome fairness on organizational members' support for decision-makers and the institutions they represent is more pronounced when uncertainty is relatively high (De Cremer, 2010).

Fairness heuristic theory explains why and how different types of uncertainty moderate the fair process effect and the process-outcome interaction effect. Fairness information sends important messages to organizational members about whether the organizational leadership is fair and whether they can anticipate fair treatment in the future (De Cremer et al., 2008). Furthermore, once organizational members form fairness perceptions, these perceptions continue to heuristically guide their perceptions of the fairness of future events (Van den Bos, 2001). When people encounter uncertainty, they may seek out fairness information to protect them from what they are uncertain about and/or make uncertainty more cognitively and affectively manageable (Van den Bos & Lind, 2002; Van den Bos & Lind, 2009). They also can become more sensitive and responsive to fairness information.

In situations of heightened informational uncertainty, such as having little information about the trustworthiness of leadership, fairness information about decision processes as well as outcomes can provide a heuristic substitute to infer both positive and negative trust in leadership (Van den Bos, 2001; Van den Bos & Lind, 2002). When personal uncertainty is heightened, fairness information about decision processes and outcomes can be a good proxy for whether or not one is valued, respected, and included by a group (Van den Bos, 2007; Van den Bos, 2009a; Van den Bos, 2009c). Recent studies have shown that in situations of uncertainty about one's social standing as organizational members, people use procedural fairness information to infer their standing, because high procedural fairness symbolically communicates greater respect,

value, and inclusion than low procedural fairness (De Cremer & Sedikides, 2005; De Cremer & Sedikides, 2008; De Cremer et al., 2010). In addition, recent studies suggest that receiving an undesirable outcome heightens organizational members' need to use procedural fairness information to make sense of their standing as organizational members (De Cremer et al., 2010).

Another explanation for how uncertainty moderates the fair process effect and the process-outcome interaction effect is that in uncertain situations people will respond more positively to having their cultural worldviews, which refers to their cultural norms and values, supported through fair treatment (Van den Bos, 2009a). Conversely, they will react more negatively to having their cultural worldviews violated through unfair treatment (Van den Bos, 2009a). Uncertainty management theorists assume this occurs because people adhere more strongly to their cultural worldviews under conditions of heightened uncertainty, and because fair treatment typically corresponds with people's cultural worldviews while unfair treatment violates them (Van den Bos & Lind, 2002; Van den Bos, 2009a, Van den Bos, 2009b). In other words, heightened uncertainty can increase the extent to which people's behavior in organizations is driven by their values and ideology (Weick, 2001).

Studies have also been conducted to examine why the fair process effect or the process-outcome effect sometimes fails to materialize or a reverse effect materializes instead. The fair process effect can fail to materialize if organizational members cynically perceive the fairness of the process not to be genuine (DeCremer et al., 2010) or if they are frustrated by receiving a voice in the process but do not believe their input makes a difference (Van den Bos et al., 1999). A reversal of the fair process effect has also been found in contexts that elicit high self-evaluation because perceptions of a fair process can evoke self-evaluative concerns, whereas perceptions of an unfair process allow for attribution to external causes (Van den Bos, Bruins,



Wilke, & Dronket, 1999). The process-outcome interaction effect can fail to materialize if people's uncertainty is not high enough to elicit the sense-making and information-seeking that would be expected to increase the positive effect of a fair process on their attitudes (De Cremer, 2010). These counterexamples demonstrate that numerous factors of the organizational context contribute to the fair process effect and the process-outcome interaction effect, which shed important light on how organizational members respond to uncertainty, fairness information, and decision outcomes.

This study tests whether informational uncertainty and standing uncertainty both moderate the fair process effect relative to organizational members' attitudes.

**Hypothesis 3:** The fair process effect, which is the positive effect of process fairness (i.e., procedural fairness, informational fairness, and interpersonal fairness) on organizational members' attitudes (i.e., organizational commitment and trust in leadership), will be stronger when organizational members have higher informational uncertainty.

**Hypothesis 4:** The fair process effect, which is the positive effect of process fairness (i.e., procedural fairness, informational fairness, and interpersonal fairness) on organizational members' attitudes (i.e., organizational commitment and trust in leadership), will be stronger when organizational members have higher uncertainty about their standing in the organization.

Furthermore, the fact that uncertainty about standing has been found to have a moderating influence on the process-outcome interaction effect suggests that informational uncertainty could also have a moderating influence on the process-outcome interaction effect. Conceptually, it would seem that both informational uncertainty and personal uncertainty would lead to the heuristic processing of fairness information. Since personal uncertainty is considered to be more threatening to the self than informational uncertainty, this would suggest that personal uncertainty will have a greater moderating influence than informational uncertainty on the process-outcome interaction effect. However, some forms of informational uncertainty, such as not having the information to ascertain the trustworthiness of leadership, could be as threatening to the self as uncertainty about one's standing. This type of informational uncertainty could threaten both one's material and social outcomes and could lead to both cold- and hot-cognitive processes.

Therefore, this study tests whether both informational uncertainty and standing uncertainty have a moderating influence on the process-outcome interaction effect.

**Hypothesis 5:** The process-outcome interaction effect, in which the positive effect of process fairness on organizational members' attitudes is greater when outcomes are less favorable, will be stronger when organizational members have higher informational uncertainty.

**Hypothesis 6:** The process-outcome interaction effect, in which the positive effect of process fairness on organizational members' attitudes is greater when outcomes are less

favorable, will be stronger when organizational members have higher uncertainty about their standing in the organization.

## **Summary**

In a world of increasing complexity and speed of decision-making, uncertainty is a fact of organizational life (Wanberg & Banus, 2000). In some types of organizations, ongoing levels of uncertainty are higher than in others. Yet, organization design/redesign efforts that entail major changes to management structure and people's jobs are expected to heighten people's pre-existing level of uncertainty. Organization justice scholars have found that during organization change efforts that involve major changes to management structures and people's jobs, fairness information and perceptions of fair processes and fair treatment have particularly positive effects on organizational members' support for decision-makers and the decisions they make.

Uncertainty management scholars have found that such fairness information and perceptions of fairness contribute to the reduction and management of organizational members' uncertainty.

Organizational members with heightened informational uncertainty can infer the trustworthiness of leaders by the extent to which decision-makers treat them with respect and sensitivity and give them a voice in the process. Similarly, organizational members with heightened standing uncertainty can infer their relative value to the organization by the extent to which decision-makers give them a voice in the process and communicate with them about the process.

However, due to the unresolved issues about the nature, antecedents, and effects of uncertainty, several researchers have called for further empirical investigation of the qualitative distinctions previously made between informational and personal uncertainty, the antecedents of these different types of uncertainty, as well as their differential impact on the fair process effect

and process-outcome interaction effect (De Cremer & Sedikides, 2009; Sorentino, 2009; Van den Bos, 2009a; Van den Bos, 2009b). Previous research related to these topics has largely focused on personal uncertainty and not on other types of uncertainty and has typically conducted in laboratory settings or in corporate settings, but not in other types of organizations. Therefore, this research study seeks to address a critical gap in the uncertainty management research by empirically examining the nature of different types of uncertainty, their antecedents, and what it takes to reduce and manage uncertainty in a non-corporate setting.

This study will contribute to a greater theoretical understanding of the relationships between different types of uncertainty, process fairness, and organizational members' attitudes. In addition, this study will contribute to a greater practical understanding of how leaders can help organizational members reduce and manage their uncertainty, given their particular organizational settings, on an ongoing basis as well as during organization redesign efforts. The ongoing success of organizations as well as the success of organization change efforts depends on how well decision-makers address the ongoing and temporary forms of uncertainty in their particular organizational settings. If the nature of different types of uncertainty is better understood and their different antecedents are pinpointed, then a range of interventions could be identified and developed to specifically address these forms of uncertainty in the organizational contexts in which they arise.

## **Chapter III**

### **METHOD**

#### **Overview**

This chapter describes the research design and methodology used to empirically test the hypotheses presented in Chapter II. This will include a discussion of the research setting, sample population, and the study procedure as well as a detailed description of the measures utilized in the study survey instruments.

#### **Research Setting**

The present study was conducted in a private university located in a major city in the United States that was involved in an organization redesign effort to combine two major divisions. Organization design/redesign efforts in higher education settings provide an excellent opportunity to test the study hypotheses outlined in Chapter II. One reason is that higher education organizations can typically be characterized as "loosely coupled," which means organizational members often experience substantial ongoing uncertainty (Weick, 1976, 2001). Furthermore, organization design efforts in general provide an excellent context in which to test the study hypotheses, because they involve leadership decision-making processes that temporarily heighten organizational members' uncertainty about their jobs and work environments (Dunbar & Starbuck, 2006; Kates & Galbraith, 2007).

#### **Sample**

The participants in this study were members of a university undergoing a redesign effort to restructure several divisions in the university. Prior to the study, a total of 5798 members of the university were informed by email from the Provost or their divisional Dean about the redesign effort. These organizational members were deans and officers, full-time and part-time faculty, administrative staff, or students, and some had more than one of these roles. They were

either affiliated with the divisions that were being restructured, affiliated with several other divisions that were not going to be directly affected by the restructuring, or affiliated with multiple divisions across the university.

A small subset of these organizational members were individually invited by the leaders of the redesign effort to be involved in one of five restructuring committees that met on an ongoing basis to focus on a major component of the organization redesign. After the committees were launched, many of the 5798 organizational members originally informed about the redesign effort were specifically invited to participate in one of thirteen small focus groups and one of three large-group design sessions. Approximately 300 organizational members participated in at least one of the design process activities, which included the redesign committees, the focus groups, and the large-group design sessions.

After the redesign process was started, but before the new divisional structure was decided upon and announced, the 5798 members of the university originally informed about the redesign effort, were invited by the Provost to participate in the present study. Specifically, they were invited to participate in an anonymous online survey about their perceptions of the design process and the leadership of that process. They were told if they completed the survey, they would be invited to complete a follow-up survey six months later.

After eliminating the majority of missing data, a total of 487 respondents who completed survey 1 (i.e., Time 1 dataset) were included in the study. In addition, a subset of 153 respondents who completed survey 2 (i.e., Time 2 dataset) after completing survey 1 were included in the study. Participants in survey 1 were given the option of providing demographic information to enable a general analysis of the demographics of the study sample population. The demographic characteristics of respondents included in the Time 1 dataset are shown in

Table 1, and those of respondents who were included in the Time 2 dataset are shown in Table 2. Since participants were given a choice about whether or not to provide demographic data, a small number of participants who did not complete the demographic data are also shown in Tables 1 and 2.

Table 1  
*Demographic Characteristics of All Respondents in Time 1 Dataset (N=487)*

Variable	Number of Respondents	Percent of Overall Sample
<b>1. Gender</b>		
Female	272	(55.9%)
Male	200	(41.1%)
Blank	15	(3.0%)
<b>2. Age</b>		
18-27 years	165	(33.9%)
28-37 years	143	(29.4%)
38-47 years	68	(14.0%)
48-57 years	48	(9.9%)
58-67 years	33	(6.8%)
Over 68 years	4	(.8%)
Blank	26	(5.3%)
<b>3. Ethnicity</b>		
Of Hispanic, Latino, or Spanish Origin	45	(9.2%)
Not of Hispanic, Latino, or Spanish Origin	415	(85.2%)
Blank	27	(5.5%)
<b>4. Race</b>		
Not White	87	(17.9%)
American Indian or Alaska Native	3	(.6%)
Asian	22	(4.5%)
Black or African-American	14	(2.9%)
Native Hawaiian or Other Pacific Islander	1	(.2%)
Some Other Race	47	(9.7%)
White	367	(75.4%)
Blank	33	(6.8%)
<b>5. Citizenship</b>		
Not U.S. Citizen	65	(13.3%)
U.S. Citizen	399	(81.9%)
Blank	23	(4.7%)



Table 2  
*Demographic Characteristics of All Respondents in Time 2 Dataset (N=153)*

Variable	Number of Respondents	Percent of Overall Sample
<b>1. Gender</b>		
Female	<b>89</b>	<b>(58.2%)</b>
Male	<b>61</b>	<b>(39.9%)</b>
Blank	<b>3</b>	<b>(2.0%)</b>
<b>2. Age</b>		
18-27 years	<b>32</b>	<b>(20.9%)</b>
28-37 years	<b>45</b>	<b>(29.4%)</b>
38-47 years	<b>28</b>	<b>(18.3%)</b>
48-57 years	<b>23</b>	<b>(15.0%)</b>
58-67 years	<b>18</b>	<b>(11.8%)</b>
Over 68 years	<b>1</b>	<b>(.7%)</b>
Blank	<b>6</b>	<b>(3.9%)</b>
<b>3. Ethnicity</b>		
Of Hispanic, Latino, or Spanish Origin	<b>11</b>	<b>(7.2%)</b>
Not of Hispanic, Latino, or Spanish Origin	<b>133</b>	<b>(86.9%)</b>
Blank	<b>9</b>	<b>(5.9%)</b>
<b>4. Race</b>		
Not White	<b>26</b>	<b>(16.9%)</b>
American Indian or Alaska Native	1	(.7%)
Asian	7	(4.6%)
Black or African-American	6	(3.9%)
Native Hawaiian or Other Pacific Islander	0	(0%)
Some Other Race	12	(7.8%)
White	<b>116</b>	<b>(75.8%)</b>
Blank	11	(7.2%)
<b>5. Citizenship</b>		
Not U.S. Citizen	<b>16</b>	<b>(10.5%)</b>
U.S. Citizen	<b>131</b>	<b>(85.6%)</b>
Blank	<b>6</b>	<b>(3.9%)</b>

The proportions of demographic groups by gender, age, ethnicity, race, and citizenship included in both the Time 1 and Time 2 datasets were typical of private urban universities in the United States (Francis, 2010; Light, 2010; Williams, 2010). Among respondents in the Time 1 dataset, 55.9% were female, 41.1% were male, and 3% did not report their gender. The mean age was 32 years with a standard deviation of 1.28 years. 9.2% were of Hispanic, Latino, or Spanish Origin, 85.2% were not of Hispanic, Latino, or Spanish Origin, and 5.5% did not report their ethnicity. 17.9% were not white, 75.4% were white, and 6.8% did not report their race. 13.3% were not U.S. citizens, 81.9% were U.S. citizens and 4.7% did not report their citizenship. Among respondents in the Time 2 dataset, 58.2% were female, 39.9% were male, and 2% did not report their gender. The mean age was 35 years with a standard deviation of 1.34 years. 7.2% were of Hispanic, Latino, or Spanish Origin, 86.9% were not of Hispanic, Latino, or Spanish Origin, and 5.9% did not report their ethnicity. 16.9% were not white, 75.8% were white, and 7.2% did not report their race. 10.5% were not U.S. citizens, 85.6% were U.S. citizens and 3.9% did not report their citizenship.

Participants in survey 1 were asked to provide information about their university role, division, and years of tenure to determine whether survey responses differed by these organizational characteristics. Specifically, this allowed statistical comparisons to be made between the survey responses from participants who were students and those who were employees, participants who were not affiliated with the divisions undergoing redesign (i.e., non-affiliated) and those who were affiliated with the divisions that were being restructured (i.e., affiliated), and newcomers and long-term organizational members (i.e., non-newcomers). Furthermore, participants in survey 1 and survey 2 were asked about their level of awareness of and involvement in the design process, which allowed a statistical comparison between survey

responses from participants with different levels of awareness and involvement (i.e., non-aware and aware, and non-involved and involved). The organizational characteristics and levels of awareness and involvement of respondents included in the Time 1 dataset are shown in Table 3 and those of respondents included in the Time 2 dataset are shown in Table 4.

Table 3

*Organizational Characteristics of All Respondents in Time 1 Dataset (N = 487)*

<b>Variable</b>	<b>Number of Respondents</b>	<b>Percent of Overall Sample</b>
<b>1. Role</b>		
Student	<b>267</b>	<b>(54.8%)</b>
Employee	<b>218</b>	<b>(44.8%)</b>
Administrative Staff	78	(16.0%)
Dean/Officer	16	(3.3%)
Full-time Faculty	92	(18.9%)
Part-time Faculty	32	(6.6%)
Blank	<b>2</b>	<b>(.4%)</b>
<b>2. Division</b>		
Non-Affiliated	<b>275</b>	<b>(56.5%)</b>
Arts	5	(1.0%)
Design	51	(10.5%)
Liberal Arts	114	(23.4%)
Social Studies	105	(21.6%)
Affiliated	<b>212</b>	<b>(43.5%)</b>
All	25	(5.1%)
General Studies	121	(24.8%)
Management and Urban Policy	66	(13.6%)
<b>3. Tenure</b>		
Newcomer (i.e., < 3 years tenure)	<b>277</b>	<b>(56.9%)</b>
Non-Newcomer	<b>206</b>	<b>(42.6%)</b>
4-7 years	116	(23.8%)
8-11 years	36	(7.4%)
12-15 years	27	(5.5%)
16 years or over	27	(5.5%)
Blank	<b>4</b>	<b>(.8%)</b>
<b>4. Awareness of design process</b>		
Non-Aware	<b>129</b>	<b>(26.5%)</b>
Aware	<b>358</b>	<b>(73.5%)</b>
<b>5. Involvement in design process</b>		
Non-Involved	<b>295</b>	<b>(60.6%)</b>
Involved	<b>191</b>	<b>(39.2%)</b>
Blank	<b>1</b>	<b>(.2%)</b>

Table 4  
*Organizational Characteristics of All Respondents in Time 2 Dataset (N = 153)*

Variable	Number of Respondents	Percent of Overall Sample
<b>1. Role</b>		
Student	<b>58</b>	<b>(37.9%)</b>
Employees	<b>95</b>	<b>(62.1%)</b>
Administrative Staff	38	(24.8%)
Dean/Officer	10	(6.5%)
Full-time Faculty	39	(25.5%)
Part-time Faculty	8	(5.2%)
<b>2. Division</b>		
Non-Affiliated	<b>71</b>	<b>(46.4%)</b>
Arts	3	(2.0%)
Design	18	(11.8%)
Liberal Arts	30	(19.6%)
Social Research	20	(11.8%)
Affiliated	<b>73</b>	<b>(47.7%)</b>
All	14	(9.2%)
General Studies	30	(25.5%)
Management and Urban Policy	29	(19.0%)
Blank	<b>1</b>	<b>(2%)</b>
<b>3. Tenure</b>		
Newcomer (i.e., 3 years or under)	<b>74</b>	<b>(48.4%)</b>
Non-Newcomer	<b>79</b>	<b>(51.5%)</b>
4-7 years	38	(24.8%)
8-11 years	19	(12.4%)
12-15 years	10	(6.5%)
16 years or over	12	(7.8%)
<b>4. Awareness</b>		
Non-aware	<b>16</b>	<b>(10.5%)</b>
Aware	<b>137</b>	<b>(89.5%)</b>
<b>5. Involvement</b>		
Non-involved	<b>73</b>	<b>(47.4%)</b>
Involved	<b>80</b>	<b>(52.3%)</b>

Among respondents included in the Time 1 dataset, 54.8% were students and 44.8% were employees; 43.5% were non-affiliated and 56.5% were affiliated; 56.9% were newcomers and 42.6% were non-newcomers; 26.5% were non-aware and 73.5% were aware; 60.6% were non-involved and 39.2% were involved. Among respondents included in the Time 2 dataset, 37.4% were students and 62.1% were employees; 46.4% were non-affiliated and 56.5% were affiliated;

48.4% were newcomers and 51.5% were non-newcomers; 10.5% were non-aware of the redesign process and 89.5% were aware; 47.4% were non-involved and 52.3% were involved.

Between the Time 1 and Time 2 datasets, the proportion of students decreased from 54.8% to 37.9%, which corresponded with a decrease in the proportion of the youngest age group (i.e., 18-27 years) from 33.9% to 20.9% and a decrease in the proportion of newcomers from 56.9% to 48.4%. The proportion the non-affiliated decreased from 56.5% to 46.4%, the proportion of the non-aware decreased from 26.5% to 10.5%, and the proportion of the non-involved decreased from 60.6% to 47.4%. All of these differences in the proportions of respondents by organizational characteristics between survey 1 and survey 2 represent the differences that would be expected between organizational members who were less rather than more invested in the design process. These differences are likely because respondents to survey 1, who were less invested in the design process, were also less likely to take the survey 2, while respondents to survey 1, who were more invested in the design process, were also more likely to take survey 2.

Since the present study required representation of both students and employees, non-affiliated and affiliated, as well as non-involved and involved, most of the members of the university were originally invited to participate in the survey 1. The smaller sample size of the Time 2 dataset relative to the Time 1 dataset was largely due to the much greater number of potential participants who were invited to take survey 1 relative to those who were invited to take survey 2. While the overall response rate to survey 1 of 8.4% was particularly low, this response rate varied widely by the role and divisional affiliation of those who were invited to participate. 83.5% of those who were invited to participate were students, and students had a response rate of 5.5%, whether they were affiliated or non-affiliated. While employees had an overall response

rate of 23%, employees who were affiliated had a 53.5% response rate, while employees who were non-affiliated had a 17% response rate.

Since those who were invited to take survey 2 had already demonstrated their investment in the design process by completing survey 1, the overall response rate to survey 2 of 31.5% was much higher than that of the survey 1. However, the response rate to survey 2 also varied widely by role and divisional affiliation. Students had a higher overall response rate to survey 2 (relative to survey 1) of 21.7%, and affiliated students had an even higher response rate of 29.6%, while non-affiliated students had a response rate of 14.4%. Employees had a much higher overall response rate to survey 2 (relative to survey 1) of 43.4%, while affiliated employees had a similar response rate of 52.4%, and non-affiliated employees had the same response rate of 17% as they did to survey 1. The response rates by organizational characteristics of survey 1 are shown in Table 5 and those of survey 2 are shown in Table 6.

Table 5  
*Survey 1 Response Rates by Organizational Characteristics*

	<b>Number of Invitees</b>	<b>Number of Completed</b>	<b>Percent of Invitees Who Completed</b>
<b>1. Students</b>	<b>4846</b>	<b>267</b>	<b>(5.5%)</b>
<u>Affiliated</u>	<b>2469</b>	<b>128</b>	<b>(5.2%)</b>
General Studies	1976	81	(4.1%)
Management and Urban Policy	493	47	(9.5%)
<u>Non-affiliated</u>	<b>2377</b>	<b>139</b>	<b>(5.8%)</b>
Design		5	NA*
Liberal Arts	1335	64	(4.8%)
Social Studies	1042	70	(6.7%)
Blank		1	
<b>2. Employees</b>	<b>952</b>	<b>219</b>	<b>(23.0%)</b>
<u>Affiliated</u>	<b>157</b>	<b>84</b>	<b>(53.5%)</b>
All	18	25	NA*
General Studies	91	40	(43.9%)
Management and Urban Policy	48	19	(39.5%)
<u>Non-affiliated</u>	<b>795</b>	<b>135</b>	<b>(17.0%)</b>
Arts		5	NA*
Design	232	46	(19.8%)
Social Studies	151	34	(22.5%)
Liberal Arts	412	50	(12.1%)
<b>Total</b>	<b>5798</b>	<b>487</b>	<b>(8.4%)</b>

\* In these categories, a small number of respondents selected a different division than the division they had been classified in as invitees.



Table 6  
*Survey 2 Response Rates by Organizational Characteristics*

	<b>Number of Invitees</b>	<b>Number of Completed</b>	<b>Percent of Invitees Who Completed</b>
<b>1. Students</b>	<b>267</b>	<b>58</b>	<b>(21.7%)</b>
<u>Affiliated</u>	<b>128</b>	<b>38</b>	<b>(29.6%)</b>
General Studies	81	21	(25.9%)
Management and Urban Policy	47	17	(36.2%)
<u>Non-affiliated</u>	<b>139</b>	<b>20</b>	<b>(14.4%)</b>
Design	5	0	(0%)
Liberal Arts	64	9	(14.1%)
Social Studies	70	11	(15.7%)
<b>2. Employees</b>	<b>219</b>	<b>95</b>	<b>(43.4%)</b>
<u>Affiliated</u>	<b>84</b>	<b>44</b>	<b>(52.4%)</b>
All	25	14	(56.0%)
General Studies	40	18	(45.0%)
Management and Urban Policy	19	12	(63.2%)
<u>Non-affiliated</u>	<b>135</b>	<b>51</b>	<b>(17.0%)</b>
Arts	5	3	(37.8%)
Design	46	18	(39.1%)
Social Studies	34	9	(26.5%)
Liberal Arts	50	21	(42.0%)
<b>Total</b>	<b>486</b>	<b>153</b>	<b>(31.5%)</b>

Overall, the proportions of organizational groups by roles and divisions included in both the Time 1 and Time 2 datasets sufficiently represented the organizational groups being examined by this study. While the proportions of these groups in the study sample were not equivalent to the proportions in the organization overall, this study required greater participation from certain groups than others. The sample sizes of the respondents who were students relative to employees, newcomers relative to non-newcomers and affiliated relative to non-affiliated were sufficient to test the study hypotheses. Furthermore, the sample sizes of the respondents who were non-aware relative to aware and non-involved relative to involved were sufficient to allow the study to establish baseline measures on particular variables and test alternative hypotheses. Since most of the missing data came from participants who were less aware or less involved in

the design process choosing "don't know" to a particular item, the missing data was likely due to respondents' having no information or limited information about the redesign process, rather than any demographic or organizational characteristics that would bias the sample.

### **Procedure**

The design of this study is a longitudinal field study design that utilized web-based questionnaires to solicit participant responses (see Appendix A for IRB Approval). Survey respondents were members of a single private university organization. Survey instruments included one initial survey (i.e., survey 1) and one follow-up survey (i.e. survey 2): Survey 1 was conducted in April, 2010, and survey 2 was conducted in October, 2010. Measures repeated in surveys 1 and 2 included uncertainty, as measured by informational uncertainty and uncertainty about standing; process fairness, as measured by procedural fairness, informational fairness, and interpersonal fairness; and organizational members' attitudes, as measured by trust in leadership and organizational commitment. Additional survey 1 measures included organizational role, division, and tenure, and demographic variables. An additional survey 2 measure included outcome desirability, as measured by outcome favorability. Two open-ended questions about people's perceptions of the design process were asked at the end of the survey 1 to provide general feedback to the Office of the Provost in order to improve the design process before the survey 2 was conducted. One open-ended question was asked at the end of survey 2 to provide additional feedback to the Office of the Provost about the design process.

A draft of the survey, as well as the informed consent form, and the email letters to invite potential participants to participate in the study were reviewed by the Provost as well as several representatives of the Provost's Office and the university's Office of Institutional Research. The researcher initially obtained the email addresses of potential participants from the university

administrative staff. An email invitation to participate in survey 1 was sent to all potential participants directly from the Provost (see Appendix B for Provost Letter of Invitation to Participate in Study). The Provost's email invitation described the purpose and benefits of the survey, informed potential participants that their participation was voluntary and anonymous, and encouraged them to participate in the survey. For both survey 1 and survey 2, an email invitation was sent to all potential participants from the researcher via the survey software, which distributed the link to the survey, informed them that they had two weeks to complete the survey, and provided the researcher's contact information to give them the opportunity to request additional information about the survey. The electronic link enabled all participants to complete the survey online from any location with a computer that had Internet access. Each respondent had a unique identification number to ensure anonymity and also to enable their responses to survey 1 to be matched with their responses to survey 2.

A web-based survey was employed in this study because of the speed and efficiency in distributing the survey to a large number of potential participants and in aggregating and sorting large amounts of data. Also, utilizing a web-based survey ensured the anonymity of participants. Since the survey software was used to send an individual survey link to each potential participant's email address, multiple survey completion by the same person was much less likely than if a common survey link were sent to all potential participants. Due to the nature of web-based survey design, it is not possible to obtain actual signatures on informed consent forms. However, the survey software did ensure that only participants who agreed to participate in the online survey after reading the informed consent form were able to participate in the survey. Potential participants also had the opportunity to read the Research Description and the Participants' Rights and contact the researcher with any questions before agreeing to complete

the survey. During the two weeks that potential participants had to complete the survey, the survey software sent several reminders to those who had not completed it. In order to maintain the anonymity of potential participants in survey 2, one reminder to take the survey was forwarded from the Provost via the survey software rather than through a separate email. After participants completed the survey, they were thanked for their time and provided again with the researcher's contact information to receive more information about the study or withdraw their participation for any reason.

In addition, qualitative data analysis was used to code the answers to the open-ended questions at the end of survey 1 into major themes that formed the basis of feedback to the Office of the Provost before survey 2 was conducted. This qualitative feedback along with a limited report of several quantitative measures provided an opportunity for the leadership of the design process to improve the process for organizational members. Since the present study examined the effect of variations in perceptions of process fairness on organizational members' attitudes, some improvement in perceptions of process fairness helped the design process as well as this study. Qualitative data analysis was used again to code the answers to the open-ended question at the end of survey 2 into major themes. The researcher presented a more comprehensive report of the overall findings of the study to the Office of the Provost and the Executive Dean of the new division after both surveys were completed.

## **Measures**

This section describes the measures included in surveys 1 and 2 (see Appendix C for Survey Instruments) to test the hypotheses outlined in Chapter II. The survey was designed to measure six main categories of variables: 1) organizational characteristics, including role, tenure, and division, 2) uncertainty, including information uncertainty and uncertainty about standing, 3)

process fairness, including procedural fairness, interpersonal fairness, and informational fairness, 4) organizational members' attitudes, including trust in leadership and organization commitment, 5) outcome favorability, and 6) demographic variables. All of these variables, except for outcome favorability, were measured by way of survey 1, which was conducted before the design of the new division was decided upon and announced. All of these variables, except for organization role, division, and tenure, as well as demographic variables, were measured again by way of survey 2, which was conducted approximately six months after the design of the new division was decided upon and announced.

Subjects were asked to respond to all measures on a five-point scale of either (1 = *strongly disagree*, 5 = *strongly agree*) or (1 = *not at all*, 5 = *very much*). Subjects were given the additional option on most measures to select "Don't Know," if they did not have sufficient information to respond. The reason for the additional option of "Don't Know" is that subjects had a range of levels of awareness of and involvement in the design process, including little to no involvement or awareness.

### ORGANIZATIONAL CHARACTERISTICS

Organizational Role. Since the experience and behavior of organizational members' tends to largely vary by role, one of the measures of the survey in the present study is organizational role. Since university members also sometimes perform more than one role in the organization, the survey asked participants to select one or more of the following organizational roles: Deans and Officers, Full-time Faculty, Part-time Faculty, Administrative Staff, and Students.

Tenure. Since organizational members of a university include both temporary members (i.e., less than 3 years working in or going to school in the university) and long-term members

(i.e., 3 years or more working in or going to school in the university), one of the measures of the survey in the present study was years of tenure.

Division. Several of the university divisions in this study were being restructured at the time of the study, whereas the other divisions in the university were not. Therefore, the survey asked participants to choose one or more divisions from a list of all of the university's divisions as the primary division in which they work or go to school. They were also given the option of choosing affiliation with all divisions.

Awareness/Involvement. Although all the organizational members invited to participate in the study had received information through email about the design process to restructure two of the university divisions, not all of them were aware of the design process when survey 1 was conducted or when survey 2 was conducted. Furthermore, while many of these organizational members were invited to participate in the design process, many of them chose not to participate. Therefore, the participants in survey 1 and 2 were asked to select their level of awareness of and their level of involvement in the design process.

### UNCERTAINTY

Informational Uncertainty. Since prior research has not used survey items to empirically measure informational uncertainty as distinct from personal uncertainty, the researcher wrote several items to measure informational uncertainty based on definitions of the construct from previous theory and research (Van den Bos, 2007; Van den Bos, 2009a; Van den Bos & Lind, 2002). Three items were used to measure informational uncertainty in survey 1, and the same three items were used in survey 2 with the addition of three more items to increase the internal consistency of the measure. Sample informational uncertainty items are: "I have the information I need to perform my role as an employee/student in this university" (reverse-coded), and "I

often don't know if my actions in my role as an employee/student in the university will achieve my desired outcomes or not."

Uncertainty about Standing. Several items to measure uncertainty about standing were selected from six items used in several recent study on the moderating effects of uncertainty (De Cremer, et al., 2010). These six items on uncertainty about standing had been adopted by De Cremer et al. (2010) from the Labile self-esteem scale used in prior studies to measure the construct of self-esteem stability, which is considered to be highly related to uncertainty about standing (De Cremer & Sedikides, 2005; Dykman, 1998). In set of recent studies, several of these items were combined to measure standing uncertainty with high internal consistency ( $\alpha = .67, .80, \text{ and } .90$ ) (De Cremer, et. al, 2010). Therefore, three of these items were selected to measure standing uncertainty in survey 1 and the same three items were used again in survey 2 with the addition of three more of these items to increase internal consistency. The specific items selected for this study were slightly reworded to fit the context. Sample items are: "I am certain that I am valued as an employee or student in this university" (reverse-coded), and "How I feel about my position as an employee or a student within the university changes from day to day."

Several factor analyses was conducted to confirm that the informational uncertainty and the standing uncertainty items used in the study measured two distinct constructs. The first step was to reverse-code two of the informational uncertainty items and one of the standing uncertainty items, so that higher scores on all uncertainty items equated to higher levels of uncertainty. The second step was to conduct a principle axis analysis with oblimin rotation on all four measures of the independent variables in survey 1 and on all five measures of the independent variables in survey 2 (see Appendices D and G for summary statistics). The third step was to conduct a principle axis analysis with oblimin rotation on only the informational

uncertainty and the standing uncertainty measures in survey 1 and in survey 2 (see Appendices E and H for summary statistics). The third step was conducted because the sample size for the uncertainty measures was much higher than for the other independent variables (i.e., process fairness and outcome favorability measures). Furthermore, the uncertainty items loaded on distinct factors from the process fairness, and these factors were not highly correlated (i.e.,  $r < .50$ ). Furthermore, the uncertainty items loaded on distinct factors from the outcome favorability items, and these factors were not highly correlated (i.e.,  $r < .50$ ).

The factor analyses confirmed there were two distinct factors of uncertainty that were not highly correlated (i.e.,  $r < .50$ ). However, a reverse-scoring pattern emerged in three out of four of the factor analyses, such that the reverse-scored uncertainty items loaded on one factor and the straightforwardly worded uncertainty items loaded on another factor. This pattern was slightly different in the factor analysis of survey 2, which included all five measures of the independent variables. However, this final factor analysis was the least reliable, because it was based on a very small sample size relative to the other three factor analyses that consistently showed the reverse-scoring pattern.

Although the third informational uncertainty item, which was straightforwardly worded, loaded more highly on the factor with the two standing uncertainty items that were also straightforwardly worded, the internal consistency of the informational uncertainty items decreased when the third item was eliminated (from  $\alpha = .55$  to  $\alpha = .50$ ). Therefore, the three informational uncertainty items were retained, and the reliability of the informational uncertainty measure was somewhat lower than the standard threshold of .70 ( $\alpha = .55$  at Time 1 and  $\alpha = .64$  at Time 2). When the third standing uncertainty item, which was reverse-coded and loaded more highly on the factor with two reverse-coded informational uncertainty items, was eliminated, the



internal consistency of the standing uncertainty measure increased (from  $\alpha = .54$  to  $\alpha = .61$ ). Therefore, the third standing uncertainty item was eliminated, and the reliability of the standing uncertainty measure was higher, although still somewhat lower than the .70 threshold ( $\alpha = .61$  at Time 1 and  $\alpha = .67$  at Time 2).

To further examine the increase in the internal consistency of the informational uncertainty and standing uncertainty measures between survey 1 and survey 2, an additional reliability analysis of both types of uncertainty was conducted using only the data of the respondents who took both surveys. The internal consistency of the informational uncertainty measure for the respondents who took both surveys was higher on survey 1 ( $\alpha = .60$ ) than for all respondents to survey 1 ( $\alpha = .55$ ) and was higher on survey 2 ( $\alpha = .64$ ) than on survey 1. The internal consistency of the standing uncertainty measure for the respondents who took both surveys was higher on survey 1 ( $\alpha = .68$ ) than for all respondents to survey 1 ( $\alpha = .61$ ), but was slightly lower on survey 2 ( $\alpha = .67$ ) than on survey 1. This suggests that participants in survey 1 may have had less internally consistent responses to the informational uncertainty items than they did on survey 2; whereas they may have responded similarly to the standing uncertainty items in surveys 1 and 2.

#### PROCESS FAIRNESS

All of the items used to measure process fairness were selected from the Colquitt (2001) scale of procedural, informational and interpersonal fairness. The items selected from Colquitt's scale were slightly modified to fit the context. As part of the survey instructions for responding to these items, an explicit description was provided of the "design process" as well as the "leadership" of the design process to which the items referred.

Procedural Fairness. The six items used to measure procedural fairness were selected from the seven-item Coquitt (2001) scale of procedural justice, which was reported to have high internal consistency ( $\alpha = .79$ .) Sample items are: "I have been able to express my views and feelings during the design process," and "The design process has been free from preferential treatment."

Informational Fairness. The four items used to measure informational fairness were selected from the five item Colquitt (2001) scale of informational justice, which was reported to have high internal consistency ( $\alpha = .78$ ). Sample items are: "The leadership has been candid in their communications with us during the design process," and "The leadership has communicated details about the design process in a timely manner."

Interpersonal Fairness. The three items used to measure interpersonal fairness were selected from the four item Colquitt (2001) scale of interpersonal justice, which was reported to have high internal consistency ( $\alpha = .78$ ). Sample items are: "The leadership has treated us in a polite manner during the design process," and "The leadership has treated us with respect during the design process."

Several factor analyses were conducted to confirm that the process fairness items measured distinct constructs from the uncertainty items, and that the procedural fairness, interpersonal fairness, and informational fairness items measured two (i.e., procedural fairness and interactional fairness), if not three, distinct components of process fairness. The first step was to conduct a principle axis analysis with oblimin rotation on all four measures of the independent variables in survey 1 and on all five measures of the independent variables in survey 2 (see Appendices D and G for summary statistics). The third step was to conduct a principle axis analysis with oblimin rotation on only the procedural fairness and the interactional fairness

measures in survey 1 and on only the procedural fairness, interactional fairness, and outcome favorability measures in survey 2 (see Appendices F and I for summary statistics). The third step were conducted because the sample sizes for the process fairness measures were much lower than those of the uncertainty measures. Furthermore, the uncertainty items loaded on distinct factors from the process fairness items, and these factors were not highly correlated (i.e.,  $r < .50$ ).

In all of the factor analyses, most of the process fairness items loaded on one factor while a few procedural fairness and interpersonal items loaded on a second factor. In three out of four of the factor analysis these two factors were moderately correlated (i.e.,  $r < .50$ ), and in one factor analysis these two factors were highly correlated ( $r = .67$ ). When the single procedural fairness item that consistently loaded on a separate factor was eliminated from a reliability analysis using data from survey 1, the internal consistency of the procedural fairness measure did not change ( $\alpha = .88$ ). However, when the same procedural fairness item was eliminated from a reliability analysis using data from survey 2, the internal consistency of the procedural fairness measure decreased (from  $\alpha = .85$  to  $\alpha = .81$ ). Because the reliability of the procedural fairness measure was reduced by eliminating this particular item, and the same item loaded on a distinct factor that was moderately to highly correlated with the factor on which the other procedural fairness items loaded, this procedural fairness item was retained.

However, the process fairness items did not load on two distinct factors for procedural fairness and interactional fairness as predicted by Greenberg (1993) or on three distinct factors for procedural fairness, informational fairness, and interpersonal fairness as predicted by Colquitt (2001). Therefore, both an interactional fairness index (i.e., interpersonal and informational fairness) and a process fairness index (i.e., procedural, interpersonal, and informational fairness) were create in addition to the three individual process fairness measures.

The reliability analysis of the study indicated high internal consistency on the procedural fairness measure ( $\alpha = .88$  at Time 1 and  $\alpha = .85$  at Time 2), the informational fairness measure ( $\alpha = .91$  at Time 1 and  $\alpha = .92$  at Time 2), and the interpersonal fairness measure ( $\alpha = .92$  at Time 1 and Time 2).

### ORGANIZATIONAL MEMBERS' ATTITUDES

Trust in Leadership. The three items used to measure trust in leadership were adopted from Robinson (1996). The three items were chosen because rather than referring directly to trust in the leadership, they refer to trust in the organization, which has been considered a proxy for trust in leadership (Dirks & Ferrin, 2004). The reason it was preferable to refer to the organization rather than referring directly to the leadership was that the organizational context of the study had indicators of low levels of trust in leadership. The three items were selected because they were written in language that the researcher thought would be most easily accepted by potential participants. Sample items are: "I can expect the university to treat me in a consistent and predictable fashion," and "I believe the university has high integrity."

The responses of participants to the fourth item of trust in leadership, "What is best for the university drives most of the major decisions in this university," were found to be inconsistent with their responses to the other three trust in leadership items. 69 participants selected, "Don't Know" or skipped this item. Furthermore, when this item was eliminated from the reliability analysis, the internal consistency of the trust in leadership measure increased using data from survey 1 (from  $\alpha = .80$  to  $\alpha = .82$ ) and only decreased slightly using data from survey 2 (from  $\alpha = .80$  to  $\alpha = .79$ ). Therefore, this item was eliminated from the study data, which increased the sample size in survey 1 on the trust in leadership measure (from  $N = 398$  to  $N =$

467) and yielded high internal consistency on the trust in leadership measure ( $\alpha = .82$  at Time 1 and  $\alpha = .79$  at Time 2).

Organizational Commitment. The four items used to measure organizational commitment were taken from the five item Mowday, Porter, and Steers (1982) organizational commitment questionnaire. Three out of four of these items were selected because recent research has found these items to be highly correlated with the long version of the organizational commitment scale (Brockner, Spreitzer, Mishra, Hochwarter, Pepper & Weinberg, 2004). Moreover, Mayer and Schoorman (1998) reported that the three-item measure had high internal consistency ( $\alpha = .76$ ). The fourth item was selected because the researcher thought it fit well with the organizational context. Items were slightly reworded to fit the context. Sample items are: "This university really inspires the very best in me in the way of performance as a student or an employee," and "I find that my values and the university's values are very similar."

The responses of participants to the third item of organizational commitment, "I am willing to put in effort beyond what is normally expected in order to help this university be successful," were found to be inconsistent with their responses to the other three organizational commitment items. When this item was eliminated from the reliability analysis, the internal consistency of the organizational commitment measure increased using Time 1 data (from  $\alpha = .71$  to  $\alpha = .76$ ) and using Time 2 data (from  $\alpha = .56$  to  $\alpha = .72$ ). Therefore, this item was eliminated from the study data, which yielded high internal consistency on the organizational commitment measure ( $\alpha = .76$  at Time 1 and  $.72$  at Time 2).

### OUTCOME DESIRABILITY

Outcome Favorability. Three items were adopted from a previous study that measured perceptions of outcome favorability (Brockner, Siegel, Daly, Tyler, & Martin, 1997). Sample

items are: "The outcomes of redesigning the [A] and [B] divisions are likely to be positive," and "The changes brought about by the redesign of the [A] and [B] divisions are for the better."

In two factor analyses, all the outcome favorability items loaded on a distinct factor with a few procedural fairness items. The factor on which the outcome favorability items loaded was moderately correlated with the factor on which most of the process fairness items loaded in one factor analysis ( $r = .40$ ) and highly correlated in the other factor analysis ( $r = .69$ ). Since the outcome favorability items loaded on a largely distinct factor, all of the outcome favorability items were retained, even though this factor was moderately to highly correlated with the factor on which most of the process fairness items loaded. However, the correlation between the process fairness and the outcome favorability measures must be considered when interpreting the results of the study. The data from this study yielded high internal consistency on the outcome favorability measure ( $\alpha = .90$ ).

#### DEMOGRAPHIC VARIABLES

Demographic variables included gender, age, ethnicity, race, and citizenship.

#### OPEN-ENDED QUESTIONS

Sample open-ended questions are: "What is the one thing you were most pleased with about the design process?" and "What is the one thing you would most like to see improved about the design process?"

## Chapter IV

### RESULTS

#### Overview

This chapter presents the results of the data analysis and hypotheses tests conducted for the study. First, the means, standard deviations, and intercorrelations among all study variables are presented. Next, the results of the t-tests and repeated measures analysis to test differences in levels of uncertainty based on several different organizational characteristics (Hypotheses 1 and 2) are presented. Then, the results of the hierarchical regressions that tested the moderating effects of both types of uncertainty on the fair process effect (Hypotheses 3 and 4) are presented. Finally, the results of the hierarchical regressions that tested the moderating effects of both types of uncertainty on the process-outcome interaction effect (Hypotheses 5 and 6) are presented.

#### Descriptive Statistics and Correlation Analysis

Means, standard deviations, and correlations among all study variables were computed and results are reported in Tables 7 and 8 (p. 51). Correlations were examined to determine if there were any potential multicollinearity issues. The only risk of multicollinearity found in the Time 1 dataset was among the process fairness variables. Significant positive correlations were found between procedural fairness and interpersonal fairness ( $r = .83, p < .01$ ), procedural fairness and informational fairness ( $r = .87, p < .01$ ), and interpersonal fairness and informational fairness ( $r = .81, p < .01$ ). Tabachnick and Fidell (1996) recommend that correlations fall below the .70 threshold to avoid concerns of multicollinearity.

The risk of multicollinearity was also found among the process fairness variables in the Time 2 dataset. Significant positive correlations were found between procedural fairness and interpersonal fairness ( $r = .80, p < .01$ ), procedural fairness and informational fairness ( $r = .82, p <$

.01), and interpersonal fairness and informational fairness ( $r = .81, p < .01$ ). Due to their high correlations, the process fairness variables were combined under one index. All hypotheses involving the process fairness variables were tested using the three individual variables as well as one overall process fairness index to minimize the multicollinearity problem.

An additional risk of multicollinearity was found between two of the three process fairness variables and outcome favorability in the Time 2 dataset. A significant positive correlation was found between procedural fairness and outcome favorability ( $r = .72, p < .01$ ) and between informational fairness and outcome favorability ( $r = .68, p < .01$ ). However, since all the individual process fairness variables were not highly correlated with outcome favorability, the hypotheses involving the outcome favorability variable were tested using the three individual process fairness variables as well as the process fairness index.

Significant positive correlations were found between the dependent variables, organizational commitment and trust in leadership, in the Time 1 dataset ( $r = .69, p < .01$ ) and in the Time 2 dataset ( $r = .71, p < .01$ ). However, these high correlations did not pose a problem for the validity of the study results, since these variables measured the attitudes of organizational members toward organizational decision-makers and the organization, which were expected to be highly related. Nevertheless, the organizational members' attitudes variables were combined into one index. All hypotheses involving organizational members' attitudes were tested using both the individual variables and the index of organizational members' attitudes. Tables 7 and 8 provides a summary of these descriptive statistics and intercorrelations.

The number of responses at Time 1 and Time 2 to the measures of informational uncertainty, standing uncertainty, trust in leadership, and organizational commitment was surprisingly higher than the number of responses to the measures of procedural fairness,



informational fairness, and interpersonal fairness. This may have been because 129 of the respondents at Time 1 were unaware of the redesign process, and 295 of the respondents at Time 1 were not involved in the redesign process. In addition, 16 of the respondents at Time 2 were unaware of the redesign process, and 73 of the respondents at Time 2 were not involved in the redesign process. Since both survey 1 and 2 gave the option of selecting "don't know" for many of the items, the respondents who had limited information or no information about the redesign process were more likely to select "don't know" for some or all of the process fairness items.

Furthermore, the number of responses to the measures of informational fairness and interpersonal fairness was surprisingly higher than the number of responses to the measure of procedural fairness at both Time 1 and Time 2. Moreover, the number of responses to the three procedural fairness items that were about having a voice in the process (i.e., input, influence, and appeal) were surprisingly higher than the number of responses to the three procedural fairness items that were about the technical aspects of the process (i.e., preferential treatment, accuracy of information, and consistency). This may have been because respondents with no information or limited information about the redesign process could have formed perceptions about the information they received about the process (i.e., informational fairness), the treatment they received regarding the process (i.e., interpersonal fairness), and their voice in the process. However, they might not have had enough information to form perceptions about the technical aspects of the process.

An additional test was performed to determine the presence and magnitude of common method variance in the data using Harmon's one-factor test (Podsakoff & Organ, 1986). If common method variance were present in the data, a single factor would emerge from a factor analysis of all the survey items, or one general factor would emerge that accounted for most of

the variance (Christmann, 2000). A principle axis analysis with oblimin rotation was conducted on all items related to uncertainty, process fairness, and organizational members' attitudes using the Time 1 dataset. A total of four factors with eigenvalues greater than 1.0 were found, which accounted for 66% of the total variance. Yet, the first factor, on which the process fairness items loaded, accounted for 40% of the total variance. This indicated that some degree of common method variance existed, primarily related to the process fairness items, which partially explain the high correlations between the individual process fairness variables. This was likely because some respondents took the online survey quickly with limited information about the process to be able to clearly distinguish between the different process fairness items.

Table 7  
*Descriptive Statistics and Zero-Order Correlations for Study Variables (Time 1 Dataset)*

Variable	N	M	SD	1	2	3	4	5	6	7
Study Variable										
1. Informational Uncertainty	448	3.00	0.76	<b>.55</b>						
2. Standing Uncertainty	459	3.13	0.95	0.39**	<b>.61</b>					
3. Procedural Fairness	149	2.72	0.92	-.26**	-.13	<b>.88</b>				
4. Interpersonal Fairness	276	3.44	1.10	-.24**	-.11†	0.83**	<b>.91</b>			
5. Informational Fairness	284	2.87	1.15	-.23**	-.10	0.87**	0.81**	<b>.92</b>		
6. Trust in Leadership	467	3.41	0.93	-.58**	-.29**	0.43**	0.36**	.28**	<b>.82</b>	
7. Organizational Commitment	459	3.54	0.87	-.49**	-.27**	0.41**	0.37**	.28**	0.69**	<b>.76</b>

Note. †p < .1, \*p < .05, \*\*p < .01. Sample size ranges from n=149 to n=467. Alpha coefficients are displayed on the diagonal.

Table 8  
*Descriptive Statistics and Zero-Order Correlations for All Study Variables (Time 2 Dataset)*

Variable	N	M	SD	1	2	3	4	5	6	7	8
Study Variable											
1. Informational Uncertainty2	147	3.03	0.80	<b>.64</b>							
2. Standing Uncertainty2	151	3.16	1.02	0.47**	<b>.67</b>						
3. Procedural Fairness2	55	2.94	0.79	-.41**	-.41**	<b>.85</b>					
4. Interpersonal Fairness2	98	3.65	0.99	-.39**	-.32**	0.80**	<b>.92</b>				
5. Informational Fairness2	88	3.18	1.05	-.33**	-.22**	0.82**	0.81**	<b>.92</b>			
6. Trust in Leadership2	147	3.40	0.85	-.67**	-.39**	0.49**	0.37**	.31**	<b>.79</b>		
7. Organizational Commitment2	151	3.55	0.77	-.57**	-.30**	0.39**	0.35**	.31**	0.71**	<b>.72</b>	
8. Outcome Favorability	153	3.20	0.66	-.43**	-.21**	0.72**	0.63**	.68**	0.44**	.40**	<b>.90</b>

Note. \*p < .05, \*\*p < .01. Sample size ranges from n=55 to n=153. Alpha coefficients are displayed on the diagonal.

## **Analyses of Study Hypotheses 1 and 2**

Hypothesis 1 predicted that the level of both informational uncertainty and standing uncertainty would significantly vary by organizational role and tenure, such that organizational members in less stable roles (i.e., students and newcomers) would have higher informational and standing uncertainty than those in more stable roles (i.e., employees and non-newcomers). Students were expected to have significantly higher levels of both informational uncertainty and standing uncertainty than employees at Time 1, because students' uncertainty would likely be heightened by their role as temporary members of the organization. Similarly, newcomers (i.e., < 3 years tenure) were expected to have significantly higher levels of both informational uncertainty and standing uncertainty than non-newcomers at Time 1, because newcomers' uncertainty would likely be heightened by being new to the organization. Furthermore, if the uncertainty levels of students or newcomers were related to their temporary or new status in the organization, their uncertainty would not be expected to change between Time 1 and Time 2 because of the redesign process.

Hypothesis 2 predicted that the level of both informational uncertainty and standing uncertainty would be significantly higher among the organizational members who were affiliated with the divisions undergoing redesign (i.e., affiliated) relative to those who were not affiliated (i.e., non-affiliated). The affiliated were expected to have greater uncertainty levels than the non-affiliated at Time 1, since the outcomes of the redesign process had not been decided upon or announced at Time 1 and would have a greater impact on the affiliated than the non-affiliated. Furthermore, the uncertainty levels of the affiliated were expected to decrease between Time 1 and Time 2, because the outcomes of the redesign process were decided upon and announced by Time 2.

To test hypotheses 1 and 2, independent samples t-tests were conducted to determine if there were differences in the levels of informational uncertainty and standing uncertainty at both Time 1 and Time 2 between students and employees, newcomers and non-newcomers, affiliated and non-affiliated, aware and non-aware, and involved and non-involved. Next, a paired t-test was conducted on repeated measures to determine if uncertainty levels were significantly different for all respondents between Time 1 and Time 2. Then, a repeated measures analysis was conducted on the levels of informational uncertainty and standing uncertainty between Time 1 and Time 2 of students relative to employees, newcomers relative to non-newcomers, affiliated relative to non-affiliated, aware relative to non-aware, and involved relative to non-involved. Only the significant results are presented in this chapter, and non-significant results are shown in the Appendices.

In support of the opposite of what hypothesis 1 predicted, students had significantly lower rather than higher informational uncertainty than employees at Time 1,  $t(448) = -3.15$ ,  $p < .01$ ;  $M_s = 2.91$  and  $3.14$ ,  $SD_s = .71$  and  $.82$ , respectively. See Table 9 for summary statistics. However, there were no significant group differences in informational uncertainty or standing uncertainty between students and employees at Time 2 (see Appendix J for summary statistics).

No significant between subjects differences were found in informational uncertainty or standing uncertainty levels for all respondents between Time 1 and Time 2 (see Appendix K for summary statistics). In limited support of the opposite of what hypothesis 1 predicted, small but significant between subjects effects were found in standing uncertainty for students relative to employees between Time 1 to Time 2,  $F = 4.39$  ( $p < .05$ ). The standing uncertainty of students slightly decreased, while that of employees slightly increased. See Table 10 for summary statistics and Figure 1 for a graph of the effect. However, the limited sample size of respondents

who completed both survey 1 and survey 2 items, particularly the procedural fairness items, restricted all repeated measures analyses.

No significant group differences in informational uncertainty or standing uncertainty were found between newcomers and non-newcomers (see Appendices L and M for summary statistics). This suggests that organizational role rather than tenure had a more significant influence on uncertainty levels.

Table 9  
*Group Differences for All Measures Between Students and Employees (Time 1 Dataset)*

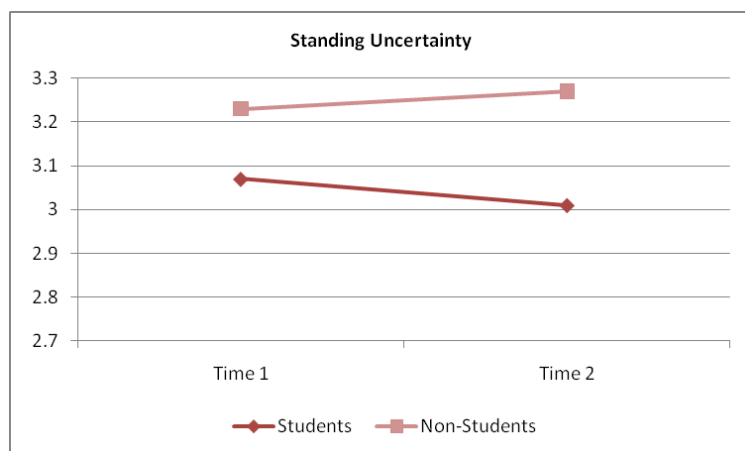
Measure	Students			Employees			t	p	Cohen's d
	N	M	SD	N	M	SD			
Informational Uncertainty	284	2.91	0.71	164	3.14	0.82	-3.15	.002	-.31
Standing Uncertainty	288	3.07	0.94	171	3.23	0.84	-1.77	.076	-.17
Procedural Fairness	84	2.52	0.84	65	2.97	0.97	-2.96	.004	-.50
Informational Fairness	153	2.70	1.15	131	3.06	1.12	-2.69	.007	-.32
Interpersonal Fairness	143	3.23	1.13	130	3.66	1.03	-3.28	.001	-.39
Trust	301	3.50	0.91	166	3.25	0.94	2.82	.005	.27
Commitment	294	3.53	0.91	165	3.54	0.79	-0.11	.917	-.01

*Note.* Equal variances not assumed.

Table 10  
*Group Difference on All Measures Between Students and Employees (Time 1 and Time 2 Datasets)*

Measure	N	F	p
Informational Uncertainty	131	2.47	.119
Standing Uncertainty	141	4.39	.038
Procedural Fairness	26	5.61	.026
Informational Fairness	73	2.30	.134
Interpersonal Fairness	78	3.11	.082
Trust	141	9.00	.003
Commitment	136	.285	.594

**Figure 1**  
 Differences in Standing Uncertainty for the Students and the Employees Between Time 1 and Time 2 (Time 1 and Time 2 Datasets)



In support of the opposite of what hypothesis 2 predicted, the affiliated had significantly lower rather than higher informational uncertainty than the non-affiliated at Time 1,  $t(446) = -3.20$ ,  $p < .01$ ;  $M_s = 2.86$  and  $3.09$ ,  $SDs = .74$  and  $.76$ , respectively. The affiliated had significantly lower rather than higher informational uncertainty than the non-affiliated at Time 2,  $t(145) = -2.12$ ,  $p < .05$ ;  $M_s = 2.90$  and  $3.17$ ,  $SDs = .74$  and  $.82$ , respectively. The affiliated had significantly lower rather than higher standing uncertainty than the non-affiliated at Time 2,  $t(457) = -3.18$ ,  $p < .01$ ;  $M_s = 2.97$  and  $3.25$ ,  $SDs = .78$  and  $.83$ , respectively. The affiliated had significantly lower rather than higher standing uncertainty than the non-affiliated at Time 2,  $t(149) = -1.99$ ,  $p < .05$ ;  $M_s = 2.99$  and  $3.32$ ,  $SDs = .78$  and  $.83$ , respectively. See Tables 11 and 12 for summary statistics.

In limited support of the opposite of what hypothesis 2 predicted, small but significant between subjects effects were found in informational uncertainty for the affiliated relative to the non-affiliated between Time 1 to Time 2,  $F = 5.26$  ( $p < .05$ ). The informational uncertainty of the affiliated slightly decreased, while that of the non-affiliated decreased a little more. See Table 13 for summary statistics and Figure 2 for a graph of the effect. Similarly, small but significant between subjects effects were found in standing uncertainty for the affiliated relative to the non-affiliated between Time 1 and Time 2,  $F = 6.75$  ( $p < .05$ ). The standing uncertainty of the affiliated slightly increased between Time 1 and Time 2, while that of the non-affiliated slightly decreased. See Table 13 for summary statistics and Figure 3 for a graph of the effect.

In further support of the opposite of what hypothesis 2 predicted, no significant differences in informational uncertainty or standing uncertainty were found between the aware and the non-aware (see Appendices N and O for summary statistics) or between the involved and the non-involved at Time 1 or at Time 2 (see Appendices P and Q for summary statistics). This



suggests that the significant differences in informational uncertainty and standing uncertainty of the affiliated relative to the non-affiliated were related to the greater influence of the redesign effort on the affiliated rather than to respondents' levels of awareness of or involvement in the redesign process.

Table 11  
*Group Differences for All Measures Between the Affiliated and the Non-Affiliated (Time 1 Dataset)*

Measure	Affiliated			Non-Affiliated			t	p	Cohen's d
	N	M	SD	N	M	SD			
Informational Uncertainty	192	2.86	0.74	256	3.09	0.76	-3.20	.001	-.31
Standing Uncertainty	198	2.97	0.78	261	3.25	0.83	-3.18	.002	-.30
Procedural Fairness	69	2.90	0.85	80	2.56	0.96	2.25	.026	0.37
Informational Fairness	133	3.12	1.06	151	2.64	1.18	3.55	.000	0.42
Interpersonal Fairness	143	3.66	1.00	133	3.19	1.16	3.62	.000	0.44
Trust	205	3.66	0.87	162	3.22	0.93	5.21	.000	0.49
Commitment	201	3.72	0.84	258	3.39	0.86	4.31	.000	0.40

*Note.* Equal variances not assumed.

Table 12  
*Group Differences for All Measures Between the Affiliated and the Non-Affiliated (Time 2 Dataset)*

Measure	Affiliated			Non-Affiliated			t	p	Cohen's d
	N	M	SD	N	M	SD			
Informational Uncertainty2	74	2.90	0.74	73	3.17	0.82	-2.12	.036	-.34
Standing Uncertainty2	76	2.99	0.78	75	3.32	0.92	-1.99	.048	-.33
Procedural Fairness2	33	3.06	0.85	22	2.77	0.70	1.39	.170	0.37
Informational Fairness2	53	3.38	1.06	35	2.89	1.01	2.17	.033	0.47
Interpersonal Fairness2	60	3.86	1.00	38	3.31	1.03	2.63	.010	0.53
Trust2	75	3.63	0.82	72	3.17	0.83	- 3.39	.001	0.56
Commitment2	76	3.68	0.77	75	3.42	0.76	- 2.11	.037	0.34

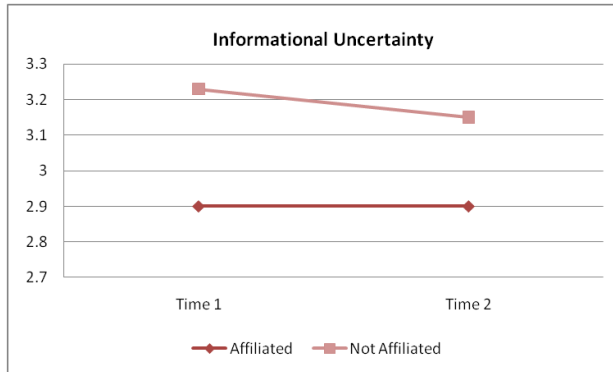
*Note.* Equal variances not assumed.

Table 13  
*Differences on All Repeated Measures Between Time 1 and Time for the Affiliated and the Non-Affiliated (Time1 and Time 2 Datasets)*

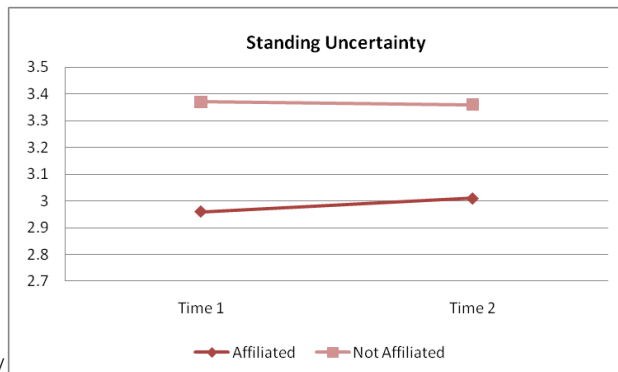
Measure	N	F	p
Informational Uncertainty	131	5.26	.024
Standing Uncertainty	141	6.75	.010
Procedural Fairness	26	0.58	.455
Informational Fairness	73	0.77	.384
Interpersonal Fairness	78	0.37	.543
Trust	141	16.55	.000
Commitment	136	6.13	.015

**Figure 2**

Differences in Informational Uncertainty for the Affiliated and the Non-Affiliated Between Time 1 and Time 2 (Time 1 and Time 2 Datasets)

**Figure 3**

Differences in Standing Uncertainty for Affiliated and Non-Affiliated Between Time 1 and Time (Time 1 and Time 2 Datasets)



### **Analyses of Study Hypotheses 3 and 4**

Hypothesis 3 predicted that the fair process effect, which is the positive effect of higher process fairness (i.e., procedural fairness, informational fairness, and interpersonal fairness) on organizational members' attitudes (i.e., organizational commitment and trust in leadership), would be stronger when organizational members had higher informational uncertainty.

Hypothesis 4 predicted that the fair process effect would be stronger when organizational members had higher uncertainty about their standing in the organization.

To test hypotheses 3 and 4, hierarchical regression analyses were conducted, in which organizational members' attitudes were predicted by the main effects of uncertainty and process fairness at step 1, and the two-way interaction at step 2. Each possible combination of one dependent variable (i.e., trust in leadership, organizational commitment, or the organizational members' attitudes index), one uncertainty variable (i.e., informational uncertainty, standing uncertainty, or the uncertainty index) and one process fairness variable (i.e., procedural fairness, interpersonal fairness, informational fairness, the interactional fairness index, or the process fairness index) were run in the hierarchical regression analyses.

Each of these hierarchical regression analyses were run four different ways: 1) using the Time 1 dataset only, 2) using the Time 2 dataset only, 3) using measures of uncertainty and process fairness from the Time 1 dataset with measures of organizational members' attitudes from the Time 2 dataset, and 4) using measures of uncertainty from the Time 1 dataset with measures of process fairness and organizational members' attitudes from the Time 2 dataset. Using each of these four sets of data, the hierarchical regressions were run selecting for each of

the following eleven organizational groups: all, student, employee, newcomer, non-newcomer, affiliated, non-affiliated, aware, non-aware, involved, and non-involved.

To test for a two-way interaction between uncertainty and process fairness on organizational members' attitudes at Time 2 controlling for the same two-way interaction at Time 1, additional hierarchical regression analyses were conducted. Organizational members' attitudes were predicted by the main effects of uncertainty and process fairness at Time 1 and Time 2 at step 1, and the two-way interaction at Time 1 and Time 2 at step 2. Each of the possible combinations of mentioned above of organizational members' attitudes, uncertainty, and process fairness were run in the hierarchical regression analysis. These hierarchical regressions were run once using a combination of the Time 1 and Time 2 datasets. Since the sample size of respondents who completed both survey 1 and survey 2 measures was small, these hierarchical regressions were not run selecting for any groups.

Following the procedure of Aikin and West (1991), all independent variables were mean centered, and the interaction terms were calculated on the basis of these mean-centered scores. On each significant or marginally significant two-way interaction, a simple slope analysis was conducted using continuous variables. Only the significant interactions ( $p < .05$ ) and the most relevant marginally significant interactions ( $p < .10$ ) are presented.

In support of hypothesis 3, the two-way interaction between informational fairness and procedural fairness on organizational commitment was significant for the affiliated at Time 1 ( $\beta = -.33, p < .05$ ). The interaction term accounted for an additional 3.4% of the variance in organizational commitment after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher procedural fairness on organizational

commitment was stronger when the affiliated had higher informational uncertainty. See Table 14 for summary statistics and Figure 4 for slope analysis.

In support of the opposite of what hypothesis 3 predicted, the two-way interaction between informational uncertainty and process fairness on organizational members' attitudes was significant for the non-involved at Time 1 ( $\beta = -.29, p < .05$ ). The interaction term accounted for an additional 4.1% of the variance in organizational members' attitudes after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher process fairness on organizational members' attitudes was stronger when the non-involved had lower informational uncertainty. Furthermore, higher process fairness had a negative effect on organizational members' attitudes when the non-involved had higher informational uncertainty. See Table 15 for summary statistics and Figure 5 for slope analysis.

In support of the opposite of what hypothesis 3 predicted, the two-way interaction between informational uncertainty and process fairness on trust in leadership was significant for the non-involved at Time 1 ( $\beta = -.33, p < .05$ ). The interaction term accounted for an additional 4.7% of the variance in trust in leadership after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher process fairness on trust in leadership was stronger when the non-involved had lower informational uncertainty. Furthermore, higher process fairness had a negative effect on trust in leadership when the non-involved had higher informational uncertainty. See Table 16 for summary statistics and Figure 6 for slope analysis.

In support of the opposite of what hypothesis 3 predicted, the two-way interaction between informational uncertainty and procedural fairness on trust in leadership was significant

for the non-involved at Time 1 ( $\beta = -.43, p < .01$ ). The interaction term accounted for an additional 5.6% of the variance in trust in leadership after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher procedural fairness on trust in leadership was stronger when the non-involved had lower informational uncertainty. Furthermore, higher procedural fairness had a negative effect on trust in leadership when the non-involved had higher informational uncertainty. See Table 17 for summary statistics and Figure 7 for slope analysis.

In support of the opposite of what hypothesis 3 predicted, the two-way interaction between informational uncertainty<sub>2</sub> and informational fairness<sub>2</sub> on organizational commitment<sub>2</sub> was significant for the non-affiliated at Time 2 ( $\beta = -.29, p < .05$ ). The interaction term accounted for an additional 9.2% of the variance in organizational commitment<sub>2</sub> after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher informational fairness<sub>2</sub> on organizational commitment<sub>2</sub> was stronger when the non-affiliated had lower informational uncertainty<sub>2</sub>. Furthermore, higher informational fairness<sub>2</sub> had a negative effect on organizational commitment<sub>2</sub> when the non-affiliated had higher informational uncertainty. See Table 18 for summary statistics and Figure 8 for slope analysis.

In support of the opposite of what hypotheses 3 and 4 predicted, the two-way interaction between uncertainty and procedural fairness on trust in leadership was significant for the non-affiliated at Time 1 ( $\beta = -.30, p < .05$ ). The interaction term accounted for an additional 3.2% of the variance in trust in leadership after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher procedural fairness on trust in leadership was stronger when the affiliated had lower uncertainty. Furthermore, higher

procedural fairness had a negative effect on trust in leadership when the non-affiliated had higher uncertainty. See Table 19 for summary statistics and Figure 9 for slope analysis.

No significant two-way interactions were found between informational uncertainty<sup>2</sup> and process fairness<sup>2</sup> on organizational members' attitudes<sup>2</sup> at Time 2 controlling for the same two-way interaction between informational uncertainty and process fairness at Time 1.



Table 14

*Regression Examining the Effect of the Two-Way Interaction Between Informational Uncertainty and Procedural Fairness on Organizational Commitment for Affiliated (Time 1 Dataset, N = 68)*

Dependent Variable:		Organizational Commitment	
		<u>Model 1</u>	<u>Model 2</u>
Step 1:	<u>Main Effects</u>	Beta (SE)	Beta (SE)
	Informational Uncertainty (IU)	-.56 (.13)***	-.66 (.13)***
	Procedural Fairness (PF)	.42 (.11)***	.46 (.11)***
Step 2:	<u>Two-Way Interaction</u>		
	IUXPF		.33 (.16)*
	R <sup>2</sup>	.43***	.47***
	R <sup>2</sup> Δ		.03*

*Note.* Unstandardized regression coefficients are reported.

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

Figure 4

Two-Way Interaction of Informational Uncertainty and Procedural Fairness on Organizational Commitment for Affiliated (Time 1 Dataset)

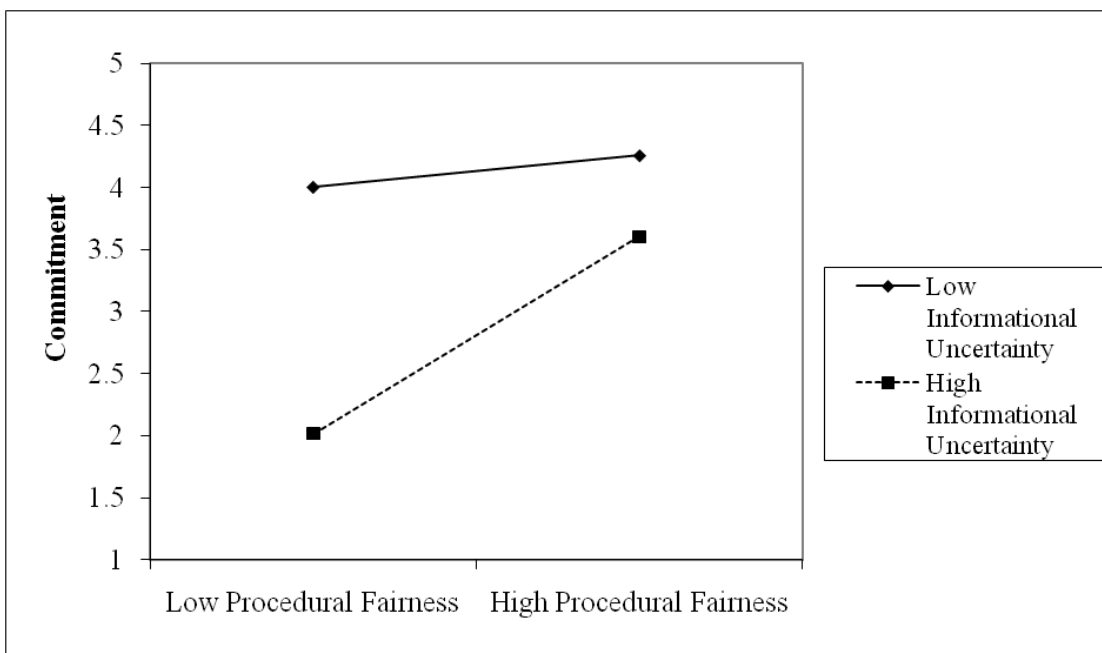


Table 15  
*Regression Examining the Effect of the Two-Way Interaction Between Informational Uncertainty and Process Fairness on Organizational Members' Attitudes for Non-Involved (Time 1 Dataset, N = 62)*

Dependent Variable:		Organizational Members' Attitudes	
		Model 1	Model 2
Step 1:	Main Effects	Beta (SE)	Beta (SE)
	Informational Uncertainty (IU)	-.81(.10)***	-1.01(.13)***
	Process Fairness (PR)	.18(.11)	.21(.11)†
Step 2:	Two-Way Interaction		
	IUXPR		-.29 (.12)*
	R <sup>2</sup>	.74***	.77***
	R <sup>2</sup> Δ		.04*

Note. Unstandardized regression coefficients are reported.  
 †p < .10, \*p < .05, \*\*p < .01, \*\*\*p < .001.

Figure 5  
 Two-Way Interaction of Informational Uncertainty and Process Fairness on Organizational Members' Attitudes for Non-Involved (Time 1 Dataset)

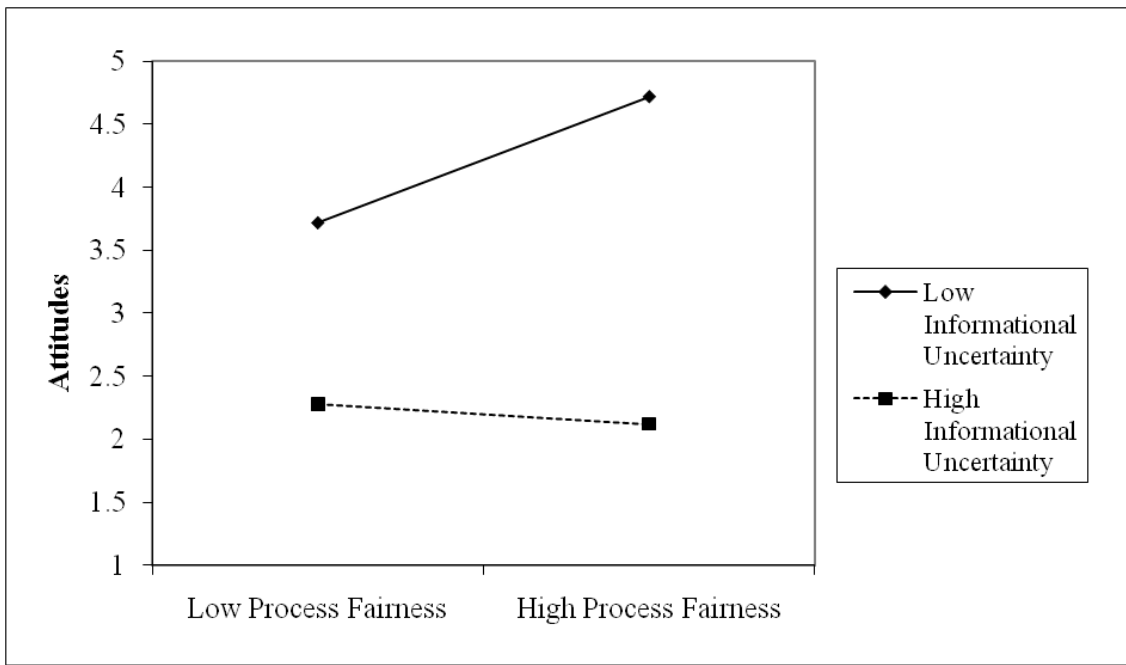


Table 16  
*Regression Examining the Effect of the Two-Way Interaction Between Informational Uncertainty and Process Fairness on Trust in Leadership for Non-Involved (Time 1 Dataset, N = 62)*

Dependent Variable:		Trust in Leadership	
Step 1:	<u>Main Effects</u>	<u>Model 1</u>	<u>Model 2</u>
		Beta (SE)	Beta (SE)
	Informational Uncertainty (IU)	-.83 (.11)***	-1.06 (.14)***
	Process Fairness (PR)	.16 (.12)	.19(.12)
Step 2:	<u>Two-Way Interaction</u>		
	IUXPR		-.33 (.16)*
	R <sup>2</sup>	.72***	.75***
	R <sup>2</sup> Δ		.05*

Note. Unstandardized regression coefficients are reported.  
 \*p < .05, \*\*p < .01, \*\*\*p < .001.

Figure 6  
 Two-Way Interaction Between Informational Uncertainty and Process Fairness on Trust in Leadership for Non-Involved (Time 1 Dataset)

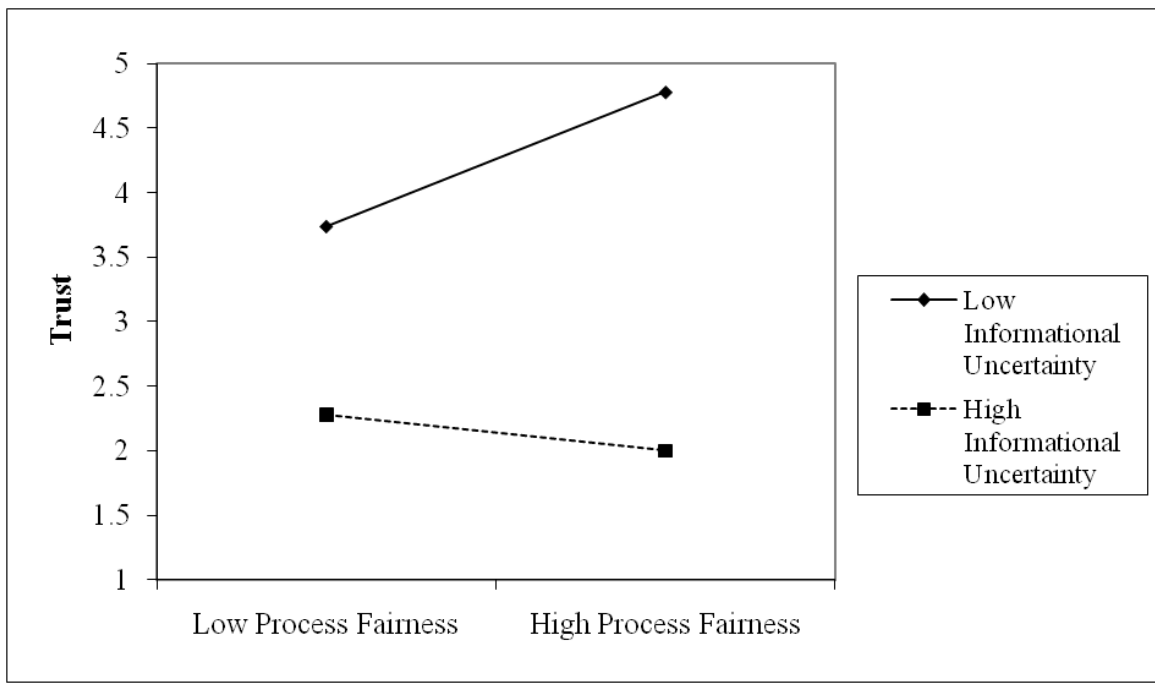


Table 17

*Regression Examining the Effect of the Two-Way Interaction Between Informational Uncertainty and Procedural Fairness on Trust in Leadership for Non-Involved (Time 1 Dataset, N = 63)*

Dependent Variable:		Trust in Leadership	
		<u>Model 1</u>	<u>Model 2</u>
Step 1:	<u>Main Effects</u>	Beta (SE)	Beta (SE)
	Informational Uncertainty (IU)	-.82 (.12)***	-1.08 (.15)***
	Procedural Fairness (PF)	.16 (.14)	.13 (.14)
Step 2:	<u>Two-Way Interaction</u>		
	IUXPF		-.43 (.16)*
	R <sup>2</sup>	.47***	.34***
	R <sup>2</sup> Δ		.06**

*Note.* Unstandardized regression coefficients are reported.

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

Figure 7

Two-Way Interaction Between Informational Uncertainty and Procedural Fairness on Trust in Leadership for Non-Involved (Time 1 Dataset)

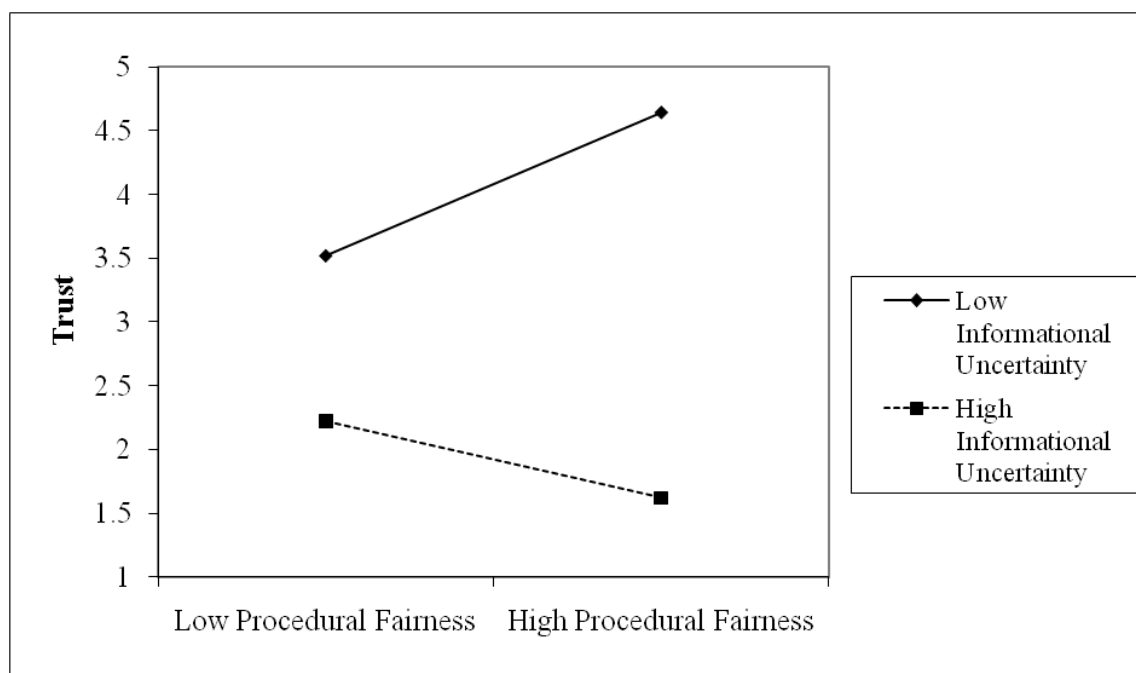


Table 18

*Regression Examining the Effect of the Two-Way Interaction Between Informational Uncertainty<sub>2</sub> and Informational Fairness<sub>2</sub> on Organizational Commitment<sub>2</sub> for Non-Affiliated (Time 2 Dataset, N = 35)*

Dependent Variable:		Organizational Commitment <sub>2</sub>	
		Model 1	Model 2
Step 1:	Main Effects	Beta (SE)	Beta (SE)
	Informational Uncertainty <sub>2</sub> (IU <sub>2</sub> )	-.01 (.13)	-.06 (.13)
	Informational Fairness <sub>2</sub> (INF <sub>2</sub> )	-.47 (.17)**	-.60 (.17)**
Step 2:	Two-Way Interaction		
	IU <sub>2</sub> XINF <sub>2</sub>		-.29 (.15)*
	R <sup>2</sup>	.45***	.54*
	R <sup>2</sup> Δ		.09*

Note. Unstandardized regression coefficients are reported.

†p < .10, \*p < .05, \*\*p < .01, \*\*\*p < .001.

Figure 8

Two-Way Interaction of Informational Uncertainty<sub>2</sub> and Informational Fairness<sub>2</sub> on Organizational Commitment<sub>2</sub> for Non-Affiliated (Time 2 Dataset)

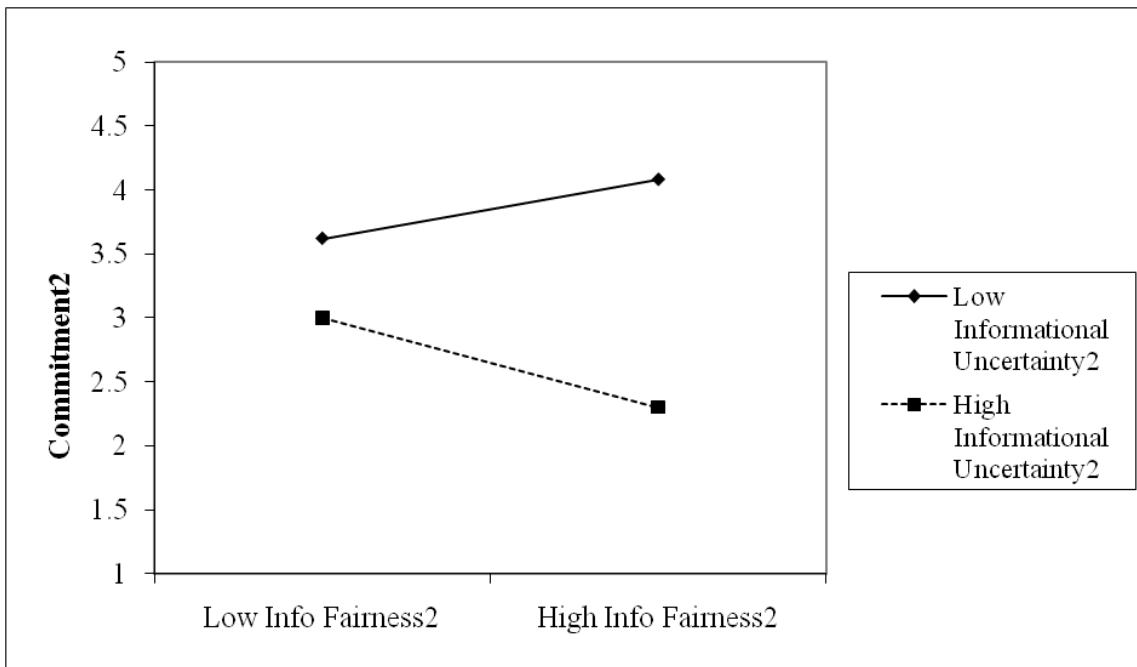


Table 19

*Regression Examining the Effect of the Two-Way Interaction Between Uncertainty and Procedural Fairness on Trust in Leadership for Non-Affiliated (Time 1 Dataset, N = 73)*

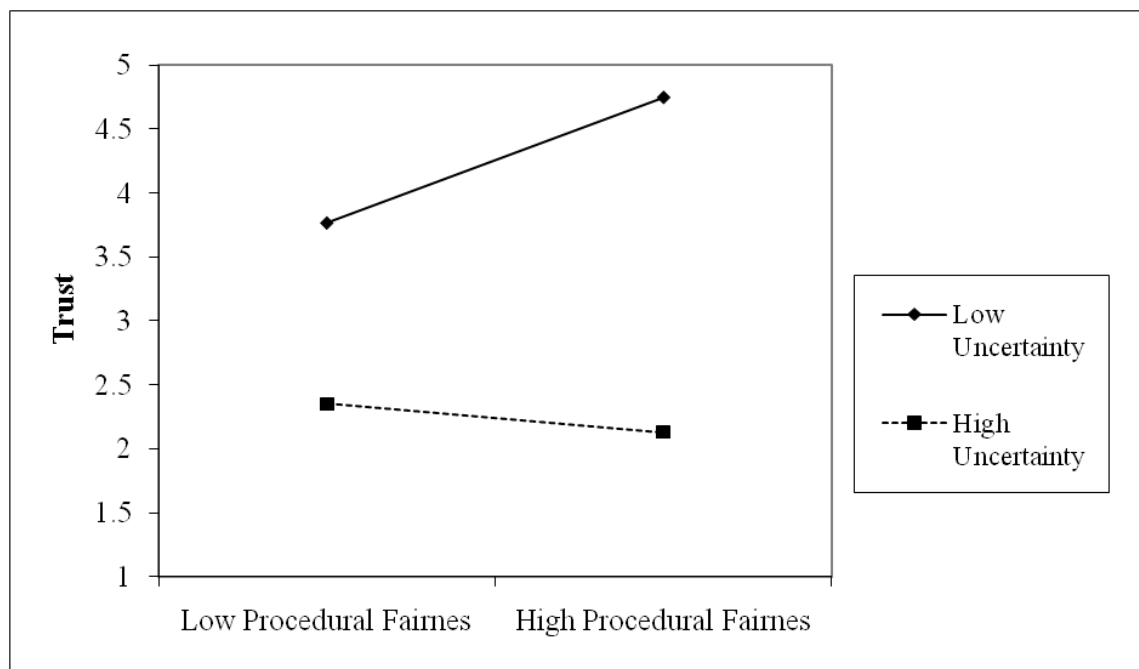
Dependent Variable:		Trust in Leadership	
		<u>Model 1</u>	<u>Model 2</u>
Step 1:	<u>Main Effects</u>	Beta (SE)	Beta (SE)
	Uncertainty (U)	-.94 (.13)***	-1.01 (.13)***
	Procedural Fairness (PF)	.14 (.09)	.19 (.09)*
Step 2:	<u>Two-Way Interaction</u>		
	UXPF		-.30 (.14)*
	R <sup>2</sup>	.68***	.70***
	R <sup>2</sup> Δ		.03*

*Note.* Unstandardized regression coefficients are reported.

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

Figure 9

Two-Way Interaction of Uncertainty and Procedural Fairness on Trust in Leadership for Non-Affiliated (Time 1 Dataset)



In limited support of hypothesis 4, the two-way interaction effect between standing uncertainty<sup>2</sup> and procedural fairness<sup>2</sup> on organizational commitment<sup>2</sup> was significant for all respondents at Time 2 ( $\beta = .40, p < .05$ ) when controlling for the two-way interaction between standing uncertainty and procedural fairness on organizational commitment<sup>2</sup>. The interaction term accounted for an additional 13.5% of the variance in organizational commitment<sup>2</sup> after accounting for the variance due to the main effects and the two-way interaction between standing uncertainty and procedural fairness on organizational commitment<sup>2</sup>. A simple slope analysis showed the positive effect of higher procedural fairness on organizational commitment was stronger when respondents had higher standing uncertainty. However, the sample size was very small ( $n = 23$ ), which means these results must be viewed as highly exploratory rather than conclusive. See Table 20 for summary statistics and Figure 10 for slope analysis.

In support of the opposite of what hypothesis 4 predicted, a two-way interaction between standing uncertainty and process fairness on organizational members' attitudes was significant for the involved at Time 1 ( $\beta = -.26, p < .05$ ). The interaction term accounted for an additional 5.1% of the variance in organizational members' attitudes after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher process fairness on organizational members' attitudes was stronger when the involved had lower standing uncertainty. See Table 21 for summary statistics and Figure 11 for slope analysis.

In support of the opposite of what hypothesis 4 predicted, the two-way interaction between standing uncertainty and process fairness on trust in leadership was significant for all respondents at Time 1 ( $\beta = -.18, p < .05$ ). The interaction term accounted for an additional 2.0% of the variance in trust in leadership after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher process fairness on trust in leadership

was stronger when respondents had lower standing uncertainty. See Table 22 for summary statistics and Figure 12 for slope analysis. The same two-way interaction effect between standing uncertainty and process fairness on trust in leadership was significant for the involved at Time 1 ( $\beta = -.25, p < .05$ ), but the interaction effect was stronger. The interaction term accounted for an additional 3.5% of the variance in trust in leadership after accounting for the variance due to the main effects.

In support of the opposite of what hypothesis 4 predicted, the two-way interaction between standing uncertainty and process fairness on organizational commitment was significant for the involved at Time 1 ( $\beta = -.27, p < .05$ ). The interaction term accounted for an additional 5.7% of the variance in organizational commitment after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher process fairness on organizational commitment was stronger when the involved had lower standing uncertainty. See Table 23 for summary statistics and Figure 13 for slope analysis.

In support of the opposite of what hypothesis 4 predicted, the two-way interaction between standing uncertainty and procedural fairness on trust in leadership was significant for all respondents at Time 1 ( $\beta = -.20, p < .05$ ). The interaction term accounted for an additional 3.0% of the variance in trust in leadership after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher procedural fairness on trust in leadership was stronger when respondents had lower standing uncertainty. See Table 24 for summary statistics and Figure 14 for slope analysis. The same two-way interaction between standing uncertainty and procedural fairness on trust in leadership was significant for the involved at Time 1 ( $\beta = -.27, p < .05$ ), but the interaction effect was stronger. The interaction



term accounted for an additional 4.2% of the variance in trust in leadership after accounting for the variance due to the main effects.

In support of the opposite of what hypothesis 4 predicted, the two-way interaction between standing uncertainty and procedural fairness on organizational commitment was significant for the involved at Time 1 ( $\beta = -.27, p < .05$ ). The interaction term accounted for an additional 6.2% of the variance in organizational commitment after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher procedural fairness on trust in leadership was stronger when the involved had lower standing uncertainty. See Table 25 for summary statistics and Figure 15 for slope analysis.

In support of the opposite of what hypothesis 4 predicted, a two-way interaction between standing uncertainty and interactional fairness on organizational commitment was significant for all respondents at Time 1 ( $\beta = -.13, p < .05$ ). The interaction term accounted for an additional 2.2% of the variance in organizational commitment after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher interactional fairness on organizational commitment was stronger when respondents had lower standing uncertainty. See Table 26 for summary statistics and Figure 16 for slope analysis. The same two-way interaction effect between standing uncertainty and interactional fairness was significant for the affiliated at Time 1 ( $\beta = -.24, p < .01$ ), but the interaction effect was stronger. The interaction term accounted for an additional 6.7% of the variance in organizational commitment after accounting for the variance due to the main effects.

In support of the opposite of what hypothesis 4 predicted, a two-way interaction between standing uncertainty and interactional fairness on organizational commitment<sup>2</sup> was marginally

significant for all respondents at Time 2 ( $\beta = -.16, p < .10$ ). The interaction term accounted for an additional 3.0% of the variance in organizational commitment<sub>2</sub> after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of process fairness on organizational commitment<sub>2</sub> was stronger when respondents had lower standing uncertainty. See Table 27 for summary statistics and Figure 17 for slope analysis.

In support of the opposite of what hypothesis 4 predicted, the two-way interaction effect between standing uncertainty and interpersonal fairness on organizational commitment was significant for all respondents at Time 1 ( $\beta = -.10, p < .05$ ). The interaction term accounted for an additional 1.5% of the variance in organizational commitment after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher interpersonal fairness on organizational commitment was stronger when respondents had lower standing uncertainty. See Table 28 for summary statistics and Figure 18 for slope analysis. The same two-way interaction effect between standing uncertainty and interpersonal fairness was significant for the affiliated at Time 1 ( $\beta = -.20, p < .01$ ), but the interaction effect was stronger. The interaction term accounted for an additional 4.9% of the variance in organizational commitment after accounting for the variance due to the main effects.

In support of the opposite of what hypothesis 4 predicted, the two-way interaction effect between standing uncertainty and informational fairness on organizational commitment was significant for the affiliated at Time 1 ( $\beta = -.17, p < .05$ ). The interaction term accounted for an additional 4.2% of the variance in organizational commitment after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher informational fairness on organizational commitment was stronger when the affiliated had lower standing uncertainty. See Table 29 for summary statistics and Figure 19 for slope analysis.

Table 20

*Regression Examining the Effect of the Two-Way Interaction Between Standing Uncertainty<sub>2</sub> and Procedural Fairness<sub>2</sub> on Organizational Commitment<sub>2</sub> controlling for the Two-Way Interaction Between Standing Uncertainty and Procedural Fairness (Time 1 and Time 2 Datasets, N=24)*

Dependent Variable:		Organizational Commitment <sub>2</sub>	
		Model 1	Model 2
Step 1:	<u>Main Effects</u>	Beta (SE)	Beta (SE)
	Standing Uncertainty (SU)	.14(.20)	.26(.18)
	Procedural Fairness (PF)	-.41(.37)	-.30(.32)
	Standing Uncertainty <sub>2</sub> (SU <sub>2</sub> )	-.58(.17)**	-.71(.16)
	Procedural Fairness <sub>2</sub> (PF <sub>2</sub> )	.72(.44)	.45(.39)
Step 2:	<u>Two-Way Interactions</u>		
	SUXPF		-.54(.18)**
	SU <sub>2</sub> XPF <sub>2</sub>		.40(.18)*
	R <sup>2</sup>	.61***	.74***
	R <sup>2</sup> Δ		.14*

Note. Unstandardized regression coefficients are reported.

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

Figure 10

Two-Way Interaction Between Standing Uncertainty<sub>2</sub> and Procedural Fairness<sub>2</sub> on Organizational Commitment<sub>2</sub> for All (Time 1 and 2 Datasets)

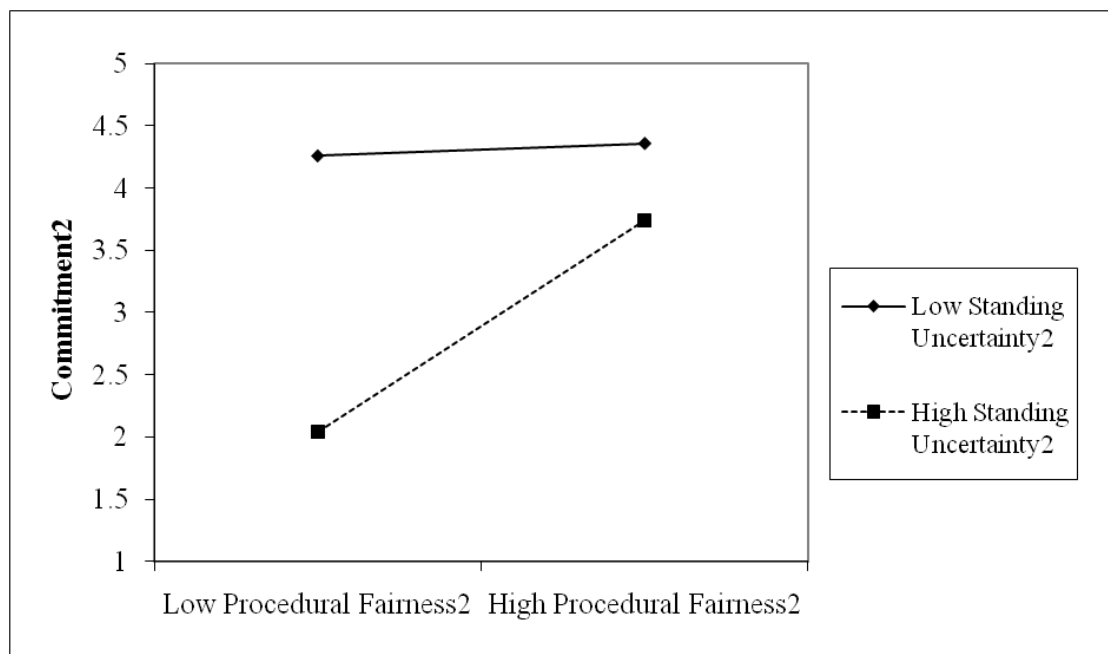


Table 21  
*Regression Examining the Effect of the Two-Way Interaction Between Standing Uncertainty and Process Fairness on Organizational Members' Attitudes for Involved (Time 1 Dataset, N=76)*

Dependent Variable:		Trust in Leadership	
		Model 1	Model 2
		Beta (SE)	Beta (SE)
Step 1:	<u>Main Effects</u>		
	Standing Uncertainty (SU)	-.16(.10)	-.08(.10)
	Process Fairness (PF)	.41(.09)***	.38(.09)***
Step 2:	<u>Two-Way Interaction</u>		
	SUXPF		-.26(.11)*
	R <sup>2</sup>	.52***	.57***
	R <sup>2</sup> Δ		.05*

Note. Unstandardized regression coefficients are reported.

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

Figure 11

Two-Way Interaction Between Standing Uncertainty and Process Fairness on Organizational Members' Attitudes for Involved (Time 1 Dataset)

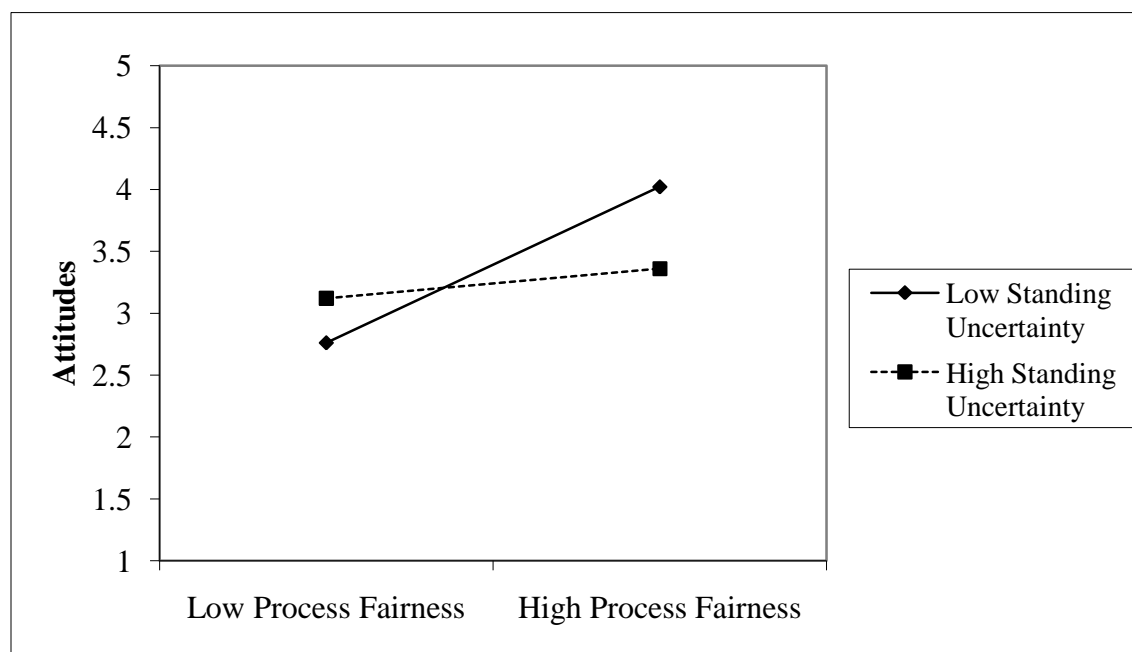


Table 22  
*Regression Examining the Effect of the Two-Way Interaction Between Standing Uncertainty and Process Fairness on Trust in Leadership for All (Time 1 Dataset, N=141)*

Dependent Variable:		Trust in Leadership	
		<u>Model 1</u>	<u>Model 2</u>
Step 1:	<u>Main Effects</u>	Beta (SE)	Beta (SE)
	Standing Uncertainty (SU)	-.20(.08)*	-.22(.12)***
	Process Fairness (PF)	.40(.08)***	.39(.08)
Step 2:	<u>Two-Way Interaction</u>		
	SUXPF		-.18(.09)*
	R <sup>2</sup>	.21**	.23**
	R <sup>2</sup> Δ		.02*

Note. Unstandardized regression coefficients are reported.  
 \*p < .05, \*\*p < .01, \*\*\*p < .001.

Figure 12  
 Two-Way Interaction Between Standing Uncertainty and Process Fairness on Trust in Leadership for All (Time 1 Dataset)

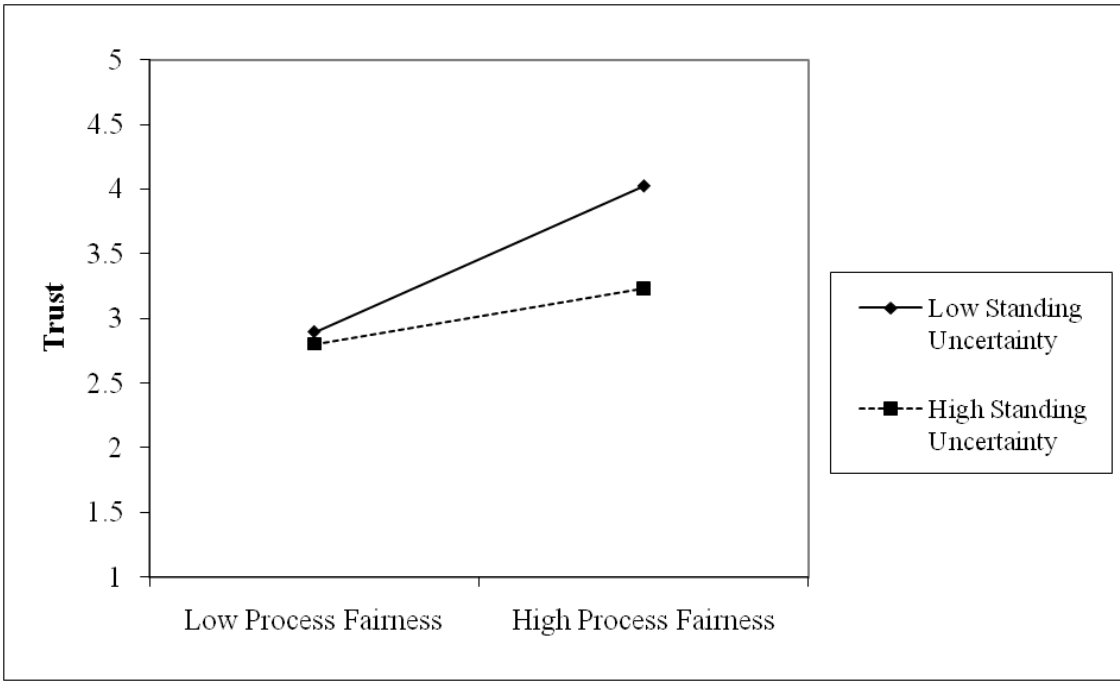


Table 23  
*Regression Examining the Effect of the Two-Way Interaction Between Standing Uncertainty and Process Fairness on Organizational Commitment for Involved (Time 1 Dataset, N = 76)*

Dependent Variable:		Organizational Commitment	
		<u>Model 1</u>	<u>Model 2</u>
		Beta (SE)	Beta (SE)
Step 1:	<u>Main Effects</u>		
	Standing Uncertainty (SU)	-.07(.10)	.02(.11)
	Process Fairness (PR)	.29(.10)***	.25(.10)*
Step 2:	<u>Two-Way Interaction</u>		
	SUXPR		-.26(.03)*
	R <sup>2</sup>	.35**	.43**
	R <sup>2</sup> Δ		-.06*

Note. Unstandardized regression coefficients are reported.  
 \*p < .05, \*\*p < .01, \*\*\*p < .001.

Figure 13  
 Two-Way Interaction Between Standing Uncertainty and Process Fairness on Organizational Commitment for Involved (Time 1 Dataset)

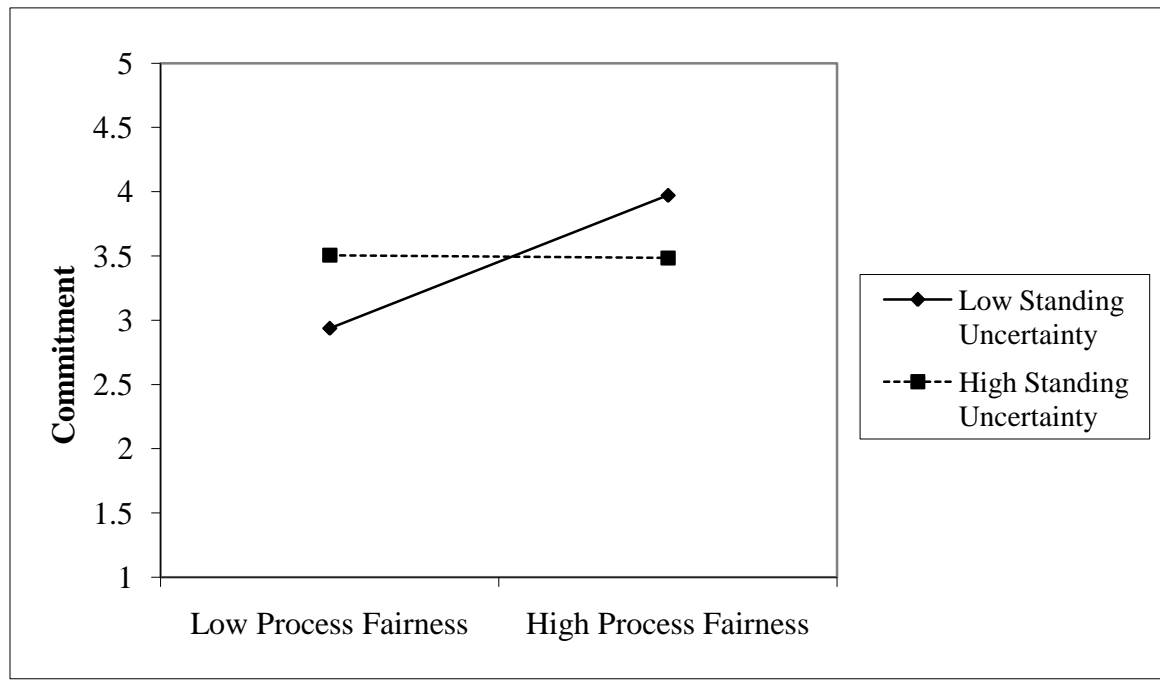


Table 24

*Regression Examining the Effect of the Two-Way Interaction Between Standing Uncertainty and Procedural Fairness on Trust in Leadership for All (Time 1 Dataset, N = 143)*

Dependent Variable:		Trust in Leadership	
Step 1:	<u>Main Effects</u>	<u>Model 1</u>	<u>Model 2</u>
		Beta (SE)	Beta (SE)
	Standing Uncertainty (SU)	-.21(.09)*	-.21(.08)*
	Procedural Fairness (PF)	.44(.08)***	.42(.08)***
Step 2:	<u>Two-Way Interaction</u>		
	SUXPF		-.20(.09)*
	R <sup>2</sup>	.21***	.24***
	R <sup>2</sup> Δ		.03*

*Note.* Unstandardized regression coefficients are reported.

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

Figure 14

Two-Way Interaction Between Standing Uncertainty and Procedural Fairness on Trust in Leadership for All (Time 1 Dataset)

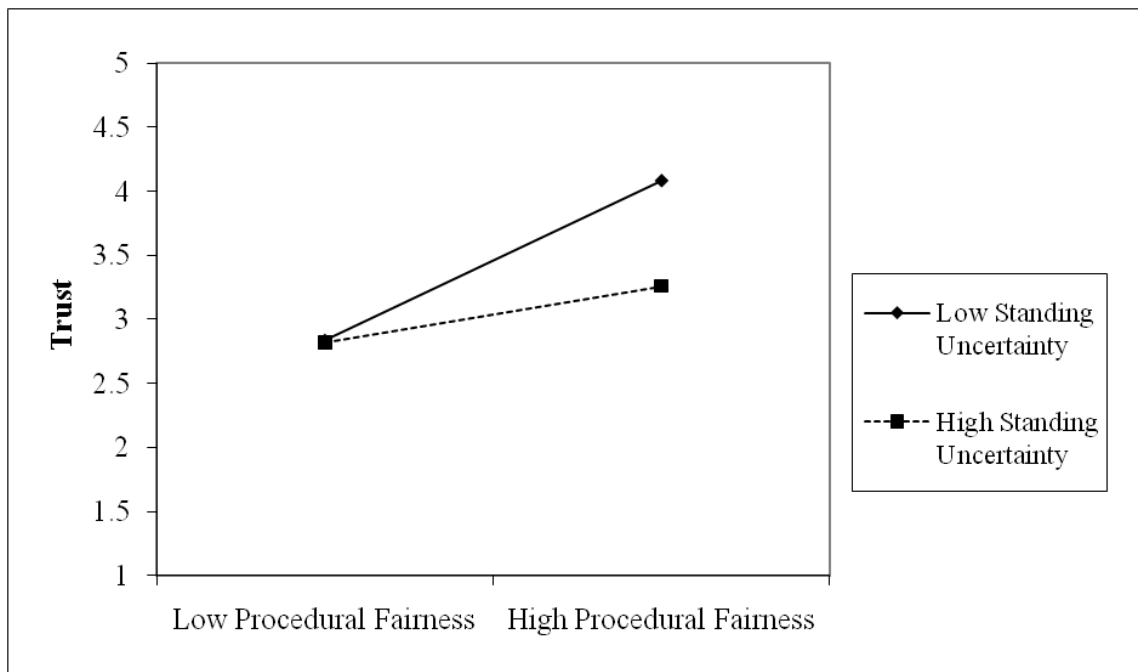


Table 25  
*Regression Examining the Effect of the Two-Way Interaction Between Standing Uncertainty and Procedural Fairness on Organizational Commitment for Involved (Time 1 Dataset, N=78)*

Dependent Variable:		Organizational Commitment	
		Model 1	Model 2
		Beta (SE)	Beta (SE)
Step 1:	<u>Main Effects</u>		
	Standing Uncertainty (SU)	-.04(.10)	.06(.12)***
	Procedural Fairness (PF)	.32(.09)***	.30(.09)
Step 2:	<u>Two-Way Interaction</u>		
	SUXPF		-.27(.11)*
	R <sup>2</sup>	.14**	.21**
	R <sup>2</sup> Δ		.06*

Note. Unstandardized regression coefficients are reported.  
 \*p < .05, \*\*p < .01, \*\*\*p < .001.

Figure 15  
 Two-Way Interaction Between Standing Uncertainty and Procedural Fairness on Organizational Commitment for Involved (Time 1 Dataset)

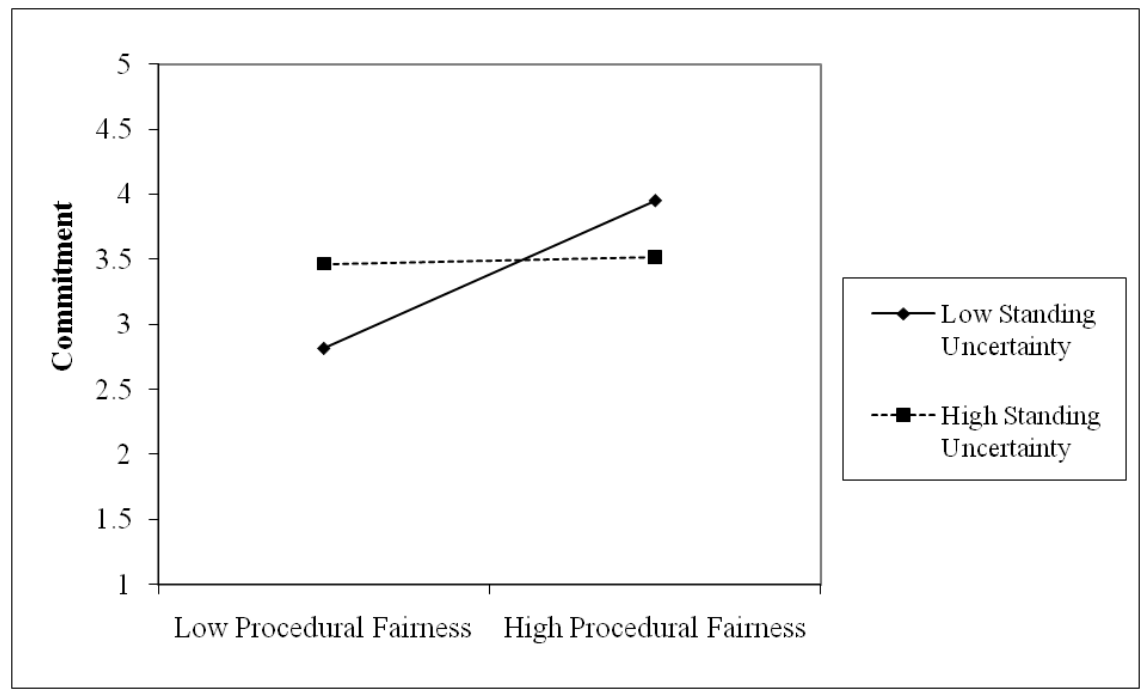




Table 26  
*Regression Examining the Effect of the Two-Way Interaction Between Standing Uncertainty and Interactional Fairness on Organizational Commitment for All (Time 1 Dataset, N = 231)*

Dependent Variable:		Organizational Commitment	
		Model 1	Model 2
		Beta (SE)	Beta (SE)
Step 1:	<u>Main Effects</u>		
	Standing Uncertainty (SU)	-.12(.06)†	-.10(.06)†
	Interactional Fairness (PF)	.28(.08)***	.28(.08)***
Step 2:	<u>Two-Way Interaction</u>		
	SUXIF		-.13(.05)*
	R <sup>2</sup>	.13***	.16***
	R <sup>2</sup> Δ		.02*

Note. Unstandardized regression coefficients are reported.  
 †p < .10, \*p < .05, \*\*p < .01, \*\*\*p < .001.

Figure 16  
 Two-Way Interaction Between Standing Uncertainty and Interactional Fairness on Organizational Commitment for All (Time 1 Dataset)

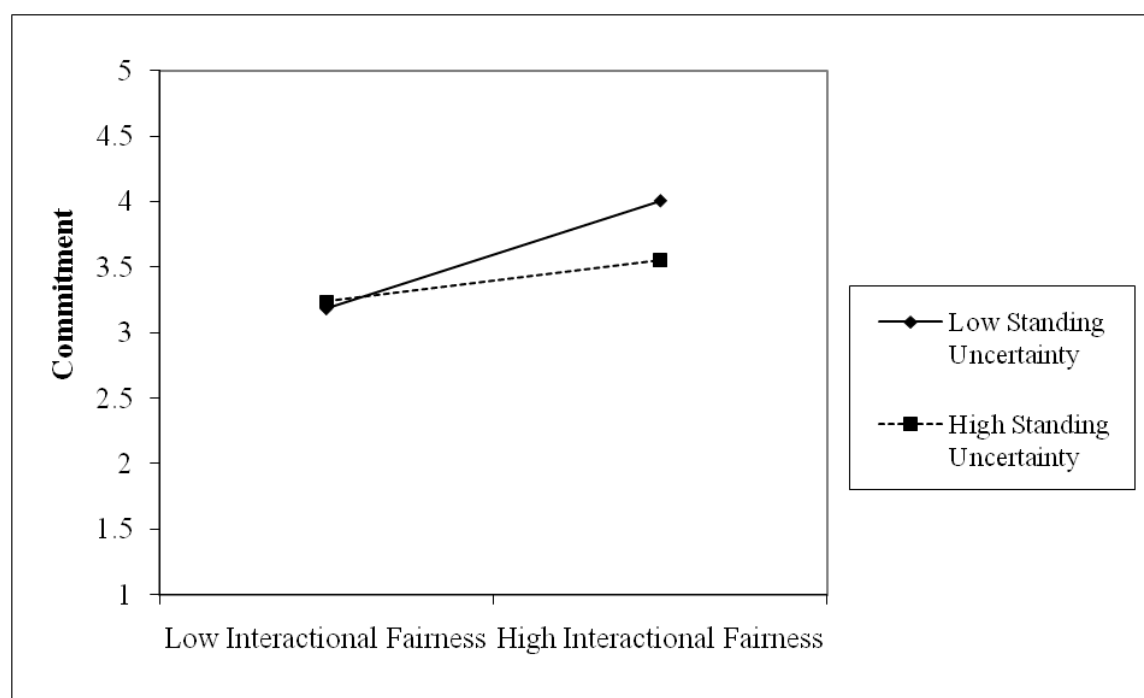


Table 27  
*Regression Examining the Effect of the Two-Way Interaction Between Standing Uncertainty and Interactional Fairness on Organizational Commitment<sub>2</sub> for All (Time 1 and Time 2 Datasets, N = 89)*

Dependent Variable:		Organizational Commitment	
		Model 1	Model 2
Step 1:	<u>Main Effects</u>	Beta (SE)	Beta (SE)
	Standing Uncertainty (SU)	-.10(.09)	-.06(.09)
	Interactional Fairness (IF)	.22(.09)*	.26(.09)**
Step 2:	<u>Two-Way Interaction</u>		
	SUXIF		-.16(.09)†
	R <sup>2</sup>	.09*	.12*
	R <sup>2</sup> Δ		.03†

Note. Unstandardized regression coefficients are reported.

†p < .10, \*p < .05, \*\*p < .01, \*\*\*p < .001.

Figure 17  
 Two-Way Interaction Between Standing Uncertainty and Interactional Fairness on Organizational Commitment for All (Time 2 Dataset)

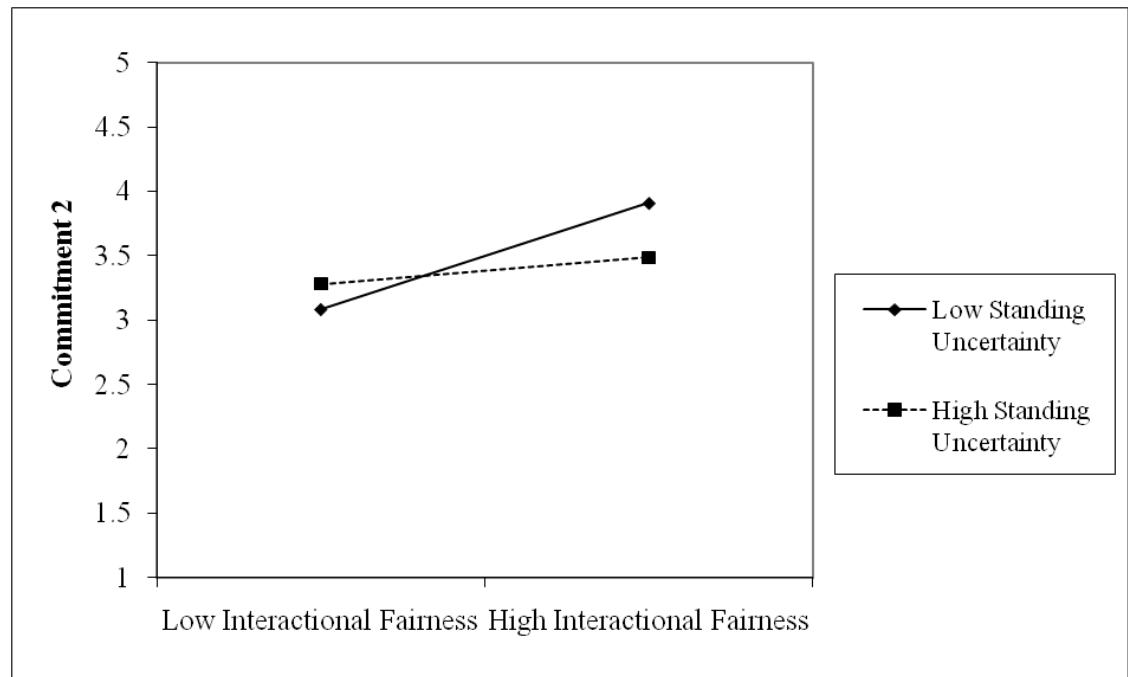


Table 28

*Regression Examining the Effect of the Two-Way Interaction Between Standing Uncertainty and Interpersonal Fairness on Organizational Commitment for All (Time 1 Dataset, N=258)*

Dependent Variable:		Trust in Leadership	
		Model 1	Model 2
Step 1:	<u>Main Effects</u>	Beta (SE)	Beta (SE)
	Standing Uncertainty (SU)	-.14(.05)**	-.14(.05)***
	Interpersonal Fairness (IP)	.26(.05)***	.26(.05)***
Step 2:	<u>Two-Way Interaction</u>		
	SUXIP		-.10(.05)*
	R <sup>2</sup>	.38***	.40***
	R <sup>2</sup> Δ		.02*

Note. Unstandardized regression coefficients are reported.

†p < .10, \*p < .05, \*\*p < .01, \*\*\*p < .001.

Figure 18

Two-Way Interaction Between Standing Uncertainty and Interpersonal Fairness on Organizational Commitment for All (Time 1 Dataset)

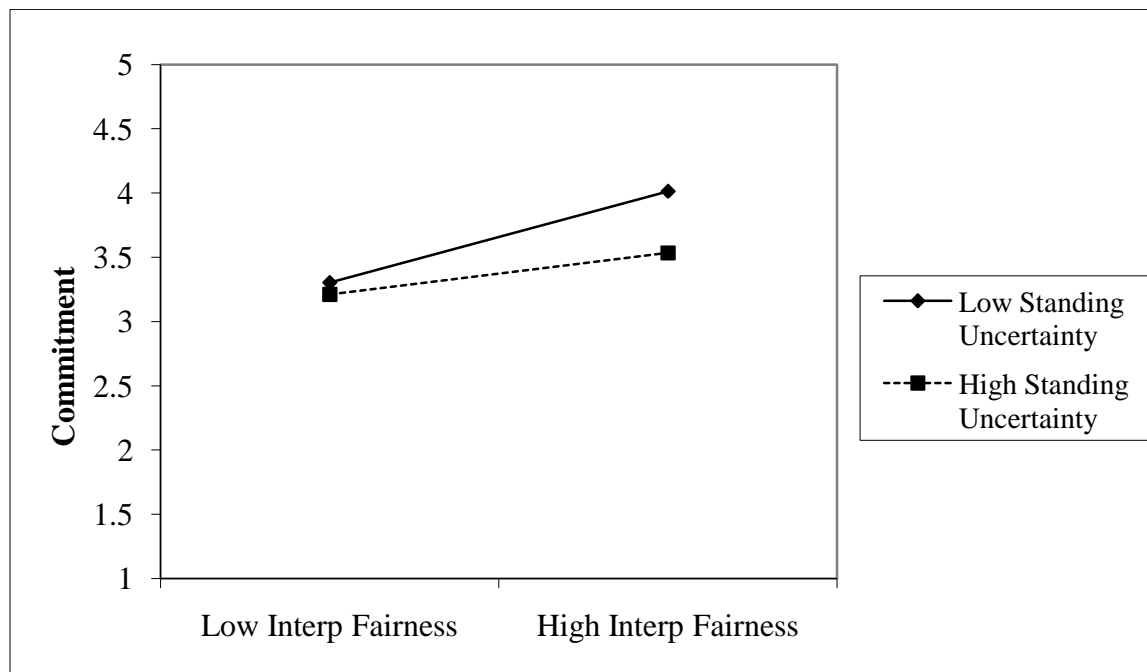
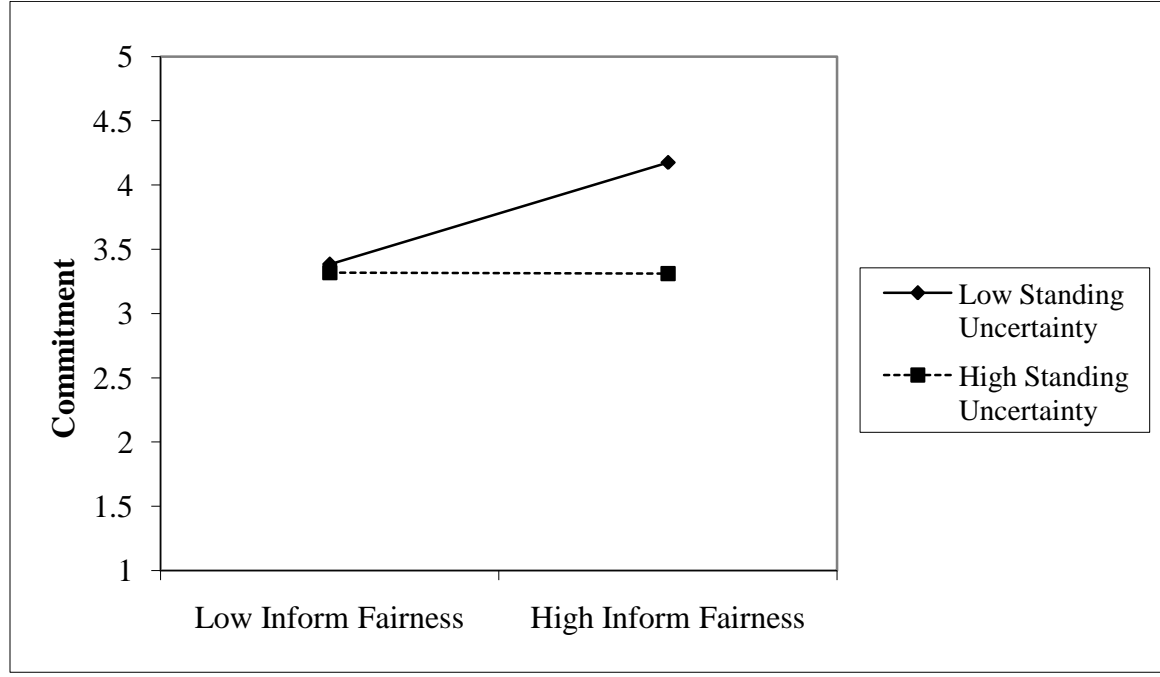


Table 29  
*Regression Examining the Effect of the Two-Way Interaction Between Standing Uncertainty and Informational Fairness on Organizational Commitment for Affiliated (Time 1 Dataset, N=137)*

Dependent Variable:		Trust in Leadership	
		Model 1	Model 2
Step 1:	<u>Main Effects</u>	Beta (SE)	Beta (SE)
	Standing Uncertainty (SU)	-.27(.07)***	-.23(.07)**
	Informational Fairness (IN)	.23(.07)**	.20(.07)***
Step 2:	<u>Two-Way Interaction</u>		
	SUXIN		-.20(.07)**
	R <sup>2</sup>	.17***	.21**
	R <sup>2</sup> Δ		.04**

Note. Unstandardized regression coefficients are reported.  
 \*p < .05, \*\*p < .01, \*\*\*p < .001.

Figure 19  
 Two-Way Interaction Between Standing Uncertainty and Informational Fairness on Organizational Commitment for Affiliated (Time 1 Dataset)



## **Analyses of Study Hypotheses 5 and 6**

Hypothesis 5 predicted that the process-outcome interaction effect, in which the positive effect of higher process fairness on organizational members' attitudes is greater when outcomes are less favorable, would be stronger when organizational members have higher informational uncertainty. Similarly, hypothesis 6 predicted that the process-outcome interaction effect would be stronger when organizational members have higher uncertainty about their standing in the organization.

To test hypotheses 5 and 6, hierarchical regression analyses were conducted, in which organizational members' attitudes were predicted by the main effects of uncertainty and process fairness at step 1, the two-way interactions at step 2, and the three-way interactions at step 2. Each possible combination of one dependent variable (i.e., trust in leadership, organizational commitment, or the organizational members' attitudes index), one uncertainty variable (i.e., informational uncertainty, standing uncertainty, or the uncertainty index) one process fairness variable (i.e., procedural fairness, interpersonal fairness, informational fairness, the interactional fairness index or the process fairness index), and outcome favorability were run in the hierarchical regression analyses.

These hierarchical regressions were run four different ways: 1) using the Time 1 dataset only, 2) using the Time 2 dataset only, 3) using measures of uncertainty and process fairness from the Time 1 dataset with measures of outcome favorability and organizational members' attitudes from the Time 2 dataset, and 4) using measures of uncertainty from the Time 1 dataset with measures of process fairness, outcome favorability, and organizational members' attitudes from the Time 2 dataset. Using each of these four sets of data, the hierarchical regressions were

run selecting for each of the following eleven groups: all, student, employee, newcomer, non-newcomer, affiliated, non-affiliated, aware, non-aware, involved, and non-involved.

To test for a three-way interaction between uncertainty and process fairness on organizational members' attitudes at Time 2 controlling for the same three-way interaction at Time 1, additional hierarchical regression analyses were conducted. Organizational members' attitudes were predicted by the main effects of uncertainty and process fairness at Time 1 and Time 2 at step 1, the two-way interactions at Time 1 and Time 2 at step 2, and the three-way interactions at Time 1 and Time 2 at step 3. Each of the possible combinations of variables mentioned above between organizational members' attitudes, uncertainty, process fairness, and outcome favorability were run in the hierarchical regression analysis. These hierarchical regressions were run once using the combined Time 1 and Time 2 datasets. Since the sample size of respondents who completed both survey 1 and survey 2 measures was small, these hierarchical regressions were not run selecting for any groups.

Following the procedure of Aikin and West (1991), all the independent variables were mean centered, and the interaction terms were calculated on the basis of these mean-centered scores. On each significant or marginally significant two-way interaction, a simple slope analysis was conducted using continuous variables. Only the significant interactions ( $p < .05$ ) and the most relevant marginally significant interactions ( $p < .10$ ) are presented.

In support of the opposite of what hypothesis 5 predicted, the three-way interaction between informational uncertainty, procedural fairness, and outcome favorability on organizational commitment<sub>2</sub> was significant for all respondents at Time 2 ( $\beta = .39, p < .05$ ). The interaction term accounted for an additional 4.9% of the variance in organizational commitment<sub>2</sub>

after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher procedural fairness on organizational commitment<sub>2</sub> was stronger when outcome favorability was lower, if informational uncertainty was also lower. Furthermore, the positive effect of lower procedural fairness on organizational commitment<sub>2</sub> was stronger when outcome favorability was lower, if informational uncertainty was higher. See Table 30 for summary statistics and Figure 20 for slope analysis.

The same three-way interaction effect between informational uncertainty, procedural fairness, and outcome favorability was significant for non-newcomers at Time 2 ( $\beta = 1.088, p < .05$ ), but the interaction effect was stronger. The interaction term accounted for an additional 10.2% of the variance in organizational commitment<sub>2</sub> after accounting for the variance due to the main effects. The same three-way interaction effect between informational uncertainty, procedural fairness, and outcome favorability was significant for non-affiliated at Time 2 ( $\beta = 1.230, p < .05$ ), but the interaction effect was stronger. The interaction term accounted for an additional 12.4% of the variance in organizational commitment<sub>2</sub> after accounting for the variance due to the main effects.

No significant three-way interactions were found between informational uncertainty<sub>2</sub>, process fairness<sub>2</sub>, and outcome favorability on organizational members' attitudes<sub>2</sub> at Time 2 controlling for the same three-way interaction between informational uncertainty, process fairness, and outcome favorability.

Table 30

*Regression Examining the Effect of the Three-way Interaction Between Informational Uncertainty, Procedural Fairness and Outcome Favorability on Organizational Commitment 2 for All (Time 1 and Time 2 Datasets, N=45)*

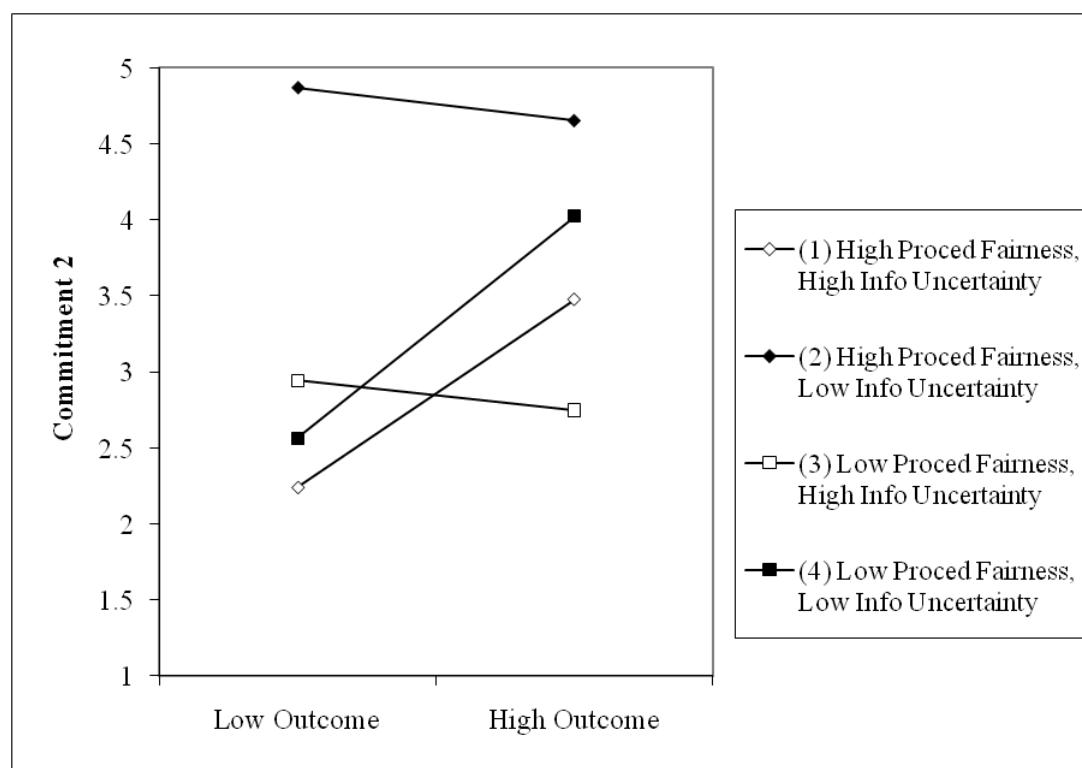
Dependent Variable:		Organizational Commitment <sub>2</sub>		
		Model 1	Model 2	Model 3
Step 1:	<u>Main Effects</u>	Beta (SE)	Beta (SE)	Beta (SE)
	Outcome Favorability (OF)	.19(.17)	.11(.18)	.29(.19)
	Procedural Fairness (PF)	.17(.16)	.24(.17)	.37(.17)*
	Informational Uncertainty (IU)	-.53(.14)***	-.46(.14)**	-.59(.15)***
Step 2:	<u>Two-Way Interactions</u>			
	OF X PF		.09(.15)	-.03(.16)
	OF X IU		.27(.22)	-.03(.25)
	IU X PF		-.29(.17)†	-.36(.17)
Step 2:	<u>Three-Way Interactions</u>			
	OF X PF X IU			.39(.19)**
	R <sup>2</sup>	.46***	.50***	.56***
	R <sup>2</sup> Δ	.	.05	.05*

Note. Unstandardized regression coefficients are reported.

†p < .10, \*p < .05, \*\*p < .01, \*\*\*p < .001.

Figure 20

Three-Way Interaction Between Informational Uncertainty, Procedural Fairness, and Outcome Favorability on Organizational Commitment (Time 1 and Time 2 Datasets)





In support of the opposite of what hypothesis 6 predicted, the three-way interaction between standing uncertainty, procedural fairness, and outcome favorability on organizational commitment<sub>2</sub> was marginally significant for all at Time 2 ( $\beta = .28, p < .10$ ). The interaction term accounted for an additional 5.2% of the variance in organizational commitment<sub>2</sub> after accounting for the variance due to the main effects. A simple slope analysis showed the positive effect of higher procedural fairness on organizational commitment<sub>2</sub> was stronger when outcome favorability was higher, if standing uncertainty was lower. Furthermore, the positive effect of lower procedural fairness on organizational commitment<sub>2</sub> was stronger when outcome favorability was higher, if standing uncertainty was higher. See Table 31 for summary statistics and Figure 21 for slope analysis.

No significant three-way interactions were found between standing uncertainty<sub>2</sub>, process fairness<sub>2</sub>, and outcome favorability on organizational members' attitudes<sub>2</sub> at Time 2 controlling for the three-way interaction between standing uncertainty, process fairness, and outcome favorability.

Table 31

*Regression Examining the Effect of the Three-way Interaction between Standing Uncertainty, Procedural Fairness and Outcome Favorability on Organizational Commitment<sub>2</sub> for All (Time 2 Dataset, N=46)*

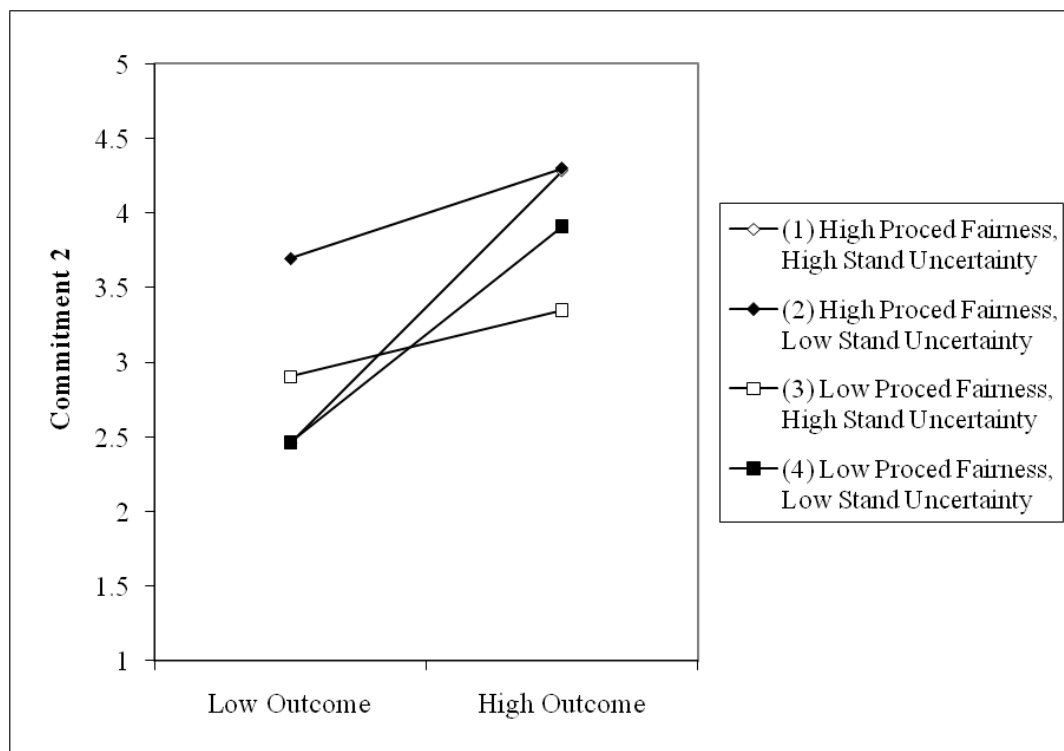
Dependent Variable:		Organizational Commitment		
		Model 1	Model 2	Model 3
Step 1:	<u>Main Effects</u>	Beta (SE)	Beta (SE)	Beta (SE)
	Outcome Favorability (OF)	.37(.19)†	.33 (.20)	.54(.23)*
	Procedural Fairness (PF)	.21(.18)	.19 (.19)	.26(.19)
	Standing Uncertainty (SU)	-.07(.14)	-.04(.15)†	-.17(.17)
Step 2:	<u>Two-Way Interactions</u>			
	OF X PF		.15(.20)	.07(.20)
	OF X SU		.10(.26)	.03(.25)
	SU X PF		-.10(.22)	-.14(.21)
Step 2:	<u>Three-Way Interactions</u>			
	OF X PF X SU			.28 (.16)†
	R <sup>2</sup>	.26*	.28*	.36*
	R <sup>2</sup> Δ	.	.02	.05†

Note. Unstandardized regression coefficients are reported.

†p < .10, \*p < .05, \*\*p < .01, \*\*\*p < .001.

Figure 21

Three-Way Interaction Between Standing Uncertainty, Procedural Fairness, and Outcome Favorability on Organizational Commitment<sub>2</sub> (Time 2 Dataset)



## Summary of Results

There was limited support for the opposite of what hypothesis 1 predicted, since being a student was associated with significantly lower rather than higher levels of informational uncertainty. Students had lower informational uncertainty relative to employees at Time 1. However, there were no significant differences between students and employees in their levels of informational uncertainty at Time 2 or in their levels of standing uncertainty at either Time 1 or Time 2. Furthermore, there were no significant differences between newcomers and non-newcomers in their levels of informational uncertainty or standing uncertainty at Time 1 or Time 2.

There was strong support for the opposite of what hypothesis 2 predicted, since being affiliated was associated with significantly lower rather than higher uncertainty levels. The affiliated had significantly lower informational uncertainty and standing uncertainty relative to the non-affiliated, both at Time 1 and at Time 2. However, there were no significant differences in the levels of informational uncertainty or standing uncertainty between the aware and the non-aware or between the involved and the non-involved at either Time 1 or Time 2. This indicated that being affiliated with divisions undergoing redesign, rather than being aware of or involved in the redesign process, was related to significantly lower informational and standing uncertainty.

There was support for what hypothesis 3 predicted, since higher informational uncertainty enhanced the positive effect of higher process fairness on organizational members' attitudes for the affiliated at Time 1. However, there was also strong support for the opposite of what hypothesis 3 predicted, since lower rather than higher informational uncertainty enhanced the positive effect of higher process fairness on organizational members' attitudes for the non-involved at Time 1 and Time 2. There was also support for the opposite of what hypotheses 3

and 4 predicted, since lower uncertainty overall enhanced the positive effect of higher process fairness on organizational members' attitudes for the non-affiliated at Time 1.

There was very limited support for hypothesis 4, since higher standing uncertainty enhanced the positive effect of higher process fairness on organizational members' attitudes for all respondents at Time 2 when controlling for the same two-way interaction at Time 1. But these findings are inconclusive because the sample size was very small. However, there was also strong support for the opposite of what hypothesis 4 predicted, since lower rather than higher standing uncertainty enhanced the positive effect of higher process fairness on organizational members' attitudes for all respondents at Time 1. Furthermore, this two-way interaction effect between standing uncertainty and process fairness on organizational members' attitudes was greater for the affiliated and for the involved. Moreover, this same two-way interaction was marginally significant for all respondents at Time 2.

There was limited support for the opposite of what hypothesis 5 predicted, since lower rather than higher informational uncertainty enhanced the positive effect of the process-outcome interaction on organizational members' attitudes. The positive effect of higher procedural fairness on organizational commitment<sup>2</sup> was stronger when outcome favorability was lower, if informational uncertainty was also lower for all respondents at Time 2. However, there was limited support for another form of the opposite of what hypothesis 6 predicted, since the positive effect of higher process fairness on organizational commitment<sup>2</sup> was stronger when outcome favorability was higher, if standing uncertainty was lower. Results and conclusions from this research study are discussed further in Chapter V.

## **Chapter V**

### **DISCUSSION**

#### **Overview**

Uncertainty is a common and aversive experience that members of contemporary organizations typically seek to reduce and manage. Ongoing factors related to how an organization is managed and operated can heighten organizational members' uncertainty (Alderfer, 1980, 2011; Weick, 2001). Organization change efforts can also temporarily heighten the uncertainty of organizational members whose jobs and work environments may be affected by the change (Burke, 2008). Therefore, organizational leaders are more likely to be successful if they address both ongoing and temporary uncertainty.

However, the nature and antecedents of different types of uncertainty, and their differential impact on the fair process effect and the process-outcome interaction effect are not well understood. Most of the research on these topics has focused on personal uncertainty, but not on other types of uncertainty, and on temporary antecedents, but not on ongoing factors. Previous research has also focused on an interaction between uncertainty and procedural fairness, but not on an interaction between different types of uncertainty and the different components of process fairness more broadly. Furthermore, most of this research has been conducted in laboratory settings or in corporate settings, but not in other types of organizations. This means that what it takes for an organizational leader to effectively manage and reduce organizational members' ongoing and temporary uncertainty, given their particular organizational setting, is relatively unknown.

This study was intended to examine the nature of different types of uncertainty, their antecedents, and their moderating effects on the fair process effect and the process-outcome

interaction effect in the context of a redesign effort in a higher education organization. The study built on previous research by examining the nature of informational uncertainty as well as standing uncertainty, the ongoing as well as the temporary antecedents of both types of uncertainty, and the effect of the two-way interaction between both types of uncertainty and each component of process fairness on organizational members' attitudes as well as the effect of the three-way interaction among both types of uncertainty, each component of process fairness, and outcome favorability on organizational members' attitudes.

The study responded to a debate in the uncertainty management literature about the qualitative distinction between informational uncertainty and personal uncertainty (De Cremer & Sedikides, 2009; Sorentino, 2009; Van den Bos, 2009a; Van den Bos, 2009b). Limited support was found for the assumption that informational uncertainty and standing uncertainty, a form of personal uncertainty, are distinct but related constructs, which had not been empirically examined before. However, these results were somewhat inconclusive because of limitations to the construct validity and reliability of the study measures.

Moreover, the study built on prior research by empirically investigating whether both informational uncertainty and standing uncertainty are heightened by specific ongoing and temporary organizational factors (Hypotheses 1 and 2). One ongoing organizational factor (i.e., role) was found to contribute to informational uncertainty and not to standing uncertainty (Hypothesis 1), but this factor influenced informational uncertainty in the opposite direction of what was predicted. The other ongoing organizational factor that was examined by this study (i.e., tenure) was not found to contribute significantly to informational uncertainty or standing uncertainty. One temporary factor related to the redesign effort (i.e., affiliation with the divisions undergoing redesign) was found to contribute to both informational uncertainty and standing

uncertainty (Hypothesis 2), but this factor influenced both types of uncertainty in the opposite direction of what was predicted.

The study also expanded on prior research by empirically testing whether both informational uncertainty and standing uncertainty heightened the fair process effect, such that the positive effect of higher procedural fairness, interpersonal fairness, and informational fairness on organizational members' attitudes was greater when uncertainty was higher (Hypotheses 3 and 4). The study found support for Hypothesis 3 (i.e., that informational uncertainty heightened the fair process effect) as well as very limited support for Hypothesis 4, (i.e., that standing uncertainty heightened the fair process effect). But findings from the study also showed strong support for the opposite of what Hypothesis 3 and 4 predicted, such that the positive effect of higher process fairness on organizational members' attitudes was greater when uncertainty was lower.

The study also extended recent research by empirically examining whether both informational uncertainty and standing uncertainty heightened the process-outcome interaction effect (De Cremer et al., 2010), such that the positive effect of the interaction between higher process fairness and lower outcome favorability on organizational members' attitudes was greater when uncertainty was higher (Hypotheses 5 and 6). There was limited support for the opposite of what Hypotheses 5 and 6 predicted, such that the positive effect of higher process fairness on organizational members' attitudes was greater when outcome favorability was higher and uncertainty was lower.

The organizational context will be discussed in the next section, followed by a more detailed review of the study results and conclusions in light of the organizational context. Then,

the study limitations and future research will be addressed. The chapter ends with a discussion of the implications for research and practice.

### **Organizational Context**

Given that the constructs under consideration in this research study are specific to an organizational context, this field study provided rich data on these constructs which could not have been accessed in a laboratory setting. However, field studies are typically complicated by the multitude of factors present in any given organizational setting that can influence the variables of interest in the study. Therefore, the organizational context in which the study took place can shed light on the results of this study overall, and may contribute to a better understanding of some of the findings that were not predicted.

During the time that the present study was conducted, the university was in the middle of several major leadership transitions, including searching for and hiring a new president as well as a new executive dean for several divisions undergoing redesign. The university had been engaged for several months prior to the start of the present study in a concerted effort to "re-imagine" its vision and organization design in response to factors in its external environment, such as changing student demographics, evolving student demands and new workplace requirements. This effort was also a response to factors in the university's internal environment, including the need to create an organization that fostered a more innovative and entrepreneurial academic culture. The university was once a simpler place where collaboration and innovation happened organically and informally. Yet, as the university had grown, it was becoming more complex, bureaucratic, and traditional, which was getting in the way of the university's goal of revitalization and continued growth.



As part of the redesign effort, organization design consultants conducted 12 two-hour focus groups with over 100 organizational members who represented a broad cross-section of leadership, faculty, students, and staff from the divisions undergoing redesign and from the other prominent divisions in the university. Qualitative data analysis was used to code the answers to a common set of focus group questions into major themes. This data analysis provided the basis for feedback to the decision-makers of the redesign process as well as the 300 organizational members who participated in several large-group redesign sessions.

The analysis of the focus group data indicated that the university was a loosely coupled organization (Orton & Weick, 1990), because individual elements had high autonomy relative to the larger organization and had developed separately and unevenly from each other. The forces for specialization and differentiation at the local level were often stronger than the forces for integration, collective action, and attention to the future and identity of the organization as a whole (Gilmore, Hirschhorn, & Kelly, 1999). There was not always a clear rationale for why certain elements of the administration and infrastructure were differentiated while others were integrated. Faculty and administration sometimes worked at cross-purposes, driven by different missions, goals, and measures.

There were some benefits to being a loosely coupled organization. Innovation was enabled at the local level, and different parts of the university could change at different rates and in different directions without greatly influencing one another. As one member said, "we behave like a federation of quasi-independent units." But this organizational model also has drawbacks. Given the university's stage of growth and the need to project a clear, compelling, and coherent message to current and prospective students, there were numerous institutional barriers to innovation and collaboration among the faculty. These included a lack of transparency and

involvement in leadership decision-making, inconsistently distributed resources and incentives, and disjointed systems for evaluation and feedback. Furthermore, the administration and infrastructure lacked the efficiency, coherence, and capacity required to implement and support the changes that would address these institutional barriers.

The glue that held the university together was the shared beliefs and ideals of organizational members, which were aligned with the historical values of the university. But, the gap between people's sense of shared beliefs and ideals and their actual experience of working in or going to school in the university needed to be addressed. Organizational members expressed no shortage of commitment, ideas, and energy as well as a readiness to tackle the hard decisions that would build a more integrated institution capable of executing on these ideas. Many echoed one participant's statement that, "We have been discussing this for years; it's a relief that something might happen this time."

However, the major leadership transitions and false starts to past change efforts had created a climate of distrust in the leadership decision-making process and skepticism that any change would actually be implemented. Since the university divisions operated highly independently from each other, organizational members often knew little about what was going on outside of their divisions. Furthermore, the majority of the members of the university were students, who had a very distinct role from employees, which typically did not involve consistent interest or attention to changes in the organization. Moreover, the leadership of the redesign process was constantly in flux about how to conceive or articulate the redesign process, which meant the way the process was communicated was constantly evolving. Yet, the quality of the redesign process was as important as the quality of the outcomes. The results of this study will be reviewed and discussed below in light of these factors of the organizational context.

### **Qualitative Distinction Between Informational Uncertainty and Personal Uncertainty**

This research study responded to a theoretical debate in the uncertainty management literature about the qualitative distinction between informational uncertainty and personal uncertainty (De Cremer & Sedikides, 2005; De Cremer & Sedikides, 2008; Van den Bos, 2001; Van den Bos, 2009c). Since previous research had measured personal uncertainty but not informational uncertainty, this study set out to measure empirically both types of uncertainty. Results of this study provided limited but inconclusive support for the assumption that informational uncertainty and personal uncertainty are distinct but related constructs. However, results also suggested that one aspect previously thought to be part of informational uncertainty was more highly related to personal uncertainty, that is, uncertainty about one's own outcomes or the outcomes of relevant others.

The results of the correlation analyses, the between subjects and within subjects analyses, and the hierarchical regression analyses provided consistent support for the assumption that informational uncertainty and standing uncertainty items measured related but distinct constructs in this study. The informational uncertainty and the standing uncertainty variables were not highly correlated. They operated somewhat differently within and between specific groups, in that students had significantly lower informational uncertainty than employees at Time 1 but not at Time 2, and their level of standing uncertainty was not significantly different at Time 1 or Time 2. High relative to low informational uncertainty had stronger but main effects on organizational members' attitudes than high relative to low standing uncertainty. Both types of uncertainty had similar but distinct moderating effects on process fairness and the process-outcome interaction that will be discussed in more detail in sections of this chapter on the moderating effects of uncertainty.

The results of the factor analyses conducted in the present study provided limited support for the assumption that the aspects of informational uncertainty, which involve having limited information about one's role or the trustworthiness of leadership, are distinct from the aspect of personal uncertainty, which involves perceiving one's social standing as unstable. These results also provided limited support for the assumption that the aspect of informational uncertainty, which is not knowing the outcomes of one's actions, is more highly related to personal uncertainty than to informational uncertainty. However, the results of this study must be cautiously interpreted in light of the reverse-scoring pattern which also emerged from the factor analyses, indicating that participants responded differently to the reverse-scored uncertainty items than to the straightforwardly-worded uncertainty items. The reverse-scoring issue will be discussed further in the limitations section of this chapter.

### **Organizational Factors of Uncertainty**

This research study examined whether both ongoing and temporary organizational factors heighten informational uncertainty and standing uncertainty. Several scholars of organizational behavior have posited that ongoing factors related to an organization's design, such as hierarchies and interdependencies between units, increase the uncertainty of organizational members, but this has not been empirically tested (Alderfer, 1980, 2011; Weick, 2001). Organization change scholars have shown that large-scale change efforts temporarily heighten the uncertainty of the organizational members whose jobs and work environments are directly affected by the change (Burke, 2008). However, previous research has primarily been conducted in corporate settings, and this research study attempted to replicate previous findings in a higher education setting.

The results of the study showed that the ongoing factor of organizational role contributed significantly to the levels of informational uncertainty, but in the opposite direction of what was

predicted by Hypothesis 1. Students had lower rather than higher informational uncertainty at Time 1 than employees, but there was no significant difference in informational uncertainty between students and employees at Time 2.

These significant differences at Time 1 may have been related to the loosely coupled context of the organization. Faculty and administration may have had a less circumscribed role and been more unsure about the trustworthiness of leadership and the outcomes of their actions than students. This difference may have disappeared at Time 2, because the proportion of students was smaller in the Time 2 dataset. These significant differences could also have been related to temporary organizational factors, such as the organizations' major leadership transitions, which could have heightened the uncertainty of faculty and administration about their role and the trustworthiness of leadership more than that of students at Time 1. This difference could have disappeared because new leaders were selected by Time 2, bringing the informational uncertainty of faculty and administration back down to a similar level as that of students.

The results of this study indicated that temporary factors associated with the redesign effort contributed significantly to levels of uncertainty, but in the opposite direction of what Hypothesis 2 predicted. Those who were affiliated with the divisions undergoing redesign had lower rather than higher informational uncertainty and standing uncertainty at both Time 1 and Time 2. In addition, their levels of informational uncertainty and standing uncertainty changed at different rates and in different directions between Time 1 and Time 2 than that of the non-affiliated.

This surprising finding may be related to the difference between being a member of a loosely coupled organization, in which change tends to be slow and fairly disjointed relative to

being a member of a more tightly coupled organization, in which change tends to be rapid and fairly structured. For example, the informational and standing uncertainty of the affiliated could have been reduced by knowing their division was undergoing a redesign using a structured and inclusive process, while those who were non-affiliated were more uncertain about their divisions because there was no clear plan for the future. Also, the uncertainty of those who were affiliated may have been reduced, because they viewed the redesign effort as a positive and long overdue change, while the ongoing uncertainty of the non-affiliated was not affected by the redesign effort. Finally, the affiliated may have responded more positively to the survey measures because they were more influenced by pressures related to social desirability. They may have been more concerned about being viewed as good members of the organization to ensure positive outcomes for themselves from the redesign process.

### **Moderating Effects of Different Types of Uncertainty**

Previous research has found the positive effect of higher process fairness on organizational members' attitudes is stronger when organizational members have higher standing uncertainty (Diekmann, Barsness & Sondak, 2004; Van den Bos & Lind, 2002; Van den Bos & Lind, 2009), but this moderating effect has not been tested much with informational uncertainty. Furthermore, previous research has posited that procedural fairness is particularly suited to addressing concerns about one's standing, since being given or denied voice or influence in a process symbolically communicates one's positive value to organizational leaders (De Cremer, 2010). Therefore, the interaction effect between uncertainty and process fairness has primarily been tested between personal uncertainty and procedural fairness, but not as much with the other components of process fairness or with process fairness as a whole.

This study found that a significant two-way interaction between higher procedural fairness and higher informational uncertainty had a positive effect on organizational commitment for the affiliated at Time 1. This interaction effect essentially expands previous findings about the moderating effects of personal uncertainty on the positive effect of higher procedural fairness on organizational commitment to informational uncertainty. This study also found that a significant two-way interaction between higher standing uncertainty and higher procedural fairness had a positive effect on organizational commitment for the affiliated at Time 2. While, the sample of the affiliated at Time 2 was very small, this finding replicates previous findings about the two-way interaction between higher standing uncertainty and higher procedural fairness on organizational members' attitudes.

This study found that the positive effect of process fairness on organizational members' attitudes was stronger when informational uncertainty was lower for the non-involved at Time 1 and at Time 2. The study also found that the positive effect of process fairness on organizational members' attitudes was stronger when standing uncertainty was lower for all respondents and specifically for the affiliated and the involved at Time 1. This two-way interaction was marginally significant for all respondents at Time 2. While surprising, this particular two-way interaction was significant across informational, standing uncertainty, and the uncertainty index, across all individual process fairness variables as well as the process fairness index, and across organizational commitment, trust in leadership, and the organizational members' attitudes index. It was mostly found using the Time 1 dataset, but it was also significant for informational uncertainty and process fairness on organizational commitment 2 and marginally significant for standing uncertainty and process fairness on organizational commitment2.

However, there were some important differences in the two-way interaction between informational uncertainty and process fairness and that of standing uncertainty and process fairness on organizational members' attitudes. The two-way interaction between informational uncertainty and process fairness was only significant for the non-involved at Time 1 and Time 2. However, the two-way interaction between process fairness and standing uncertainty was significant for all respondents, the affiliated, and the involved at Time 1 and was marginally significant for all respondents at Time 2. Furthermore, a simple slope analysis showed that there was a much larger difference in the main effects of high relative to low informational uncertainty on organizational members' attitudes than the difference in the main effects of high relative to low standing uncertainty. The positive effect of higher process fairness on organizational members' attitudes was stronger when either informational or standing uncertainty was lower. But there was often a negative effect of higher process fairness on organizational members' attitudes when informational uncertainty was higher; whereas there was simply a smaller positive effect of higher process fairness on organizational members' attitudes when standing uncertainty was higher.

Previous research has found the process-outcome interaction effect is stronger when standing uncertainty is higher, such that the positive effect of higher process fairness and lower outcome desirability is stronger when standing uncertainty is higher. However, in a small sample in this study the positive effect of higher procedural fairness and lower outcome favorability on organizational commitment was found to be stronger when informational uncertainty was also lower. In an equally small sample the positive effect of higher procedural fairness and higher outcome favorability was found to be stronger when standing uncertainty was higher. While these findings are highly exploratory, the fact that they are similar to the two-way interaction



effects found in a larger sample in this study suggests there may be some basis for exploring them further.

There are several speculative reasons that can be given for why moderating effects of uncertainty on the fair process effect and the process-outcome interaction effect were found to be the opposite of what was expected. A study on the reversal of the fair process effect found that when unfavorable outcomes strongly elicited self-evaluative processes, higher process fairness had a negative effect on organizational members' attitudes, because participants could not attribute undesirable outcomes to external factors (Van den Bos et al., 1999). Perhaps in this study, higher uncertainty elicited self-evaluative concerns that essentially reversed the positive effect of a fair process and the process-outcome interaction on organizational members' attitudes. The result was a significant positive effect of the two-way interaction between lower uncertainty and higher process fairness and the three-way interaction between lower uncertainty, higher process fairness, and lower outcome favorability on organizational members' attitudes.

Uncertainty is thought to heighten the fair process effect because higher uncertainty elicits sense-making and information-seeking processes by which organizational members are more likely to use information about process fairness to infer their positive standing (De Cremer, 2010). Perhaps uncertainty was not high enough either for the affiliated or for all respondents to elicit sense-making and information seeking about the fairness of the process (De Cremer, 2010). This may have been because organizational members viewed the organization redesign process as positive or because they viewed the process as a change that would not affect their jobs and work environment. Perhaps process fairness did not have the usual effect because organizational members cynically viewed the fairness of the process as inauthentic, believing that decisions had already been made and they did not really have a voice (De Cremer, 2010). Perhaps

organizational members were frustrated by initially being given a voice, but not receiving enough follow-up information to know whether their input mattered (Folger, 1977).

### **Study Limitations and Future Research**

While the present study contributed some insights about the relationships between uncertainty, process fairness, outcome favorability and organizational members' attitudes, this study also had some limitations. The study limitations are primarily related to the challenges of conducting field research, that is, each organizational context is unique and any generalization of results is constrained. This field study was conducted when the researcher was given the opportunity to conduct an academic study by a particular higher education organization, at which time a redesign process was already underway. This constrained the time of the researcher to plan and implement data collection, to develop the survey instrument, and to get a baseline measure of uncertainty and organizational members' attitudes before the redesign process had started. Therefore, the limitations of the study include the data collection method, the survey instrument, and the use of a longitudinal research design. Each of these limitations will be discussed with recommendations for future research below.

Data Collection. The primary limitation of the study concerns the data collection method. The purpose of broadly inviting 5798 organizational members to take survey 1 was to ensure a large enough pool of potential participants to invite to take survey 2, knowing that fewer participants would take survey 2 than survey 1. Moreover, the research questions of the study required a broad cross-section of survey respondents from different organizational roles, divisional affiliations and levels of involvement in the redesign process. Furthermore, the divisions undergoing redesign had fewer faculty and administrators relative to the divisions that were not undergoing redesign. Since a total of 300 organizational members had participated in

the redesign process, the number of these members likely to take both survey 1 and survey 2 would have been too small for the purposes of the study, if other members had not also been invited to participate.

The data collection method of this study was based on the researchers' impression from the Office of the Provost that the majority of the 5798 potential participants, who were invited to take survey 1, had been previously informed about the redesign process. However, many more of those who responded to survey 1 were unaware of the redesign process than what the researcher had anticipated. The assumption of greater awareness of the participants was also based on the researcher's experience of organization change in a more tightly coupled corporate setting. For example, in large corporations, leadership communication about a change process is typically standardized, repeated, and attended to by organizational members across business units and job ranks.

The result of the data collection method used by this study was that most of the participants in survey 1 responded to the items about their day-to-day experience in the university (i.e., uncertainty, organizational commitment, and trust in leadership). However, many of them responded inconsistently or did not respond at all to the process fairness items. Furthermore, participants responded to many more of the informational fairness and interpersonal fairness items than the procedural fairness items. Even among the procedural fairness items, some participants responded to certain procedural fairness items and not others. This resulted in a large sample size of participants who had taken survey 1 and answered some items as "Don't Know" ( $N = 487$ ) and an adequate sample size of participants who had completed all the survey 1 items ( $N = 153$ ).

All 487 participants who had taken survey 1 were invited to participate in survey 2 in hopes that some of them would know more about the redesign process by Time 2. Some of the participants in survey 2 still had limited awareness of and involvement in the redesign process at Time 2, which meant similar to survey 1 more of them responded to the items about their day-to-day experience than to the items about the redesign process. Furthermore, fewer participants in survey 2 responded to the procedural fairness items than to items about the other components of process fairness. This resulted in a small sample size of participants who had taken survey 2 and answered some items as "Don't Know" ( $N = 153$ ) and a very small subset of participants who had completed all the survey 2 items ( $n = 47$ ).

A recommendation for future research conducted in a similar loosely coupled setting would be to have a more targeted data collection method. This would involve, for example, recruiting specifically aimed at all of the 300 organizational members who participated in the redesign process and all of the faculty and administration from the affiliated divisions to participate in the study. Outreach to these potential participants might involve thanking them for their participation in the redesign process and acknowledging their personal interest in the outcomes of the redesign process. Additional recruiting could then be conducted more generally to invite a broad cross-section of randomly selected organizational members from the other organizational groups required for the study. This would likely increase the number of participants who would participate in both surveys and complete the majority of survey items, while still allowing for an analysis of group differences on the study variables.

Survey Instrument. Another limitation of the study was related to some of the survey measures as well as how the survey was conducted. The original draft of the survey had four standing uncertainty items used in a prior research study, two of which were reverse-scored and

two of which were not. However, one member of the Office of the Provost who reviewed the original instrument requested to have one of these "redundant" items eliminated to shorten the survey. This left three standing uncertainty items that had not been used in a study together before, two of which were straightforwardly worded and one that was reverse-coded. Ultimately, the single reverse-scored item was eliminated from the study to increase the reliability of the measure ( $\alpha = .61$  using the Time 1 dataset and  $\alpha = .67$  using the Time 2 dataset). Since standing uncertainty is a specific example of the broader construct of personal uncertainty, two items could measure this construct with sufficient reliability. Furthermore, both of the standing uncertainty items used in the study were straightforwardly worded, which minimized the issue of reverse-scoring for standing uncertainty.

Since no empirical measure of informational uncertainty had been developed before, the researcher wrote several items based on the theoretical definition of the construct from previous literature. However, informational uncertainty is defined broadly in the literature using a range of examples, which include having limited information about one's role, leadership trustworthiness, the outcomes of one's actions and the actions of one's relevant peers, and the fairness of a change process (Van den Bos, 2007; Van den Bos and Lind, 2009). Each of the three items written to measure informational uncertainty represented one of these examples. The reliability of the three-item informational uncertainty measure was lower than expected ( $\alpha = .55$  using the Time 1 dataset and  $\alpha = .61$  using the Time 2 dataset). However, the reliability of the six-item measure of informational uncertainty was much higher ( $\alpha = .79$  using Time 2 data). This indicates that the reliability levels of the three-item measure of informational uncertainty were highly related to the small number of items used to measure such a broad construct.

Another possible explanation of the lower reliability of the three informational uncertainty items that were used in this study is that two of the informational uncertainty items were reverse-scored and one was not. The correlations, the factor analyses, and the different moderating effects of both types of uncertainty indicate that the informational uncertainty and the standing uncertainty items were measuring distinct but related constructs. However, the reverse-scored uncertainty items could have measured a slightly different construct than uncertainty (Rodebaugh, Woods, & Heimberg, 2007). For example, the reverse-scored informational uncertainty items could have measured respondents' confidence about their role or the trustworthiness of leadership, the absence of which may not be precisely the same thing as uncertainty about their role or the trustworthiness of the leadership. Furthermore, some organizational groups could have responded differently to the reverse-scored items than the straightforwardly worded items (Rodebaugh et al., 2007). For example, students had significantly lower informational uncertainty than employees, but there were no significant differences in standing uncertainty between these groups. While the reverse-scoring issue does not change the results of the study, it needs to be taken into account when interpreting the study results.

Since the surveys utilized in the present study were conducted at two different times in an organizational setting while a great deal of change was happening, unexpected responses to the survey probably occurred. For example, the response to the informational uncertainty items from the participants who completed both surveys was less reliable at Time 1 ( $r = .60$ ) than at Time 2 ( $r = .64$ ). Although this difference is not likely to be significant in terms of the overall results, one way to explain such unpredictable findings is that the survey was based on self-reports on psychological constructs, which are inherently subjective and difficult to accurately measure.

Therefore, some of the variation in respondents' ratings between Time 1 and Time 2 is due to subjective changes in how they respond to the scale rather than changes in their perceptions of the variables of interest.

One useful distinction to interpret such unexpected results can be made between "alpha change" and "beta change" (Golembiewski, Billingsley, & Yeager, 1976). An alpha change "involves a variation in the level of some existential state, given a constantly calibrated measuring instrument related to a constant conceptual domain" (Golembiewski et al., 1976, p. 134). Alpha change is generally measured by fixed measuring systems with fairly constant intervals. Whereas, a beta change "involves a variation in the level of some existential state, complicated by the fact that some intervals of the measurement continuum associated with a constant conceptual domain have been recalibrated" (Golembiewski et al., 1976, p. 135). Beta changes are often measured by self-reports rooted in socio-emotional or cultural definitions of constructs, such as the degree of participation in a decision-making process. However, the organization design process as well as the survey instrument itself could influence organizational members' subjective evaluations of the psychological constructs that the survey was measuring, such that the intervals along which self-reports are made could expand or contract.

Furthermore, the study surveys were conducted online, which may have contributed to the common method variance that was present, particularly on the process fairness items. This likely occurred because respondents with varying degrees of knowledge about and interest in the redesign process took the survey quickly and responded similarly to related items. Moreover, a number of respondents stated through their answers to the open-ended questions and through email to the researcher that they were expecting to be asked more specific questions about the redesign effort, and they found the survey too general and vague. These respondents were likely

surprised to be taking an academic research survey when they were expecting a more practical one, even though the research study description had clearly stated both the practical and academic objectives of the study.

Another recommendation for future research would be to develop further a survey instrument to measure informational uncertainty and personal uncertainty with more items and no reverse-scored items. This would enable a more conclusive analysis of whether informational uncertainty and personal uncertainty are qualitatively distinct, and it would enable further research on the relationships between these constructs and process fairness, outcome favorability, and organizational members' attitudes. Future research might also use pilot studies to further customize the process fairness items to better fit the organizational context and eliminate unnecessary items.

Longitudinal Research Design. While this research study was designed as a longitudinal study to explore causal relationships between the variables of the study, implementing a longitudinal design raised some challenges given the organizational context. First, the redesign process was already underway when the study was launched, therefore it was not possible to get a baseline measure of respondents' uncertainty, organizational commitment, and trust in leadership. A baseline measure would have enabled a comparison among these measures before, during, and after the redesign process to determine the extent to which the redesign process influenced these variables. However, the large number of respondents who were "unaware" of the redesign process provided an alternative baseline measure of these variables.

A longitudinal design in this study also required a very large sample size at Time 1 to ensure a sufficient sample size at Time 2. A different data collection method may have ensured a sufficient sample size in both surveys, however it would not guarantee bigger sample sizes.



Furthermore, it is not clear that the study hypotheses required a longitudinal design since most of the results are based on the Time 1 dataset; however, a larger Time 2 dataset may have yielded different results.

Another recommendation for future research would be to conduct longitudinal research on large-scale change efforts in loosely coupled settings to further examine causal relationships between the study variables in this type of organizational context. It would be important to start research before the effort was launched, use a web-based survey given before, during, and after the change process, and extend the research over a longer time period. If the organization change effort was big enough and affected a large number of people, this could ensure sufficient participation at all three times.

### **Implications for Research and Practice**

The results of this study have several implications for uncertainty management, organizational justice, and organization change research and practice. First, when conducting field research, organizational context is a prominent factor that must be taken into account when designing the study, interpreting the results and attempting to generalize them to other contexts. This study brought uncertainty management and organizational justice theory and research into the context of a loosely coupled higher education organization. Some of the surprising results of the study, relative to previous findings, may be related to the organizational context of this study. However, since this study only tested hypotheses in a single organization, future research could test similar hypotheses across both loosely and tightly coupled organizations to examine whether these results would differ consistently by these different organizational types.

Second, this study found exploratory but inconclusive support for the existence of multiple dimensions of uncertainty, which powerfully influence organizational members' attitudes, and therefore warrant further research. Personal uncertainty is a predominant experience of organizational members that has been found to affect their responses to fair processes and procedures and in turn their attitudes towards decision-makers and the organizations they represent. But this study suggests that informational uncertainty is also likely a common experience in organizations that affects organizational members' perceptions of fairness and their attitudes at least as strongly as standing uncertainty does, if not more so. Furthermore, informational uncertainty may be easier for organizational leaders to systematically address than standing uncertainty, since informational uncertainty is more related to external factors of the organization while standing uncertainty is more related to internal factors of individuals.

Third, this study found that both ongoing and temporary factors influence informational and standing uncertainty. While this requires further research to determine the effects of different types of antecedents on different types of uncertainty, the practical implications are important. Organizations that are designed and run in ways that heighten the uncertainty of members on an ongoing basis may elicit chronically negative attitudes and behaviors from members that impede organizational performance. One practical response to personal uncertainty offered by previous literature is to implement fair processes and procedures when organizational members have high personal uncertainty (De Cremer, 2010). However, informational uncertainty lends itself to a number of other practical responses, including transparent and accessible leadership, consistent systems for performance management and compensation, and effective communication about fair processes and outcomes. If a process is fair, but organizational members do not have

sufficient information about it to know it is fair, the positive effect of process fairness may be lost on them.

Fourth, the surprising moderating effects of uncertainty on the fair process effect were consistent enough across all types of uncertainty, process fairness, and organizational members' attitudes to suggest it is important to investigate further why these opposite moderating effects occurred given the type of organizational context. While the surprising moderating effects of uncertainty on the process-outcome interaction effect were somewhat inconclusive, they are also important to examine in greater depth given that only one series of studies has examined such moderating effects before this study. It is also important to explore further why previous findings were either not strongly replicated or not replicated at all. Understanding such unexpected results can shed greater light on the relationships between uncertainty, process fairness, and organizational members' attitudes.

In conclusion, this study suggests that how organizational leaders manage both informational and standing uncertainty during organization design decision-making processes in loosely coupled organizations represents a promising area for further research and theorizing. The preliminary findings of this study offer a first step towards a more comprehensive theory of the influence of different types of uncertainty on organizational members' responses to fair processes and treatment. Furthermore, this study suggests that organizational leaders can influence the success of their organizations by how effectively they respond to different types of uncertainty during ongoing operations as well as specific change efforts.

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Appendix A:  
Institutional Review Board Approval

**Institutional Review Board**

April 9, 2010

Alice Mann  
35 Sterling Place, Apt. 1  
Brooklyn NY 11217

Dear Alice:

Please be informed that as of the date of this letter, the Institutional Review Board for the Protection of Human Subjects in Research (IRB) at Teachers College, Columbia University has reviewed your study entitled "*Leading Change in Higher Education*" under expedited review.

I am pleased to let you know that your study has been fully approved.

The approval is effective until **April 8, 2011**.

The IRB Committee must be contacted if there are any changes to the protocol during this period. **Please note:** If you are planning to continue your study, a Continuing Review application must be filed six weeks prior to the expiration of the protocol. The IRB number assigned to your protocol is **10-192**. Do not hesitate to contact the IRB Committee at (212) 678-4105 if you have any questions.

Please note that your consent form bears an official IRB authorization stamp. Copies of this form with the IRB stamp must be used for your research work.

Best wishes for your data collection.

Sincerely,



William J. Baldwin  
Vice Provost  
Interim Chair, IRB

Cc: File, OSP

**Institutional Review Board**

September 3, 2010

Alice Mann  
35 Sterling Place, Apt. 1  
Brooklyn NY 11217

Dear Alice:

Please be informed that as of the date of this letter, the Institutional Review Board for the Protection of Human Subjects in Research (IRB) at Teachers College, Columbia University has reviewed and **approved the requested changes** to your study entitled "*Leading Change in Higher Education*", involving a revised version of your follow-up online survey.

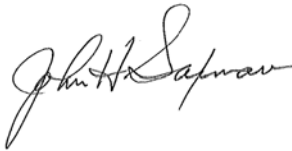
The IRB approval remains effective until **April 8, 2011**.

The IRB Committee must be contacted if there are any changes to the protocol during this period. **Please note:** If you are planning to continue your study, a Continuing Review application must be filed six weeks prior to the expiration of the protocol. The IRB number assigned to your protocol is **10-192**. Feel free to contact the IRB Office [212-678-4105 or [mbrooks@tc.edu](mailto:mbrooks@tc.edu)] if you have any questions.

Please note that your consent form bears an official IRB authorization stamp. Copies of this form with the IRB stamp must be used for your research work.

Best wishes for your continued data collection.

Sincerely,



John Saxman, Ph.D.  
Professor  
Interim Chair, IRB

cc: File, OSP

**Institutional Review Board**

September 28, 2010

Alice Mann  
35 Sterling Place, Apt. 1  
Brooklyn NY 11217

Dear Alice:

Please be informed that as of the date of this letter, the Institutional Review Board for the Protection of Human Subjects in Research (IRB) at Teachers College, Columbia University has reviewed and **approved the requested changes** to your study entitled "*Leading Change in Higher Education*", involving a 2<sup>nd</sup> revision to your follow-up online survey.

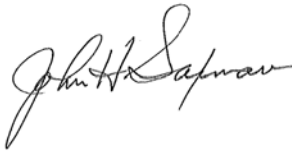
The IRB approval remains effective until **April 8, 2011**.

The IRB Committee must be contacted if there are any changes to the protocol during this period. **Please note:** If you are planning to continue your study, a Continuing Review application must be filed six weeks prior to the expiration of the protocol. The IRB number assigned to your protocol is **10-192**. Feel free to contact the IRB Office [212-678-4105 or [mbrooks@tc.edu](mailto:mbrooks@tc.edu)] if you have any questions.

Please note that your consent form bears an official IRB authorization stamp. Copies of this form with the IRB stamp must be used for your research work.

Best wishes for your continued data collection.

Sincerely,



John Saxman, Ph.D.  
Professor  
Interim Chair, IRB

cc: File, OSP

Appendix B:  
Provost Letter of Invitation to Participate in Study

**Subject Line:** Your Feedback on New Division Design Process

April 12, 2010

Dear [REDACTED] Community,

I would like to invite you to participate in an anonymous online survey about your perceptions of the process to design a new division at [REDACTED]. Any university employee or student can participate in the survey, regardless of your level of involvement in or awareness of the process. The aggregated results of the survey will help us improve the university's innovation and design processes and will also contribute to research on organization design practices in higher education.

This research will be conducted by Alice Mann, who is a doctoral student from Teachers College, Columbia University and an outside consultant who has helped us with the design process. Alice approached us to conduct the survey as an independent researcher, and she is interested in your honest and candid feedback.

Your participation is voluntary and anonymous, and we will only see the aggregated results of the survey. No link will be made between your participation and any identifying information. We will invite you to complete the survey now and again six months from now. I encourage you to participate in this survey, because the more people participate, the more we can learn about and improve our design practices, now and in the future.

The link to the online survey will follow shortly in a separate email. If you choose to participate, you will have from today until April 30th, 2010 to complete the survey. If you have any questions, please contact Alice Mann by phone at 917-608-4403 or by email at ams2140@columbia.edu.

Thank you very much for considering this invitation to participate,

[REDACTED]

Provost

Appendix C:  
Survey Instruments

## Informed Consent to Participate Online

### Teachers College, Columbia University

#### RESEARCH DESCRIPTION

DESCRIPTION OF THE RESEARCH: You are invited to participate in an anonymous online survey on your perceptions of the process to design a new division at [REDACTED]. The purpose of the study is to understand your attitudes and perceptions of the design process. The survey will ask questions about your day-to-day experience of working for or going to school in the university, your perceptions about the process to design the new division, and your perceptions of the leadership of that process.

The research will be conducted at [REDACTED], but the online survey may be completed from any computer with internet access, which means the survey may be completed at locations other than [REDACTED]. This survey will be conducted by Alice Mann, a doctoral student at Teachers College, Columbia University. Your participation is voluntary and anonymous. We will invite you to complete the survey now and again six months from now.

RISKS AND BENEFITS: There is the risk that participants will become more aware of their pre-existing emotional reactions to the changes that [REDACTED] is undergoing. If you feel uncomfortable at any time during or after taking the survey, you may withdraw your participation by discontinuing the survey or by emailing Alice Mann at ams2140@columbia.edu. The potential benefit of the study to participants is that they will have the opportunity to learn more about the effectiveness of the university's innovation and design practices. As a result of receiving my survey findings, [REDACTED] will also have the opportunity to take action to make the design process work better for the organization, now and in the future. These benefits are potential and not guaranteed.

PAYMENTS: You will receive no payment for your participation.

DATA STORAGE TO PROTECT CONFIDENTIALITY: Data will be collected anonymously. In the online data collection process, the survey software will assign each participant a unique numeral identifier. Neither Alice Mann nor [REDACTED] will link any identifying information of potential participants, including their email addresses, to any data that is collected. Only Alice Mann and the research team will have access to the data that is collected. [REDACTED] will not have access to any data that is collected and will only receive the aggregated results of the survey. Data material will be password protected and stored on a computer as well as on a backup hard-drive at a location outside of [REDACTED], which is 35 Sterling Place, Brooklyn, NY, 11217. No data related to this research study will be stored at any of [REDACTED].

TIME INVOLVEMENT: Your participation in the survey will take 10 to 20 minutes to complete each time, for a total of up to 40 minutes during two events over the course of approximately 6 months.

HOW RESULTS WILL BE USED: The aggregated results of the survey will be made available to [REDACTED] for the purpose of improving the university's innovation and design practices. The aggregated results of the survey may also be used for educational purposes consisting of my dissertation, conference presentations, and journal or article publications.

## Participants' Rights

### Teachers College, Columbia University

#### PARTICIPANTS' RIGHTS

Principal Investigator: Alice Mann  
Research Title: Leading Change in Higher Education

I have read the Research Description. I have had the opportunity to ask questions about the purposes and procedures regarding this study. My participation in the research study is voluntary. I may refuse to participate or withdraw from participation at any time without jeopardy to future medical care, employment, student status or other entitlements. The researcher may withdraw me from the research at his/her professional discretion. If, during the course of the study, significant new information that has been developed becomes available which may relate to my willingness to continue to participate, the investigator will provide this information to me. Any information derived from the research project that personally identifies me will not be voluntarily released or disclosed without my separate consent, except as specifically required by law.

If at any time I have any questions regarding the research or my participation, I can contact Alice Mann, who will answer my questions. Alice Mann's phone number is 917-608-4403 and her email address is [ams2140@columbia.edu](mailto:ams2140@columbia.edu). If at any time I have comments, or concerns regarding the conduct of the research or questions about my rights as a research subject, I should contact the Teachers College, Columbia University Institutional Review Board /IRB. The phone number for the IRB is (212) 678-4105. Or, I can write to the IRB at Teachers College, Columbia University, 525 W. 120th Street, New York, NY, 10027, Box 151. I have received an online copy of the Research Description and this Participant's Rights document.

Please choose the pull-down button selection of "I agree" if you consent to participate in the study and are at least 18 years of age or "I do not agree" if you do not consent to participate in the study or are not under 18 years of age. "I do not agree" responses will not be allowed to advance to the survey questions.

- I agree
- I do not agree.

### Preliminary Questions

Please answer the following preliminary questions about yourself.

What is your role at [REDACTED] (you may choose more than one)?

Dean/Officer

Full-time Faculty

Part-time Faculty

Administrative Staff

Student

Which division(s) do you primarily work for or go to school in (you may choose more than one)?









All Divisions

For how many years have you been a member of [REDACTED] community?

3 or Under

4 to 7

8 to 11

12 to 15

16 or Over

### Day-to-Day Experience at the University

Please answer the following questions based on your general day-to-day experience of working for or going to school in the university. Please rate to what extent you agree with each of the following items on a scale from 1 to 5 with 1= strongly



**disagree and 5 = strongly agree. If you do not have sufficient information to answer the question, you may select "Don't Know."**

	1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree	Don't Know
I have the information I need to perform my role as an employee or a student in this university.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe the university has high integrity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This university really inspires the very best in me in the way of performance as a student or an employee.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How I feel about my position as an employee or a student within the university changes from day to day.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have enough information about the basis for most of the major decisions made in the university to evaluate the fairness of those decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree	Don't Know
I find that my values and the university's values are very similar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often don't know if my actions in my role as an employee or a student in the university will achieve my desired outcomes or not.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to put in effort beyond what is normally expected in order to help this university be successful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think that the university treats me fairly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On some days I feel that my standing is positive in my relations with others in this university, whereas on other days I don't feel like that at all.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree	Don't Know
I am certain that I am						

valued as an employee or a student in this university.

I can expect the university to treat me in a fair and consistent fashion.

I talk up this university as a great place to work for or go to school in.

What is best for the university drives most of the major decisions in this university.

**Perceptions of the Change Process**

The following questions pertain to your opinions of the process to design a new division at [REDACTED]. When we refer to the "design process," we mean the structured process to create a new division, which includes the activities and outputs of the restructuring committees, focus groups, and facilitated design sessions, as well as all forms of communication related to these activities and outputs. When we refer to your perceptions of the "leadership," we mean your overall view of the parties employed by the university who have been planning and implementing the design process, not necessarily any one person in particular.

Please answer the following questions based on your overall perceptions of the design process and the leadership of that process formed through whatever level of involvement or awareness of the process you have had. Please rate each of the following items on a scale from 1 to 5 with 1= not at all and 5 = very much. If you do not have sufficient information to answer the question, you may select "Don't Know."

	1 = Not at all	2 = Not Very Much	3 = Neutral	4 = Somewhat	5 = Very Much	Don't Know
I have been involved in the process to design the new division.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been aware of the process to design the new division.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The leadership has treated us in a polite manner during the design process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The design process has been free from preferential treatment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The leadership has explained the design process thoroughly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1 = Not at all	2 = Not Very Much	3 = Neutral	4 = Somewhat	5 = Very Much	Don't Know
I have been able to express my views and feelings during the design process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The explanations of the leadership regarding the design process have been reasonable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The leadership has been candid in their communications with us during the design process.

The leadership has communicated details about the design process in a timely manner.

I have been able to appeal the new division design arrived at by the design process.

1 = Not at all      2 = Not Very Much      3 = Neutral      4 = Somewhat      5 = Very Much      Don't Know

The leadership has treated us with dignity during the design process.

I have had influence over the new division design arrived at by the design process.

The leadership has treated us with respect during the design process.

The design process has been based on accurate information.

The design process has been applied consistently.

**Perceptions of the Change Process Pt 2**

The following items also pertain to your overall view of the parties employed by the university who are responsible for planning and implementing the design process. When they are performing their roles more broadly in the university, how would you rate them on each of the following dimensions? Please rate each of the following items on a scale from 1 to 5 with 1= not at all and 5 = very much. If you do not have sufficient information to answer the question, you may select "Don't Know."

	1 = Not at all	2 = Not very much	3 = Neutral	4 = Somewhat	5 = Very Much	Don't know
Caring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Warm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intelligent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Competent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supportive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organized	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Open-Ended Questions (Optional)**

The following open-ended questions also pertain to your opinions of design process, which refers to the structured process to create a new division, including the activities and outputs of the restructuring committees, focus groups, and facilitated design sessions, as well as all forms of communication related to these activities and outputs.

Answering the following questions is optional. If you choose to answer them, please do so based on your overall perceptions of the design process.

What is the one thing about the design process have you been most pleased with?

What is the one thing about the design process you feel most needs to improve?

**Demographic Questions (Optional)**

The following questions pertain to demographic information about yourself. Answering these questions is optional. All answers to these questions as well as the rest of the survey questions will remain anonymous.

What is your gender?

- Male
- Female

Are you of Hispanic, Latino, or Spanish origin?

- Yes
- No

Which of the following best characterizes your race (you may choose more than one)?

- |                               |                          |                          |  |                          |                          |
|-------------------------------|--------------------------|--------------------------|--|--------------------------|--------------------------|
| American Indian/Alaska Native | Asian                    | Black/African American   | Native Hawaiian/Other Pacific Islander | White                    | Some other race          |
| <input type="checkbox"/>      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>               | <input type="checkbox"/> | <input type="checkbox"/> |

Are you a United States citizen?

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- Yes
- No

How many years old are you?

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- 18 to 27
- 28 to 37
- 38 to 47
- 48 to 57
- 58 to 67
- 68 or Over

## Informed Consent to Participate Online

### Teachers College, Columbia University

#### **RESEARCH DESCRIPTION**

**DESCRIPTION OF THE RESEARCH:** You completed an anonymous online survey six months ago on your perceptions of the process to design the [REDACTED]. Now you are being invited to complete a brief follow-up survey. The purpose of this survey is to understand your attitudes and perceptions of the design process and the outcomes of that process. The survey will ask questions about your day-to-day experience of working for (if you are an employee) or going to school in the university (if you are a student), your perceptions about the process to design the integrated division, as well as your perceptions of the leadership and the decision outcomes of that process.

The research will be conducted at [REDACTED], but the online survey may be completed from any computer with internet access, which means the survey may be completed at locations other than [REDACTED]. This survey will be conducted by Alice Mann, a doctoral student at Teachers College, Columbia University, as part of her doctoral research. Your participation is voluntary and anonymous.

**RISKS AND BENEFITS:** There is the risk that participants will become more aware of their pre-existing emotional reactions to the changes that [REDACTED] is undergoing. If you feel uncomfortable at any time during or after taking the survey, you may withdraw your participation by discontinuing the survey or by emailing Alice Mann at [ams2140@columbia.edu](mailto:ams2140@columbia.edu). The potential benefit of the study to participants is that they will have the opportunity to learn more about the effectiveness of the university's innovation and design practices. As a result of receiving my survey findings, [REDACTED] will also have the opportunity to take action to make the design process work better for the organization, now and in the future. These benefits are potential and not guaranteed.

**PAYMENTS:** You will receive no payment for your participation.

**DATA STORAGE TO PROTECT CONFIDENTIALITY:** Data will be collected anonymously. In the online data collection process, the survey software will assign each participant a unique numeral identifier. Neither Alice Mann nor [REDACTED] will link any identifying information of potential participants, including their email addresses, to any data that is collected. Only Alice Mann and the research team will have access to the data that is collected. [REDACTED] will not have access to any data that is collected and will only receive the aggregated results of the survey. Data material will be password protected and stored on a computer as well as on a backup hard-drive at a location outside of [REDACTED], which is 31 College Hill Road, Montrose, NY, 10548. No data related to this research study will be stored at any of [REDACTED] locations.

**TIME INVOLVEMENT:** Your participation in the survey will take up to 10 minutes to complete each time, for a total of up to 20 minutes during two events over the course of approximately 6 months.

**HOW RESULTS WILL BE USED:** The aggregated results of the survey will be made available to [REDACTED] for the purpose of improving the university's innovation and design practices. The aggregated results of the survey may also be used for educational purposes consisting of my dissertation, conference presentations, and journal articles.

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## Participants' Rights

### Teachers College, Columbia University

#### **PARTICIPANTS' RIGHTS**

Principal Investigator: Alice Mann  
Research Title: Leading Change in Higher Education

I have read the Research Description. I have had the opportunity to ask questions about the purpose and procedures regarding this study. My participation in the research study is voluntary. I may refuse to participate or withdraw from participation at any time without jeopardy to future medical care, employment, student status or other entitlements. The researcher may withdraw me from the research at his/her professional discretion. If, during the course of the study, significant new information that has been developed becomes available which may relate to my willingness to continue to participate, the investigator will provide this information to me. Any information derived from the research project that personally identifies me will not be voluntarily released or disclosed without my

separate consent, except as specifically required by law.

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If at any time I have any questions regarding the research or my participation, I can contact Alice Mann, who will answer my questions. Alice Mann's phone number is 917-608-4403 and her email address is [ams2140@columbia.edu](mailto:ams2140@columbia.edu). If at any time I have comments, or concerns regarding the conduct of the research or questions about my rights as a research subject, I should contact the Teachers College, Columbia University Institutional Review Board /IRB. The phone number for the IRB is (212) 678-4105. Or, I can write to the IRB at Teachers College, Columbia University, 525 W. 120th Street, New York, NY, 10027, Box 151. I have received an online copy of the Research Description and this Participant's Rights document.

Please choose the pull-down button selection of "I agree" if you consent to participate in the study and are at least 18 years of age or "I do not agree" if you do not consent to participate in the study or are not under 18 years of age. "I do not agree" responses will not be allowed to advance to the survey questions.

- I agree
- I do not agree.

### Day-to-Day Experience at the University

Please answer the following questions based on your general day-to-day experience of working for the university (if you are an employee) or going to school here (if you are a student). Please rate to what extent you agree with each of the following items on a scale from 1 to 5 with 1= strongly disagree and 5 = strongly agree. If you do not have sufficient information to answer the question, you may select "Don't Know."

	1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree	Don't Know
I have the information I need to perform my role as an employee or a student in this university.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe the university has high integrity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This university really inspires the very best in me in the way of performance as a student or an employee.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How I feel about my position as an employee or a student within the university changes from day to day.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have enough information about the basis for most of the major decisions made in the university to evaluate the fairness of those decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree	Don't Know
I find that my values and the university's values are very similar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often don't know if my actions in my role as an employee or a student in	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

the university will achieve my desired outcomes or not.

I am willing to put in effort beyond what is normally expected in order to help this university be successful.

I think that the university treats me fairly.

On some days I feel that my standing is positive in my relations with others in this university, whereas on other days I don't feel like that at all.

I am certain that I am valued as an employee or a student in this university.

I can expect the university to treat me in a fair and consistent fashion.

I talk up this university as a great place to work for or go to school in.

What is best for the university drives most of the major decisions in this university.

☺ ☺ ☺ ☺ ☺ 138☺

1 = Strongly Disagree    2 = Disagree    3 = Neutral    4 = Agree    5 = Strongly Agree    Don't Know

**Perceptions of the Change Process**

The following questions pertain to your opinions of the process to design the [REDACTED]. When we refer to the "design process," we mean the structured process to create a new divisional structure and an integrated set of programs offered by that division. This process includes the activities and outputs of the restructuring committees, focus groups, and facilitated design sessions, as well as all forms of communication related to these activities and outputs. When we refer to your perceptions of the "leadership," we mean your overall view of the parties employed by the university who have been planning and implementing the design process, not necessarily any one person in particular.

Please answer the following questions based on your overall perceptions of the design process and the leadership of that process formed through whatever level of involvement or awareness of the process you have had. Please rate each of the following items on a scale from 1 to 5 with 1= not at all and 5 = very much. If you do not have sufficient information to answer the question, you may select "Don't Know."

	1 = Not at all	2 = Not Very Much	3 = Neutral	4 = Somewhat	5 = Very Much	Don't Know
I have been involved in the process to design the [REDACTED]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been aware of the process to design the [REDACTED]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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The leadership has treated us in a polite manner during the design process.

The design process has been free from preferential treatment.

The leadership has explained the design process thoroughly.

I have been able to express my views and feelings during the design process.

1 = Not at all      2 = Not Very Much      3 = Neutral      4 = Somewhat      5 = Very Much      Don't Know

The explanations of the leadership regarding the design process have been reasonable.

The leadership has been candid in their communications with us during the design process.

The leadership has communicated details about the design process in a timely manner.

I have been able to appeal the new division design arrived at by the design process.

The leadership has treated us with dignity during the design process.

I have had influence over the [redacted] division design arrived at by the design process.

1 = Not at all      2 = Not Very Much      3 = Neutral      4 = Somewhat      5 = Very Much      Don't Know

The leadership has treated us with respect during the design process.

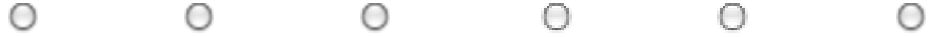
The design process has been based on accurate information.

The design process has been applied consistently.

I am satisfied with the contribution that the consultants from Downey Kates Associates made to the design process.

I would recommend using external consultants to help with change initiatives at [REDACTED] in the future.

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### Follow-up on Day-to-Day Experience

Please answer the following questions based on your general day-to-day experience of working for the university (if you are an employee) or going to school here (if you are a student). Please rate to what extent you agree with each of the following statements on a scale from 1 to 5 with 1= strongly disagree and 5 = strongly agree. Each statement is followed by the question, "How certain are you about your answer to the previous question?" Please answer this follow-up question on a scale from 1 to 5 with 1 = not at all and 5 = very much.

I have the information needed to successfully perform my role as an employee or a student in this university.

Strongly Disagree      Disagree      Neither Agree nor Disagree      Agree      Strongly Agree

How certain are you about your answer to the previous question?

Not at all      Not much      Neutral      Somewhat      Very Much

My efforts as an employee or a student in this university pay off.

Strongly Disagree      Disagree      Neither Agree nor Disagree      Agree      Strongly Agree

How certain are you about your answer to the previous question?

Not at all      Not much      Neutral      Somewhat      Very Much

I have enough information to know if the leadership of this university can be trusted.

Strongly Disagree      Disagree      Neither Agree nor Disagree      Agree      Strongly Agree

How certain are you about your answer to the previous question?

Not at all      Not much      Neutral      Somewhat      Very Much

I have positive standing in my relations with others in this university. 141

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How certain are you about your answer to the previous question?

Not at all	Not much	Neutral	Somewhat	Very Much
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I matter as an employee or student in this university.

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How certain are you about your answer to the previous question?

Not at all	Not much	Neutral	Somewhat	Very Much
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How I feel about my standing in my relations with others within the university pretty much stays the same from day to day.

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How certain are you about your answer to the previous question?

Not at all	Not much	Neutral	Somewhat	Very Much
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Outcomes**

Please answer the following questions based on your overall perceptions of the decisions made so far about the NSGS+Milano division. Please rate to what extent you agree with each of the following items on a scale from 1 to 5 with 1= strongly disagree and 5 = strongly agree.

	1 = Strongly disagree	2 = Disagree	3 = Neither agree nor disagree	4 = Agree	5 = Strongly Agree
I like the direction in which the [redacted] is going as a result of the design process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The outcomes of redesigning the [redacted] division are likely to be positive.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The changes brought about by the redesign of the [redacted] division are for the better.

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You may add any comments in the space below about the process to create the [redacted] division, the leadership or the outcomes of that process. This last section is optional and not required to complete the survey.

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## Appendix D:

*Summary of Factor Loadings for Oblimin Four-Factor Solution for Survey I ( N=139)*

Item	Factor Loadings				Communality
	1	2	3	4	
<u>Informational Uncertainty</u>					
1. I have the information I need to perform my role as an employee or a student in this university. (R)	.02	<b>.64</b>	.14	.09	.46
2. I have enough information about the basis for most of the major decisions made in the university to evaluate the fairness of those decisions.(R)	-.04	<b>.74</b>	-.12	-.32	.53
3. I often don't know if my actions in my role as an employee or a student in the university will achieve my desired outcomes or not.	.13	.21	<b>.41</b>	-.16	.28
<u>Standing Uncertainty</u>					
4. How I feel about my position as an employee or a student within the university changes from day to day.	.00	-.02	<b>.35</b>	-.03	.12
5. On some days I feel that my standing is positive in my relations with others in this university, whereas on other days I don't feel like that at all.	-.11	.00	<b>.74</b>	.14	.57
6. I am certain that I am valued as an employee or a student in this university. (R)	-.28	<b>.40</b>	.17	.01	.38
<u>Procedural Fairness</u>					
7. The design process has been free from preferential treatment.	.32	.04	-.08	<b>.54</b>	.53
8. I have been able to express my views and feelings during the design process.	<b>.91</b>	.03	-.07	-.27	.73
9. I have been able to appeal the design arrived at by the design process.	<b>.73</b>	-.10	-.05	-.10	.56
10. I have had influence over the design arrived at by the design process.	<b>.71</b>	-.06	-.09	.00	.51
11. The design process has been based on accurate information.	<b>.66</b>	-.21	.14	.17	.66
12. The design process has been applied consistently.	<b>.57</b>	-.20	.10	.35	.69
<u>Informational Fairness</u>					
13. The leadership has explained the design process thoroughly.	<b>.79</b>	-.02	-.07	.08	.70
14. The explanations of the leadership regarding the design process have been reasonable.	<b>.83</b>	-.08	.02	.02	.63
15. The leadership has been candid in their communications with us.	<b>.84</b>	-.04	.10	.01	.83
16. The leadership has communicated details about the design process in a timely manner.	<b>.87</b>	.00	.05	-.09	.80
<u>Interpersonal Fairness</u>					
17.The leadership has treated us in a polite manner during the design process.	<b>.71</b>	.12	.03	.24	.71
18. The leadership has treated us with dignity during the design process.	<b>.72</b>	-.02	-.15	.29	.75
19. The leadership has treated us with respect during the design process.	<b>.69</b>	.01	-.09	.36	.72
Eigenvalue	8.83	1.94	1.21	1.02	
% of Variance	46.45	10.18	6.36	5.35	

Factor Correlations

Factor 1				
Factor 2	-.30			
Factor 3	-.16	.33		
Factor 4	.36	-.15	-.07	

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*Note.* Factor analysis conducted using listwise deletion. Factor loadings based on pattern matrix.

## Appendix E:

*Summary of Factor Loadings for Oblimin Two-Factor Solution for Survey 1 ( N=422)*

Item	Factor Loadings		Communality
	1	2	
<u>Informational Uncertainty</u>			
1. I have the information I need to perform my role as an employee or a student in this university. (R)	<b>.59</b>	-.08	.39
2. I have enough information about the basis for most of the major decisions made in the university to evaluate the fairness of those decisions.(R)	<b>.58</b>	.08	.29
3. I often don't know if my actions in my role as an employee or a student in the university will achieve my desired outcomes or not.	.31	<b>-.37</b>	.35
<u>Standing Uncertainty</u>			
7. How I feel about my position as an employee or a student within the university changes from day to day.	-.06	<b>-.60</b>	.32
8. On some days I feel that my standing is positive in my relations with others in this university, whereas on other days I don't feel like that at all.	.07	<b>-.72</b>	.57
9. I am certain that I am valued as an employee or a student in this university. (R)	<b>.56</b>	-.04	.34
Eigenvalue	2.40	1.10	
% of Variance	40.05	18.25	
<u>Factor Correlations</u>			
Factor 1			
Factor 2		-.48	

*Note.* Factor analysis used listwise deletion. Factor loadings based on pattern matrix.

## Appendix F:

*Summary of Factor Loadings for Oblimin Three-Factor Solution for Survey 1 ( N=145)*

Item	Factor Loadings		Communality
	1	2	
<u>Procedural Fairness</u>			
1. The design process has been free from preferential treatment.	-.01	<b>.74</b>	.54
2. I have been able to express my views and feelings during the design process.	<b>.94</b>	-.19	.69
3. I have been able to appeal the design arrived at by the design process.	<b>.80</b>	-.05	.59
4. I have had influence over the design arrived at by the design process.	<b>.68</b>	.07	.54
5. The design process has been based on accurate information.	<b>.61</b>	.23	.61
6. The design process has been applied consistently.	<b>.49</b>	.39	.65
<u>Informational Fairness</u>			
7. The leadership has explained the design process thoroughly.	<b>.70</b>	.19	.71
8. The explanations of the leadership regarding the design process have been reasonable.	<b>.80</b>	.10	.75
9. The leadership has been candid in their communications with us.	<b>.82</b>	.05	.72
10. The leadership has communicated details about the design process in a timely manner.	<b>.89</b>	-.06	.73
<u>Interpersonal Fairness</u>			
11. The leadership has treated us in a polite manner during the design process.	.38	<b>.47</b>	.60
12. The leadership has treated us with dignity during the design process.	<b>.52</b>	.46	.81
13. The leadership has treated us with respect during the design process.	.46	<b>.51</b>	.78
Eigenvalue	8.50	.91	
% of Variance	65.40	7.00	
<u>Factor Correlations</u>			
Factor 1			
Factor 2		.67	

*Note.* Factor analysis conducted using listwise deletion. Factor loadings based on pattern matrix.



## Appendix G:

*Summary of Factor Loadings for Oblimin Five-Factor Solution for Survey 2 ( N=47)*

Item	Factor Loadings					Communality
	1	2	3	4	5	
<u>Informational Uncertainty</u>						
1. I have the information I need to perform my role as an employee or a student in this university. (R)	.03	.00	<b>-.67</b>	-.02	-.12	.49
2. I have enough information about the basis for most of the major decisions made in the university to evaluate the fairness of those decisions.(R)	-.11	.27	<b>-.44</b>	-.02	-.26	.63
3. I often don't know if my actions in my role as an employee or a student in the university will achieve my desired outcomes or not.	.16	<b>.66</b>	.03	-.02	-.19	.46
4. I have the information needed to successfully perform my role as an employee or a student in this university. (R)	-.14	.06	<b>-.93</b>	-.02	.11	.93
5. My efforts as an employee or s student in this university will pay off. (R)	.03	<b>.56</b>	-.31	.12	.20	.54
6. I have enough information to know if the leadership of this university can be trusted. (R)	-.13	<b>.55</b>	-.12	-.12	-.11	.50
<u>Standing Uncertainty</u>						
7. How I feel about my position as an employee or a student within the university changes from day to day.	.07	<b>.42</b>	.30	.10	-.02	.39
8. On some days I feel that my standing is positive in my relations with others in this university, whereas on other days I don't feel like that at all.	.05	<b>.66</b>	.03	.18	-.20	.59
9. I am certain that I am valued as an employee or a student in this university. (R)	-.06	<b>.67</b>	-.11	.19	.14	.62
10. I have positive standing in my relations with others in this university. (R)	-.35	<b>.64</b>	.08	-.13	.16	.56
11. I matter as an employee or student in this university (R).	-.14	<b>.71</b>	-.08	.13	.06	.72
12. How I feel about my standing in my relations with others within the university pretty much stays the same from day to day. (R)	-.24	<b>.49</b>	-.07	-.20	-.11	.46
<u>Procedural Fairness</u>						
13. The design process has been free from preferential treatment.	<b>.39</b>	-.11	-.14	-.23	.36	.56
14. I have been able to express my views and feelings during the design process.	.34	.08	.04	<b>-.66</b>	-.09	.68
15. I have been able to appeal the design arrived at by the design process.	.05	.06	.02	<b>-.84</b>	.05	.77
16. I have had influence over the design arrived at by the design process.	-.04	-.17	-.01	<b>-.84</b>	.08	.80
17. The design process has been based on accurate information.	.40	-.23	-.09	-.01	<b>.50</b>	.72

## Appendix G:

*Summary of Factor Loadings for Oblimin Five-Factor Solution for Survey 2 ( N=47)*

Item	Factor Loadings					Communality
	1	2	3	4	5	
18. The design process has been applied consistently.	<b>.52</b>	-.19	.12	.14	.30	.64
<u>Informational Fairness</u>						
19. The leadership has explained the design process thoroughly.	<b>.76</b>	-.03	.16	-.15	-.01	.82
20. The explanations of the leadership regarding the design process have been reasonable.	<b>.75</b>	-.08	.12	-.02	.22	.91
21. The leadership has been candid in their communications with us.	<b>.51</b>	-.12	.00	-.29	.23	.75
22. The leadership has communicated details about the design process in a timely manner.	<b>.84</b>	.10	.12	-.15	.01	.86
<u>Interpersonal Fairness</u>						
23. The leadership has treated us in a polite manner during the design process.	.32	-.24	-.07	<b>-.54</b>	.09	.76
24. The leadership has treated us with dignity during the design process.	<b>.76</b>	-.04	.00	-.19	.03	.79
25. The leadership has treated us with respect during the design process.	<b>.71</b>	-.18	-.03	-.17	.08	.87
<u>Outcome Favorability</u>						
26. I like the direction in which the new division is going as a result of the design process.	.13	-.14	.23	-.24	<b>.55</b>	.83
27. The outcomes of redesigning the new division are likely to be positive.	.10	.03	.40	-.16	<b>.64</b>	.89
28. The changes brought about by the redesign of the new division are for the better.	.27	.10	.20	-.14	<b>.61</b>	.75
Eigenvalue	13.56	2.93	1.65	1.54	1.07	
% of Variance	46.44	10.45	5.89	5.51	3.82	
<u>Factor Correlations</u>						
Factor 1						
Factor 2		-.43				
Factor 3		.25	-.44			
Factor 4		-.46	.23	-.25		
Factor 5		.40	-.26	.28	-.28	

*Note.* Factor analysis based on listwise deletion. Factor loadings based on pattern matrix.

## Appendix H:

*Summary of Factor Loadings for Oblimin Two-Factor Solution for Survey 2 ( N=135)*

Item	Factor Loadings		Communality
	1	2	
<u>Informational Uncertainty</u>			
1. I have the information I need to perform my role as an employee or a student in this university. (R)	<b>.58</b>	.02	.35
2. I have enough information about the basis for most of the major decisions made in the university to evaluate the fairness of those decisions.(R)	<b>.71</b>	-.09	.45
3. I often don't know if my actions in my role as an employee or a student in the university will achieve my desired outcomes or not.	.23	<b>.58</b>	.53
4. I have the information needed to successfully perform my role as an employee or a student in this university. (R)	<b>.71</b>	.00	.50
5. My efforts as an employee or s student in this university will pay off. (R)	<b>.51</b>	.23	.43
6. I have enough information to know if the leadership of this university can be trusted. (R)	<b>.66</b>	-.11	.37
<u>Standing Uncertainty</u>			
7. How I feel about my position as an employee or a student within the university changes from day to day.	-.14	<b>.76</b>	.49
8. On some days I feel that my standing is positive in my relations with others in this university, whereas on other days I don't feel like that at all.	.05	<b>.73</b>	.57
9. I am certain that I am valued as an employee or a student in this university. (R)	<b>.67</b>	.20	.62
10. I have positive standing in my relations with others in this university. (R)	<b>.32</b>	.22	.23
11. I matter as an employee or student in this university (R).	<b>.73</b>	.04	.57
12. How I feel about my standing in my relations with others within the university pretty much stays the same from day to day. (R)	.20	<b>.52</b>	.42
Eigenvalue	5.06	1.49	
% of Variance	42.18	12.42	
Factor Correlations			
Factor 1			
Factor 2		.50	

*Note.* Factor analysis used listwise deletion. Factor loadings based on pattern matrix.

## Appendix I:

*Summary of Factor Loadings for Oblimin Three-Factor Solution for Survey 2 ( N=52)*

Item	Factor Loadings			Communality
	1	2	3	
<u>Procedural Fairness</u>				
1. The design process has been free from preferential treatment.	.17	.16	<b>.53</b>	.55
2. I have been able to express my views and feelings during the design process.	.42	<b>.60</b>	-.10	.68
3. I have been able to appeal the design arrived at by the design process.	.09	<b>.77</b>	.06	.72
4. I have had influence over the design arrived at by the design process.	-.04	<b>.71</b>	.29	.70
5. The design process has been based on accurate information.	.32	-.08	<b>.63</b>	.71
6. The design process has been applied consistently.	.46	-.23	<b>.52</b>	.66
<u>Informational Fairness</u>				
7. The leadership has explained the design process thoroughly.	<b>.79</b>	.09	.05	.77
8. The explanations of the leadership regarding the design process have been reasonable.	<b>.83</b>	-.08	.23	.93
9. The leadership has been candid in their communications with us.	<b>.56</b>	.20	.26	.77
10. The leadership has communicated details about the design process in a timely manner.	<b>.96</b>	.05	-.10	.84
<u>Interpersonal Fairness</u>				
11. The leadership has treated us in a polite manner during the design process.	<b>.48</b>	.40	.12	.71
12. The leadership has treated us with dignity during the design process.	<b>.82</b>	.06	.06	.81
13. The leadership has treated us with respect during the design process.	<b>.87</b>	.06	.04	.87
<u>Outcome Favorability</u>				
14. I like the direction in which the new division is going as a result of the design process.	-.09	.14	<b>.95</b>	.89
15. The outcomes of redesigning the new division are likely to be positive.	-.03	.06	<b>.89</b>	.81
16. The changes brought about by the redesign of the new division are for the better.	.08	.04	<b>.79</b>	.75
Eigenvalue	10.33	1.48	1.08	
% of Variance	64.54	9.25	6.72	
Factor Correlations				
Factor 1				
Factor 2	.50			
Factor 3	.69	.38		

*Note.* Factor analysis conducted using listwise deletion. Factor loadings based on pattern matrix.

Appendix J:  
*Group Differences for All Measures Between Students and Employees (Time 2 Dataset)*

Measure	Students			Employees			t	p	Cohen's d
	N	M	SD	N	M	SD			
Informational Uncertainty2	66	2.94	0.69	81	3.11	0.88	-1.33	.187	-.21
Standing Uncertainty2	68	3.01	0.98	83	3.27	1.03	-1.56	.121	-.26
Procedural Fairness2	21	2.80	0.65	34	3.02	0.86	-1.09	.281	-.29
Informational Fairness2	32	3.05	0.96	56	3.25	1.10	-.910	.367	-.20
Interpersonal Fairness2	37	3.50	0.98	61	3.73	1.00	-1.11	.272	-.23
Trust2	80	3.59	0.80	80	3.24	0.87	2.55	.012	.42
Commitment2	83	3.58	0.79	83	3.53	0.77	0.35	.728	.06

*Note.* Equal variances not assumed.

Appendix K:  
*Within Subjects Differences for All Measures (Time 1 and 2 Datasets)*

Measure	Time 1- Time 2				
	N	MD	SD	t	p
Informational Uncertainty	131	0.04	0.63	.691	.491
Standing Uncertainty	141	-0.02	0.69	-.275	.784
Procedural Fairness	26	0.13	0.45	1.54	.137
Informational Fairness	73	0.01	0.77	.152	.880
Interpersonal Fairness	78	0.08	0.72	1.00	.319
Trust	141	0.04	0.60	.799	.425
Commitment	136	0.03	0.57	.599	.550

Appendix L:  
*Group Differences for All Measures Between Newcomers and Non-Newcomers(Time 1 Dataset)*

Measure	Newcomer			Non-Newcomer			t	P	Cohen's d
	N	M	SD	N	M	SD			
Informational Uncertainty	252	2.98	0.76	193	3.01	0.76	-.36	.718	-0.04
Standing Uncertainty	260	3.09	0.97	195	3.18	0.95	-1.06	.291	-0.09
Procedural Fairness	73	2.72	1.00	75	2.72	0.85	0.02	.981	0.00
Informational Fairness	142	2.73	1.20	140	3.01	1.09	-2.54	.041	-0.24
Interpersonal Fairness	140	3.39	1.13	134	3.48	1.08	-.67	.503	-0.08
Trust	267	3.54	0.94	196	3.26	0.89	3.30	.001	0.31
Commitment	262	3.59	0.89	193	3.47	0.83	1.58	.115	0.14

Note. Equal variances not assumed. Independent variables were mean centered.

Appendix M:  
*Group Differences for All Measures Between Newcomers and Non-newcomers (Time 2 Dataset)*

Measure	Newcomer			Non-Newcomer			t	p	Cohen's d
	N	M	SD	N	M	SD			
Informational Uncertainty2	68	3.00	0.75	75	3.02	0.83	-.13	.896	-0.03
Standing Uncertainty2	70	3.01	0.96	77	3.30	1.06	-1.79	.076	-0.29
Procedural Fairness2	29	2.95	0.82	24	3.94	0.80	0.07	.941	-1.22
Informational Fairness2	41	3.22	1.00	43	3.26	1.09	-.184	.854	-0.04
Interpersonal Fairness2	45	3.68	0.98	49	3.65	1.05	.136	.892	0.03
Trust2	69	3.59	0.81	74	3.23	0.87	2.56	.012	0.43
Commitment2	70	3.61	0.78	77	3.49	0.78	0.97	.335	0.15

Note. Equal variances not assumed. Independent variables were mean centered.

## Appendix N:

*Group Differences for All Measures Between Aware and Non-Aware (Time 1 Dataset)*

Measure	Aware			Non-Aware			t	p	Cohen's d
	N	M	SD	N	M	SD			
Informational Uncertainty	323	2.97	0.77	123	3.07	0.73	-1.27	.207	-0.13
Standing Uncertainty	328	3.12	0.94	129	3.16	0.98	-.421	.674	-0.04
Procedural Fairness	121	2.89	0.88	28	1.97	0.74	5.71	.000	1.14
Informational Fairness	240	3.09	1.07	44	1.68	0.79	10.1	.000	1.52
Interpersonal Fairness	239	3.62	1.01	37	2.22	0.88	8.81	.000	1.48
Trust	336	3.47	0.91	129	3.27	0.95	2.07	.040	0.22
Commitment	331	3.60	0.82	126	3.33	0.96	2.93	.004	0.30

Note. Equal variances not assumed. Independent variables were mean centered.

## Appendix O:

*Group Differences for All Measures Between Aware and Non-Aware (Time 2 Dataset)*

Measure	Aware			Non-Aware			t	p	Cohen's d
	N	M	SD	N	M	SD			
Informational Uncertainty <sub>2</sub>	121	2.98	0.79	23	3.18	0.78	-1.18	.247	-0.25
Standing Uncertainty <sub>2</sub>	125	3.14	1.04	23	3.28	0.86	-0.72	.475	-0.15
Procedural Fairness <sub>2</sub>	123	2.98	0.81	5	2.60	0.55	1.40	.211	0.56
Informational Fairness <sub>2</sub>	80	3.24	1.07	5	2.90	0.58	1.21	.272	0.41
Interpersonal Fairness <sub>2</sub>	89	3.71	1.01	6	2.83	0.41	4.43	.001	1.24
Trust <sub>2</sub>	123	3.42	0.83	21	3.30	1.01	0.52	.607	0.13
Commitment <sub>2</sub>	125	3.58	0.76	23	3.39	0.88	0.96	.346	0.23

Note. Equal variances not assumed. Independent variables were mean centered.

## Appendix P:

*Group Differences for All Measures Between Involved and Non-Involved (Time 1 Dataset)*

Measure	Involved			Non-Involved			t	p	Cohen's d
	N	M	SD	N	M	SD			
Informational Uncertainty	164	2.98	0.77	282	3.00	0.75	-2.70	.787	-0.03
Standing Uncertainty	166	3.09	0.82	278	3.15	0.82	-1.43	.155	-0.07
Procedural Fairness	81	3.07	0.91	295	2.24	0.69	6.26	.571	1.04
Informational Fairness	150	3.33	1.06	287	2.32	1.00	8.19	.014	0.98
Interpersonal Fairness	147	3.84	0.96	66	2.95	1.07	7.21	.000	0.88
Trust	169	3.45	0.96	127	3.39	0.91	0.57	.057	0.06
Commitment	169	3.66	0.80	104	3.46	0.91	2.48	.014	0.23

Note. Equal variances not assumed. Independent variables were mean centered.

## Appendix Q:

*Group Differences for All Measures Between Involved and Non-Involved (Time 2 Dataset)*

Measure	Involved			Non-Involved			t	p	Cohen's d
	N	M	SD	N	M	SD			
Informational Uncertainty2	71	2.95	0.83	72	3.05	0.74	-0.75	.460	-0.13
Standing Uncertainty2	69	3.18	0.93	72	3.13	0.85	-0.19	.855	0.06
Procedural Fairness2	34	3.14	0.77	19	2.53	0.65	3.09	.003	0.86
Informational Fairness2	58	3.47	1.01	26	3.63	0.91	3.76	.000	-0.17
Interpersonal Fairness2	61	3.96	0.87	33	3.06	0.98	4.38	.000	0.97
Trust2	72	3.40	0.89	71	3.42	0.72	-.14	.890	-0.02
Commitment2	74	3.56	0.81	73	3.55	0.91	0.82	.940	0.01

Note. Equal variances not assumed. Independent variables were mean centered.