

DISSERTATION

A MULTI-LEVEL EXAMINATION OF AUTHENTIC LEADERSHIP AND  
ORGANIZATIONAL JUSTICE IN UNCERTAIN TIMES

Submitted by

Christa E. Kiersch

Department of Psychology

In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

Colorado State University

Fort Collins, Colorado

Summer 2012

Doctoral Committee:

Advisor: Zinta Byrne

Alyssa Gibbons  
Kimberly Henry  
Daniel Ganster

## ABSTRACT

### A MULTI-LEVEL EXAMINATION OF AUTHENTIC LEADERSHIP AND ORGANIZATIONAL JUSTICE IN UNCERTAIN TIMES

Answering long-standing calls for research on how leaders influence followers and organization performance, as well as for the integration of leadership and justice research, this study proposes and tests a multi-level model of leadership, justice, and uncertainty. Building upon uncertainty management theory and the nascent research in authentic leadership, I propose a multi-level moderated mediation model wherein authentic leaders influence individual fairness perceptions and create a fair climate, which in turn is related to the well-being, turnover intention, commitment, and performance of subordinates. Uncertainty serves as a moderator in the model, such that leadership and fair climate are proposed to have a stronger relationship with employee outcomes when the level of perceived job and organizational uncertainty is high than when uncertainty is low.

Survey data from 211 employees, clustered under 37 'leaders' (direct supervisors) is tested using a modification of Preacher et al.'s (2007, 2010) multi-level structural equation modeling (MSEM) approach. Results indicate that authentic leaders impact follower and organizational outcomes in part via directly influencing follower justice perceptions and justice climate, and that the effects of authentic leadership and justice are relatively independent of uncertainty level. This study contributes to the scientific literature by integrating theories of leadership, fairness, and uncertainty management, and by illustrating a novel and sophisticated approach (MSEM) to test this integrated model at the individual and leader levels of the organization. Implications for

practice include support for authentic leadership development as an actionable strategy to bolster fairness perceptions and build a fair climate, as well as positively impact well-being, attitudinal, and behavioral intent outcomes of followers.

## ACKNOWLEDGEMENTS

Throughout my graduate school career, I have received tremendous support from my family, friends, and academic mentors. I am blessed and honored to have these outstanding individuals in my life, and owe great thanks for the role each has played in my journey.

I would like to especially thank my advisor, Dr. Zinta Byrne. You believed in me, you challenged me – you taught me, by example, what it means to be a great mentor. I would also like to extend my gratitude to what is, in my opinion, the best doctoral committee ever imaginable: Drs. Alyssa Gibbons, Kim Henry, and Dan Ganster. I have learned so much from each of you, and enjoyed our time together immensely.

I owe endless thanks to my family. Thank you, mom and dad, for the nature and – perhaps even more so - the nurture. Avery and Andrew, thank you for always reminding me to keep learning fun. Thank you to my Kiersch family, for all of your love and support. And, of course thank you to my cohort sisters for bringing life into the world of graduate school.

Finally, I thank the love of my life – my husband, Cameron. You inspire me every single day.

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## **Introduction**

In an age when corporate corruption and CEO scandals are common news stories (e.g., Crawford, 2005; Henriques, 2009), organizational stakeholders have begun to define success in broader terms than objective financial indicators. Society now demands that organizational leaders not only generate a profit, but also maintain high levels of integrity, morality, and fairness while they do so (Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008). Organizational leaders need to know what leadership actions and characteristics meet society's expectations, how these leadership actions and characteristics are perceived by subordinates and positively influence organizational outcomes, as well as the boundary conditions that make this leadership more or less impactful. The purpose of this study is to answer these questions.

Leadership scholars are responding to the changing demands of society and associated needs of organizational leaders with a surge of research on authentic leadership, a process of leadership based on integrity and ethical behavior that is open, transparent, and considerate of all stakeholders (Avolio, Walumbwa, & Weber, 2008; George, 2003; Walumbwa et al., 2008). Integrating this line of research with organizational justice research, I propose that authentic leadership is a fair type of leadership, such that authentic leadership behaviors lead to high levels of fairness perceptions among subordinates, and that these fairness perceptions act as mediating variables between authentic leadership and organizational outcomes. Testing this proposition contributes to the nascent authentic leadership research and the established leadership literature by paying greater attention to the 'how' and 'why' questions of leadership (e.g., Cho & Dansereau, 2010; Piccolo & Colquitt, 2006; Yukl, 2006, 2009), as well as to the role of justice in leadership models (e.g., Van Knippenberg & De Cremer, 2008a, 2008b). This study also contributes to the organizational justice literature, which widely promotes the role of leadership

in influencing fairness perceptions but has yet to provide solid theoretical arguments and empirical evidence regarding what ‘fair leadership’ entails (Greenberg, 2011; van Knippenberg & De Cremer, 2008a).

Leadership and organizational justice are two of the most widely researched topics in organizational science (e.g., Colquitt, Greenberg, & Zapata-Phelan, 2005; Hiller, DeChurch, Murase, & Doty, 2011), likely due to the important outcomes related to these sets of variables for organizational stakeholders. For example, positive perceptions of organizational justice have been shown to relate to high levels of employee performance (Cohen-Charash & Spector, 2001), organizational commitment (Colquitt, Conlon, Wesson, Porter, & Ng, 2001), job satisfaction (Masterson, Lewis, Goldman, & Taylor, 2000), and employee well-being (Howard & Cordes, 2010). Various positive leadership characteristics and styles, including transformational leadership (e.g., Barling, Weber, & Kelloway, 1996) and the focal leadership style of this study, authentic leadership (e.g., Avolio & Walumbwa, 2006; Walumbwa, Wang, Wang, Schaubroeck, & Avolio, 2010), have also been shown to be predictive of attitudinal, well-being, and performance outcomes. Furthermore, high levels of organizational commitment, job satisfaction, employee well-being, and performance translate into positive financial gains for organizations via decreased costs of turnover and health care combined with benefits from higher levels of productivity and customer satisfaction (e.g., Koys, 2001; Subramony, 2009).

These positive main effects of ‘good leadership’ (including authentic leadership) and organizational justice are well-established, leading researchers to examine boundary conditions or moderator variables that determine under what conditions these positive effects prevail (e.g., Chen, Kirkman, Kanfer, Allen, & Rosen, 2007; Peng & Peterson, 2008). Recently, attention has been given to individual and contextual variables that enhance the effects of fairness and

leadership. One variable that has been identified as influential in both the fairness and leadership literatures is uncertainty, the perception of doubt regarding the future of some aspect of one's job or organization (e.g., Avolio & Gardner, 2005; van den Bos & Lind, 2002).

Much like the topics of corporate scandals and corruption, the concept of uncertainty – be it the uncertain economy or the general uncertain times – is highly popularized in the news (e.g., “Dow loses”, 2011; “Schindler sheds jobs”, 2011; “Uncertainty over Italy's future”, 2011). Yet, uncertainty associated with change (or perceived future change) has been around since the dawn of modern business, and organizational scientists have provided empirically-tested theories with which to better understand the effects of uncertainty and how it is managed in the workplace. In this study, I build upon uncertainty management theory (Kramer, 2004; van den Bos & Lind, 2002) to better understand the role of uncertainty in the processes through which authentic leadership and fairness influence organizational outcomes. By exploring uncertainty as a moderator in these processes, I contribute to the discussion of boundary conditions in justice and leadership research. Further, empirical support for uncertainty as a moderator could lead to practical contributions by helping organizational leaders make better well-informed decisions when allocating time and resources, especially during times of high levels of uncertainty such as mergers, acquisitions, or layoffs.

The purpose of this study is to integrate the literatures on organizational justice and leadership and understand the process of leadership by proposing and testing a model of authentic leadership and fairness in times of uncertainty (see Figure 1). Building upon prior mediation models of leadership while integrating the leadership and fairness literatures, I propose one set of mechanisms through which authentic leaders exert their influence on subordinate well-being, organizational commitment, turnover intention, and group performance:

by creating a fair climate for followers and directly affecting individuals' perceptions of fairness in the workplace. Further, I use uncertainty management theory as a framework to test whether high levels of uncertainty in the minds of individual employees or shared by the group enhance the effects of authentic leadership and fairness on well-being, turnover intention, commitment, and performance outcomes.

In addition to the aforementioned contributions to the leadership and justice literatures, as well as responding to the changing needs of organizational leaders, this study advances the understanding of multi-level phenomena and cross-level effects in organizational science. Despite huge advancements in multi-level analysis and ongoing calls for multi-level research in the leadership and justice literatures (e.g., Avolio, Sosik, Jung, & Berson, 2003; Greenberg, 2011), a relatively small amount of research has examined multi-level effects in these areas. This study contributes to this growing body of research by examining leadership, fairness, uncertainty, and a range of outcome variables (employee well-being, turnover intention, organizational commitment, and performance) at the individual and group levels.

To test the proposed model of leadership, justice, and uncertainty, survey data were collected from a large field sample of employees nested within leaders (direct supervisors). A relatively novel analysis approach, multi-level structural equation modeling (Preacher, Rucker, & Hayes, 2007; Preacher, Zyphur, & Zhang, 2010), was used to test the proposed multi-level moderated mediation model (see Figure 2).

In the literature review to follow, I first discuss the current and past research on 'good leadership'. I then narrow the discussion to one specific form of good leadership, authentic leadership, and discuss why authentic leadership should be considered a type of 'fair leadership', as well as review multi-level considerations in leadership research. Next, I review the research in

organizational justice, paying particular attention to group-level justice research (justice climate) and the connections between the leadership and justice literatures. Last, I review the literature on uncertainty in the workplace, discussing individual perceptions of uncertainty (job insecurity), as well as group level perceptions (uncertainty climate), and also focus on the implications of uncertainty management theory on leadership and justice effects.

### **The Importance of Good Leadership**

Leadership remains one of the most frequently discussed and researched topics in organizational science, most likely because of the strong impact leadership can have on organizational and individual outcomes (for a review, see Avolio, Reichard, Hannah, Walumbwa, & Chan, 2009; Barling, Christie, & Hopton, 2011). In a recent meta-analysis on the predictive validity of various leadership characteristics and styles, leadership behaviors were shown to account for an average of 20% of the variance in group performance, 51% of the variance in follower job satisfaction, and 47% of the variance in follower judgments of leader effectiveness (DeRue, Nahrgang, Wellman, & Humphrey, 2011). Numerous empirical field studies have supported the positive relationships between leadership and subordinates' organizational commitment (e.g., Judge & Piccolo, 2004; Walumbwa et al., 2008), subordinate health and well-being (see Theorell, Bernin, Nyberg, Oxenstierna, Romanowska, & Westerlund, 2010, for a review), positive subordinate behaviors such as organizational citizenship behaviors (e.g., Walumbwa, Hartnell, & Oke, 2010), and firm-level performance (e.g., Carmelli, Schaubroeck, & Tishler, 2011).

Although much of the research associating leadership with positive subordinate and organizational outcomes has relied on cross-sectional survey data (precluding any causal inferences), a recent meta-analysis conducted by Avolio and colleagues (2009) of experimental

and quasi-experimental studies suggests that leadership has a causal impact on the attitudes, affect, and behaviors of subordinates. On average, experimental and quasi-experimental studies show a moderate to large effect size for leadership interventions, and good leadership doubles the likelihood of achieving positive outcomes in terms of subordinate attitudes, affect, and behavior, when compared to control group conditions (Avolio et al., 2009). Considering the meta-analytic reviews, a host of empirical field studies, and evidence from experimental and quasi-experimental research, the impact of leadership on subordinates and organizational goals cannot be ignored.

Of particular interest to practitioners focused on leadership research is the substantial evidence that ability for leadership is more ‘made’ than ‘born’ (Arvey, Rotundo, Johnson, Zhang, & McGue, 2006; Arvey, Zhang, Avolio, & Krueger, 2007; Avolio & Hannah, 2008). Thus, leadership development can be seen as an important actionable strategy for impacting the organization as a whole. With such a strong body of evidence suggesting positive effects of leadership, as well as the opportunity for organizations to develop good leadership, the importance of leadership is rarely contested in practice.

A topic with far less consensus is how ‘good leadership’ is best defined. Historically, attention has been given to the traits of effective leaders, and then to specific behaviors of effective leaders (for a review see Avolio et al., 2003; Den Hartog & Koopman, 2002). More recently, researchers have proposed several leadership styles as descriptive of good or effective leadership. For example, good leadership has been defined as the ability to transform the actions and goals of followers from the individual level to the level of the group or organization (i.e., transformational leadership; Bass, 1985, 1990; Bass & Avolio, 1994; Burns, 1978). Good leadership has also been defined in terms of the quality of leader-member exchange (LMX)

relationships (Graen & Uhl-Bien, 1995), and the extent to which the leader is a ‘servant’ to his or her followers (i.e., servant leadership; Greenleaf, 1977; Graham, 1991; see van Dierendonck, 2011, for a review). A common theme among these definitions is that good leadership positively impacts followers’ attitudes, emotions, and behaviors, as well as the overall success of the group.

Although a review of all definitions and theories of leadership is beyond the scope of this study (readers are directed to Avolio et al., 2008, and Barling et al., 2011, for more comprehensive reviews), the literature shows that there are many ways to conceptualize ‘good leadership’; however, the choice to include any particular leadership variable or style in one’s empirical model should be driven by the purpose of that research. In this study, I examine one particular form of ‘good leadership’: authentic leadership. Authentic leadership is the best fit for this study’s purpose because of the common conceptual underpinnings between authentic leadership and organizational justice.

### **Authentic Leadership**

Authentic leaders are open, transparent, and consistent in decision-making processes and in interactions with their followers. They set themselves up to make balanced and well-informed decisions by encouraging followers to voice diverse viewpoints and by incorporating these varied viewpoints into their decision-making process (Avolio et al., 2008). Authentic leaders behave in a way that is consistent with their own values and morals, upholding a strong level of integrity and trust among followers. They are in tune with their own strengths and weaknesses, as well as how their strengths and weaknesses are perceived by others, so that they can use this self-knowledge to develop and lead most effectively (Walumbwa et al., 2008). In sum, authentic leaders are those who are perceived as *authentic* by followers.

Authentic leadership represents a relatively new leadership framework stemming from the fields of leadership, ethics, positive psychology, and positive organizational behavior (Avolio, Gardner, Walumbwa, Luthans, & May, 2004; Cooper & Nelson, 2006; Luthans & Avolio, 2003; Walumbwa et al., 2008). Building upon the various definitions of authentic leadership initially proposed (e.g., Gardner, Avolio, Luthans, May, & Walumbwa, 2005; Luthans & Avolio, 2003), Walumbwa and colleagues (2008) recently defined authentic leadership as “a pattern of leader behavior that draws upon and promotes both positive psychological capacities and a positive ethical climate to foster greater self-awareness and internalized moral perspective, balanced processing of information, and relational transparency on the part of leaders working with followers, fostering positive self-development” (p. 94). Avolio et al. (2008) offered a more succinct definition of authentic leadership as “a pattern of transparent and ethical leader behavior that encourages openness in sharing information needed to make decisions while accepting followers' inputs” (p. 423). In the practitioner realm, George (2003) has described authentic leaders as those who are high in integrity and purpose, have unwavering core values, and show a strong commitment to all stakeholders.

Following from these definitions, authentic leadership is now widely conceptualized and measured as a higher-order construct comprised of four lower-order dimensions: 1) self-awareness, 2) relational transparency, 3) balanced processing, and 4) internalized moral perspective (Walumbwa et al., 2008). *Self-awareness* refers to a leader’s understanding of his or her own strengths, weaknesses, and how he or she makes sense of the world. *Relational transparency* refers to how authentic and transparent a leader is perceived to be by others (e.g., followers). A leader who exhibits high relational transparency openly shares information, true thoughts, and feelings with subordinates, while also encouraging such open sharing by and



among followers. *Balanced processing* refers to the behavioral process used by leaders in decision-making. Leaders who use balanced processing in decision-making will objectively analyze all relevant data before coming to a decision, and will encourage all affected parties (e.g., followers) to voice their positions in the decision-making process – even when, and perhaps especially when those positions challenge those held by the leader. The fourth dimension, *internalized moral perspective*, refers to the strength of a leader’s own moral compass and the consistency exhibited between leaders’ own values and morals and their decisions and behaviors. Leaders with a highly internalized moral perspective make decisions and behave in ways that are reflective of their strong moral value system. Followers perceive authentic leadership when their leaders behave in ways consistent with all four of these dimensions (Walumbwa et al., 2008).

The concept of authentic leadership gained a surge of popularity in 2003, when two books on the topic were published. George (2003) released a practitioner-oriented book on authentic leadership, and in the same year an overview of authentic leadership, meant more for an academic audience, was released (Luthans & Avolio, 2003). The growing interest coincided with the general public outrage regarding highly publicized corporate scandals and prominent displays of unethical or immoral leaders in the news (Avolio & Luthans, 2006; George, 2003; Walumbwa et al., 2008). Organizational stakeholders are raising their expectations when it comes to leader integrity and moral virtue (Walumbwa et al., 2008), and authentic leaders rise to the occasion.

Fueling this interest in authentic leadership in both the academic and practitioner realms is the accumulating evidence that authentic leadership can be developed (i.e., authentic leaders can be ‘made’ and are not necessarily ‘born’; see Avolio & Gardner, 2005; Avolio et al., 2008).

The Gallup Leadership Institute at the University of Nebraska-Lincoln raised awareness in the area of authentic leadership development with their first summit on this topic in 2004. The following year, a special issue in *The Leadership Quarterly* was published on authentic leadership development with the aims of more clearly defining the construct domain and disseminating evidence regarding best practices for implementing such a leadership development strategy (Avolio & Gardner, 2005). The aggregate work on authentic leadership development has provided strong support for the trainability of authentic leadership behaviors (see Stober, Putter, & Garrison, in press) and success in aligning authentic leadership with broader organizational strategy. These strong advantages of authentic leadership have piqued the interest of change-minded researchers and practitioners alike.

Although it is commonly acknowledged that more research is needed to confirm the wide range of positive outcomes hypothesized to result from authentic leadership (e.g., Avolio et al., 2008; Cooper, Scandura, & Schriesheim, 2005), strides have been made in the empirical research on this topic that strongly support the effectiveness of authentic leaders in terms of follower attitudes and performance. For example, in the scale development and validation studies for the Authentic Leadership Questionnaire (ALQ; Walumbwa et al., 2008), authentic leadership was shown to positively predict organizational citizenship behaviors, organizational commitment, and satisfaction with supervisor. Further, authentic leadership significantly predicted these outcomes above and beyond the previously established ‘good leadership’ styles of transformational and ethical leadership. Of note, no published work to date has explored the relationship between authentic leadership and well-being, turnover, or in-role job performance. The current study will address these gaps and help to build the nomological network (Cronbach & Meehl, 1955) of this relatively nascent construct within organizational research. In addition to

building the nomological network for authentic leadership, four outcome variables were chosen to represent a range of attitudinal (affective commitment), health-related (well-being), behavioral intent (turnover intention), and behavioral (performance) outcomes of interest to organizational leaders.

Two theoretical frameworks provide support for hypothesizing a relationship between authentic leadership and the proposed outcomes of organizational commitment, turnover intention, well-being, and performance: social exchange theory (Blau, 1964) and the job demand-control-support model (JDCS; Johnson & Hall, 1988). Social exchange theory (Blau, 1964) posits that when individuals receive favorable noneconomic transactions from organizational agents, there is a natural drive (i.e., the norm of reciprocity, Gouldner, 1960) to respond by providing something comparable back to the organization. According to Blau (1964), this positive exchange behavior comes to rely on mutual trust, which forms the foundation of an ongoing relationship of exchange between one person or entity and the other. When applied to leadership, employees who perceive their leader to be authentic often feel as though they are the recipients of honest and trustworthy decision-making processes and outcomes, as well as moral and ethical treatment from their leader. In return, employees are likely to respond to high levels of authentic leadership with greater commitment to the organization (both in attitude and behavioral intent) and higher levels of performance (in addition to other forms of positive behavior towards the organization such as higher levels of citizenship behaviors, illustrated by Walumbwa et al., 2008).

With regards to a relationship between leadership and employee well-being, the JDCS model (Johnson & Hall, 1988; based upon the job-demand-control model by Karasek, 1979) suggests that levels of employee well-being (and its counter-points, employee stress and strain)

are determined based on a combination of job demands, perceived control over the environment, and social support resources (see Häusser, Mojzisch, Niesel, & Schulz-Hardt, 2010 for a review). In the JDCS framework, having an authentic leader provides employees with higher levels of social support and, all else being equal, higher levels of well-being. Thus, building on social exchange theory and the JDCS model, as well as the growing body of empirical research on authentic leadership, I propose that authentic leadership will significantly predict the four outcome variables of interest: well-being, organizational commitment, intent to leave, and performance. Evidence that authentic leadership predicts organizational commitment would serve to replicate prior empirical findings (Walumbwa et al., 2008); evidence that authentic leadership predicts well-being, intent to leave, and in-role performance would represent novel empirical findings, as no published empirical study to date has investigated these relationships.

**Individual and group-level effects.** There are multiple levels of analysis at which leadership phenomena can operate (Schriesheim, Castro, Zhou, & DeChurch, 2006), including the individual level (i.e., one follower's perceptions of the leader) and the group level (i.e., all followers' perceptions of the leader). Among the strongest voices arguing for the individual follower level of analysis are LMX theorists (e.g., Dansereau, Graen, & Hata, 1975; Graen & Scandura, 1987) who propose that each follower has unique experiences and interactions with the leader. Others view leadership as more of a group-level phenomenon, based on the argument that although each follower may have unique perceptions of and reactions to the leader, the leader's true style and behaviors remain homogenous across followers, thereby creating a shared perspective among followers (e.g., Ehrhart, 2004; Hogg, 2001; Walumbwa, Wu, & Orwa, 2008). According to social information processing theory (Salancik & Pfeffer, 1978), consideration of both individuals' perceptions and the group's shared perceptions is necessary to fully capture and

understand these perceptions and associated reactions. In the current study, authentic leadership is conceptualized at both the individual and group levels, so that both the unique follower perceptions and the shared group perceptions can be captured and modeled. Further, authentic leadership is hypothesized to predict the outcome variables of interest at both levels of analysis (see Figure 2):

*Hypothesis 1a – 1c:* At the individual level of analysis, authentic leadership will positively predict employee well-being (H1a), turnover intentions (H1b), and organizational commitment (H1c).

*Hypothesis 2a – 2d:* At the group level of analysis, authentic leadership will positively predict employee well-being (H2a), turnover intentions (H2b), organizational commitment (H2c), and group performance (H2d).

**A mediation model of authentic leadership effectiveness.** Despite the many years of prolific leadership research, organizational researchers continue to call for greater exploration into the ‘how’, ‘why’, and boundary conditions of effective leadership (Bass, 1999; Cho & Dansereau, 2010; Piccolo & Colquitt, 2006; Yukl, 2006). An even greater gap exists for research that examines both moderating and mediating variables in leadership simultaneously (Avolio et al., 2008; Yukl, 2009). In transformational/charismatic leadership research (which has a much longer history than authentic leadership research), only a few studies have attempted to capture mediated moderation or moderated mediation models (for notable exceptions, see De Cremer & van Knippenberg, 2004; Hoffman, Bynum, Piccolo, & Sutton, 2011; Walumbwa et al., 2008), and no published research to date could be found that examined both moderation and mediation effects of leadership at multiple levels of analysis. This study, therefore, contributes to the leadership literature by further exploring the variables through which leadership affects

organizational and individual outcomes (mediators), in addition to the boundary conditions (moderators) that may strengthen or weaken the effects of leadership, at both the individual and group levels.

Mediation models of leadership operate under the assumption that leaders do not directly influence organizational effectiveness, follower well-being, or performance outcomes. Mediation models assume that leaders have an indirect effect on these outcomes via the creation of some kind of positive organizational environment (climate or culture), or by their impact on other attitudes or emotions of employees. For example, the relationships between various leadership styles and organizational citizenship behaviors (OCB's, i.e., extra role job performance) have been shown to be mediated by climate of involvement (Richardson & Vandenberg, 2005), service climate and commitment to supervisor (Walumbwa et al., 2010), follower identification with supervisor (Walumbwa et al., 2010), and perceptions or climate of organizational justice (e.g., Cho & Dansereau, 2010). Individual feelings of empowerment, as well as an overall climate of empowerment, have also been supported as important mediators in the effect of leadership on OCB's (Walumbwa et al., 2010) and in-role job performance (Chen et al., 2007). Taken together, this literature has demonstrated how the effects of various leadership variables (including transformational leadership, LMX, and servant leadership) are mediated by attitudinal and climate variables such as identification with supervisor, empowerment, and organizational justice.

From the introduction of authentic leadership, researchers and practitioners alike have taken a mediation approach in describing authentic leadership by defining authentic leaders as those who create some type of positive, trustworthy, and ethical environment for followers. For example, Cooper and colleagues (2005) describe authentic leaders as those who create a positive

organizational environment wherein business is conducted in an ethical and socially responsible manner. Avolio and Walumbwa (2006) propose that authentic human resource leaders are able to directly impact employee performance by creating an organizational context that values transparency and positive connections among employees, thus allowing employees to continuously develop and achieve higher performance standards.

When viewing authentic leadership processes through the lens of a mediation model, the crucial question becomes: what are the mediating mechanisms for the effects of authentic leadership? Walumbwa et al. (2010) found empowerment and follower identification with the leader as mediators in predicting organizational citizenship behaviors and employee engagement. I propose that there is at least one more mediator for multi-level effects of authentic leadership on employee well-being, organizational commitment, and performance: organizational justice (see Figure 2).

### **Organizational Justice as a Mediator**

Before presenting the arguments for organizational justice as a mediator in the proposed model, I first define organizational justice at the individual and group levels (i.e., individual fairness perceptions and justice climate) and briefly review the research to date on antecedents and consequences of high levels of perceived justice at each level.

#### **Defining Organizational Justice**

Organizational justice refers to people's perceptions about fairness in the workplace with regards to outcomes they receive in comparison to others, decision-making processes used to determine outcomes, and interactions with authority figures (Greenberg, 1987). Justice researchers have identified three or four specific types of justice, each referring to fairness perceptions in a specific set of work contexts: distributive justice, procedural justice, and

interactional justice (sometimes broken down further into informational justice and interpersonal justice; e.g., Byrne & Cropanzano, 2001).

*Distributive justice* refers to the fairness perceptions of outcomes and resources (e.g., pay and rewards) received at work (Adams, 1963, 1965; Deutsch, 1975; Homans, 1961). Distributive justice is often attributed to Adams' theory of inequity (1963, 1965), in which Adams proposed that outcomes are perceived as fair when they seem proportionate to the inputs (e.g., effort and experience) an employee provides his/her organization and job, in comparison to others.

*Procedural justice* refers to the perceived fairness of the process followed by authority figures (e.g., supervisors) in the organization to distribute resources and outcomes (Leventhal, 1980; Thibault & Walker, 1975). According to Leventhal (1980), procedural justice perceptions are based on six fairness criteria: consistency (how consistent the procedures are across time and persons), bias suppression (whether or not the procedures are affected by bias or self-interest), accuracy (the extent to which procedures are based on valid information and void of error), correctability (whether or not there is an opportunity to appeal the procedures), representativeness (the extent to which procedures reflect the concerns and needs of all persons affected), and ethicality (the extent to which procedures are consistent with moral and ethical values).

The third type of organizational justice, *interactional justice*, refers to the perception of the fairness of interpersonal communication during the implementation of organizational procedures (Bies & Moag, 1986). Interactional justice is thought to consist of four components (Bies & Moag, 1986): truthfulness (the extent to which the supervisor or manager is open and honest in discussing procedures and outcomes), justification (the extent to which the supervisor or manager provides an adequate explanation of the outcome), respect (the extent to which the



supervisor treats the employee with dignity and sincerity), and propriety (the extent to which the supervisor avoids improper questions or comments). Several researchers have further divided interactional justice into two distinct justice types: *interpersonal justice*, fairness related to being treated with respect and propriety, and *informational justice*, fairness related to the adequacy and justification for outcomes (Colquitt, 2001; Greenberg, 1993).

### **Outcomes of Individual-Level Justice Perceptions**

All types of justice perceptions have been associated with a wide range of positive organizational outcomes in the literature. In their meta-analytic review, Cohen-Charash and Spector (2001) showed justice perceptions to be positively related to job performance (i.e., in-role performance) as well as organizational citizenship behaviors (i.e., extra-role performance, going beyond the job requirements to help the organization). Justice perceptions are also associated with positive organizational attitudes, including organizational commitment (e.g., Colquitt et al., 2001), job satisfaction (Greenberg, 2011; McFarlin & Sweeney, 1992), and inversely related to employee burnout and work-related stress (e.g., Fox, Spector, & Miles, 2001; Judge & Colquitt, 2004; Zohar, 1995). Taken together, the message is clear that organizational justice perceptions at the individual level have important implications for performance, attitudes, and well-being in the workplace.

### **Group-level Justice Perceptions: Justice Climate**

Researchers have also examined justice perceptions beyond the individual level of analysis, considering the role of justice perceptions at the group level, which has been termed justice climate (e.g., Colquitt, Noe, & Jackson, 2002; Naumann & Bennett, 2000). Justice climate is considered one form of organizational climate (e.g., Ostroff, Kinicki, & Tamkins, 2003; Schneider & Reichers, 1983), or the shared perception of a group of employees about the

organization in terms of its policies, practices, procedures and rewards. Building upon this definition of organizational climate and the justice types presented previously, I define justice climate in its most general sense as a group-level cognition about the fairness of rewards and outcomes, procedures, and interpersonal interactions within an organization.

The concept of justice climate can be traced to Mossholder, Bennett, and Martin's (1998) analysis of procedural justice context. The term 'justice climate' was first coined two years later by Naumann and Bennett (2000). Naumann and Bennett's (2000, 2002) work focused on procedural justice climate specifically, and sparked a number of studies of procedural justice climate research over the past decade. Other forms of justice climate (e.g., interactional justice climate or distributive justice climate) have received much less attention in the literature. For example, only two published studies explore interpersonal and informational justice climate (Liao & Rupp, 2005; Simons & Roberson, 2003), one empirical study to date examines the effects of interpersonal and informational justice climate in addition to procedural justice climate (Mayer, Nishii, Schneider, & Goldstein, 2007), and only one includes the full range of distributive, procedural, interactional, and informational justice climates (Sora, Caballer, Peiró, Silla, & Garcia, 2010). The current study builds on this growing body of justice climate research by exploring both the individual level and the group level effects of all four types of justice perceptions.

**Outcomes of justice climate.** Much of the early research on procedural justice climate focused on the individual-level outcomes of these group-level fairness perceptions, as well as the incremental variance in outcomes explained by procedural justice climate above and beyond that explained by analogous individual-level perceptions. In their seminal work on procedural justice climate, Naumann and Bennett (2000, 2002) showed that procedural justice climate significantly

predicted coworker helping behaviors (measured at the individual level), as well as supervisor ratings of work group performance (measured at the group level). Procedural justice climate has also been shown to predict group-level burnout (Moliner, Martínez-Tur, Peiró, Ramos, & Cropanzano, 2005), team absenteeism (measured at the group level; Colquitt et al., 2002), and organizational citizenship behaviors conceptualized at the individual and group levels (Chen, Lam, Naumann, & Schaubroeck, 2005; Ehrhart, 2004). Further, procedural justice climate predicted these important outcomes above and beyond individual perceptions of procedural justice, providing evidence for the uniqueness of group-level and individual-level justice perceptions (Chen et al., 2005).

### **Theoretical Frameworks for Multi-Level Justice Outcomes**

The positive empirical findings of individual justice perceptions and justice climate outcomes may be explained using two key theories: group value theory (Lind & Tyler, 1988) and social exchange theory (Blau, 1964). Group value theory, used to explain the well-being and attitudinal outcomes of fairness perceptions, states that the level of fairness experienced by a worker (or group of workers) serves as an indicator of how much that worker (or group) is valued by the organization. When employees perceive high levels of fairness at work, they feel valued by their organization and group. This sense of feeling valued is intrinsically satisfying, and leads employees to form favorable attitudes regarding all aspects of the organization and group. Further, being valued by one's organization meets the natural human need of social belonging (Baumeister & Leary, 1995), and positively impacts psychological well-being by fostering self-worth (Tajfel, 1978). When feeling valued, employees seek to continue to build their status within the group, as well as the group's status within the larger organization, and do so by furthering their contributions to the group (e.g., Blader & Tyler, 2009).

Performance (task and contextual) outcomes of justice can be understood in a different theoretical framework, social exchange theory. Based on social exchange theory, employees see high levels of fairness as a positive contribution the organization is providing them (similar to how authentic leadership is viewed in this theoretical framework), and respond by providing the organization with positive behavioral contributions considered a comparable exchange for fairness (e.g., Blau, 1964). Similarly, the relationships between high levels of fairness perceptions and attitudinal (organizational commitment) and behavioral commitment (turnover) may also be explained using social exchange theory (similar to the justification of the relationship between authentic leadership and organizational commitment; Colquitt et al., 2001), yielding the same hypothesis as would be proposed based on group value theory.

Whereas group value theory and social exchange theory have been used to explain the positive effects of both individual-level and group-level justice perceptions, social information processing theory (Salancik & Pfeffer, 1978) may provide clearer insight into why justice climate remains an important predictor beyond individual-level justice perceptions. According to social information processing theory, people's perceptions and their associated reactions are as much affected by social factors as they are by an individual's own internal thought processes. Take for example a situation wherein an employee is treated fairly in interpersonal communications with his or her supervisor, but sees the same supervisor treating co-workers with disrespect and limited sharing of information. Based on individual-level perceptions of fairness alone, we might expect using social exchange theory or group value theory that the employee would respond to high levels of interpersonal fairness with greater effort and commitment at work. However, using social information processing theory, based on the overall fairness context (taking into account the low level of fairness experienced by co-workers), the

employee will likely have a much less positive reaction (e.g., third-party justice perceptions; e.g., Rupp, Ganapathi, Aguilera, & Williams, 2006).

Applying group value theory, social exchange theory, and social information processing theory, as well as building upon existing empirical support for the positive outcomes of individual-level justice perceptions and justice climate, the following hypotheses are proposed (see Figure 2):

*Hypothesis 3a – 3c:* Individual-level justice perceptions will positively predict employee well-being (H3a), turnover intention (H3b), and organizational commitment (H3c).

*Hypothesis 4a – 4d:* Group-level justice climate will positively predict employee well-being (H4a), turnover intention (H4b), organizational commitment (H4c), and group-level performance (H4d).

**Antecedents of justice.** In light of the positive outcomes of justice perceptions (at the individual and group level) supported by theory and empirical evidence (e.g., Chen et al., 2005; Cohen-Charash & Spector, 2001; Colquitt et al., 2001), considerable effort has been spent exploring antecedents of justice as mechanisms to promote these individual and group-level perceptions and their associated consequences. Although a few notable exceptions explore individual or group characteristics (e.g., group size or cohesiveness) as antecedents (e.g., Colquitt et al., 2002; Naumann & Bennett, 2000), the primary focus in the literature appears to be on leadership.

The theoretical arguments for leadership, in general, as an important antecedent of justice can be traced to McGregor's (1960) writings about Theory Y management. Over fifty years ago, McGregor proposed that subordinate fairness perceptions are based primarily on three leadership criteria: the fairness of leader behavior, the integrity of the leader, and the leader's overall

interest in subordinate goals and concerns. More recently, justice researchers have relied on the ‘leaders as climate engineers’ argument when discussing leadership as a predictor of group-level justice perceptions (Schneider, Gunnarson, & Niles-Jolly, 1994). According to this argument, climate perceptions of all kinds (including justice climate perceptions) are based on leaders’ behaviors and the actions they reward because leaders are ‘climate engineers’ (see Walumbwa et al., 2008, for an application of this argument to the leadership-justice climate relationship). Essentially, leaders create, encourage, or ‘engineer’ a climate by signaling the values and goals of the organization via modeling desired behaviors or rewarding desired behaviors in others. Thus, individuals working under the same leader are likely going to experience similar leadership styles and behaviors and also hold somewhat similar perceptions of justice climate.

Building upon this general conceptual argument for leadership as an antecedent to justice perceptions, many researchers have attempted to articulate specific leadership styles or behaviors that create high levels of fairness perceptions in subordinates. In one of the first empirical studies of leadership and fairness, Pillai, Schriesheim, and Williams (1999) showed a positive relationship between transformational leadership and procedural justice perceptions (with both variables conceptualized at the individual level). High quality LMX relationships have also been connected with individual-level justice perceptions (e.g., Cohen-Charash & Spector, 2001), with increased attention being made to the relatively strong relationship between LMX and interactional justice perceptions (e.g., Piccolo, Bardes, Mayer, & Judge, 2008). A recent special issue of the *European Journal of Work and Organizational Psychology* (2008) presented several studies providing additional empirical support for leadership as an important predictor of individual employees’ perceptions of justice. For example, Van Dijke and De Cremer (2008) found that leader characteristics that were prototypical of their group, positively predicted

procedural justice perceptions, as did ethical styles of leadership (Mayer, Bardes, & Piccolo, 2008).

A wide range of leadership variables has also been shown to significantly relate to justice climate. In a study of leader personality traits and justice climate, Mayer and colleagues (2007) illustrated how different leader traits predicted different types of justice climate. Specifically, leader agreeableness and neuroticism significantly predicted interpersonal, informational, and procedural justice climates (with agreeableness positively and neuroticism negatively predicting these climates), whereas leader conscientiousness significantly predicted only one type – procedural justice climate.

Other research has focused on leadership styles, rather than leader personality. In one such study, Ehrhart (2004) found a strong positive relationship between procedural justice climate and servant leadership (operationalized at the group level of analysis), a style of leadership describing leaders who view their primary role as ‘servants’ to their followers. Charisma (also operationalized at the group level of analysis), one dimension of transformational leadership style, has been shown to positively predict procedural justice climate (Cho & Dansereau, 2010). Finally, LMX relationship quality has also been positively related to procedural justice climate when both variables were rated by the leader (Ansari, Hung, & Aafaqi, 2007).

In summary, it is well documented in the empirical literature that various types of ‘good leadership’ (e.g., conceptualized as transformational leadership, charismatic leadership, or high quality LMX) are associated with organizational fairness at both the individual and group levels. However, there are two gaps in this research that warrant exploration. The first is in simultaneously examining the individual and group level relationships between leadership and

fairness. Although researchers have found significant relationships at the group level between leadership and fairness (e.g., Ehrhart, 2004), and others have found such relationships at the individual level (e.g., Cohen-Charash & Spector, 2001; Pillai et al., 1999), very few have simultaneously examined *both* individual and group level effects (see Cho & Dansereau, 2010, for an exception) and no research to date has empirically tested the individual and group level effects of the same leadership and justice variables simultaneously, thus preventing any inferences regarding the unique effects at each level. To fully capture the complexity of the leadership and fairness relationship as it occurs in organizations, it is necessary to consider the interplay and potential overlap between individual and group level effects so that the full multi-level process can be accurately captured and understood. If only individual level or only group level effects are examined, it is not possible to determine whether any effects found are unique to the level being examined, or whether they are confounded by the effects at the unmeasured level. This study addresses this need by examining the relationship between leadership and justice perceptions at both levels, and exploring leadership as an antecedent to both individual justice perceptions and justice climate.

The second gap in the research on leadership and organizational justice is the lack of a theoretical foundation and conceptual argument to accompany the empirical evidence showing that specific leadership styles (e.g., LMX relationships and transformational leadership) significantly predict justice perceptions (e.g., Greenberg, 2011; van Knippenberg & De Cremer, 2008). At this point in the research, the take home message remains ‘good leadership predicts high levels of fairness perceptions.’ However, as discussed previously, ‘good leadership’ represents a wide range of leadership styles and characteristics, and the conceptual arguments for any one leadership style or characteristic to be defined as ‘fair leadership’ have thus far been



weak. For example, subordinates of transformational leaders, leaders who are charismatic and able to ‘transform’ individual goals to group-oriented goals, are said to have positive fairness perceptions because transformational leaders value positive team spirits and group harmony and “emphasiz(e) collective fairness so as to avoid the possibility of disrupting group harmony and solidarity” (Cho & Dansereau, 2010, p.412). In explaining the relationship between positive LMX relationships and justice climate, Ansari et al. (2007) noted that LMX predicts other positive climates so is likely to predict positive fairness climates as well. Though these explanations are likely to be true (transformational leaders do care about team spirits and harmony among subordinates and LMX does predict other forms of positive organizational climate), they are general and could easily be applied to any other form of ‘good leadership’, thus offering little insight into what constitutes ‘fair leadership’. This study aims to build a stronger conceptual argument for what constitutes fair leadership by investigating a new leadership variable as an antecedent to individual- and group-level justice perceptions, namely authentic leadership.

**Authentic leadership and justice.** The conceptual argument for authentic leadership as a critical antecedent to justice climate and individual justice perceptions is built upon two points: 1) the common theoretical underpinnings of justice and authentic leadership in morality (suggesting a relationship between authentic leadership and fairness), and 2) the ability of authentic leadership behaviors to meet justice criteria and influence justice perceptions (suggesting authentic leadership as an antecedent to fairness and not a consequence of fairness). The first point, regarding a consistent role of morality in justice and authentic leadership, is supported by fairness theory (Folger & Cropanzano, 1998, 2001) and the foundational research in authentic leadership (e.g., George, 2003; Gardner et al., 2005; Luthans & Avolio, 2003). The

second point, the ability of authentic leadership behaviors to meet fairness criteria, builds upon the proactive research in organizational justice (e.g., Gilliland, 1993; Levy & Williams, 2004; Skarlicki & Latham, 1996, 1997), focusing on increasing fairness perceptions via organizational changes.

Authentic leadership and organizational justice share at least one foundational concept: morality. According to fairness theory (Folger & Cropanzano, 1998, 2001; Folger, Cropanzano, & Goldman, 2005), moral accountability is a central feature to organizational justice and the formation of fairness judgments, and justice perceptions are largely grounded in basic moral and ethical assumptions regarding how others should be treated. Justice and morality are not synonymous concepts; however, justice perceptions and moral principles are partially overlapping constructs. Many events will be perceived as both just and moral (or neither just nor moral), though some events will be perceived as just but not moral or vice versa (Folger et al., 2005).

Similarly, morality and ethics play an important (though not all-encompassing) role in authentic leadership. According to the seminal writings on authentic leadership, authentic leaders behave in ways that demonstrate high levels of integrity and moral virtue (e.g., George, 2003; Luthans & Avolio, 2003). Having a positive moral perspective and a heightened level of moral capacity was proposed early on as one of the central components of being an authentic leader (e.g., May, Chan, Hodges, & Avolio, 2003). According to May et al. (2003), authentic leaders are those who have developed the ability (emphasizing that authentic leaders can be made and are not just born) to make decisions and behave in ways that are ethically responsible to their stakeholders, and have a high level of moral perspective to recognize and successfully evaluate ethical issues. Authentic leadership involves a high level of moral capacity, moral courage, and

moral capability, all of which can be developed with a well-designed leadership development program (May et al., 2003). In sum, morality is theorized to be at the heart of authentic leadership and is also a critical component of organizational justice, and this common foundation is proposed as one key reason why authentic leadership should predict high levels of organizational fairness.

The second argument for why authentic leadership should be considered a form of fair leadership is based on proactive justice research and focuses on how well authentic leadership behaviors meet fairness criteria required for the four fairness types (distributive, procedural, informational, and interpersonal). Proactive justice research has shown that fairness perceptions are formed based on how well elements in one's work environment (e.g., the behaviors of one's leader) meet fairness rules specified in distributive, procedural, informational, and interpersonal justice definitions, and that fairness perceptions can be impacted through organizational changes like leadership development (e.g., Skarlicki & Latham, 1996, 1997) and changes in human resource management procedures (e.g., Gilliland, 1993; Levy & Williams, 2004).

Each type of fairness perception is based on a specific set of fairness rules. For example, in forming a perception of procedural justice, employees consider how well elements in their environment meet Leventhal's (1980) six rules of fair procedures: consistency, bias suppression, accuracy, correctability, representativeness, and ethicality. Perceptions of distributive justice are based upon rules of equity, such that employees perceive distributive justice to be high when they have been recognized and rewarded in a balanced manner relative to the time and effort they put in to their work as compared to others (Adams, 1963). Finally, when employees feel the authority figures at work (i.e., leaders or supervisors) have treated them with dignity and respect

and have been open and honest with information, the criteria of interpersonal justice and informational justice (respectively) have been met (e.g., Bies & Moag, 1986).

Authentic leadership behaviors, by definition, encompass many of these various fairness criteria. Procedural justice criteria are met by the authentic leadership behaviors regarding decision-making processes (the balanced processing dimension of authentic leadership). Specifically, authentic leaders are open, transparent, and consistent in decision-making (Avolio et al., 2008; Walumbwa et al., 2008), and therefore should be perceived as procedurally fair by subordinates. Although there is no dimension of authentic leadership specifically capturing the equity criteria of distributive justice, the strong moral compass of authentic leaders (i.e., the internalized moral perspective dimension) will likely guide a fair distribution of rewards and outcomes for employees. Further, when considering the group-level effects of distributive justice, it would follow that a leader who values strong morals and ethical decision-making would create a climate of fair rewards and outcomes. Additional arguments for authentic leadership meeting fairness criteria are in regards to informational and interpersonal justice. Authentic leaders display high levels of self-awareness, relational transparency, and internalized moral perspective (three of the dimensions of authentic leadership), which leads them to uphold a strong level of integrity and trust with and among followers, encourage open and honest sharing of information, and exhibit genuine respect of followers.

Taken together, leaders demonstrating all four authentic leadership dimensions are likely to behave in ways that meet fairness criteria for all four organizational justice types. I propose that followers experience these authentic leadership behaviors and then form positive justice perceptions accordingly, thus making authentic leadership a type of fair leadership. These justice perceptions, in turn, lead followers to react positively with pro-organizational attitudes and

behaviors and to develop greater levels of well-being, making organizational justice an important mediator of authentic leadership processes.

I have argued that authentic leadership is a fair type of leadership because both authentic leadership and organizational justice share a conceptual foundation of morality and because authentic leaders demonstrate behaviors that meet fairness criteria and lead followers to develop high perceptions of fairness across all four types of justice. Based on these arguments, I propose that organizational justice perceptions, conceptualized as a higher order construct with the four justice types as indicators of a general justice dimension, at the individual and group levels will mediate the relationships between authentic leadership and the outcome variables of interest. As is the case whenever mediation is proposed, a decision must be made a priori as to whether the mediator variable is proposed to fully or partially mediate the predictor and criterion (e.g., Mathieu & Taylor, 2007). As conceptual arguments and empirical evidence have supported empowerment as another potential mediator variable (Walumbwa et al., 2010), it is unlikely that organizational justice would fully mediate the effects of authentic leadership. Rather, it appears likely that there are multiple (or at least two) mediator variables that help to explain the process of authentic leadership. Thus, I propose that fairness perceptions will partially mediate the effects of authentic leadership (see Figure 2).

*Hypothesis 5a – 5c:* Individual organizational justice perceptions will partially mediate the relationships between authentic leadership and employee well-being (H5a), turnover intention (H5b), and organizational commitment (H5c).

*Hypothesis 6a – 6d:* Group level organizational justice climate will partially mediate the relationships between group-level perceptions of authentic leadership and employee well-

being (H6a), turnover intention (H6b), organizational commitment (H6c), and performance (H6d).

Organizations do not operate in a vacuum; rather, they exist within the larger context of society and the global economy (i.e., the ‘systems perspective’; Klein & Kozlowski, 2000; Kozlowski & Klein, 2000). Similarly, the process of leadership in an organization can also be impacted by a host of contextual factors. One factor that has been proposed as a boundary condition for the effects of leadership and fairness separately, and is proposed in this study as a boundary condition for ‘fair leadership’ processes, is uncertainty.

### **Uncertainty as a Moderator**

A discussion of ‘uncertain times’ or the current ‘uncertain economy’ can be read nearly every day in newspapers worldwide, and heard through the radio, television, or by standing in any typical office gathering (e.g., “Dow loses”, 2011; “Schindler sheds jobs”, 2011; “Uncertainty over Italy’s future”, 2011). The terms are commonplace, yet rarely explicitly defined. Further, although employees are thinking and talking about uncertainty daily, limited research is being conducted to understand the effects of uncertainty on organizational processes. In this study, I examine the role of perceived uncertainty in the leadership process and propose that authentic leadership and organizational fairness perceptions have stronger relationships with employee outcomes when uncertainty is high than when uncertainty is low.

### **Defining Uncertainty in Organizational Settings**

Although the buzz in the media about uncertain times or uncertain economies may appear to be at an all-time high, many would argue that constant change (i.e., the root of uncertainty) is the norm and has been the norm for 21<sup>st</sup> century organizations (e.g., Cascio, 2003). According to Cascio (2003), major changes have occurred in work and organizations over the past several

decades, including changes in the psychological contract (i.e., the shared expectations between employee and employer), increased globalization, and changes related to technological advances. Each of these major changes has led to uncertainty in the minds of employees. With regards to changes in the psychological contracts held between employees and an organization, the life-long commitment of employees to one organization (which was commonplace several decades ago; Rousseau & Wade-Benzoni, 1995) is no longer routine. Employees expect to change organizations and jobs several times throughout their careers, and their employers expect this of them (Cascio, 2003). This shared expectation translates into a psychological contract with no promises of long-term employment from either party, often resulting in lower levels of perceived job security (i.e., uncertainty about the future of one's job; Greenhalgh & Rosenblatt, 2010). For American workers (and likely workers of other nationalities as well), increased globalization and reliance on technology can also impact employees' perceptions of job security via concerns that one's job will be transferred overseas, or that one cannot keep up with technological advances (Bernstein, 2000); however, it is likely that these major changes also have an impact on uncertainty at the broader group or organizational level. Globalization and technological advances can change the entire future of a department or a company, for example by causing an entire company or large section of a company moving overseas to save on labor costs, the adoption of new more complex technologies, or technologies becoming obsolete (e.g., Stonington, 2010).

Unquestionably there are many aspects of one's work experience that could be perceived as uncertain. In this research, I focus on two forms of uncertainty that seem to be most salient in today's workplace: uncertainty of the future of one's own job (job insecurity), and the more

general uncertainty of the group regarding the future of the organization (uncertainty climate, or environmental uncertainty).

**Job insecurity.** Many researchers have argued that employees have been especially in tune with job security issues in the last three years (e.g., König, Probst, Staffen, & Graso, 2010). According to the United States Bureau of Labor Statistics, employers initiated 11,824 mass layoff events (i.e., the firing of a large group of employees at the same time) in the year 2009, resulting in over two million lost jobs. With this unprecedented level of layoffs, and an unemployment rate upwards of 10% in some states (Bureau of Labor Statistics, 2011), concerns over job security are likely to be at the forefront of the average U.S. worker's mind, as well as on the minds of workers around the globe (e.g., König et al., 2010).

Job insecurity has been defined as one's negative perceptions or expectations regarding the continuity of one's job, concerns about the future of one's job, or the perception of a potential threat to one's current job (for a review, see Sverke, Hellgren, & Näswall, 2002). Although some researchers consider job insecurity as a multi-dimensional construct (e.g., Ashford, Lee, & Bobko, 1989), it is treated as a global perception about the future of one's job by a majority of researchers (e.g., Reisel & Banai, 2002; Sverke et al., 2002). In this study, job insecurity is operationalized as an individual-level, global perception about the future of one's job.

**Uncertainty climate.** Beyond the uncertainty an individual employee may harbor over the future of his or her job, there are also group-level cognitions of uncertainty about the future of the group or organization as a whole. Prior research on group level perceptions of uncertainty has focused mainly on uncertainty related to a large organizational change event, such as a mass layoff or merger (e.g., DiFonzo & Boria, 1998). In this body of research, uncertainty is defined



as the psychological state of doubt regarding the meaning or implications of a specific event, and the focal research questions tend to explore ways that organizational leaders can reduce uncertainty and the spreading of rumors (e.g., DiFonzo, Bordia, & Rosnow, 1994).

Researchers concerned with a general group-level uncertainty, unrelated to a specific change event, often refer to this phenomenon as environmental uncertainty (e.g., Waldman, Ramírez, House, & Puranam, 2001). Although some have operationalized environmental uncertainty as a specific pattern of objective characteristics regarding the organization or economy (e.g., Carmeli et al., 2011), this construct is most often defined as a perceptual phenomenon. For example, Milliken (1987) defined environmental uncertainty as the perceived inability to understand the state or direction of a potential change in the environment, the impact of the future environment, and whether or not responses to the future environment will be successful.

Despite the fact that a large scale change event, or an uncertain work environment, likely impacts all members of the group involved, these variables are often examined exclusively at the individual level (notable exceptions include research considering environmental uncertainty as an objective set of criteria, e.g., Carmelli et al., 2011; and also research examining the climate of job insecurity, e.g., Sora, Caballer, Peiro, & de Witte, 2009). In the proposed study, I consider the group level effects of uncertainty, defining uncertainty climate as the shared perception of environmental uncertainty about the future of the organization. By exploring uncertainty climate concurrently with job insecurity, my goal is to capture both the individual level and group level perceptions of uncertainty (as shown in Figure 2).

## **Theoretical Foundations of Uncertainty as a Moderator**

In understanding the role of uncertainty (i.e., job insecurity or climate of uncertainty) in organizational processes, researchers have chiefly relied upon one of two theories: uncertainty reduction theory (Berger & Calabrese, 1975) and uncertainty management theory (Kramer, 2004, 2009; Lind, 2001; van den Bos, 2001; van den Bos & Lind, 2002). These theories can be contrasted with one another based on the key underlying assumptions held by each. According to uncertainty reduction theory, all uncertainty is assumed to be harmful and people are assumed to have a natural drive to reduce uncertainty of all kinds (see Kramer, 2009). However, a large body of empirical evidence has shown that uncertainty does not always have negative effects for individuals, supporting the ‘ignorance is bliss’ phenomenon in some cases (Kramer, 2009). In contrast, uncertainty management theory incorporates the mixed findings on outcomes of uncertainty and posits that uncertainty is often harmful but can also lead to positive consequences, thus people are motivated to manage their uncertainty rather than to reduce it at all costs (Kramer, 2009; Lind & van den Bos, 2002). Although uncertainty reduction theory applies in many situations (e.g., where the uncertainty is a source of stress for the individual, as is very often the case when uncertainty is defined as job insecurity, see Størseth, 2006), uncertainty management theory can explain the same negative effects of uncertainty, as well as the disparate findings in the literature. Thus, uncertainty management theory will be used in the current model to build hypotheses for the moderating role of uncertainty.

In connecting uncertainty management theory to the organizational justice literature, van den Bos and Lind (e.g., Lind & van den Bos, 2002; van den Bos & Miedema, 2000; van den Bos & Lind, 2002) have paved the way with numerous published examples of conceptual and empirical support. According to Lind and van den Bos (2002), when employees find themselves

in situations of high uncertainty, they use fairness information to manage the uncertainty and become more reliant on fairness perceptions to inform decisions and behaviors. In other words, van den Bos and Lind (2002) explain that people are particularly sensitive to justice-relevant information when they feel uncertain. This increased sensitivity essentially brings justice perceptions to the forefront of employees' minds and leads to increased reliance on justice perceptions when deciding how to act, feel, or think in uncertain organizational situations. Their argument that uncertainty moderates the effects of organizational justice on employee affective reactions and well-being has been empirically supported when uncertainty is defined in a very general sense (see review in Lind & van den Bos, 2002), as well as when uncertainty has been defined as job insecurity (e.g., Kausto, Elo, Lipponen, & Elovainio, 2005).

The current study extends this line of research by testing the moderating effect of group level uncertainty climate, in addition to job insecurity, on the relationships between organizational justice and four outcome variables (organizational attitudes, employee well-being, turnover intention, and group performance). According to uncertainty management theory as applied to organizational justice perceptions (e.g., Lind and van den Bos, 2002), employees are more reliant on *all forms* of justice information in times of uncertainty – whether the information be regarding an individual's own outcomes or treatment (individual level justice perceptions) or the outcomes and treatment of all members of the group (group level justice climate). There appears to be no research to date that shows that certain types of justice perceptions (e.g., distributive and informational justice perceptions) are differentially relied upon in times of uncertainty, and I could find no theoretical arguments for suggesting that justice perceptions at different levels (e.g., individual and group levels) should be given different weights in predicting outcomes when employees perceive high levels of uncertainty. Thus, it is hypothesized that

group level justice perceptions will also be moderated by uncertainty, in the same manner that individual level justice perceptions have been empirically shown to be in existing research (e.g., Kausto et al., 2005; see reviews in Lind & van den Bos, 2002; van den Bos & Lind, 2002). However, it is noted that no prior research has explored these group level mechanisms, making this hypothesis somewhat exploratory in nature.

Specifically, building on uncertainty management theory and prior empirical evidence I hypothesize:

*Hypothesis 7a – 7c:* Individual-level job insecurity will moderate the relationships between individual-level perceptions of organizational justice and employee well-being (H7a), turnover intention (H7b), and organizational commitment (H7c), such that the effects of justice on these outcomes are stronger when job insecurity is high as compared to when job insecurity is low.

*Hypothesis 8a – 8d:* Group-level uncertainty climate will moderate the relationships between group-level justice climate and employee well-being (H8a), turnover intention (H8b), organizational commitment (H8c), and group-level performance (H8d), such that the effects of justice climate on these outcomes are stronger when uncertainty climate is high as compared to when uncertainty climate is low.

Just as organizational justice researchers have integrated uncertainty management theory into justice research, a small group of leadership researchers have begun to incorporate this theory into leadership research. Making a parallel argument to that put forth by Lind and van den Bos in the justice research, leadership scholars of entrepreneurship and top management have argued that uncertainty increases the importance of leadership in organizations (e.g., Carmeli et al., 2011; Ensley, Pearce, & Hmieleski, 2006; Hmieleski & Ensley, 2007; Waldman et al., 2001).

Within this small body of research, two empirical studies have explored the moderating effect of environmental dynamism (a set of objective indicators of instability, considered a precursor to perceptions of organizational uncertainty; Ensley et al., 2006) on the effects of empowering and directive leadership (Hmieleski & Ensley, 2007) and transformational-transactional leadership (Ensley et al., 2006) on the success of start-up companies. Results of these entrepreneurship studies suggest that the effect of founder leadership on start-up success depends on environmental dynamism. Specifically, transformational leadership had a stronger effect on start-up success in highly dynamic environments than in static environments, transactional leadership (i.e., leadership centered on the physical and psychological transactions between leaders and followers; Bass, 1985, 1990) had a weaker effect in dynamic environments than in static environments, and the moderated effect on empowering and directive leadership depended on the homogeneity of top management. There is also evidence that chief executive officer charismatic leadership (conceptually similar to transformational leadership), but not transactional leadership, has a stronger effect on future firm performance in times of environmental uncertainty than in times of certainty (Waldman et al., 2001). Furthermore, top management team confidence more strongly predicts objective firm performance when environmental uncertainty is high, than when it is low (Carmeli et al., 2011).

Taken together, the existing body of research on moderating effects of uncertainty on leadership processes suggests that for certain types of leadership (e.g., transformational and charismatic leadership), the effects of leadership on organizational performance are stronger when general environmental uncertainty is high. However, no research to date has examined job insecurity as a moderator in leadership research, nor has research examined the boundary effects of authentic leadership specifically. Thus, the current study builds on the research of charismatic

or transformational leadership (related yet distinct leadership styles to authentic leadership, see Walumbwa et al., 2008) of top management by exploring the moderating role of uncertainty in the direct relationships between authentic leadership and three outcomes relevant to organizations (organizational commitment, turnover intention, employee well-being, and group performance).

Based on the premise of uncertainty management theory and because organizational justice is proposed to partially (and not fully) mediate the relationships between authentic leadership and the outcome variables, I hypothesize that the remaining direct relationships between authentic leadership and each outcome are moderated by uncertainty. If organizational justice is not a significant mediator (partial or full) of authentic leadership, the proposed moderation of uncertainty will be tested on the total relationships between authentic leadership and each outcome. If organizational justice is supported as a full mediator (which is not hypothesized but nonetheless possible), the moderation hypotheses for authentic leadership will not be tested.

*Hypothesis 9a – 9c:* Individual-level job insecurity will moderate the relationships between individual-level perceptions of authentic leadership and employee well-being (H9a), turnover intention (H9b), and organizational commitment (H9c), such that the effects of authentic leadership on these outcomes are stronger when job insecurity is high than when job insecurity is low.

*Hypothesis 10a – 10d:* Group-level uncertainty climate will moderate the relationship between group-level authentic leadership perceptions and employee well-being (H10a), turnover intention (H10b), organizational commitment (H10c), and group-level performance (H10d), such that the effects of group level perceptions of authentic

leadership are stronger when uncertainty climate is high than when uncertainty climate is low.

### **Overview of Current Study**

The current study is meant to bridge the gap between the organizational justice and leadership literatures to further an understanding of the role of fairness perceptions in leadership processes occurring at the individual and group levels. I propose that authentic leadership is a type of fair leadership, and that fairness perceptions (at the individual and group levels) will partially explain (mediate) the positive effects of authentic leadership on employee well-being, turnover intention, organizational commitment attitudes, and performance. In an effort to better understand boundary conditions that may alter the effects of authentic leadership and fairness, uncertainty in the form of job insecurity and uncertainty climate is tested as a moderating variable.

The ultimate goal of this research is to understand the how, why, and boundary conditions of effective leadership for dynamic organizations dealing with the raised expectations of fairness and social responsibility by stakeholders, particularly in times of uncertainty. In pursuit of this goal, a multi-level model of authentic leadership, organizational justice, and uncertainty is presented. Figure 2 depicts the hypothesized model.

## **Method**

The study model is tested with data from employees working in various organizations across the United States and Canada, responding to survey questions regarding their perceptions of their direct supervisor, the level of fairness and uncertainty they experience at work, and their perceived level of well-being and organizational commitment as well as intention to leave. Direct supervisors were chosen as the leaders in this study because prior research has shown that an employee's immediate supervisor is a greater determinant of employee behavior than higher-level organizational leaders due to frequency in interaction and direct influence on each employee's work experience (Pillai et al., 1999; Wayne, Shore, & Liden, 1997). Data regarding the final outcome variable, group performance, is provided by the employee's supervisor or higher organizational leader (when the organization is sufficiently small).

To test the proposed model (Figure 2), I use multi-level structural equation modeling (MSEM) to analyze survey data collected throughout the Fall of 2011. In the following section, I will first discuss notable multi-level considerations involved in testing the model. Next, I will describe the procedures used to recruit participants and collect data, followed by a discussion of the sample and the survey measures utilized. Finally, I will discuss the data analysis strategy used in testing the hypotheses.

### **Multi-level Considerations**

In testing a model with variables at two levels (e.g., at the individual and group levels, as is the case with this study), careful consideration must be given to the nature of each construct at both levels and the nature of each effect occurring within or across levels. Specifically, it must be clearly specified which constructs are conceptually identical at the individual and group levels (i.e., constructs representing 'isomorphic' phenomena, Kozlowski & Klein, 2000), and which are conceptually distinct (i.e., constructs representing or 'compilation' phenomena, Kozlowski &



Klein, 2000). Attention must also be paid to how the group-level constructs are best captured, either measured as explicitly group-level characteristics (e.g., objective data at the group level) or as some composition of individual-level responses (see Chan, 1998, for a discussion of composition models). Finally, the various options available for analyzing multi-level data should be considered and the best option chosen based upon the hypotheses to be tested as well as the nature of the variables, and their measurement, at each level. In the following section, I discuss two sets of multi-level considerations pertinent to this study: 1) conceptualization considerations, i.e., how each variable is defined at the individual and group levels; and 2) measurement and analysis considerations, i.e., how each variable is measured at each level, and the best statistical framework in which to test the proposed multi-level hypotheses.

**Conceptualization considerations.** In this proposed multi-level model of authentic leadership and organizational justice in times of uncertainty, all three independent variables of interest – authentic leadership, organizational justice, and uncertainty – are hypothesized to exist in some form at the individual level and group level of analysis, and all are measured exclusively at the individual level. Authentic leadership and organizational justice are operationalized as perceptions that vary in meaningful ways at both the individual level and group level. These constructs are conceptually the same across levels (i.e., authentic leadership is defined in the same way at each level and the same four types of justice are captured at both the individual level and climate level); however, the effects of the group-level variance in perceptions are expected to be partially distinct from the effects of the individual-level variance. According to Kozlowski and Klein's (2000) typology of multi-level phenomena, the constructs may be labeled isomorphic (meaning they are conceptually identical in definition at each level), though the proposed unique effects of the individual and group level variance of the constructs indicate that

the group level variables are collective in nature (meaning the group-level variance in perceptions is the result of dynamic interactions among individual-level perceptions).

In contrast to the constructs of authentic leadership and organizational justice, the third independent variable of uncertainty is defined in a conceptually distinct way at the individual and group levels. As Klein and Kozlowski (2000) argue, it is necessary to ensure that the way in which a construct is defined at each level is relevant and that assumptions regarding the consistency of a construct across levels are not blindly followed. If careful consideration is not paid to the relevance of a construct definition across levels, inaccurate inferences could be drawn or results could have little practical meaning. In this study, I propose that there are some types of uncertainty that are best conceptualized as individual-level perceptions and other types that are best categorized as group-level or climate variables. Specifically, I propose that uncertainty regarding the future of one's own job (job insecurity) is best conceptualized as the individual-level form of uncertainty, and uncertainty climate (the group-level perception regarding the future of the entire group) is best conceptualized as the group level form of uncertainty. Although each form of uncertainty included in the model is part of a common construct domain, the variables are conceptually distinct and defined differently at each level (i.e., a compilation phenomenon, Kozlowski & Klein, 2000).

**Measurement and analysis considerations.** In multi-level research, great attention has been paid to the best way to capture group-level perceptual phenomena based on individual-level responses. In organizational science, many researchers rely on Chan's (1998) typology of models when determining the best measurement strategy for inferring group-level phenomena from individual-level data. According to Chan, group-level variables can be measured according to the *additive model*, whereby the group-level variable is calculated as the average individual-level

response; the *dispersion model* whereby the group-level variable represents variance in individual-level responses; or the *direct consensus model* whereby the group-level variable is defined as the average individual-level response but only meaningful if quantitative agreement among members in the group reaches a certain threshold.

Many organizational climate researchers, and justice climate researchers more specifically, have relied on the direct consensus model for measuring group-level climate perceptions (e.g., Cho & Dansereau, 2010; Mayer et al., 2007). In practice, this translates into having individual members of the group complete a survey regarding their perceptions of the policies, practices, and values of the organization and then calculating some quantitative index of agreement (e.g., the ICC or  $r_{WG}$  index). This quantitative agreement index is then used to determine whether individuals within the group have a high enough level of agreement for their perceptions to be aggregated and a group level average response calculated. For many years, this process of agreement-based aggregation was considered ‘best practice’ in climate and other group level perception research (e.g., LeBreton & Senter, 2008). This method acknowledges the dependence of individuals’ perceptions within a group (i.e., the inherent ‘nesting’ of individuals within groups), thus satisfying the statistical assumption of independence of observations. Furthermore, this approach also recognizes the conceptual definitions of climate variables as the ‘shared perceptions’ among group members by requiring a certain level of agreement (or ‘sharing’) among responses at the individual level.

However, there are disadvantages of this aggregation method that can now be addressed with more advanced statistical analysis. First, the agreement-based aggregation method (as well as the aggregation method requiring no agreement) assumes that the mathematical average of individual group members’ responses is a perfect indicator of the group level perception. This is

especially problematic when there is imperfect agreement among members and when not all members of a group have provided individual level responses (Lüdke, Trautwein, Kunter, & Baumert, 2006). Second, the aggregation method only allows the variable to vary at the group level of analysis, even though there may be important unique variance in the construct at both the individual and group levels (e.g., Klein & Kozlowski, 2000).

To account for the noted disadvantages of aggregation methods for measuring group-level variables, a new method of multi-level modeling has been proposed. Using multi-level structural equation modeling (MSEM; Preacher et al., 2007; Preacher et al., 2010), constructs can be measured at the individual level and then allowed to vary at both the individual and group levels of analysis. Specifically, in MSEM the individual level, or ‘within group’ variance of each variable (to use MSEM terminology), is separated from the group level or ‘between group’ variance and correlation/covariance matrices are estimated for each of the two levels. This set of correlation/covariance matrices is then used as the basis for testing all MSEM models. In an MSEM framework, the group-level form of a construct is considered a latent construct, inferred from the shared variance in observed individual-level responses. This method of inferring the group-level construct from individual-level indicators accounts for the error involved in this cross-level inference, acknowledging that the individual-level responses are imperfect indicators of the group-level perception.

Working within a MSEM framework, all independent variables in the current study were measured at the individual level. The two isomorphic independent variables, authentic leadership and organizational justice, were then allowed to vary in distinct ways at both the individual and group levels in all analyses. Job insecurity, which was conceptualized exclusively at the individual level, was allowed to vary at both levels to promote more accurate representation of

the nested data but was only interpreted at the individual level; similarly, uncertainty climate, conceptualized exclusively at the group level, was also allowed to vary at both levels but only interpreted at the group level. As represented in the hypothesized model, the outcomes of interest in this study are also conceptualized as single-level variables. Well-being, organizational commitment, and turnover intention are defined (and measured) at the individual level; group performance is defined (and measured) at the group level. However, to estimate the effects of group level independent variables (group level authentic leadership and justice climate) on the outcome variables, all outcome variables must be allowed to vary at both levels. Group performance is the one study variable with only group level variation, as this construct was assessed by the leader of the group, referencing the group as a whole.

### **Participants and Procedure**

**Participants.** A total of 211 employees working under 37 supervisors in 25 different organizations participated in this study. In determining the necessary sample size to have adequate power to test all hypotheses, I relied on published recommendations from prior multi-level research as well as the results of Monte Carlo simulations. There is very little agreement regarding necessary sample size beyond ‘larger is better’ in published multi-level research, and no research to date has investigated the appropriate sample size for mediation models (or moderated mediation models) within MSEM (Preacher et al., 2010). From research using other statistical frameworks to test multi-level models, it seems that two conclusions are noteworthy: 1) emphasis should be placed on level 2 sample size, or the number of groups in the sample (e.g., Meuleman & Billiet, 2009; Preacher et al., 2010); and 2) unequal group sizes may have a minor impact on the analysis but likely will have no noticeable effect on results (Lüdtke, Marsh, Robitzsch, Trautwein, Asparouhov, et al., 2008). Monte Carlo simulations suggested that a

sample of 300 individuals and 30 groups would be adequate to capture moderate and strong effects in this model, and that the focus should be on increasing the number of groups (i.e., a smaller sample of individuals with a larger sample of groups would have a larger positive impact on the power to detect group-level effects than the negligible impact on the power to detect individual-level effects). Thus, the 211 individuals and 37 groups included in the current study were judged as adequate to test the hypothesized effects.

Of the 211 employees who participated, a group could not be identified for 14 individuals, two individuals reported working part-time, and the majority of the data (including responses on all of the outcome variables) was missing for eight individuals. These 24 individuals were eliminated from all analyses, resulting in a total usable sample of 187 full-time employees within 37 groups. The average age of participants was 38.31 years ( $SD = 11.21$ ), the average organization tenure was 4.94 years ( $SD = 6.02$ ), and the average hours worked per week was 43.36 ( $SD = 6.47$ ). Participants were 44.3% female, 23.7% male, and 32% with no reported sex. Most participants identified as Caucasian (50.3%), with other ethnic groups represented in smaller numbers (1.6% Black/non-Hispanic, 2.1% Asian/Pacific Islander, 8.0% Hispanic, 1.1% Other); 36.9% of respondents did not indicate an ethnicity. Participants worked a wide variety of occupations, including customer service roles, management positions, human resources, hospitality, marketing and sales, legal counsel, and scientific analysis positions. Participants were also based in a wide range of organization sizes (ranging from organizations of 12 employees to organizations with 100,000 employees) and industries (including healthcare, banking, information technology, public safety, social service, legal, and accounting). The 37 groups had an average observed group size of approximately five members. Where data were available, most groups were represented by 50-100% of all group members; however one group

was represented by only 5% of all group members and several groups did not indicate how many total members were in the group (making a representation percentage for these groups impossible to estimate).

**Procedures.** Participants were recruited for this study in two ways. First, leaders of small to moderate sized businesses in the Rocky Mountain Region and in select areas in the South and Eastern United States were contacted by the author through a common acquaintance. The business leaders then emailed an invitation to participate to all employees in the organization. In exchange, the researcher provided for an overview of the survey results that included all participating employees in that organization. Using this recruitment method, the structure of the organization was first discussed between the business leader and the researcher, and it was determined prior to collecting data how to identify employees working under the same direct supervisor (so that group-level analysis would be possible) without jeopardizing the anonymity of any participants.

The second method used to recruit participants was to invite full-time working adults who were enrolled in online masters level courses to participate in exchange for extra credit points. This population of online students worked in a variety of locations, mainly in the United States but also abroad, and covered a variety of industries, organizations, and job types. To fully participate, they were instructed to recruit four individuals who work full-time for the same direct supervisor. The individuals who were enrolled in the online courses were allowed to be one of the four recruited, but were not required to be. It was not possible to know whether the online student participated given the anonymity of the survey process.

All potential participants in the study were sent an email invitation crafted by the researcher and approved by the ethical review board, either directly from the researcher, from

their organizational leader, or from an online course participant. This email invitation contained an overview of the study, contact information for the researcher and research superior, as well as all information required by the ethical review board to ensure the rights and safety of human participants. In addition, the email invitation contained the link to the online survey, housed on a secure server operated by a large public university, which participants accessed to complete all survey items. The online survey took approximately 15-20 minutes to complete, and was accessible from any computer with an Internet connection. Participants completed the survey in one sitting, and were encouraged to answer the items at any time that was convenient. Responses to all survey items were confidential and anonymous, and it was impossible to track any one survey or survey response to the individual responder.

As a small incentive and gesture of gratitude to all individuals who participated in this research, each participant had the opportunity to enter his or her name into a drawing with the chance to win a \$25 gift certificate provided by the researcher to either Amazon.com or a local restaurant (winner's choice). Participants who wished to enter the drawing were instructed to contact the researcher directly with a name (any name) and some way to contact them if they were chosen as a winner. By keeping all drawing-related correspondence separate from the survey, it was impossible to connect any drawing participants with any specific survey responses.

## **Measures**

With the exception of the group performance variable, which was assessed via supervisor ratings of the group as a whole, all variables were assessed with self-report survey measures in an online format. A full list of items for each measure is provided in the Appendix, with the



exception of the Authentic Leadership Questionnaire. The ALQ is proprietary for non-academic purposes and only partial reprinting of items is legally permitted.

**Authentic leadership.** Participants rated their direct supervisor in terms of perceived authentic leadership using the Authentic Leadership Questionnaire (ALQ; Walumbwa et al., 2008). The ALQ was developed to assess self- or other-rated perceptions of authentic leadership behavior. The four dimensions of the ALQ (self-awareness, relational transparency, balanced processing, and internalized moral perspective) are viewed as equal components of the higher-order authentic leadership construct. Walumbwa et al. (2008) supported the construct validity of the ALQ via three separate studies in their initial scale development and validation research. Specifically, Walumbwa et al. (2008) followed a systematic and theory-driven scale development process, used confirmatory factor analysis to show that the ALQ does indeed capture four dimensions and one higher-order construct of authentic leadership, showed that the ALQ measured distinct concepts from transformational and ethical leaderships, and illustrated the predictive validity of the ALQ by relating scores to follower behaviors and supervisor-rated performance.

Participants rated sixteen behaviorally-based leadership statements by indicating how frequently each statement fit their supervisors' leadership style. Ratings were made according to a five-point Likert-type scale where 1 = *not at all* and 5 = *frequently if not always*. A sample item is "In general, my supervisor listens carefully to different points of view before coming to conclusions."

**Organizational justice.** Perceptions of organizational justice were assessed with Colquitt's (2001) measures of distributive justice (four items), procedural justice (seven items), informational justice (four items), and interpersonal justice (five items). Colquitt's (2001) initial

scale development and validation study provided evidence of construct validity via predictive validity, and the wide body of justice research in the past decade has further strengthened the evidence for these four scales as valid measures of the four intended justice types (see Greenberg, 2011, for a review). Colquitt's (2001) measures are among the most widely used by organizational justice researchers (Greenberg, 2011).

Each item asked the extent to which a given fairness criteria is perceived by the participant, with responses given on a five-point Likert-type scale where 1 = *to a small extent* and 5 = *to a large extent*. An example item from the distributive justice subscale is, "To what extent are your pay and rewards justified, given your performance?" A sample item from the procedural justice subscale reads, "To what extent have [the procedures used at work to arrive at your payment and rewards] been applied consistently?" A sample item from the informational justice subscale is, "To what extent has [the authority figure in charge of your payment and rewards] been candid in his/her communications with you?" Finally, a sample item from the interpersonal justice subscale is, "To what extent has [the authority figure in charge of your payment and rewards procedures] treated you with dignity?" The appropriateness of a higher-order justice factor, or of four separate justice dimensions, was determined via several tests of the best measurement model using exploratory structural equation modeling (ESEM) and confirmatory factor analysis (CFA), described in the analysis section below.

**Uncertainty.** Perceptions of job insecurity were assessed with the one-item measure from Lindström (2000) and Lindström, Leino, Seitsamo, & Torstila (1997). Researchers have supported the validity of a global one-item measure to assess general job insecurity perceptions (e.g., Reisel & Banai, 2002) and have also supported this specific measure (e.g., Kausto et al., 2005; Lindström et al., 1997). Specifically, Reisel and Banai (2002) showed that direct, global

scales of job insecurity predict as much or more variance in outcomes than longer, multi-dimensional scales of job insecurity. Further, the validity the direct one-item measure has been supported by research from the Finnish Institute of Occupational Health (Lindström, 2000; Lindström et al., 1997), which has shown scores on the item to vary with major organizational changes as expected, and correlate with job dissatisfaction and health symptoms. The job insecurity item reads, “How secure is your job?” and was rated by participants on a five-point Likert-type scale where 1 = *very insecure* and 5 = *very secure*. This item was reverse-coded so that higher scores indicated higher levels of insecurity.

Perceptions of uncertainty climate were assessed with Størseth’s (2006) five-item measure. Stemming from the “predictability at work” scale in the General Nordic Questionnaire (Dallner, Elo, Gamberale, Hottinen, Knardahl, et al., 2000), this measure of uncertainty climate assessed perceived threats and worries of organizational change. In the scale’s debut, Størseth’s (2006) supported its construct validity, showing scores to be related to (yet distinct from) task and job dissatisfaction, work motivation, and mental health complaints. Rated on a five-point Likert-type scale where 1 = *strongly disagree* and 5 = *strongly agree*, a sample item from this scale is “There are rumors concerning big changes at my workplace.”

**Perceived stress.** Individual well-being was operationalized as perceived stress and was assessed with the five-item short version of the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). The PSS (both the short version and full version, with 14 items) has been supported as a valid measure of the global perception of life stress, with evidence that scores are related to (yet distinct from) life-event scores (another indicator of experienced stress and strain), depressive and physical symptomatology, utilization of health services, social anxiety, and smoking-reduction maintenance (Cohen et al., 1983). The short version of the scale was chosen

over the long version to limit the total amount of time required by participants to complete the entire questionnaire. Two aims accomplished by limiting the time required to participate are increased sample size and reduced survey fatigue (Porter, Whitcomb, & Weitzer, 2004; Rogelberg & Luong, 1998), a potential contributor to non-response and lower quality responses on surveys (Porter et al., 2004).

Participants were asked to consider how often they have experienced certain stressors and well-being related cognitions and feelings in the last month, responding to a five-point Likert-type scale where 1 = *never* and 5 = *very often*. A sample item from this scale is, “In the last month, how often have you felt nervous and ‘stressed’?” This scale is coded so that higher scores indicate higher levels of perceived stress (i.e., low levels of well-being).

**Affective organizational commitment.** Affective organizational commitment was assessed via the eight-item affective subscale of the Organizational Commitment Questionnaire (OCQ; Allen & Meyer, 1990). Although the psychometric properties of the larger OCQ have received mixed support in the literature, the construct validity and reliability of the affective commitment subscale are fairly well established (see Cohen, 2007). According to Cohen (2007), the convergent and discriminant construct validity of this scale as a measure of affective commitment perceptions has been supported, justifying the use of this measure in the current study. Participants responded to statements regarding their emotional attachment to their organization, such as “I really feel as if this organization’s problems are my own.” Responses were given on a five-point Likert-type scale, where 1 = *strongly disagree* and 5 = *strongly agree*.

**Turnover intention.** Turnover intention, or intent to leave, was measured with three items from Adams and Beehr (1998), based upon work by Rosin and Korabik (1991) and Michaels and Spector (1982). These three items assessed actively planning to leave one’s job as

well as desire to leave one's job, for example "I would like to quit this job and find another in the near future." Responses indicated level of agreement with each statement and ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). This measure of intention to quit has been shown to be distinct from a measure of intention to retire, and also related yet distinct from a measure of organizational commitment (Adams & Beehr, 1998). Thus, the construct validity of the measure as capturing intention to quit for reasons other than retirement has been supported.

**Team performance.** To capture group-level performance data, each groups' supervisor was asked to complete a seven-item subjective rating form regarding the in-role performance (as opposed to extra-role performance or organizational citizenship behaviors) of the group as a whole. This measure was adapted from Williams and Anderson (1991) to assess group level performance (as opposed to individual-level performance) and to better fit the varied sample included in this study. Williams and Anderson (1991) supported the construct validity of this measure by showing that scores were related to (yet distinct from) extra-role performance (i.e., organizational citizenship behaviors), and unrelated to trait affectivity. Although this appears to be the first study to shift the reference point of this scale from the individual to the group, highly similar scales have been successfully adapted from the individual to the group level and still maintained strong psychometric properties (e.g., Chen et al., 2007). The Williams and Anderson (1991) scale was chosen over the scales already adapted for the group level reference because the general nature of the items made this particular scale relevant for the diverse group of participants (in terms of job and organization type) in the current study.

Items on the measure asked supervisors to indicate the extent to which the group as a whole meets expectations and successfully performs all job-related responsibilities. A sample

item reads, “This group meets formal performance requirements of the job”, and was rated on a five-point Likert-type scale where 1 = *strongly disagree* and 5 = *strongly agree*.

## **Analyses**

All analyses were conducted using Mplus version 6.0 (Muthén & Muthén, 1998-2010). Prior to testing the proposed hypotheses, preliminary analyses were conducted to establish the best-fitting measurement model (i.e., to determine whether sub-dimensions or overall general scores of authentic leadership and organizational justice were supported by the data), as well as to determine the percentage of variability in observed scale scores that could be accounted for by group membership (thus legitimizing testing of group-level effects in the model). Following specification of the best-fitting measurement model and justification for examining effects at two levels, the hypothesized paths in the proposed MSEM model were tested. Details and rationale for each set of analyses are provided below, followed by a discussion of study results.

**Testing the measurement model.** Prior to testing the proposed model of multi-level effects with MSEM, it is necessary to first test the intended measurement model to ensure that each variable represents a unique factor, with the intended survey items as its indicators (Anderson & Gerbing, 1988). In MSEM, the group-level constructs are latent variables created by decomposing the variance for each observed variable into a within-group (individual level) component and a between-group (group level) component (operationalized by the estimation of a within level correlation/covariance matrix and a between level correlation/covariance matrix to serve as the basis for all hypothesized model estimations). Then, in MSEM, it is possible to establish a multi-level measurement model using multi-level confirmatory factor analysis (ML-CFA), and to use factor scores (rather than observed manifest variable scores) as the basis of structural model testing. This method was not considered appropriate in the current study

because of the limited number of groups ( $n = 37$ ) in the data; however, the measurement model was specified at the individual level to increase confidence in how the manifest variables would best be represented and to increase the likelihood of MSEM path model convergence. Although latent factors were not to be used to test the hypothesized model, specification of the best-fitting measurement model informed decisions regarding how manifest variables (e.g., observed scale scores) should be calculated. For example, this preliminary data analysis process informed whether an overall ‘justice’ variable was supported or whether the four justice dimensions should be tested separately in subsequent analyses.

Prior to examining the measurement model for all study variables simultaneously, the measurement model for authentic leadership and justice items was explored in-depth to ensure that the separation of authentic leadership and justice was warranted and to inform the best way to conceptualize organizational justice and authentic leadership as multi-dimensional constructs. Organizational justice and authentic leadership have never been examined in tandem, thus no prior evidence is available to support either the separation of the two constructs or the amalgamation of the two constructs. In this study, I hypothesized a moderate to strong relationship between authentic leadership and organizational justice, with justice as the mediating mechanism of the positive effects of authentic leadership on followers. Due to the hypothesized strength of the relationship between these two constructs, as well as the exploratory nature of the measurement model specification for the two sets of items, exploratory structural equation modeling (ESEM; see Asparouhov & Muthén, 2009; Marsh, Liem, Martin, Morin, & Nagengast, 2011a; Marsh et al., 2010; Marsh et al., 2009; Marsh et al., 2011b) was performed on the 16 authentic leadership items and 20 organizational justice items. ESEM methods maintain the advantages of confirmatory factor analysis (CFA) while allowing for an exploratory factor

analysis (EFA) structure (Asparouhov & Muthén, 2009; Muthén, n.d.). Specifically, ESEM analyses provide model fit indices and can be used as the basis of any structural equation modeling applications (two main advantages of CFA over EFA); while at the same time, ESEM does not require that each item loads onto one and only one factor, and instead allows for more flexibility in item-item and item-factor relationships (key advantages of EFA over CFA). ESEM is considered the right tool for exploring the best-fitting measurement model of authentic leadership and organizational justice because the hypothesized relationship between the two constructs (and relationships among the dimensions of each construct) would likely be best captured in a more flexible measurement model where items are allowed to cross-load on multiple factors. This measurement scenario is similar to recent applications of ESEM in the literature (e.g., Kiersch et al., in press; Marsh et al., 2009; Marsh et al., 2010; Meleddu, Guicciardi, Scalas, & Fadda, 2012).

Following the establishment of the best-fitting measurement model of authentic leadership and organizational justice via ESEM, CFA was used to examine whether the intended full measurement model with all study variables included was a good fit for the data. To ensure adequate sample size and maintain sufficient item to sample size ratios, randomly chosen item parcels were used as indicators for all unidimensional variables measured with more than five items (e.g., Bandalos, 2002; Ng, Ang, & Chan, 2008). This method of item parceling has been recommended on both statistical grounds and practical grounds based on findings of Monte Carlo simulation studies (e.g., Alhija & Wisenbaker, 2006; Nasser & Wisenbaker, 2003). Specifically, when item parcels are created for unidimensional variables with large numbers of items, more complex models can be estimated with the data (a practical benefit) and the model



fit indices are likely to be improved as compared to identical models with no item parcels included (a statistical benefit; Alhija & Wisenbaker, 2006).

Measurement models (specified in ESEM and CFA frameworks) were evaluated according to three fit indices: the root-mean square error of approximation (RMSEA), a statistical test of close fit, and the Tucker-Lewis index (TLI) and comparative fit index (CFI), two estimates of the improvement made by the specified model above a baseline model. A measurement model was considered to be a 'good fit' when the RMSEA value was less than .05 or .06 (with 0 indicating perfect model fit and .10 indicating a poor fit, Browne & Cudeck, 1993), and the TLI and CFI were greater than or equal to .95 or .96 (Hu & Bentler, 1999; Yu, 2002). Chi-square difference tests were also used to compare the intended measurement structures with alternative models, including more parsimonious models with fewer factors as well as several variations in number of dimensions separated within authentic leadership and organizational justice. The chi-square difference test was used to evaluate whether an observed improvement in fit between two measurement models, one model nested within the other, was statistically significant. The best-fitting model was chosen based upon the model with positive support from goodness of fit indices, relatively low (preferably the lowest) chi-square value, and judgment regarding theoretical justification. This measurement model was then used to guide computation of scale scores and separation (or amalgamation) of manifest variables in the model.

**Estimating variance at the individual and group levels.** Following specification of the best-fitting measurement model, the intraclass correlation coefficient (ICC) was calculated for each variable measured at the individual level. The ICC indicates the proportion of variance in scores across individuals that is accounted for by group membership, and is used to justify examination of level 2 effects for variables measured at level 1. Testing of the full multi-level

model would only be justified if the ICC values indicate a meaningful proportion of variance exists at the group level. Based upon prior research examining group-level perceptions of leadership and fairness (e.g., Mayer et al., 2007; Walumbwa et al., 2010), acceptable ICC values for testing and interpreting group-level effects range from .10 to .40.

**Testing the proposed multi-level moderated mediation model.** Hypotheses 1 through 10 were tested following a MSEM analysis process adapted from the methodological tutorial by Preacher et al. (2010). Significance levels of coefficients for each pathway in the hypothesized models were used to determine the results of each hypothesis test. More specifically, hypotheses 1 through 4 were tested with multi-level direct effects analyses within the MSEM framework. Hypotheses 5 and 6 were tested using multi-level mediation analyses within the MSEM framework. As is common in MSEM analyses (e.g., Muthén & Asparouhov, 2011; Muthén & Muthén, 1998 – 2010), the variables were group-mean centered at level 1 for all analyses. Consequently, level 2 effects are interpreted as ‘group-level’ or ‘between group’ effects rather than ‘contextual effects’ (e.g., Muthén & Asparouhov, 2011).

Hypotheses 7 through 10 were tested with multi-level moderation analyses (tests of conditional direct effects) and then, when warranted, multi-level moderated mediation analyses (tests of conditional indirect effects and partial effects). First, conditional direct paths between authentic leadership and the outcome variables, as well as those between justice and the outcome variables, were tested. For any direct effects of authentic leadership not significantly mediated by justice (should there be any unsupported mediation hypotheses), only the conditional direct effect between authentic leadership and that outcome was tested (no moderated mediation models need be considered). For any relationships between authentic leadership and outcomes fully mediated by justice (should any full mediation effects be found), only the conditional effect

of justice on that outcome was tested. For any relationships between authentic leadership and outcomes that were partially mediated by justice (as hypothesized), both conditional direct effects (those between authentic leadership and the outcome, and those between justice and the outcome) were tested. Then, based on the results of the conditional direct effects tests, the associated moderated mediation models were tested to determine whether the moderated mediation model fit the data better than the more parsimonious model with mediation paths only.

## Results

### Preliminary Analyses

**Modeling authentic leadership and justice.** The measurement structure of all authentic leadership and organizational justice items was analyzed with ESEM. In ESEM, one does not specify which items load on which factors; rather, one only specifies the number of factors in the model (with all items allowed to load on any of the factors). To explore a full range of possibilities with regards to the best-fitting structure of authentic leadership and organizational justice, ESEM models with 1 to 8 factors were examined (a one-factor model to represent the most parsimonious model possible where all authentic leadership and justice items load onto one common factor, and an eight-factor model to represent the four dimensions of authentic leadership and the four dimensions of justice as conceptualized by the two measures). Fit indices for the ESEM models with 1 through 5 factors are presented in Table 1. The five-factor model was supported as the best fit to the data, with acceptable fit indices and a logically interpretable factor structure. In this model, a ‘clean split’ was made between authentic leadership and organizational justice, and each organizational justice dimension represented a unique factor. Although items are not constrained to load on only one factor in an ESEM model, the five-factor model did not result in any significant cross-loadings. Rather, all authentic leadership items loaded onto one factor, all distributive justice items onto a second factor, all procedural justice items onto a third factor, all interpersonal justice items onto a fourth factor, and all informational items onto a fifth factor. ESEM models with 6 through 8 factors did not significantly improve upon the 5-factor model and were not interpretable in terms of which items loaded together, thus these three models were rejected. As additional factors beyond five were added to the ESEM analysis, organizational justice items split into more factors and cross-loaded more heavily on multiple factors; however, authentic leadership items remained as a homogenous group and

continued to load overwhelmingly onto only one factor. Taking model fit indices and logical interpretation into account, the 5-factor model was clearly supported as the best fit for the data. Thus, authentic leadership was treated as one unidimensional variable, and organizational justice was treated as four justice variables (distributive justice, procedural justice, interpersonal justice, and informational justice), throughout the remainder of the analyses.

**Modeling all study variables.** Following specification of the best-fitting measurement model of authentic leadership and justice, a full measurement model with all study variables was tested with CFA. Prior to running the CFA, scales with more than five items were parceled so that each intended factor had between 3 and 5 indicators. Items within a unidimensional scale were grouped into parcels via random assignment. In addition, the residuals of two distributive justice items (items 1 and 3, listed in the appendix) were correlated based on recommendation from the modification indices of initial CFA output as well as an apparent high level of similarity in the item content and specific item wording across these two items.

The results of the intended CFA structure fit the data well, with RMSEA = .05, CFI = .95, TLI = .94, and  $\chi^2(592) = 878.31$  ( $p < .01$ ). As a second test of the organizational justice structure, CFA was also conducted with organizational justice as a second-order factor (with a general justice factor influencing the four justice dimension factors, which in turn influence the respective justice dimension items). The CFA of all modeled variables including a second-order justice factor was a significantly worse fit to the data than the CFA without a second-order justice factor ( $\Delta\chi^2(15) = 74.71$ ,  $p < .01$ ). Based on these results, all analyses were conducted using scale scores derived from the variables indicated in the more parsimonious CFA model, with all intended variables separated in the model as well as the separation of the four justice dimensions.

**Descriptive statistics.** Means, standard deviations, and alpha coefficients were calculated for all study variables indicated by the measurement model results, and ICC's were estimated for all variables in the study measured at the individual level (see Table 2). ICC's ranged from .15 (perceived stress and job insecurity) to .39 (climate of uncertainty), with an average ICC of .23 (SD = .07). These results indicated that between 15% and 39% of the variance in observed variables is attributable to group membership. All ICC's were in the appropriate range for testing multi-level effects, thus justifying the examination of both level one (within group) and level two (between group) effects<sup>1</sup>. The within and between level correlation matrices used as the basis for all MSEM analyses are reported in Table 3.

Missing data patterns were also examined at this point. Though there was some amount of missing data for all study variables (as would be expected for any large survey study of this nature), an alarming amount of missing data was apparent for the group performance variable. Specifically, group performance ratings were provided for only 15 of the 37 groups, significantly reducing the statistical power to detect any effects on group performance in this study. Group performance was retained in the initial analyses; however, it was not expected that any statistically significant effects on this outcome would be found due to the unexpected decrease in statistical power.

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<sup>1</sup> This range of ICC values indicates the group level effects will be meaningful to interpret; however there is no necessary range of ICC values to justify multi-level modeling. Multi-level modeling is appropriate when the assumption of independence is violated in the data, as is the case whenever data is collected from individuals nested within groups. Thus, the justification for multi-level modeling is a function of the structure of the data and how data were collected, and not a function of the variance attributable to either level of analysis (Muthén & Muthén, 2009).

## Testing the Proposed Model

Hypotheses 1 through 10 were tested via examination of path coefficients in MSEM models<sup>2</sup>. As is common in structural equation modeling and path analysis applications of MSEM, the terminology used to discuss model results can be indicative of a causal relationship between independent variables and dependent variables (i.e., the ‘direct effect of an independent variable on the outcome variable’). The common terminology used to discuss MSEM results will be used in this section; however, causality cannot be supported based on these data alone due to the cross-sectional survey methodology. In MSEM applications, it is also common to refer to the group-level effects as ‘between effects’ or ‘between group effects’, and to refer to the individual-level effects as ‘within effects’ or ‘within group effects’. Throughout this results section, and the conclusion section to follow, the terms ‘individual level’, ‘within group’, and ‘within’ will be used interchangeably to refer to the effects at level one in the model; the terms ‘group level’, ‘between group’, and ‘between’ will be used interchangeably to refer to the effects at level two in the model.

As the measurement models indicated that the four dimensions of organizational justice should be considered separately, separate models were tested for each of the four justice dimensions (distributive, procedural, interpersonal, and informational justices) so that the mediation effect of each justice type could be examined without adjusting for the relationships of the other justice dimensions and authentic leadership or the outcome variables. This approach also maintains the power of the study as the needed sample size was estimated assuming that organizational justice was one variable in the model (and not four distinct constructs).

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<sup>2</sup> At the time of analysis, standardized path coefficients and the associated standard errors were not estimated by Mplus for all of the analyses required to test the full MSEM moderated mediation model. Thus, for consistency, unstandardized path coefficients are reported for all analyses. However, the unstandardized path coefficients may still be used to compare effect sizes as all variables were measured on a 5-point scale.

**Main effects of authentic leadership and justice.** Hypotheses 1 through 4 proposed main effects of authentic leadership and organizational justice on all outcome variables, at both levels (within and between) of analysis. Effects on the group performance outcome were assessed in an exploratory manner due to the low number of groups with any group performance data ( $n = 15$ ). Likely a result of the low response rate, no relationships with group performance were significant or approaching significance, thus the group performance variable was removed from all further analyses. As such, all hypotheses including group performance were not supported.

Results of the MSEM model for authentic leadership predicting the remaining three outcome variables (perceived stress, turnover intention, and affective commitment) indicated that individual perceptions of authentic leadership significantly predicted stress ( $b = -.20, p < .01$ ), affective commitment ( $b = .55, p < .01$ ), and turnover intention ( $b = -.71, p < .01$ ) at the within level, and turnover intention at the between level ( $b = -1.07, p < .05$ ), thus supporting hypothesis 1 and partially supporting hypothesis 2 (see Table 4).

Results of the MSEM models for each justice dimension predicting the three outcome variables are provided in Table 5. Hypothesis 3, predicting the individual level effects of justice, was supported for all four justice dimensions (predicting all outcomes except group performance). Individual level perceptions of distributive justice predicted perceived stress ( $b = -.11, p < .01$ ), turnover intention ( $b = -.39, p < .01$ ), and affective commitment ( $b = .26, p < .01$ ). Individual level perceptions of procedural justice predicted perceived stress ( $b = -.11, p < .01$ ), turnover intention ( $b = -.46, p < .01$ ), and affective commitment ( $b = .40, p < .01$ ). Individual level perceptions of interpersonal justice predicted perceived stress ( $b = -.14, p < .01$ ), turnover intention ( $b = -.56, p < .01$ ), and affective commitment ( $b = .41, p < .01$ ). Finally, individual



level perceptions of informational justice predicted perceived stress ( $b = -.09, p < .05$ ), turnover intention ( $b = -.48, p < .01$ ), and affective commitment ( $b = .38, p < .01$ ).

Hypothesis 4, predicting the group level effects of justice climate on all outcomes, was partially supported. Specifically, procedural justice climate and informational justice climate predicted turnover intentions ( $b = -1.30, p < .01$ ; and  $b = -1.15, p < .01$ , respectively) and affective commitment ( $b = .58, p < .05$ ; and  $b = .54, p < .05$ , respectively), and interpersonal justice climate predicted turnover intentions ( $b = -1.38, p < .01$ ).

To provide context in which to interpret the relationships between each type of justice and the outcomes (independent of other justice types), MSEM path coefficients for each outcome variable regressed on all four justice dimensions simultaneously are provided in Table 6. When all four justices were included as predictors of perceived stress, only the within group effect of interpersonal justice was significant. When all four justices were included as predictors of turnover intention, informational justice significantly predicted turnover at the within level and interpersonal justice climate significantly predicted turnover at the between level. When affective commitment is regressed on all four justices, procedural and informational justice significantly predicted this outcome at the within level and no justice climate dimensions significantly predicted commitment at the between level.

**Mediation models.** To test hypotheses 5 and 6, separate mediation models were examined for each justice dimension, with all remaining outcomes (perceived stress, turnover intention, and affective commitment) included in each model. Results of this set of four MSEM models are provided in tables 7 through 10. In these mediation tables, the  $a$  paths reflect the relationships between authentic leadership and the justice dimensions (mediators), the  $b$  paths reflect the relationships between each justice dimension and the outcome variables, the  $c'$  paths

reflect the direct effects of authentic leadership on the outcomes (after accounting for the mediator in the model), and the indirect effects ( $a*b$ ) represent the mediation effects. Mediation is supported when the indirect effect for a given model is statistically significant, with full mediation supported when the indirect effect is significant and  $c'$  is not significant.

The within and between level effects of authentic leadership on stress were not significantly mediated by any justice dimension, nor was the between level effect of authentic leadership on affective commitment. However, partial mediation by all four justice dimensions was supported for the within-level effect of authentic leadership on affective commitment, with indirect effects of .06 for distributive justice (see Table 7), .14 for procedural justice (see Table 8), .12 for interpersonal justice (see Table 9), and .17 for informational justice (see Table 10). Additionally, the relationship between authentic leadership and turnover intention was partially mediated at the within level by distributive ( $a*b = -.10$ ; see Table 7) and interpersonal ( $a*b = -.19$ ; see Table 9) justice perceptions, and fully mediated at the between level by interpersonal justice climate ( $a*b = -2.22$ ; see Table 9).

To provide context in which to interpret the separate mediation models for each type of justice, the path coefficients for authentic leadership predicting all four justice dimensions simultaneously are provided in Table 11. When all four justice dimensions were included as dependent variables, predicted by authentic leadership at both the within and between group levels, authentic leadership significantly predicted all four justices at the within level and significantly predicted interpersonal and informational justice at the between level.

In addition to the tests of mediation, the strength of the between-level relationship between authentic leadership and interpersonal and informational justice climates is apparent in these model results, and should be kept in mind in interpretation. In both models (that with

interpersonal justice climate as the mediator and that with informational justice climate as the mediator), the direct effect of authentic leadership on each outcome was not significant and actually changed direction from the effect of authentic leadership without taking interpersonal or informational justice into account (i.e., the between-level  $c'$  paths in tables 9 and 10 represent opposite effects from the direct paths in table 4, without justice climate included in the model).

**Conditional effects.** Tests of hypotheses 7 through 10, specifying the moderating effects of job insecurity and climate of uncertainty, were conducted in two stages. First, conditional direct effects (effects between authentic leadership and the outcome variables and between justice dimensions and the outcome variables, with no mediation paths) were tested according to the implications of the mediation results. Specifically, the conditional effects of authentic leadership on all dependent variables at the within level and stress and affective commitment at the between level were tested, and the conditional direct effects of all justice dimensions on affective commitment and turnover intention were tested at both levels. Second, any significant conditional direct effects were integrated in the associated mediation model and the resulting moderated mediation models were assessed.

Results of the first stage of these analyses are provided in Tables 12 through 16. Results largely did not support the moderation hypotheses. However, two significant conditional direct effects were found: climate of uncertainty significantly moderated the group level relationship between authentic leadership and stress ( $b = -1.06, p < .05$ ; see Table 12), and job insecurity significantly moderated the individual level relationship between distributive justice perceptions and affective commitment ( $b = .08, p < .05$ ; see Table 13). Both moderation effects were in the hypothesized direction. The individual level effect of distributive justice on affective commitment strengthened as job insecurity increased (see Figure 3); the group level effect of

authentic leadership on stress became more beneficial as climate of uncertainty increased (see Figure 4). As hypothesized, the individual level effect of distributive justice on affective commitment was positive across levels of job insecurity, and the positive effect strengthened when job insecurity was high as compared to when job insecurity was low. Contrary to hypothesis, the group level effect of authentic leadership on stress was *only* negative when uncertainty climate was high. Group level perceptions of authentic leadership were positively associated with stress when uncertainty climate was low.

As the relationship between authentic leadership and stress was not mediated by any justice dimension, no further tests were performed on this conditional effect. This significant moderation of climate of uncertainty on the authentic leadership and stress relationship offers support for hypothesis 10a. No other moderation effects of uncertainty climate were statistically significant, hence the results failed to support hypotheses 10b, 10c, or hypothesis 8.

Distributive justice did serve as a significant (partial) mediator of the relationship between authentic leadership and affective commitment, thus the full moderated mediation model of authentic leadership, distributive justice, job insecurity, and affective commitment was tested (see Table 17). Specifically, the MSEM moderated mediation model (where authentic leadership predicts distributive justice, distributive justice and authentic leadership predict affective commitment, and job insecurity moderates the path between distributive justice and affective commitment at the individual level) was estimated and compared with the more parsimonious MSEM mediation model (where authentic leadership predicts distributive justice, and distributive justice and authentic leadership predict affective commitment). Maximum likelihood estimation with robust standard errors (MLR) was used to estimate both models, and the log likelihood values were used to calculate a chi-square difference test (“Mplus FAQ”, n.d.).

Log likelihood values indicate the likelihood of observing the data given the parameter estimates in the model. In comparing log likelihood values, the goal is to find the model with the highest likelihood of producing the data (i.e., the log likelihood value closest to zero when log likelihoods are negative). The basic idea behind log likelihood testing is that you cannot change the observed data, so you change the parameters involved in the model (or parameter estimates) to produce the model with the highest likelihood of producing the observed (and unchangeable) data. Likelihood ratio tests (a form of chi-square difference test) compare the two log likelihood values to determine whether the better-fitting model (the one with the higher, or more positive, log likelihood value) is a statistically significantly better fit to the observed data than the alternative model (“Mplus FAQ”, n.d.).

The result of the model comparison between the moderated mediation model and the mediation model with no moderator revealed that the more parsimonious mediation model (without job insecurity as a moderator) had a higher likelihood of producing the observed data than the moderated mediation model (with log likelihoods of -645.42 and -865.99 respectively), and that this difference was significant ( $\Delta\chi^2 = 521.85, p < .01$ ). Thus, although the direct individual level effect of distributive justice on affective commitment was significantly moderated by job insecurity, the moderated mediation model with authentic leadership did not fit the data well. No other moderation effects of job insecurity were statistically significant, meaning no moderated mediation models at the individual level were significant and no support was found for hypothesis 7 and hypothesis 9.

## Discussion

The aim of this study was to understand the process of authentic leadership, a leadership style that allows leaders and organizations to meet the raised expectations of fairness, morality, and social responsibility held by employees and organizational stakeholders. In an effort to answer the ‘how’, ‘why’ and ‘under what circumstances’ questions of the authentic leadership process, the existing literatures on organizational justice and leadership were integrated and organizational justice was posited as a key mediator in the relationships between authentic leadership behaviors and group and individual level outcomes. I proposed that authentic leadership was a form of fair leadership, such that authentic leaders influence outcomes via creating a climate of fairness and by directly impacting individual fairness perceptions. The hypothesized process of authentic leadership and fairness was also conceptualized within the framework provided by uncertainty management theory, such that the effects of authentic leadership and justice on a range of outcomes were hypothesized to be stronger when uncertainty perceptions (operationalized as job insecurity at the individual level and climate of uncertainty at the group level) were high as compared to when uncertainty perceptions were low.

The hypothesized direct effects of authentic leadership and organizational justice on the outcome variables, the hypothesized role of organizational justice as a mediating variable, and the hypothesized moderation effects of uncertainty, were tested using MSEM. Using MSEM, both individual and group level effects of authentic leadership and organizational justice were examined in parallel, with the group level effects based on latent group-level variables formed by the shared variance among individual-level perceptions within each group (e.g., Preacher et al., 2007). This method of inferring the group-level construct from individual-level indicators accounts for the error involved in cross-level inference, resulting in a more accurate representation of the group-level variable than alternative methods of aggregating individual-

level responses to the group level that were common prior to the introduction of MSEM to readily available statistical software packages (e.g., Muthén & Asparouhov, 2011). By testing the proposed multi-level model in an MSEM framework, this study serves to promote best practices in capturing multi-level phenomena in organizational science as well as to answer numerous calls for multi-level research in the leadership and justice literatures (e.g., Avolio et al., 2003; Greenberg, 2011).

### **Summary of Findings**

Figure 5 illustrates the cumulative findings of this study. A side-by-side comparison of Figure 5 with Figure 2 allows for an understanding of which hypotheses were supported and which hypotheses were not supported based on these data, as well as the changes that were made to the model following specification of the best measurement model of organizational justice. The ultimate goal of this study was to shed light on the process of authentic leadership, and the model presented in Figure 5 summarizes the authentic leadership process as supported by the study results.

**Authentic leadership and organizational justice.** The results shed considerable light on the process of authentic leadership and organizational justice in times of uncertainty. Based on the findings of this study, it appears that individual follower perceptions of authentic leadership and fairness are meaningful predictors of affective commitment, well-being, and turnover intention. Shared group perceptions of authentic leadership and fairness are also significant predictors of outcomes of interest. Shared perceptions of authentic leadership and three forms of justice climate (procedural, interpersonal, and informational) significantly relate to turnover intention, and both procedural and informational justice climates also significantly relate to affective commitment.

At least two conclusions can be drawn from these results. First, it appears that certain outcome variables of interest are more affected by shared group level perceptions than others. Specifically, in this study, turnover intention was significantly predicted by group level perceptions of authentic leadership as well as three of the four justice climates (procedural, interpersonal, and informational). This means that an individual's own perceptions of leadership and justice are not enough to account for turnover; rather, the group's shared perceptions of leadership and justice are also influential factors in determining whether an employee stays with an organization or leaves. Perceived stress was not directly predicted by any group level variables, and affective commitment was predicted by two justice climates (procedural and informational). Based on these results, one may conclude that unlike turnover intention, an individual's own perceptions of leadership and justice take precedence over any shared group perceptions in predicting perceived stress. In predicting employees' affective commitment, it appears some climate variables are relevant (procedural and informational justice climates), but shared perceptions of leadership are not.

To date, research examining multi-level effects of leadership and justice has not capitalized on the latest statistical developments in multi-level research and thus has not been able to examine and compare the individual and group level effects of these variables simultaneously. The results of this study emphasize the need for greater attention to be paid to the differential effects of individual and group level perceptions on organizational and employee outcomes of interest. Although social information processing theory (Salancik & Pfeffer, 1978) would predict the outcomes of this study to be affected equally by individual and group level perceptions, the results of this study indicate that assuming individual and shared group level perceptions are given equal weight is not always accurate. Further, the predictive power of



individual and group level perceptions likely differs depending on the outcome variable of interest.

Second, the study results highlight the need to further examine multiple types of justice climate. The vast majority of justice climate research has defined justice climate exclusively in terms of procedural justice (e.g., Naumann & Bennett, 2000, 2002), and in the few cases when multiple types of justice are included, they are often combined to form one overall justice climate without testing the suitability of such a 'general justice climate' (e.g., Sora et al., 2010; see Mayer et al., 2007 for one exception). However, in this study the initial results supported an examination of all four justices as both individual perceptions and climate variables, and all justice climate variables except distributive justice climate had significant effects on the outcome variables. This indicates that a fair climate includes procedural justice climate, but is not constrained to be procedural justice climate only. A fair climate also includes a distributive justice climate, informational justice climate, and interpersonal justice climate. Further, each of the four justice climates revealed a unique pattern of relationships with authentic leadership and the outcome variables. Specifically, interpersonal and informational justice climates clearly had the strongest relationships with authentic leadership, whereas informational and procedural justice climates significantly predicted the greatest number of outcome variables included in this study. These results are not necessarily surprising given that informational and interpersonal justice are often considered more relational constructs than either procedural or distributive justice (e.g., Masterson et al., 2000); yet, they are particularly informative for justice researchers given the study of these justices as climate constructs. Although not an intended discussion point of this study (as organizational justice was predicted to be best captured by one general justice factor and no specific predictions were made for each justice dimension), the point is clearly

made in these results that greater attention should be paid to all four distinct justice climate variables.

**Organizational justice as a mediator.** In testing the proposed multi-level mediation models, the results largely differed based on two criteria: 1) level of analysis (individual or group level), and 2) the type of justice being examined. The one exception to this statement is for the outcome of perceived stress, for which no justice dimension at either level significantly mediated the effects of authentic leadership. For the outcome of affective commitment, all four justice dimensions significantly (partially) mediated the effect of authentic leadership at the individual level, and no justice climate dimension mediated the effect of authentic leadership at the group level. These results suggest that individual perceptions of emotional attachment to one's organization are impacted by authentic leaders directly and via authentic leaders' effects on individual perceptions of fairness. Regarding the third outcome variable, turnover intention, the individual level effect of authentic leadership was partially mediated by distributive justice and interpersonal justice, whereas the group level effect of authentic leadership was fully mediated by interpersonal justice climate. Based on these findings, it would appear that authentic leaders form an interpersonally fair climate, as well as directly impact individual perceptions of distributive and interpersonal justice, which in turn lead employees to stay with the organization.

The pattern of mediation results informs conclusions regarding the seemingly complex relationship between authentic leadership and justice, in addition to the mechanisms by which authentic leaders influence the well-being, attitudes, and behaviors of subordinates. I proposed that authentic leadership could be considered a form of 'fair leadership' (i.e., that authentic leadership behaviors create a climate of fairness and also lead individual followers to form perceptions of fairness) based on two conceptual arguments: 1) that authentic leadership and

organizational justice shared the common theoretical underpinnings of morality, and 2) that authentic leadership behaviors would meet the criteria of justice and in doing so would directly influence justice perceptions. Based on the results of this study, it appears the conceptual arguments hold empirically for all forms of justice at the level of individual perception (authentic leadership is related to individual level perceptions of distributive, procedural, interpersonal, and informational justice), and only two forms of justice climate (interpersonal and informational) at the group level.

One possible reason for the differential relationship between authentic leadership and the justice dimensions at the individual and group levels is that distributive and procedural justice climates are impacted by a greater number of factors outside of the direct supervisors' control than are interpersonal and informational justice climates. Justice scholars (e.g., Byrne, Kiersch, Smith, & Weidert, 2011; Greenberg, 2006) have suggested that managers may have the greatest impact on overall fairness perceptions by focusing on the fairness of their personal interactions with subordinates (i.e., interpersonal and informational justice). This is because leaders are more likely to have direct control over the fairness in these contexts than the fairness of rewards (distributive justice) or procedures (procedural justice), which are often at least partially governed by larger organizational or even industry-wide regulations. There is also evidence that high levels of interpersonal and informational justice can compensate for low levels of other types of justice (e.g., Cropanzano, Bowen, & Gilliland, 2007; Greenberg, 2006), further bolstering the influence of direct supervisors on interpersonal and informational justice. Although past research has supported the particularly strong effects direct supervisors can have on interpersonal and informational justice perceptions, this is the first study to examine these

effects at the group level. Clearly more multi-level research is needed to clarify reasons for the distinct pattern of results at the individual and group levels.

The principal aim of this study was to better understand the process of authentic leadership by examining fairness as a key mechanism by which authentic leadership relates to employee and organizational outcomes. The mediation results revealed that the relationship between authentic leadership and distributive, procedural, interpersonal, and informational justice perceptions helped to explain the process of authentic leadership at the individual level of analysis. Results also indicated that at the group level, there are direct relationships between authentic leadership and some important outcomes (e.g., affective commitment) and also indirect relationships via interpersonal justice climate, which fully explains the relationship between authentic leadership and other outcomes (e.g., turnover intention).

These mediation results compliment existing conceptual and empirical research on the authentic leadership process. Conceptually, authentic leadership has been described in terms of leaders who create a positive, ethical, and socially responsible environment in the organization (e.g., Cooper et al., 2005), and authentic leaders have been posited to impact performance by creating an environment of transparency and positive communication (e.g., Avolio & Walumbwa, 2006). In an empirical investigation of the authentic leadership process, Walumbwa and colleagues (2010) showed evidence that the effects of authentic leadership on follower engagement and organizational citizenship behaviors are partially due to authentic leaders' positive influence on empowerment and follower identification. Interpreting the results of this study in the context of this larger body of authentic leadership research, it seems likely that authentic leaders positively impact followers and groups by creating an interpersonally fair climate and promoting multi-dimensional perceptions of fairness, identification, and

empowerment among individual followers. Further, authentic leaders likely impact different outcome variables via different climate and individual perception mechanisms. Future research including a wider range of outcome variables and mediator variables is needed to determine the nature of these different mechanisms. However, the conclusion is clear that authentic leadership is a form of fair leadership and that group level and individual level perceptions of fairness are key ingredients to an authentic leader's success.

**Uncertainty as a moderator.** Results largely failed to support hypotheses 7 through 10, which proposed that job insecurity and climate of uncertainty would moderate the effects of authentic leadership and organizational justice on the outcome variables. However, two interaction effects were found to be statistically significant: the group level interaction between authentic leadership and climate of uncertainty on perceived stress, and the individual level interaction between distributive justice and job insecurity on affective commitment. Thus, one moderated direct effect was supported at the individual level, and one moderated direct effect was supported at the group level.

However, no moderated mediation models were supported at either level of analysis. When authentic leadership was not included in the model, job insecurity moderated the relationship between distributive justice and affective commitment at the individual level. When authentic leadership was included in the moderated mediation model, the moderation effect did not contribute to the overall model fit, and the mediation model (without job insecurity as a moderator) was a significantly better fit to the data. In sum, the individual level relationship between authentic leadership and affective commitment is partially explained by distributive justice, with the indirect effect of authentic leadership (via distributive justice) on affective commitment independent of job insecurity.

The second significant moderated relationship was that between authentic leadership and perceived stress at the group level. Although uncertainty climate significantly moderated the relationship between authentic leadership and stress, this relationship was not mediated by any type of justice climate. Thus, this finding indicates that shared group level perceptions of authentic leadership have an attenuating relationship stress when the group perceives an uncertain climate, but a positive relationship with stress when the group perceives a certain climate. Further, this differential relationship between authentic leadership and stress is not due to justice climate.

There are several plausible interpretations of the largely non-significant moderation effects of uncertainty. First, it is possible that the observed range of uncertainty (in terms of either job insecurity or climate of uncertainty) in these data did not include high enough levels to capture a true effect, should one exist. Individuals felt fairly secure about their jobs and groups felt fairly certain about their futures. It is plausible that the moderation effect of uncertainty is only pronounced when high levels of uncertainty are accounted for in a sample, which was not the case in this study.

The hypotheses positing uncertainty as a key moderating variable of the effects of authentic leadership and justice were based largely on uncertainty management theory (e.g., Kramer, 2004, 2009; Lind, 2001; van den Bos, 2001; van den Bos & Lind, 2002). A second potential reason for the lack of support for uncertainty as a moderator in the proposed model is that uncertainty has been so widely popularized in the media (e.g., “Dow loses”, 2011; “Schindler sheds jobs”, 2011; “Uncertainty over Italy’s future”, 2011) and has become more of the norm for employees than the unexpected exception (e.g., Cascio, 2003), that the propositions of uncertainty management theory may no longer hold. Following the lead of justice researchers

such as Lind and van den Bos (e.g., Lind & van den Bos, 2002; van den Bos & Lind, 2002), I integrated uncertainty management theory with the leadership and justice research and proposed that in times of uncertainty employees and groups have heightened sensitivity to justice-relevant information and to the behaviors of their leaders. Based on uncertainty management theory, the assumption that must hold for this proposition to be true is that employees feel a drive to manage their uncertainty. However, if employees are so accustomed to high levels of job insecurity and to uncertain futures for their groups, perhaps this drive is diminished.

This justification is similar to the ‘learned helplessness’ explanation that has been commonly applied in unemployment research in an effort to understand the negative health consequences of, and lack of successful behavioral responses to, unemployment (e.g., Waters, 2007; Winefield, 2002). The empirically supported proposition from the unemployment literature is that individuals who are exposed to negative and uncontrollable events (like being laid off due to budget cuts) are likely to respond with high levels of passivity because they believe that their actions will have little impact on intended outcomes (e.g., Seligman, 1975). Applying this theory to post-hoc justification of the null results of the uncertainty moderation analyses in this study, it is plausible that individuals who experience high levels of job insecurity or a high climate of uncertainty continually over an extended period of time have developed a ‘learned helplessness’ reaction to the uncertainty. In other words, these individuals may have become passive in responding to the uncertainty, and are thus less likely to manage the uncertainty with heightened reliance on leadership or justice-related information. Such suppositions would explain the lack of findings in the current study.

## **Implications for Theory and Practice**

This study offers a multi-faceted contribution to theory and practice in the areas of organizational leadership, justice, and the growing integration of leadership and justice (e.g., Van Knippenbrg & De Cremer, 2008). By exploring the multi-level mediating role of fairness in authentic leadership models, I attempted to provide some answers to the ‘how’ and ‘why’ questions posed by leadership researchers (e.g., Cho & Dansereau, 2010; Piccolo & Colquitt, 2006; Yukl, 2006, 2009), thus contributing to theoretical models of the process of leadership in organizations. By exploring authentic leadership behavior as a key antecedent to individual fairness perceptions and fairness climates, I also contributed to the proactive justice research (focused on how to promote fairness in organizations), as well as the theoretical gap in understanding what ‘fair leadership’ truly means. Further, the multi-level effects examined in this study may serve to inform theory regarding the complex nature of leadership and fairness at both the individual and group levels.

As the first to investigate the relationship between authentic leadership and fairness, and the first to consider authentic leadership as a type of fair leadership, this study contributes to the relatively nascent theoretical framework of authentic leadership. Research had begun to develop the nomological network of authentic leadership, supporting it as an empowering form of leadership (Walumbwa et al., 2010) predictive of organizational citizenship behaviors and organizational commitment (e.g., Walumbwa et al., 2008). The results of this study build upon existing research to further define authentic leadership as a fair form of leadership, predictive of turnover intention, commitment, and (in climates of high uncertainty) low stress.

This study also addresses gaps in the organizational justice literature regarding the role of leadership in justice models, as well as what may be considered ‘fair leadership’. Past research



had empirically supported various leadership variables as significant antecedents of individual justice perceptions (e.g., Cho & Dansereau, 2010) and group level justice climates (e.g., Ansari et al., 2007); however, the theoretical justification for these links appeared to be post-hoc explanations of the effects rather than well-grounded a priori arguments. Building upon fairness theory (Folger & Cropanzano, 1998), foundational research in authentic leadership (e.g., George, 2003; Gardner et al., 2005; Luthans & Avolio, 2003), and proactive research in organizational justice (e.g., Gilliland, 1993; Levy & Williams, 2004; Skarlicki & Latham, 1996, 1997), I argued conceptually for authentic leadership as an antecedent to organizational justice. The results of this study largely supported this conceptual argument. Taken together, this study provides a definition of fair leadership in authentic leadership, and promotes an integrated model of leadership and fairness wherein authentic leader behaviors create a fair climate (more specifically, an interpersonally and informationally fair climate) and promote all forms of justice perceptions in individual followers.

The results of this study also have strong implications for practice, in that they can form the basis of actionable strategies for organizational leaders hoping to increase the fairness in their workplaces and to meet society's heightened expectations of fairness, morality, and ethicality in business. The conceptual arguments made for authentic leadership as a form of fair leadership (namely, the parallel role of morality in authentic leadership and organizational justice as well as the unique ability of authentic leadership behaviors to meet fairness criteria across justice dimensions) were empirically supported in this study for all types of justice at the individual level of analysis and for interpersonal (and, to some extent, informational) justice climates at the group level of analysis. Taken together, the theoretical and empirical support for authentic leadership as a fair leadership offer organizational leaders with a solution for directly impacting

fairness at both individual and group levels: authentic leadership development (Avolio & Gardner, 2005; Avolio et al., 2008).

The trainability of authentic leadership behaviors has been well supported in the research (e.g., Avolio & Gardner, 2005; Avolio et al., 2008), indicating that authentic leadership development programs and initiatives are a viable way for organizational leaders to maximize fairness (meeting the expectations of society as well as of employees), while at the same time positively impacting the well-being, commitment, and retention of employees. Several published practitioner-oriented resources on authentic leadership development have been put forth by researchers at the Gallup Leadership Institute at the University of Nebraska-Lincoln, and could be used to guide the formation of an authentic leadership development program (e.g., Gardner, et al., 2005; Luthans & Avolio, 2003). A strong consensus among authentic leadership development scholars seems to be that self-reflection and thoughtfulness are at the core of any successful authentic leadership development program. Leaders must take time to focus on who “the real me” is for them, and to understand the connections between their own views of themselves, their behaviors, and how others in the organization (followers especially) perceive and are affected by their behaviors (e.g., Gardner et al., 2005). The cumulative literature suggests that such a leadership development program does not require expensive off-site retreats or the involvement of highly paid executive coaches for each manager in the company; rather, successful authentic leadership development requires a desire to improve and a commitment and effort to make continual improvement on the part of each individual with a leadership role within the organization.

Building on the results of the current research, authentic leadership development is likely to not only affect the way a leader is perceived by followers – but also the fairness perceptions

and fairness climate in an organization and a host of positive employee and organizational consequences. Taking into account the significant mediation results of this study, an effective leadership development program might be one that integrates authentic leadership training principles with fairness training concepts (i.e., justice-based leadership development, Byrne et al., 2011; Skarlicki & Latham, 2005). For example, the leadership development program could integrate knowledge-based training on organizational justice criteria for each justice type as well as skills-based training on how to enhance fairness perceptions and fairness climates in a variety of organizational settings (see Skarlicki & Latham, 1996, 1997, for a more detailed explanation) into an authentic leadership development program.

Leaders are also well advised to consider how they are perceived by individual followers and by all followers together. The group level findings of this study can be combined with the ‘leaders as climate engineers’ argument (Schneider et al., 1994) to suggest that leaders’ behaviors and reward strategies should encompass the principles of interpersonal fairness in order to engineer an interpersonal justice climate among followers. For example, within a broader authentic leadership development program, leaders could practice displaying behaviors that exhibit high levels of respect and propriety to followers (modeling interpersonally fair behaviors) and discuss ways of encouraging and rewarding such interpersonally fair behaviors among followers.

### **Limitations and Strengths**

As is true with any research, the results of this study must be interpreted within the boundaries implied by the study’s limitations and in light of the study’s major strengths. First and foremost, as was alluded to in the initial presentation of study results, the design of this study was cross-sectional and in an uncontrolled field setting, thus precluding any inference of causal

relationships among variables. The ultimate aim of this study was to inform the process by which authentic leadership influences outcomes of interest to any organization. Future research should incorporate a longitudinal design to better capture the role of time and ordering of effects in this process. Although the lack of control over extraneous variables present in a field setting could be viewed as a limitation for this study, it could be argued that the primary variables and effects of interest could not be adequately reproduced in an artificial (though highly controllable) lab setting. Therefore, while the field setting could be viewed as a weakness of this study it is also considered a major strength in that all the effects of interest were examined in their naturally occurring states and environments, amidst all the complexities of organizational life.

A second potential limitation is that this study sampled individuals and groups from a variety of organizations and did not statistically control for organizational-level variables such as organizational culture, climate, or structure. According to the systems approach to understanding organizational phenomena (e.g., Klein & Kozlowski, 2000), the individual must be viewed within the context of the group, which must be viewed within the context of the full organization (and then within the context of society). In this study, I aimed to explore the process of authentic leadership and organizational justice at the individual and group levels; however, broader contextual variables could also be of great importance to the relationships of interest. For example, Spell and Arnold (2007) found that organizational structure significantly moderated the group level relationship between justice climate and employee mental health. Although the wide range of jobs, companies, and industries could also be viewed as a strength of this study in that the varied sample increases the generalizability of findings, future research is needed to further tease out any impact of organizational variables on the effects found in this study (such as organizational structure as suggested by Spell and Arnold's (2007) findings). Specifically, future

research should explore the process of authentic leadership, fairness, and uncertainty within one singular organization so that any organization-level variables are controlled for in the research methodology, and/or future research should identify specific organization-level variables that could also play a substantive role in this process and statistically control for those variables in analyses.

It is unfortunate that missing data precluded any conclusions be drawn regarding the relationships between authentic leadership or organizational justice and group performance, and this lack of a performance-based outcome variable represents a third limitation of this study. At first glance, it would seem that the absence of any performance data would prevent the findings of this study to address the stated goal of understanding how organizational leaders can generate a profit while maintaining high levels of integrity and fairness. However, this conclusion would be misguided, as it assumes that performance data is directly linked to profitability and that the other outcomes maintained in the analyses are not. This assumption may be inaccurate, as past research has found a relatively weak relationship between performance ratings and true performance and an even weaker relationship between performance ratings and organizational success indicators like financial profit (e.g., Murphy, 2008). In addition, reducing employee stress and turnover can significantly increase the profitability of an organization via fewer costs due to sick days and increased savings on recruitment, hiring, and training costs (e.g., Burton, 2010). In sum, although the inclusion of group performance data would have bolstered the conclusions of this study, evidence that authentic leadership and organizational justice positively relate to employee well-being and intent to stay may also serve as indirect evidence of the positive financial impact of authentic leadership and fairness in organizations.

A fourth limitation of this study is that all variables (with the exception of group performance, which was ultimately eliminated from analyses) were measured using self-report survey data at the individual level of analysis. Thus, many would argue that common method variance could confound the supported relationships among study variables (e.g., Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Although the issue of common method variance was long thought to be limited to the individual level of analysis, recent Monte Carlo simulation findings show evidence for the potential of common method variance to bias results in multi-level models also (Johnson, Rosen, & Djurdjevic, 2010). However, the role of common method variance in group level effects is thought to be different from its role in individual level effects (though it is otherwise largely unknown), and the MSEM analyses used in this study are thought to mitigate the potentially confounding effects of this common methodology in that the group level and within level variation are separated within each variable using a latent variable decomposition approach (Hoffman et al., 2011).

This method of separating the group level and individual level variance and examining multi-level effects of leadership and fairness using MSEM represents a major strength of this study. Although it is widely discussed conceptually that leadership and justice phenomena operate at multiple levels within an organization (e.g., Avolio et al., 2003; Greenberg, 2011), a relatively small number of studies have empirically examined multi-level effects of leadership and justice and only one published example of research in either area could be found that conducted multi-level analyses within the MSEM framework (Hoffman et al., 2011). The current study, therefore, represents the first of its kind to estimate the individual and group level effects of authentic leadership (or any form of leadership) and organizational justice distinctly, so that the effects at one level do not confound the estimated effects at the other level. A clear

conclusion from the results of the current study is that both individual and group level effects of authentic leadership and organizational justice must be examined to fully understand the complex roles of these phenomena in the lives of employees and the success of organizations.

### **Future Research Directions**

The results of this study provide answers to many questions regarding the multi-level process of authentic leadership and organizational justice, while at the same time raising many new questions ripe for future empirical exploration. One fruitful area for future research involves close examination of the multi-level measurement model for authentic leadership and organizational justice dimensions. This was not a substantive focus for this study, nor did the number of groups in the sample allow for any post-hoc exploration of the group level measurement model. However, the relationships between authentic leadership and justice dimensions, as well as the effects of organizational justice on outcome variables, are clearly different at the group level as compared to the individual level. For example, authentic leadership has a strong relationship with interpersonal and informational justice climates at the group level and with all justice dimensions at the individual level. Multi-level factor analysis (MFA; Heck, 1999; Muthén, 1991, 1994) could provide a useful statistical tool to better understand the nature of these two broad constructs (authentic leadership and organizational justice) at the individual and group levels simultaneously. Recent applications of MFA (e.g., Reise, Ventura, Nuechterlein, & Kim, 2005; Roesch et al., 2010) have illustrated that measurement models may not be identical at the within group and between group levels. In the context of authentic leadership and organizational justice, it is possible that at the group level of analysis, there are not four dimensions of justice climate but rather two dimensions, or that at the group level of analysis the relationship between authentic leadership and interpersonal/informational fairness is

so strong that the three variables from level 1 collapse into just one variable (perhaps representing authentic and interactionally fair leadership) at level 2. Future research should build upon this study to better understand how authentic leadership and organizational justice should be modeled at both levels. In doing so, future research could provide further evidence for interpersonal justice climate as a mediator of group level authentic leadership effects, or evidence that at the group level the link between authentic leadership and interpersonal justice climate is so strong that no distinction is made between the two concepts.

A second avenue for future research could involve further probing the moderation effects of uncertainty. The majority of tests for uncertainty as a moderator in the authentic leadership and fairness process did not reveal statistically significant results but were in the hypothesized direction indicating that there was a trend towards uncertainty strengthening the effects of authentic leadership and organizational justice in this sample. As I have already discussed, the lack of statistical significance could have been due to a variety of factors, including a limited range of perceived uncertainty in the current sample as well as a potential ‘learned helplessness’ effect. Future research could tease apart these factors by exploring the role of uncertainty in a sample with a wider range of uncertainty perceptions and by measuring (and then accounting for) the extent to which employees are motivated to manage their uncertainty as uncertainty management theory would assume they are.

Considering the results of this study in the context of the wider body of leadership research, a third avenue for future research could examine the process of authentic leadership in tandem with other established forms of effective leadership discussed in organizational science (e.g., transformational leadership and ethical leadership). This study built upon prior empirical research that supported several leadership variables as antecedents to organizational justice



perceptions, including transformational leadership (e.g., Pillai et al., 1999), high quality LMX relationships (e.g., Cohen-Charash & Spector, 2001; Piccolo et al., 2008), ethical leadership (e.g., Mayer et al., 2008), and leader personality characteristics (e.g., Mayer et al., 2007; Van Dijke & De Cremer, 2008). I made the argument that although other leadership styles and characteristics had been empirically linked to organizational justice, the theoretical foundation for such links was severely lacking, and very little empirical support was available for understanding the leadership-justice relationship at multiple levels. Future research should directly compare the form of fair leadership supported in this study (authentic leadership) with other leadership styles and characteristics shown to predict organizational justice perceptions in past research. Future research in this area would provide a second test of authentic leadership as ‘fair leadership’ by comparing the multi-level effects of authentic leadership on fairness with those of other leadership styles.

### **Conclusion**

Organizational leaders are faced with the ongoing challenge of running a financially successful business in an unstable global economy while meeting stakeholders’ expectations of ethical, moral, and fair behavior. My aim in this study was to generate empirically based best practices to help organizational leaders meet this challenge and to thrive as a result. In this study, I integrated theories of leadership, fairness, and uncertainty management to propose a multi-level model of how leaders could promote organizational fairness as means to impact the psychological health, organizational attitudes, and behaviors of followers in times of uncertainty. Results of the MSEM analyses revealed novel findings with regards to the ways in which authentic leaders impact organizational justice and related outcomes at the individual and group levels. At the individual level of analysis, it appears that authentic leaders impact outcomes

partially through distributive, procedural, interpersonal, and informational justice perceptions; at the group level of analysis, one may conclude that authentic leaders impact outcomes via the creation of an interpersonally fair climate. These findings help to build the nascent theoretical framework of authentic leadership, as well as to fill substantial gaps in the integrative literature on leadership and organizational justice. This study also provides an empirical foundation for organizational leaders hoping to run a successful business while staying on a fair and moral high ground. In sum, authentic leadership represents a fair style of leadership with complex, multi-level effects on follower well-being, organizational attitudes, and behavioral intentions. Promoting authentic leadership is good for employees and good for business.

Table 1

*ESEM Measurement Model Comparison: Authentic Leadership and Justice Items*

Models	$\chi^2$	df	RMSEA	CFI	TLI
1-factor ESEM	3081.06	594	.15	.59	.57
2-factor ESEM	2114.54	559	.12	.75	.71
3-factor ESEM	1466.90	525	.10	.85	.82
4-factor ESEM	1123.31	492	.08	.90	.87
5-factor ESEM <sup>a</sup>	825.56	460	.06	.94	.92

*Note.* <sup>a</sup> The 5-factor model was retained as the most accurate representation of authentic leadership and justice in these data. All *p* values < .001.

Table 2

*Means, Standard Deviations, Cronbach's Alpha Values, and Intraclass Correlation Coefficients for All Study Variables*

Variables	Mean	SD	Cronbach's $\alpha$	ICC
Authentic leadership	3.93	0.84	.96	.19
Distributive justice	2.98	1.23	.95	.27
Procedural justice	2.94	1.07	.89	.17
Interpersonal justice	4.33	0.94	.92	.24
Informational justice	3.84	1.13	.93	.22
Job insecurity	2.20	0.93	--	.15
Climate of uncertainty	2.39	0.91	.81	.39
Perceived stress	2.56	0.68	.78	.15
Turnover intent	2.54	1.30	.92	.27
Affective commitment	3.54	0.81	.88	.24
Group performance <sup>a</sup>	5.69	0.35	.75	--

*Note.* ICC = intraclass correlation coefficient. Cronbach's alpha was not computed for job insecurity, because this scale consists of only one item.

<sup>a</sup>Descriptive statistics for group performance were calculated using group level data.

Table 3

*Individual and Group Level Correlation Matrices for MSEM Analyses*

Variables	1	2	3	4	5	6	7	8	9	10
Individual level ( $N = 187$ )										
1. Authentic leadership										
2. Distributive justice	.35									
3. Procedural justice	.54	.60								
4. Interpersonal justice	.60	.31	.52							
5. Informational justice	.73	.35	.61	.68						
6. Job insecurity	-.16	-.17	-.18	-.26	-.19					
7. Climate of uncertainty	-.21	-.29	-.27	-.19	-.11	.38				
8. Perceived stress	-.21	-.19	-.15	-.20	-.13	.16	.06			
9. Turnover intent	-.56	-.39	-.44	-.49	-.53	.14	.32	.34		
10. Affective commitment	.65	.40	.57	.52	.59	-.21	-.21	-.18	-.71	
Variables	1	2	3	4	5	6	7	8	9	10
Group level ( $N = 37$ )										
1. Authentic leadership										
2. Distributive justice	.28									
3. Procedural justice	.51	.71								
4. Interpersonal justice	.85	.37	.62							
5. Informational justice	.74	.49	.63	.90						
6. Job insecurity	.14	.29	-.05	-.06	.10					
7. Climate of uncertainty	-.25	.24	-.27	-.25	-.33	.52				
8. Perceived stress	-.18	-.18	-.47	-.46	-.35	.22	.28			
9. Turnover intent	-.51	-.26	-.62	-.83	-.80	.42	.41	.52		
10. Affective commitment	.27	.19	.51	.59	.64	-.34	-.27	-.41	-.90	
11. Group performance	.49	-.22	.05	.48	.40	.20	-.26	-.64	-.27	.15

*Note.* At the time of analysis,  $p$ -values are not available for MSEM correlation matrices using the Mplus software program.

Table 4

*Unstandardized Path Coefficients for Authentic Leadership Predicting the Outcome Variables*

Outcome variables	<i>b</i>	S.E.
<u>Within level</u>		
Perceived stress	-0.20**	0.06
Turnover intent	-0.71**	0.15
Affective commitment	0.55**	0.08
<u>Between level</u>		
Perceived stress	-0.04	0.36
Turnover intent	-1.07*	0.49
Affective commitment	0.35	0.36

*Note.* \* $p < .05$  \*\* $p < .01$

Table 5

*Unstandardized Path Coefficients for Models with One Justice Dimension Predicting the Three Outcome Variables*

	Within effects			Between effects		
	PS	TI	AC	PS	TI	AC
Distributive justice	-0.11** (0.04)	-0.39** (0.13)	0.26** (0.09)	-0.10 (0.12)	-0.43 (0.34)	0.19 (0.22)
Procedural justice	-0.11** (0.04)	-0.46** (0.13)	0.40** (0.08)	-0.29 (0.26)	-1.30** (0.32)	0.58* (0.27)
Interpersonal justice	-0.14** (0.06)	-0.56** (0.12)	0.41** (0.08)	0.28 (0.21)	-1.38** (0.38)	0.58 (0.36)
Informational justice	-0.09* (0.04)	-0.48** (0.11)	0.38** (0.07)	-0.22 (0.19)	-1.15** (0.30)	0.54* (0.25)

*Note.* PS = perceived stress; TI = turnover intention; AC = affective organizational commitment.  
\* $p < .05$  \*\* $p < .01$ ; S.E. in parentheses.

Table 6

*Unstandardized Path Coefficients for Models with All Four Justices Predicting each Outcome*

Independent variables	Perceived stress	Turnover intention	Affective commitment
<b>Within level</b>			
Distributive justice	-0.08 (0.06)	-0.11 (0.15)	0.06 (0.06)
Procedural justice	-0.00 (0.07)	-0.07 (0.18)	0.15* (0.06)
Interpersonal justice	-0.14* (0.07)	-0.10 (0.20)	0.13 (0.08)
Informational justice	0.01 (0.07)	-0.35* (0.14)	0.20**(0.08)
<b>Between level</b>			
Distributive justice	0.03 (0.27)	0.40 (1.29)	-0.22 (0.25)
Procedural justice	-0.24 (0.50)	-1.08 (3.10)	0.63 (0.61)
Interpersonal justice	-0.55 (0.89)	-1.23* (0.58)	-1.47 (4.73)
Informational justice	0.33 (0.65)	0.20 (0.73)	1.28 (2.95)

*Note.* \* $p < .05$  \*\* $p < .01$ ; S.E. in parentheses.



Table 7

*Within and Between Effects for Distributive Justice as a Mediator of Authentic Leadership-Outcome Relationships*

<u>Perceived stress</u>				<u>Turnover intention</u>				<u>Affective commitment</u>			
<i>c'</i>	<i>a</i> path	<i>b</i> path	Indirect Effect	<i>c'</i>	<i>a</i> path	<i>b</i> path	Indirect Effect	<i>c'</i>	<i>a</i> path	<i>b</i> path	Indirect Effect
Within effects											
-0.15*	0.46**	-0.07	-0.03	-0.68**	0.46**	-0.22*	-0.10*	0.50**	0.46**	0.12*	0.06*
(0.07)	(0.12)	(0.05)	(0.02)	(0.14)	(0.12)	(0.10)	(0.05)	(0.07)	(0.12)	(0.05)	(0.03)
Between effects											
-0.02	0.50	-0.08	-0.04	-0.89	0.50	-0.28	-0.14	0.24	0.50	0.14	0.07
(0.58)	(0.73)	(0.14)	(0.11)	(0.52)	(0.73)	(0.27)	(0.25)	(0.38)	(0.73)	(0.06)	(0.15)

*Note.* *c'* = direct effect (path from authentic leadership to outcome), *a* = path from authentic leadership to distributive justice, *b* = path from distributive justice to outcome, *indirect effect* = *a*\**b*. Mediation supported when indirect effect is significant. Full mediation supported when indirect effect is significant and *c'* is not significant.

\**p* < .05 \*\**p* < .01; S.E. in parentheses.

Table 8

*Within and Between Effects for Procedural Justice as a Mediator of Authentic Leadership-Outcome Relationships*

<u>Perceived stress</u>				<u>Turnover intention</u>				<u>Affective commitment</u>			
<i>c'</i>	<i>a</i> path	<i>b</i> path	Indirect Effect	<i>c'</i>	<i>a</i> path	<i>b</i> path	Indirect Effect	<i>c'</i>	<i>a</i> path	<i>b</i> path	Indirect Effect
Within effects											
-0.16*	0.66**	-0.03	-0.02	-0.64**	0.66**	-0.21	-0.14	0.42**	0.66**	0.22**	0.14**
(0.08)	(0.08)	(0.05)	(0.03)	(0.13)	(0.08)	(0.12)	(0.08)	(0.07)	(0.08)	(0.05)	(0.05)
Between effects											
0.19	0.64	-0.36	-0.23	-0.39	0.64	-1.03**	-0.66	-0.05	0.64	0.56*	0.36
(0.65)	(0.35)	(0.28)	(0.19)	(0.56)	(0.35)	(0.37)	(0.39)	(0.38)	(0.35)	(0.29)	(0.30)

*Note.* *c'* = direct effect (path from authentic leadership to outcome), *a* = path from authentic leadership to procedural justice, *b* = path from procedural justice to outcome, *indirect effect* = *a*\**b*. Mediation supported when indirect effect is significant. Full mediation supported when indirect effect is significant and *c'* is not significant.

\**p* < .05 \*\**p* < .01; S.E. in parentheses.

Table 9

*Within and Between Effects for Interpersonal Justice as a Mediator of Authentic Leadership-Outcome Relationships*

<u>Perceived stress</u>				<u>Turnover intention</u>				<u>Affective commitment</u>			
<i>c'</i>	<i>a</i> path	<i>b</i> path	Indirect Effect	<i>c'</i>	<i>a</i> path	<i>b</i> path	Indirect Effect	<i>c'</i>	<i>a</i> path	<i>b</i> path	Indirect Effect
Within effects											
-0.12 (0.07)	0.65** (0.08)	-0.08 (0.07)	-0.06 (0.05)	-0.56** (0.16)	0.65** (0.08)	-0.29 (0.15)	-0.19* (0.10)	0.44** (0.08)	0.65** (0.08)	0.18* (0.08)	0.12* (0.05)
Between effects											
0.67 (0.80)	1.09** (0.21)	-0.67 (0.47)	-0.73 (0.56)	1.23 (0.91)	1.09** (0.21)	-2.05** (0.71)	-2.22** (0.78)	-0.83 (0.79)	1.09** (0.21)	1.02 (0.65)	1.10 (0.68)

*Note.* *c'* = direct effect (path from authentic leadership to outcome), *a* = path from authentic leadership to interpersonal justice, *b* = path from interpersonal justice to outcome, *indirect effect* = *a*\**b*. Mediation supported when indirect effect is significant. Full mediation supported when indirect effect is significant and *c'* is not significant.

\**p* < .05 \*\**p* < .01; S.E. in parentheses.

Table 10

*Within and Between Effects for Informational Justice as a Mediator of Authentic Leadership-Outcome Relationships*

<u>Perceived stress</u>				<u>Turnover intention</u>				<u>Affective commitment</u>			
<i>c'</i>	<i>a</i> path	<i>b</i> path	Indirect Effect	<i>c'</i>	<i>a</i> path	<i>b</i> path	Indirect Effect	<i>c'</i>	<i>a</i> path	<i>b</i> path	Indirect Effect
Within effects											
-0.21**	0.96**	0.03	0.03	-0.59**	0.96**	-0.21	-0.20	0.40**	0.96**	0.17*	0.17*
(0.08)	(0.06)	(0.06)	(0.06)	(0.17)	(0.06)	(0.13)	(0.12)	(0.09)	(0.06)	(0.08)	(0.08)
Between effects											
0.30	1.07*	-0.33	-0.35	0.64	1.07*	-1.37	-0.35	-0.63	1.07*	0.82*	0.87
(0.88)	(0.30)	(0.50)	(0.55)	(1.21)	(0.30)	(0.84)	(0.55)	(0.71)	(0.30)	(0.34)	(0.46)

*Note.* *c'* = direct effect (path from authentic leadership to outcome), *a* = path from authentic leadership to interpersonal justice, *b* = path from interpersonal justice to outcome, *indirect effect* = *a\*b*. Mediation supported when indirect effect is significant. Full mediation supported when indirect effect is significant and *c'* is not significant.

\**p* < .05 \*\**p* < .01; S.E. in parentheses.

Table 11

*Unstandardized Path Coefficients for Model with Authentic Leadership Predicting All Justice Dimensions*

	Distributive justice	Procedural justice	Interpersonal justice	Informational justice
<i>Within effects</i>				
Authentic Leadership	0.46** (0.12)	0.68** (0.09)	0.66** (0.08)	0.98** (0.06)
<i>Between effects</i>				
Authentic Leadership	0.53 (0.70)	0.57 (0.40)	0.97** (0.22)	0.99** (0.34)

*Note.* \* $p < .05$ . \*\* $p < .01$ ; S.E. in parentheses.

Table 12

*Conditional Effects for Job Insecurity (Level 1) and Uncertainty Climate (Level 2) as Moderators of Authentic Leadership – Outcome Relationships*

<u>Perceived stress</u>			<u>Turnover intention</u>			<u>Affective commitment</u>		
<u>Within effects</u>								
AL	JI	AL*JI	AL	JI	AL*JI	AL	JI	AL*JI
-0.37** (0.13)	-0.21 (0.17)	0.08 (0.05)	-0.69 (0.42)	-0.03 (0.53)	0.02 (0.13)	0.24* (0.14)	-0.46* (0.19)	0.10 (0.11)
<u>Between effects</u>								
AL	CU	AL*CU	AL	CU	AL*CU	AL	CU	AL*CU
0.38 (0.24)	0.07 (0.14)	-1.06* (0.48)	--	--	--	-0.38 (0.36)	-0.10 (0.21)	0.18 (0.41)

*Note.* AL = authentic leadership, JI = job insecurity, CU = climate of uncertainty, AL\*JI = interaction of authentic leadership and job insecurity, AL\*CU = interaction of authentic leadership and climate of uncertainty.

\* $p < .05$  \*\* $p < .01$ ; S.E. in parentheses.

Table 13

*Conditional Effects for Job Insecurity (Level 1) and Uncertainty Climate (Level 2) as Moderators of Distributive Justice – Outcome Relationships*

<u>Perceived Stress</u>			<u>Turnover Intention</u>			<u>Affective Commitment</u>			
<u>Within effects</u>									
DJ	JI	DJ*JI	DJ	JI	DJ*JI	DJ	JI	DJ*JI	
--	--	--	0.10 (0.34)	0.73 (0.43)	-0.20 (0.12)	0.07 (0.11)	-0.34*	0.08*	(0.08) (0.04)
<u>Between effects</u>									
DJ	CU	DJ* CU	DJ	CU	DJ* CU	DJ	CU	DJ* CU	
--	--	--	-0.14 (0.41)	-0.05 (0.52)	1.03 (0.79)	0.12 (0.32)	-0.14 (0.24)	0.58 (0.62)	

*Note.* DJ = distributive justice, JI = job insecurity, CU = climate of uncertainty, DJ\*JI = interaction between distributive justice and job insecurity, DJ\*CU = interaction between distributive justice and climate of uncertainty.

\* $p < .05$  \*\* $p < .01$ ; S.E. in parentheses.

Table 14

*Conditional Effects for Job Insecurity (Level 1) and Uncertainty Climate (Level 2) as Moderators of Procedural Justice – Outcome Relationships*

<u>Perceived stress</u>			<u>Turnover intention</u>			<u>Affective commitment</u>		
Within effects								
PJ	JI	PJ*JI	PJ	JI	DJ*JI	PJ	JI	PJ*JI
--	--	--	-0.18 (0.39)	0.29 (0.38)	-0.10 (0.14)	0.43** (0.12)	-0.02 (0.16)	-0.02 (0.05)
Between effects								
PJ	CU	PJ*CU	PJ	CU	PJ*CU	PJ	CU	PJ*CU
--	--	--	-0.89 (0.64)	-0.02 (0.50)	-0.56 (0.44)	0.27 (0.26)	-0.01 (0.20)	0.48 (0.61)

*Note.* PJ = procedural justice, JI = job insecurity, CU = climate of uncertainty, PJ\*JI = interaction between procedural justice and job insecurity, PJ\*CU = interaction between procedural justice and climate of uncertainty.

\* $p < .05$  \*\* $p < .01$ ; S.E. in parentheses.



Table 15

*Conditional Effects for Job Insecurity (Level 1) and Uncertainty Climate (Level 2) as Moderators of Interpersonal Justice – Outcome Relationships*

<u>Perceived stress</u>			<u>Turnover intention</u>			<u>Affective commitment</u>		
<u>Within effects</u>								
INTJ	JI	INTJ* JI	INTJ	JI	INTJ* JI	INTJ	JI	INTJ* JI
--	--	--	-0.23 (0.38)	0.49 (0.47)	-0.11 (0.10)	0.59** (0.17)	0.27 (0.22)	-0.07 (0.05)
<u>Between effects</u>								
INTJ	CU	INTJ* CU	INTJ	CU	INTJ* CU	INTJ	CU	INTJ* CU
--	--	--	-0.90** (0.29)	-0.21 (0.32)	-0.25 (0.24)	0.15 (0.36)	0.09 (0.20)	0.59 (0.77)

*Note.* INTJ = interpersonal justice, JI = job insecurity, CU = climate of uncertainty, INTJ\*JI = interaction between interpersonal justice and job insecurity, INTJ\*CU = interaction between interpersonal justice and climate of uncertainty.

\* $p < .05$  \*\* $p < .01$ ; S.E. in parentheses.

Table 16

*Conditional Effects for Job Insecurity (Level 1) and Uncertainty Climate (Level 2) as Moderators of Informational Justice – Outcome Relationships*

<u>Perceived stress</u>			<u>Turnover intention</u>			<u>Affective commitment</u>		
<u>Within effects</u>								
INFJ	JI	INFJ* JI	INFJ	JI	INFJ* JI	INFJ	JI	INFJ* JI
--	--	--	-0.51 (0.29)	-0.06 (0.34)	0.03 (0.07)	0.50** (0.14)	0.14 (0.23)	-0.05 (0.06)
<u>Between effects</u>								
INFJ	CU	INFJ* CU	INFJ	CU	INFJ* CU	INFJ	CU	INFJ* CU
--	--	--	-0.56 (0.49)	-0.20 (0.41)	-0.23 (0.38)	0.15 (0.26)	0.20 (0.20)	0.45 (0.41)

*Note.* INFJ = informational justice, JI = job insecurity, CU = climate of uncertainty, INFJ\*JI = interaction between informational justice and job insecurity, INFJ\*CU = interaction between informational justice and climate of uncertainty.

\* $p < .05$  \*\* $p < .01$ ; S.E. in parentheses.

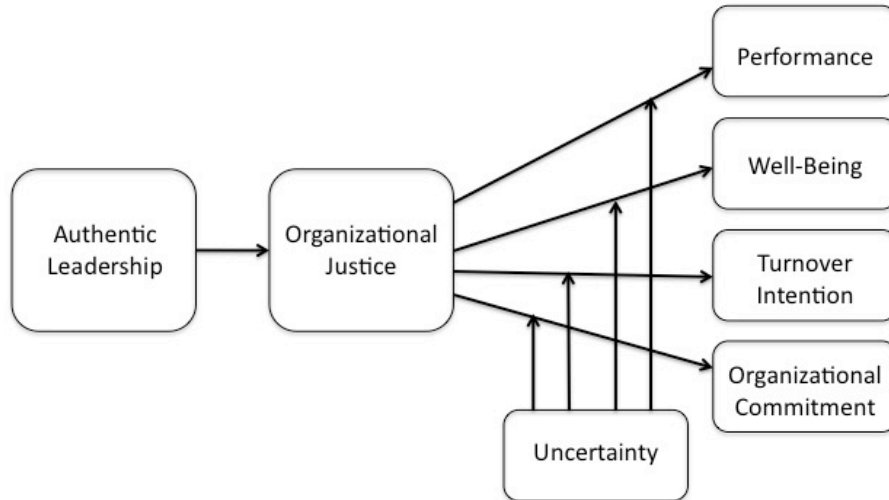
Table 17

*Evaluation of Job Insecurity as a Moderating Variable in the Authentic Leadership → Distributive Justice → Affective Commitment Mediation Model*

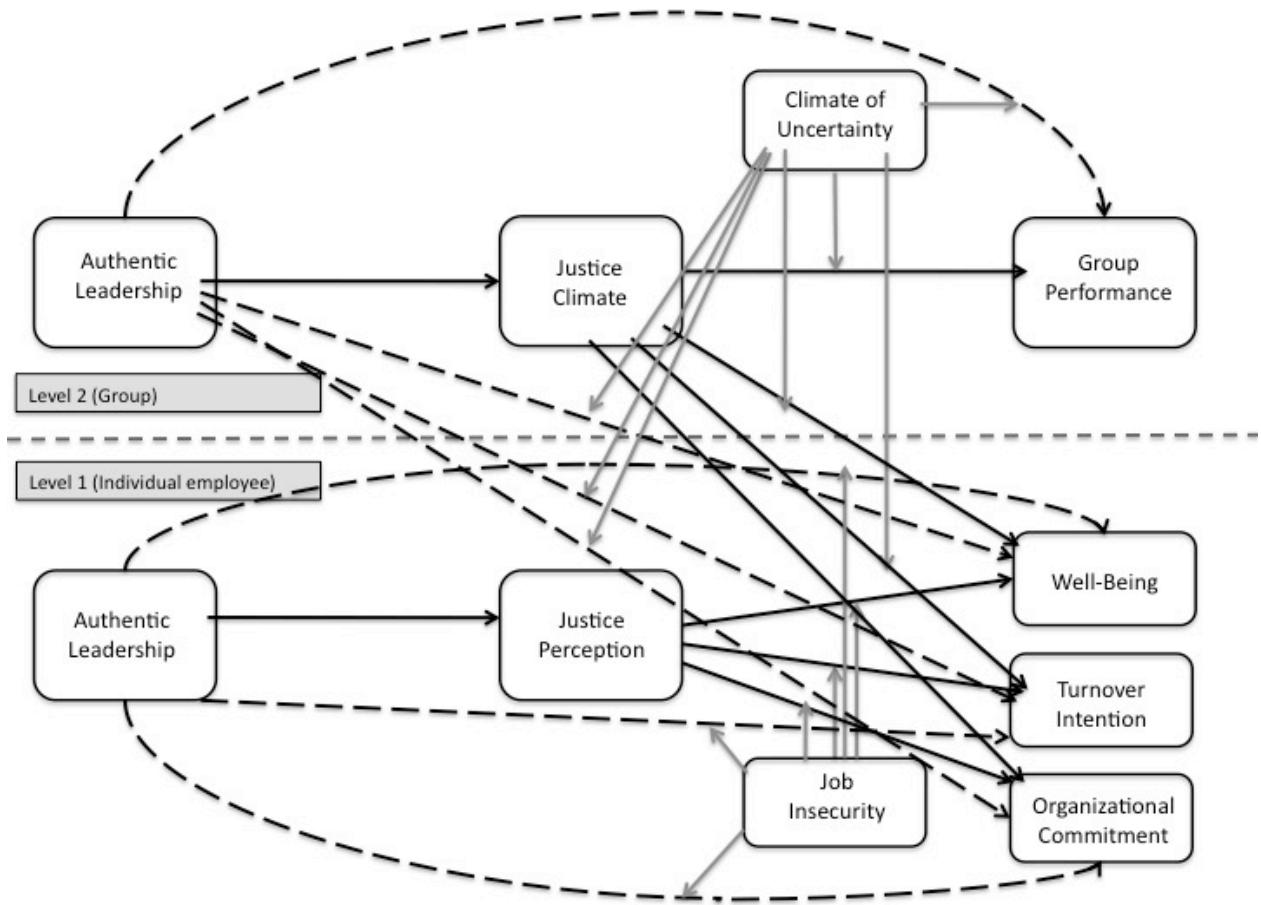
Models	Log-likelihood	MLR Scaling Correction Factor	# Free Parameters	TRd
1. Mediation model	-635.14	1.02	15	
2. Moderated mediation model	-865.99	0.98	22	521.85**

*Note.* TRd is the chi-square difference test based on loglikelihood information for two models estimated with maximum likelihood estimation with robust standard errors (MLR).

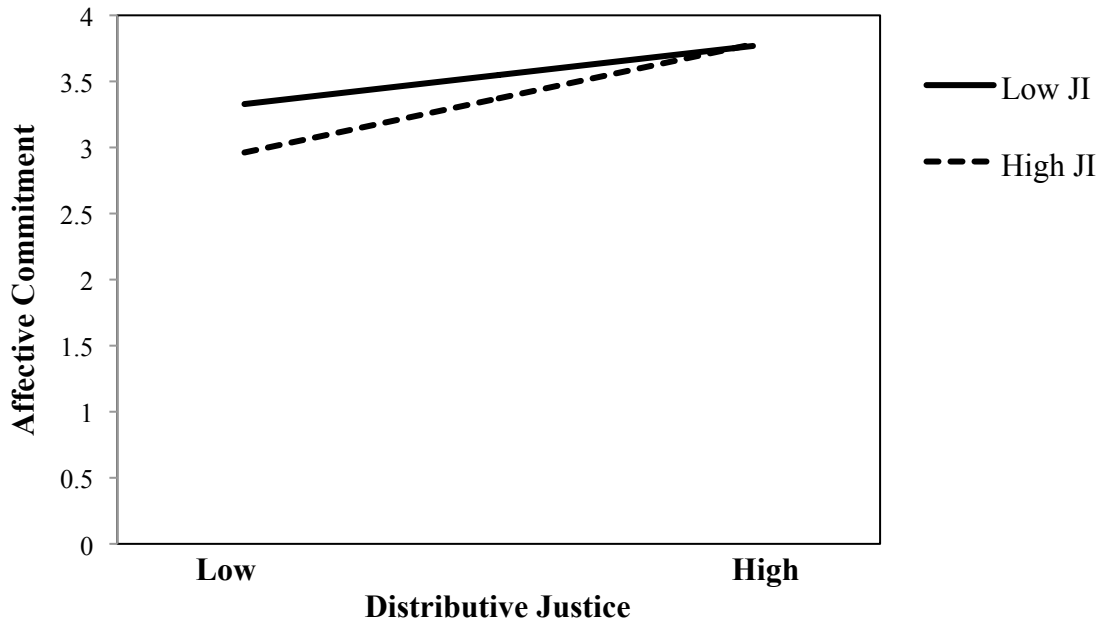
\*\* $p < .01$



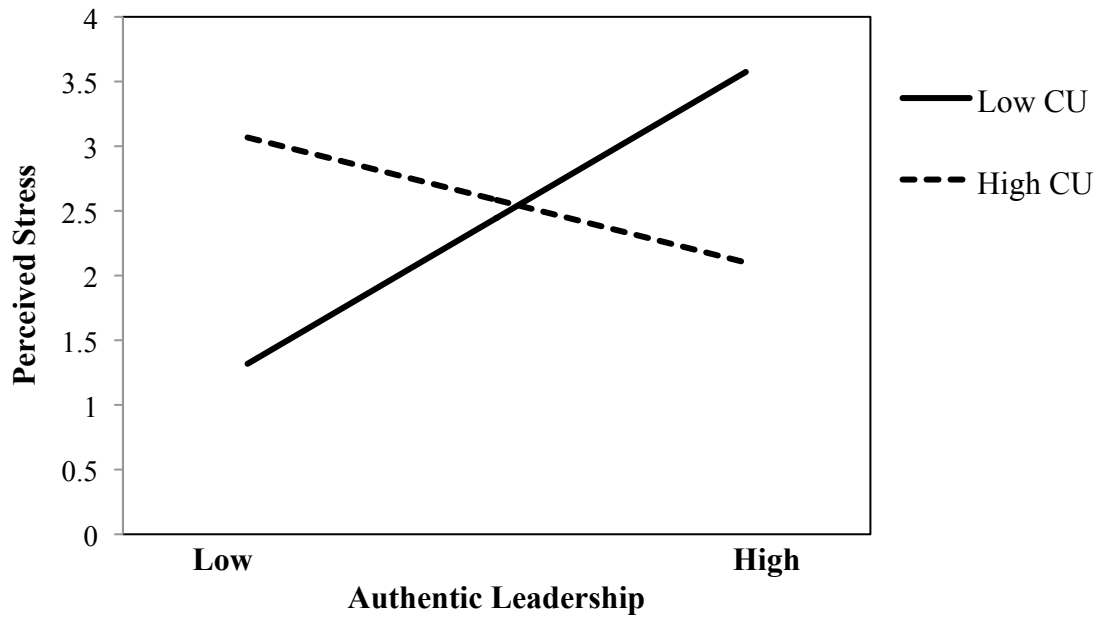
*Figure 1.* Proposed general model of authentic leadership and fairness in times of uncertainty.



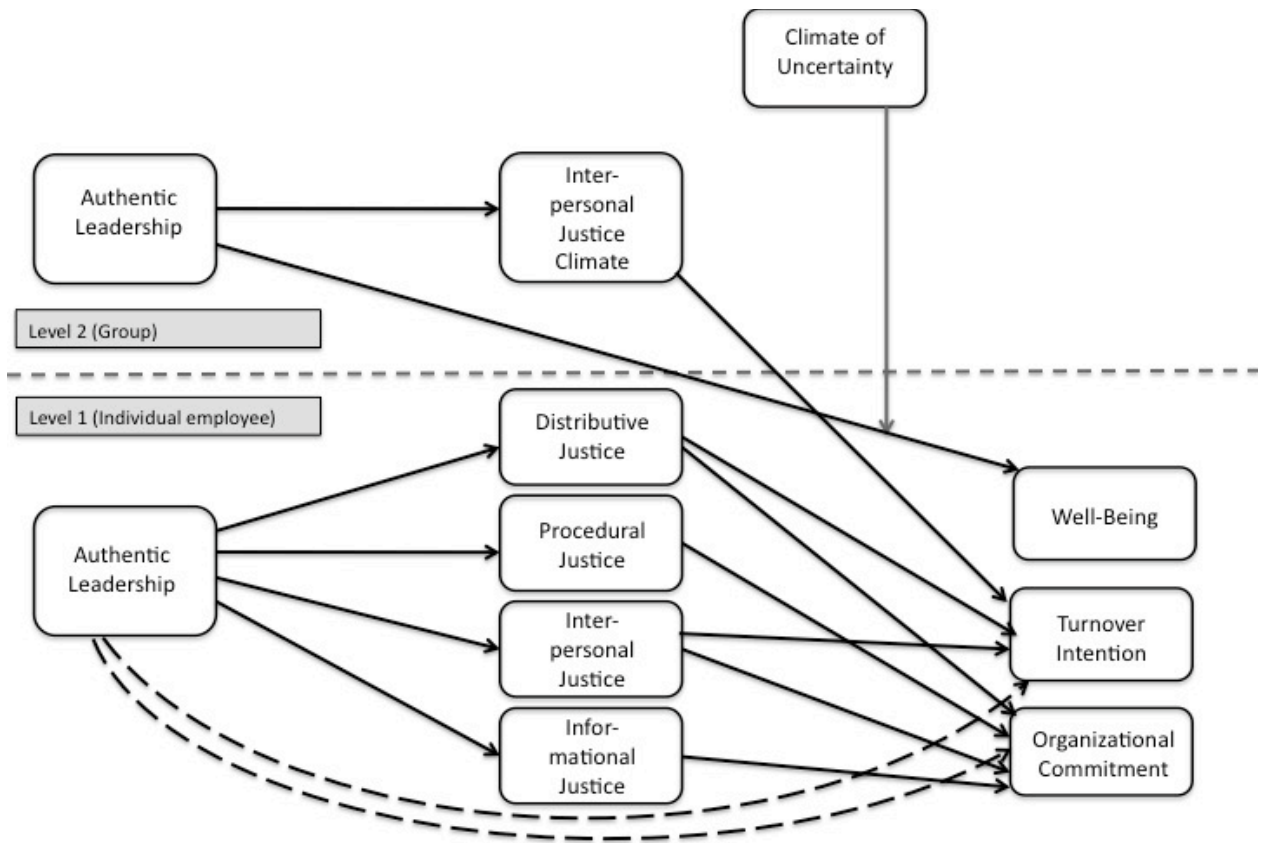
*Figure 2.* Proposed multi-level moderated mediation model of authentic leadership, fairness, and uncertainty. Dotted lines represent the attenuated relationships between authentic leadership and the outcome variables after including the organizational justice mediator variables in the model. Gray lines represent moderation effects.



*Figure 3.* Moderation effect of job insecurity (JI) on the level 1 relationship between distributive justice and affective commitment. When perceptions of job insecurity were high, the positive relationship between distributive justice and affective commitment was stronger than when perceptions of job insecurity were low. Low levels were operationalized as one standard deviation below the mean; high levels were operationalized as one standard deviation above the mean.



*Figure 4.* Moderation effect of climate of uncertainty (CU) on the level 2 relationship between authentic leadership and perceived stress. The relationship between authentic leadership and perceived stress was negative only when perceptions of uncertainty climate were high. Low levels were operationalized as one standard deviation below the mean; high levels were operationalized as one standard deviation above the mean.



*Figure 5.* Model of authentic leadership, fairness, and uncertainty supported by study findings. Dotted lines represent the attenuated relationships between authentic leadership and the outcome variables after including the organizational justice mediator variables in the model. Gray line represents moderation effects.



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## APPENDIX

### **Authentic Leadership: The Authentic Leadership Questionnaire (Walumbwa et al., 2008)**

This section includes questions about your direct supervisor (i.e., manager or team leader) and his or her style, as you perceive it. Please judge how frequently each statement fits his or her leadership style, in general.

In general, my supervisor...

1 = not at all, 2 = once in a while, 3 = sometimes, 4 = fairly often, 5 = frequently or always

#### *Self-Awareness*

1. Seeks feedback to improve interactions with others.
2. Accurately describes how other view his or her capabilities

#### *Relational Transparency*

3. Says exactly what he or she means.
4. Is willing to admit mistakes when they are made.

#### *Internalized Moral Perspective*

5. Demonstrates beliefs that are consistent with actions.
6. Makes decisions based on his/her core values.

#### *Balanced Processing*

7. Solicits views that challenge his or her deeply held positions.
8. Listens carefully to different points of view before coming to conclusions.

### **Organizational Justice (Colquitt, 2001)**

All items have the common stem: "To what extent" and the common response scale:

1 = to a small extent; 2 = to a small-moderate extent; 3 = to a moderate extent; 4 = to a moderate-large extent; 5 = to a large extent.

#### *Distributive Justice*

This section includes questions about the payment and rewards you receive at work.

1. Do your pay and rewards reflect the effort you have put into your work?
2. Are your pay and rewards appropriate for the work you have completed?
3. Do your pay and rewards reflect what you have contributed to the organization?
4. Are your pay and rewards justified, given your performance?

#### *Procedural Justice*

This section includes questions about the decision-making procedures used at work to make decisions about important outcomes affecting you.

5. Have you been able to express your views and feelings during those procedures?
6. Have you had influence over the payment and rewards arrived at by those procedures?
7. Have those procedures been applied consistently?
8. Have those procedures been free of bias?

9. Have those procedures been based on accurate information?
10. Have you been able to appeal the payment and rewards arrived at by those procedures?
11. Have those procedures upheld ethical and moral standards?

#### *Informational Justice*

This section is about how you feel you are treated by the person (or people) in charge of your pay and rewards.

12. Has he/she been candid in his/her communications with you?
13. Has he/she explained the procedures thoroughly?
14. Were his/her explanations regarding the procedures reasonable?
15. Has he/she communicated details in a timely manner?
16. Has he/she seemed to tailor his/her communications to individuals' specific needs?

#### *Interpersonal Justice*

This section is about how you feel you are treated by the person (or people) in charge of your pay and rewards.

17. Has he/she treated you in a polite manner?
18. Has he/she treated you with dignity?
19. Has he/she treated you with respect?
20. Has he/she refrained from improper remarks or comments?

#### **Job Insecurity (Lindstrom, 2000)**

This question is about how secure you feel your current job is.

1 = very insecure; 2 = insecure; 3 = neither insecure nor secure; 4 = secure; 5 = very secure

1. How secure is your job? (R)

#### **Uncertainty Climate (Størseth, 2006)**

This section is about your perceptions of any changes you think might occur in your company in the near future.

To what extent do you agree with the statement...

1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree

1. People may lose their jobs due to downsizing.
2. Cutbacks are frequently discussed.
3. Departments have been/may be merged.
4. There is a risk for company close-down.
5. There are rumors concerning big changes at my workplace.

#### **Perceived Well-Being, short version (Cohen, Kamarck, & Mermelstein, 1983)**

The questions in this section ask you about your feelings and thoughts during the last month in general (not just at work). In each case, you will be asked to indicate how often you felt or

thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, don't try to count up the number of times you felt a particular way, but rather indicate the answer that seems like a good estimate.

In the last month, how often have you...

1 = never; 2 = almost never; 3 = sometimes; 4 = fairly often; 5 = very often

1. Felt that you were unable to control the important things in your life?
2. Felt 'stressed'?
3. Felt confident about your ability to handle your personal problems?
4. Felt that things were going your way?
5. Felt difficulties were piling up so high that you could not overcome them?

### **Turnover Intention (Adams & Beehr, 1998)**

This section includes statements people might make about leaving or quitting their current jobs.

To what extent do you agree with the statement...

1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree

1. I am planning to leave my job for another in the near future.
2. I often think of quitting this job and finding another one.
3. I would like to quit this job and find another in the future.

### **Affective Organizational Commitment (Allen & Meyer, 1990)**

This section is about how you feel about your company (i.e., organization or employer).

To what extent do you agree with the statement...

1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree

1. I would be very happy to spend the rest of my career with this company.
2. I enjoy discussing my company with people outside it.
3. I really feel as if this company's problems are my own.
4. I think that I could easily become as attached to another company as I am to this one. (R)
5. I do NOT feel like 'part of the family' at my company. (R)
6. I do NOT feel 'emotionally attached' to this company. (R)
7. This company has a great deal of personal meaning for me.
8. I do NOT feel a strong sense of belonging to my company. (R)

### **Team Performance (adapted from Williams and Anderson, 1991)**

For the items below, indicate to what extent you agree that this group engages in each behavior while group members are "on the job" (that is, while they are at work). Please evaluate how this group performs *in general*.

1 = highly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = highly agree

1. This group adequately completes assigned duties.
2. This group fulfills job responsibilities as specified in the group's job descriptions.
3. This group performs tasks that are expected of them.
4. This group meets formal performance requirements of the job.
5. This group meets or exceeds expectations of 'high performance'.
6. This group neglects aspects of the job they are obligated to perform. (R)
7. This group fails to perform essential duties. (R)

**Demographic Items (written for the current study)**

The following information is being collected to help us ensure that we have reached a wide range of people with our survey. This information will not be used to identify individual responses in any way.

*Individual Level*

1. What is your current job title?
2. What is your primary department (i.e., division or work group)<sup>3</sup>
3. How many years have you been with your current employer?
4. How many hours do you work each week, on average?
5. In what year were you born?
6. What is your gender?  
 Male  Female
7. How would you describe your ethnicity?  
 Black, non-Hispanic  American Indian or Alaskan Native  
 Hispanic  Asian or Pacific Islander  
 Other  White, non-Hispanic

*Group Level*

1. Roughly how many people are employed by your organization?
2. How many people work for your supervisor?
3. What industry or business category best describes your organization (for example, restaurants, education, consulting, health care)?

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<sup>3</sup> This item was customized for each 'fully participating' company (each company that invited all employees to complete the survey) so that each group name had a different supervisor and was given the same label it would be by employees describing their own group.