

Adapting Leader Behaviors to Achieve Follower Effectiveness:

A Mindful Approach to Situational Leadership

by

Christopher Stephen Reina

A Dissertation Presented in Partial Fulfillment  
of the Requirements for the Degree  
Doctor of Philosophy

Approved April 2015 by the  
Graduate Supervisory Committee:

Angelo Kinicki, Co-Chair  
Suzanne Peterson, Co-Chair  
Zhen Zhang

ARIZONA STATE UNIVERSITY

May 2015

## ABSTRACT

This study develops a theoretical model that explains how leaders come to adapt their leadership behaviors to achieve follower effectiveness. Mindfulness theory suggests that mindful individuals are better able to engage in self-regulation and I consider empathy, response flexibility, and emotional regulation as three self-regulatory processes in particular which likely impact the leader-follower relationship. I suggest that leaders who have the ability to self-regulate in these three ways will be better able to engage in leadership behavior characterized by adapting or flexing the specific types of leadership they demonstrate according to the needs of the situation and what their followers most require at a given time to perform at their best. When followers receive the type of situationally-appropriate support in the form of leader behavior, they are more effective (e.g. have higher job performance and extra-role performance). I validate a new trait and state measure of workplace mindfulness with multiple samples and utilize this new scale to collect data from leaders and followers from a government organization to test the theoretical relationships proposed in this study. I utilize an experience sampling methodology (ESM) design over 10 days to investigate the within-leader variation among variables in the study given theory suggesting the dynamic nature of the mindfulness, self-regulation, and situational leadership constructs which may not adequately be captured when data are collected at one point in time. Finally, I introduce organizational constraints as a moderator of the relationship between leader mindfulness and leader self-regulation in order to understand how stressors and strains outside the control of a leader may overload a leader's ability to ultimately self-regulate his/her behavior.

## DEDICATION

To Mom and Dad for their  
constant love and support

## ACKNOWLEDGEMENTS

First and foremost, I would like to thank my Co-Chairs Suzanne Peterson and Angelo Kinicki for encouraging me to explore my research passions and supporting me throughout this journey. I thank Angelo for his training in the art and science of effectively communicating ideas in writing, his passion for mindfulness, and for all his guidance in developing the study design. I thank Suzanne for her flexibility in finding ways to best support me throughout the process, for her guidance and advice which was so instrumental in shaping my thinking, for her assistance in facilitating access to the data site, and for her incredible mentorship over the last 7 years. I thank my third committee member, Zhen Zhang, for his methodological expertise, constant willingness to help, and calming presence. I thank all of my committee members collectively for their passion, willingness to make time to talk through ideas, and above all, their patience and sincere desire to ensure my success.

I thank Ron Riggio for planting the seed at Claremont McKenna College for me to enter Academia and for exposing me to the fields of psychology and management. I thank Sandra Schrock, Minu Ipe, and Joan Brett for the many conversations we've had about mindfulness and for shaping my journey in better understanding this construct. I thank David Waldman for strongly contributing to my development and identity as a management scholar. I thank Richie Ressel for his unwavering support and positive presence in my life during the dissertation process specifically and graduate school in general. I thank Harry Hayes for grounding me and for always believing in me. I thank Brooke Buckman for being a thought partner during the proposal process and for contributing her thoughts and suggestions. I thank Kristie Rogers for her mentorship and

for being an amazing role model for me as I progressed through the Ph.D. program. I thank Beth Schinoff and Melissa Chamberlin for their friendship and their encouraging words, and I thank Amy Bartels for her support and for always creating a positive office environment.

I thank Allie Gabriel for her assistance in planning statistical analyses and for being a sounding board for my ideas. I thank Patrick Stout for his spiritual guidance and for being a role model in living mindfulness daily. I thank Bruce Davis, Ryan Freeburg, and all the captains and crew members at the fire department for their support and willingness to fully participate in the daily survey design. I thank Dean Amy Hillman and Chris Clark for facilitating data collection opportunities. I thank all of my friends and colleagues and ASU in general for providing such a fertile ground for me to develop my identity as a scholar and explore my passions as a graduate student. I thank Kevin Corley and Jeff LePine who served as Ph.D. Coordinators and Gerry Keim and Trevis Certo who served as Department Chairs in particular for their support and commitment to ensuring the graduate student experience at ASU was so special.

I thank my parents for teaching me about hard work, reinforcing how I can do anything I set my mind to, and their unwavering support and love. I thank my Aunt Susu for her positive energy, constant support, and for always letting me know she's thinking about me when I need it most. I thank Annette Jecker for being such a positive advocate for me and for her angelic presence in my life. While my name alone appears on this dissertation, I could never have done it without everyone listed above who has helped me achieve this success. I am forever thankful and grateful for your presence and support.

## TABLE OF CONTENTS

|   | Page |
|---|------|
| LIST OF TABLES.....   | viii |
| LIST OF FIGURES.....  | x    |
| CHAPTER   |      |
| 1 INTRODUCTION.....   | 1    |
| 2 LITERATURE REVIEW.....                                    | 8    |
| Contingency Approaches to Leadership.....                   | 8    |
| Mindfulness.....  | 20   |
| Leader Self-Regulation.....                                 | 45   |
| Unit Effectiveness.....                                     | 53   |
| Organizational Constraints.....                             | 55   |
| 3 THEORY AND HYPOTHESES.....                                | 56   |
| Leader Mindfulness and Leader Self-Regulation.....          | 56   |
| Leader Self-Regulation and                                  |      |
| Situationally-Driven Leadership.....                        | 60   |
| Situationally-Driven Leadership and Unit Effectiveness..... | 65   |
| Organizational Constraints.....                             | 68   |
| 4 METHOD.....   | 72   |
| Mindfulness Scale Development and Validation.....           | 72   |
| Main Study for Hypothesis Testing.....                      | 86   |
| Sample and Procedure.....                                   | 86   |

| CHAPTER  | Page |
|--|------|
| Measures .....   | 89   |
| Analyses .....   | 92   |
| 5 RESULTS OF THE MAIN STUDY .....  | 95   |
| Hypothesized Model and Alternative Model Comparisons .....   | 97   |
| Hypothesis Testing.....  | 98   |
| 6 DISCUSSION .....   | 103  |
| Summary of Results .....   | 103  |
| Theoretical Contributions .....  | 105  |
| Plausible Explanation of Findings .....  | 108  |
| Future Research Directions.....  | 116  |
| Limitations .....  | 118  |
| Practical Implications.....  | 120  |
| Conclusion.....  | 124  |
| REFERENCES .....   | 126  |
| APPENDIX.....  | 177  |
| A INTERNATIONAL REVIEW BOARD APPROVAL FORMS FOR<br>MINDFULNESS SCALE DEVELOPMENT<br>AND VALIDATION STUDY ..... | 177  |
| B INTERNATIONAL REVIEW BOARD APPROVAL FORMS FOR<br>HYPOTHESIS TESTING SAMPLE .....                             | 179  |

|   |                                 |     |
|---|---------------------------------|-----|
| C | SCALE VALIDATION                |     |
|   | SURVEY ITEMS .....              | 181 |
| D | MAIN STUDY TIME 0 LEADER        |     |
|   | AND FOLLOWER SURVEY ITEMS ..... | 185 |
| E | MAIN STUDY DAILY LEADER         |     |
|   | AND FOLLOWER SURVEY ITEMS ..... | 188 |



## LIST OF TABLES

| Table   | Page |
|---|------|
| 1. Comparison Between Glomb et al. (2011), Shapiro et al., (2006) and Current Conceptualization of Mindfulness and Its Outcomes .....                               | 154  |
| 2. New Conceptualization of Mindfulness in Relation to Previous Conceptualizations .....  | 155  |
| 3. Factor Loadings from EFA Principal Components Analysis with Varimax Rotation of 23 Mindfulness Items Using Sample 1 Student Data .....                           | 156  |
| 4. Summary of the Mindfulness Refinement Process Using Sample 2 Student Data .....  | 158  |
| 5. Standardized Factor Loadings and Composite Reliability for Each Dimension of the Mindfulness Measure After Refinement Process Using Sample 3 Employee Data ..... | 159  |
| 6. Results of Omnibus Confirmatory Factor Analysis for Mindfulness Discriminant Validity with Other Constructs Using Sample 3 Employee Data .....                   | 161  |
| 7. Correlations Between Mindfulness and Related Measures Using Sample 3 Employee Data .....   | 162  |
| 8. State Mindfulness Items Used to Test Nomological Validity in Sample 4 Mturk.....   | 163  |

| Table  | Page |
|--|------|
| 9. Usefulness Analysis and Incremental Validity of the<br>Current Mindfulness Scale Compared to Brown & Ryan (2003)<br>Mindfulness Measure Using Sample 4 Mturk Data ..... | 164  |
| 10. Daily Alphas for Main Study Variables .....  | 165  |
| 11. Descriptive Statistics and Intercorrelations Among<br>Study Variables from Main Sample for Hypothesis Testing .....  | 166  |
| 12. Daily ICC(1), ICC(2), and $R_{wg(j)}$ Statistics for<br>Situationally-Driven Leadership to Justify Aggregation .....   | 167  |
| 13. Confirmatory Factor Analysis Tests of Discriminant Validity .....  | 168  |
| 14. Model Fit Indices for Hypothesized Model and<br>Alternative Model Comparisons .....  | 169  |

## LIST OF FIGURES

| Figure  | Page |
|---|------|
| 1. Proposed Theoretical Model .....   | 170  |
| 2. Differentiating Mindfulness From Other States<br>of Attention (From Dane, 2011) .....                  | 171  |
| 3. Theoretical Model of Mindfulness<br>(Adapted from Shapiro et al., 2006) .....                          | 172  |
| 4. Core and Secondary Processes Linking Mindfulness<br>to Self-Regulation (From Glomb et al., 2011) ..... | 173  |
| 5. Theoretical Model with Unstandardized Path Coefficients<br>Linking Main Study Variables .....          | 174  |
| 6. Unit Performance as a Function of Leader<br>Self-Regulation and Day Normality .....                    | 175  |
| 7. Unit OCB as a Function of Leader<br>Self-Regulation and Day Normality .....                            | 176  |

## Chapter 1

### INTRODUCTION

Employee effectiveness has always been held at a premium in organizational work life. Yet, in today's 24/7 world, the demands on employees' time, energy, and skill sets are unprecedented as they are expected to simultaneously perform their job well, build relationships with co-workers, balance work and family commitments, and display positivity at work (Carmeli & Gittel, 2009; Peterson, Luthans, Avolio, Walumbwa, & Zhang, 2011; Shockley & Allen, 2014). This also presents a problem for leaders who are responsible for ensuring that their employees receive the support they need in order to achieve optimal effectiveness despite ever-increasing demands (Bersin, 2014; Semuels, 2013). Contingency leadership theories have suggested that leaders should adapt their leadership behaviors to meet the needs of their followers and the situation (Fiedler, 1964; Hersey & Blanchard, 1971; House, 1971) but these theories have not taken into account the changing nature of followers' needs for certain types of leadership.

Although situational leadership theories endorse the notion that not all leader behaviors are equally effective for all followers and situations, they do prescribe certain leader behaviors for certain groups of followers or situations to best support followers' characteristics and abilities. For example, according to situational leadership theory (Hersey & Blanchard, 1971), leaders should demonstrate high task leadership and low relationship leadership when followers have low ability and confidence to do a task. This prescription is helpful for leaders to an extent, but does not adequately take into account the complexity of modern organizational life characterized by constant flux and change (Birkinshaw, Hamel, & Mol, 2008; Yukl & Lepsinger, 2005). Additionally, individual

differences research states that each follower is unique (Judge & Bono, 2001; Lubinski, 2000) which would suggest that every individual on a leader's team has a different idea of what he/she most requires from a leader. Moreover, given recent research demonstrating high levels of within-individual variance in positive affect and state affect (Scott, Colquitt, Paddock, Laybe, & Judge, 2010), individual difference variables (Ilies, Johnson, Judge, & Kenney, 2011) and motives (Scott, Garza, Conlon, & Kim, 2014), it is clear that each follower is not the same from day-to-day or even moment-to-moment and thus their needs are constantly in flux. This presents an overwhelming amount of complexity for each leader to deal with considering each follower has a different set of needs at any given moment which is a function of both their between and within-individual factors as well as aspects of the situation.

The overarching purpose of this dissertation is to extend contingency/situational leadership theory in three ways. First, I examine whether followers perceive that they are receiving the type of leadership they most require to be more effective in their work roles. Previous work has primarily considered broad attributions of followers based on a static context (e.g., low readiness followers) rather than recognizing the ever-changing nature of followers' needs over weeks, days, or even hours based on the situation. I suggest that in order to ensure their followers are optimally effective, leaders must adapt their behaviors to meet the dynamic leadership needs of followers.

Second, I suggest that it is important to explicate *how* leaders come to recognize which behaviors they should exhibit in order to best support their followers at a given point in time. For example, how does a leader determine that a follower requires more task leadership today and more relationship leadership tomorrow? Contingency

leadership theories have not explicated the characteristics of the leaders or the mechanisms by which leaders come to recognize which behaviors would be most appreciated by followers. In order to be effective situational leaders, I suggest that leaders need to avoid being on “auto-pilot” whereby they exhibit the behaviors that are comfortable for them or that they have had the most success with previously. Instead, they need to focus on the behaviors that would be most required by their followers. This is akin to adapting the Golden Rule from its current wording which states “Do unto others as you would have done unto you” to an edited version that states “Do unto others as they would want done unto them.” The theoretical and empirical question, of course, is how do leaders achieve this? Which characteristics do they need to develop in order to be able to approach followers in a more selfless way? I suggest that leaders who exhibit more mindfulness (Brown & Ryan, 2003; 2007) are more capable than their less mindful counterparts in recognizing the leadership behaviors that followers most need and adjusting their behaviors to best support their followers across various situations.

Finally, contingency approaches have focused on a narrow set of leader behaviors—namely task and relationship-oriented behaviors despite the much broader range of leader behaviors emphasized by contemporary leadership theories. As a result, there is a limited understanding of what drives leaders to engage in some of the most popular forms of follower-centric leadership behaviors such as transformational (Avolio, 1999; Bass, 1985), servant (Greenleaf, 1991; Spears, 2004), empowering (Kirkman & Rosen, 1999; Srivistava, Bartol, & Locke, 2006) and authentic (Luthans & Avolio, 2003). Indeed, research has suggested that we know little about the antecedents of leader behaviors or why leaders engage in certain leader behaviors in the first place (Bommer,

Rubin, Baldwin, 2004; Rubin, Munz, & Bommer, 2005). I suggest that within the framework of contingency leadership, leader behaviors should be purposeful in order to best support their followers.

In summary, the overarching purpose of this dissertation is to overcome the shortcomings of contingency leadership theories by examining the importance of leaders taking followers' changing needs into account prior to engaging in leadership behavior. I detail a process by which leaders can gain a better understanding of what would be most beneficial for their followers so they can adapt their leader behaviors to produce maximum follower effectiveness. I conceptualize a follower-centric approach to contingency leadership called situationally-driven leadership that focuses jointly on the diverse and changing needs of followers for leadership and situational demands. I introduce the construct of leader mindfulness and its proximal outcomes as the primary drivers of situationally-driven leadership behavior.

### **Leader Mindfulness**

Mindfulness is defined as intentional awareness of the present moment without judgment (Kabat-Zinn, 1994). Mindful leaders can adjust their behaviors because they are able to be aware in the current moment “without the overlay of discriminative, categorical, and habitual thought, [such that] consciousness takes on a clarity and freshness that permits more flexible, more objectively informed psychological and behavioral responses” (Brown & Ryan, 2007, p. 212). Mindful leaders do not fall into the trap of mindless, automatic processing which leads to mechanistic and rigid behavioral patterns (Langer, 1989). Instead, they engage in a process of emotional and cognitive self-regulation consisting of empathy, affective-regulation, and response flexibility,

which recent conceptualizations of mindfulness suggest, allows them to be more fully present, aware of, and in tune with their followers (Glomb, Duffy, Bono, & Yang, 2011; Shapiro, Carlson, Astin, and Freedman, 2006). Mindful leaders are thus not likely to treat all followers the same, but rather approach each follower and situation uniquely.

Researchers have suggested that the effects of mindfulness on social relationships represents an area ripe for future research and theory development (Brown, Ryan, & Creswell, 2007) and that an exploration of the mechanisms by which mindfulness impacts social relationships is especially warranted (Glomb et al., 2011). Previous research has supported positive relationships between mindfulness and intimate relationships (Saavedra, Chapman, & Rogge, 2010), social connectedness (Hutcherson, Seppala, & Gross, 2008), relatedness and interpersonal closeness (Brown & Kassr, 2005), and relationship satisfaction (Barnes, Brown, Krusemark, Campbell, & Rogge, 2007), but the underlying mechanisms by which mindfulness leads to these outcomes have not yet been tested empirically. I suggest that emotional and cognitive self-regulation are the outcomes of mindfulness which prepare leaders to interact with their followers (Ashkanasy & Tse, 2000; Eisenberg & Miller, 1987; Glomb et al., 2011; Yukl & Mahsud, 2010) and tailor their leadership behaviors to jointly meet the needs of followers and the demands of the situation.

By combining leader mindfulness and contingency leadership, I develop a new conceptualization of contingency leadership that I call situationally-driven leadership. I do not seek to create a new measure or type of leadership, but rather introduce a contingency-based approach to leader behavior which is characterized by ensuring followers receive the leader behavior they require at a specific time in order to be most



supported. I propose that followers need a different combination of leader behaviors at different times to be supported and be most effective in their job. For example, a follower who typically responds very well to leadership behavior that is heavy in task focus but currently has a sick child at home may benefit most if his/her leader adjusted his/her approach to be more relationship-focused. I suggest that leaders' ability to tailor their leadership behaviors according to followers' needs and the needs of the situation is an important determinant of follower effectiveness.

I also develop a complete definition of leader mindfulness that synthesizes past research in mindfulness across a variety of disciplines and contexts in order to make this construct relevant for the workplace. I adopt the simple definition of mindfulness articulated by Kabat-Zinn (1990) which refers to mindfulness as intentional, non-judgmental awareness of the present moment and advance mindfulness theory by proposing that mindfulness consists of six components that reinforce each other and reflect the underlying construct of mindfulness. I use self-determination theory (Ryan & Deci, 2000) and self-regulation theory (Carver & Scheier, 1981; Ryan, Kuhl, & Deci, 1997) to guide my selection of mindfulness facets. Researchers have argued that mindfulness is a multifaceted construct (Dimijian, 2003a, 2003b; Roemer & Orsillo, 2003) but mindfulness scales have tended to psychometrically measure the construct unidimensionally. Baer et al. (2006) empirically concluded that there are five facets of mindfulness after factor analyzing the combination of five well-cited mindfulness measures. However, with the exception of the Kentucky Inventory of Mindfulness Skills (Baer, Smith, & Allen, 2004) and the combination of five mindfulness scales, each of the individual mindfulness scales reproduced a one-factor solution rather than multiple

factors. Thus, there is a mismatch between mindfulness theory and measurement of the construct that I seek to address.

Finally, I discuss the processes by which leaders come to understand what followers most require from them behaviorally in various situations and how they can adapt their behaviors to better meet these expectations. I propose that leader mindfulness results in a process of self-regulation which assists them in appreciating and reacting to follower needs. Mindful leaders are better able to regulate their emotions so they do not become overtaken by negative emotion, they feel more empathy toward others, and they respond more flexibly due to not being confined by automatic or routine ways of processing information (Glomb et al., 2011). Through self-regulation, leaders are able to remain attentive and focused on what their followers most require and the situation calls for without getting lost in their own heads. This tailored set of leadership behaviors allows leaders to best support their followers which then translates to high levels of follower effectiveness. Finally, I introduce organizational constraints as a moderator of the relationship between leader mindfulness and leader self-regulation, as such events outside the control of leaders may interact with leader mindfulness to ultimately determine how effectively leaders are able to engage in self-regulation. A summary of the hypotheses proposed in this study can be found in Figure 1.

-----  
Insert Figure 1 about here  
-----

## Chapter 2

### LITERATURE REVIEW

The purpose of this dissertation is to understand how leaders can more effectively utilize a dynamic, follower-centric contingency approach to leadership to impact follower effectiveness. I suggest that leader mindfulness is the key mechanism by which leaders are able to understand how to best support followers and adapt their leadership behavior to meet the demands of various situations. In the next sections, I review the theoretical and empirical research on contingency or situational leadership (henceforth, I will use the terms interchangeably), and make the case for a conceptualization that addresses some of the weaknesses of previous contingency approaches. Second, I review the literature on mindfulness and suggest that it has a prominent role in predicting how effective leaders are in adapting their leadership behaviors to best support followers. Third, I discuss three self-regulatory processes as outcomes of mindfulness which have important implications for how mindful leaders connect with followers in the workplace so that they can alter their leadership style accordingly. Next, I review the literature on two aspects of follower effectiveness—job performance and extra-role performance, which are the dependent variables in the current study. Finally, I introduce organizational constraints as a moderator and briefly review the literature associated with this construct.

#### **Contingency Approaches to Leadership**

A general lack of support for universal trait and behavior-based conceptualizations of leadership stimulated increased interest in contingency theories of leadership to explain why some leadership styles were more effective in some situations over others. The fundamental idea behind situational or contingency leadership is that the

most appropriate leadership style individuals should demonstrate *depends on* the environment in which they find themselves (Saha, 1979). In other words, factors in the environment combine with follower characteristics to create a complex situation in which a one-size-fits-all approach necessarily fails to adequately account for this complexity. Below, I discuss six broad categories of leader behaviors which I use to define situationally-driven leadership based on their prevalence in the leadership literature, review three of the most common approaches to contingency leadership, discuss the conceptual weaknesses of contingency theories, and finally propose a new conceptualization of contingency leadership which suggests that leaders dynamically adjust their transformational, servant, empowering, task, relations, and change-oriented leadership behaviors to best support their followers.

### **Review of Leader Behaviors**

Below I review the literature on leader behaviors and discuss how I arrive at the six broad categories of leader behavior based on past research and the notion that they include the wide bandwidth of leader behavior that is needed to define the content space for situationally-driven leadership.

*History of early behavioral approaches.* Early leadership approaches emphasized leader traits and largely ignored leader behaviors. Given that behaviors can be more readily learned than traits, the behavioral approach made leadership more accessible to everyone. Building off the work of Hemphill (1950), Fleishman (1953) developed the Supervisor Behavior Description Questionnaire which narrowed a list of 1800 items to 150 items and asked respondents to rate how often leaders engage in behaviors spanning nine broad categories (integration, communication, production-emphasis, representation,

fraternization, organization, evaluation, initiation, and domination). Factor analysis demonstrated two distinct factors—“consideration” which concerned the human relations side of leadership and “initiating structure” which concerned goal attainment (Fleishman, 1953). The results of these Ohio State studies were then added to by the results of the University of Michigan studies which compared effective and ineffective supervisors and suggested that there are two broad types of leader behavior—employee-centered behavior and job-centered behavior which roughly correspond to the consideration and initiating structure behavior types from the Ohio State studies respectively (Bowers & Seashore, 1966). Over time, these two broad categories of leadership became referred to as task and relations-oriented leader behaviors.

***Task and relations-oriented leadership.*** Task-oriented behavior consists of efficiently and reliably executing work tasks such as planning work activities, explaining policies, solving problems, and creating work assignments (Fleishman, 1973; Yukl, 2011). Relations-oriented behavior gives precedence to relationship-oriented behaviors such as creating trust, cooperation, providing support and encouragement, and generally looking out for the needs of followers (Bass, 1990, Yukl, 2011). These two approaches have demonstrated their robustness over time (Fleishman, 1973) and meta-analytic evidence has supported the validity of these two approaches (DeRue, Nahrgang, Wellman, & Humphrey, 2011), revealing that initiating structure had slightly higher relationships with performance outcomes than consideration and that consideration was more strongly related to employee satisfaction than initiating structure (Judge, Piccolo, & Illies, 2004).

***Change-oriented leadership.*** Yukl and colleagues (Yukl, 2004; Yukl, 2012; Yukl, Gordon, Taber, 2002) noted that change-related behaviors were largely missing from the relations and task-oriented leader behaviors and built off the work of Ekvall and Arvonen (1991) to develop “tridimensional leadership theory” which exists of task, relations, and change-oriented behavior (Yukl, 2004). Change-oriented behaviors include monitoring the external environment, innovatively responding to challenging situations, articulating a future vision for the organization, and translating vision to strategic implementation (Yukl et al., 2002; Yukl, 2011). These behaviors are vitally important for organizations to survive in turbulent economic times where competition forces organizations to continually reinvent themselves or face obsolescence.

***Charismatic/transformational leadership.*** Given the enormous popularity of charismatic/transformational leadership theory in the last 20 years of leadership research, I include transformational leadership behaviors in addition to the three broad leader behavior categories discussed by Yukl and colleagues—task, relationship, and change (Yukl et al., 2002; Yukl, 2012). Transformational leaders elevate followers’ expectations about the future and appeal to their higher-order values in order to inspire them to achieve beyond expectations (Avolio, 1999; Bass, 1985; Conger & Kanungo, 1998). Followers strongly identify with such leaders and their visions/missions for the future of the organization. The popularity of this leadership approach is evident in the fact that it has been the most frequently researched leadership theory in the last two decades (Avolio, Walumbwa, & Weber, 2009; see Judge & Piccolo, 2004 for meta-analysis and Avolio, Bass, Walumbwa, & Zhu, 2004a for review).

***Servant leadership.*** Servant leadership emphasizes the importance of caring for the well-being and success of an inclusive set of stakeholders such as subordinates, customers, and suppliers which is accomplished by being morally responsible (Greenleaf, 1977). Servant leadership thus adds a component of morality to transformational leadership and expands the leader's scope of responsibility to include the larger society (Graham, 1991). Research has demonstrated that servant leadership is related to a whole host of positive outcomes such as organizational commitment, organizational citizenship behaviors and performance (e.g. Erhart, 2004; Hu & Liden, 2011; Schaubroeck, Lam, & Penk, 2011) and represents an important area for future research (see van Dierendonck, 2011 for a review).

***Empowering leadership.*** Empowering leaders share power with their followers in order to raise their level of intrinsic motivation (Srivastava et al., 2006). Leaders who empower followers create environments in which followers can derive meaning, competence, self-determination, and impact (Spreitzer, 1995). Empowering leaders create organizational climates in which followers feel inspired (Bass & Avolio, 1993), and perform their jobs better (Spreitzer, 1995; Kirkman & Rosen, 2001; Seibert, Wang, & Courtright, 2011), as well as engage in organizational citizenship behaviors (OCBs; see Seibert et al., 2011 for a meta-analysis).

### **Toward a Six-Category Conceptualization of Leader Behaviors**

I include transformational, servant, empowering, task, relations, and change-oriented leader behaviors in my conceptualization of situationally-driven leadership. I expand Yukl's tridimensional conceptualization of leader behaviors (Yukl, 2004; Yukl et al., 2002) to include transformational behaviors in order to expand the scope of behaviors

that leaders are able to provide followers (DeRue et al., 2011; Yukl, 2012).

Transformational behaviors such as motivating followers, stimulating followers to be innovative and creative, and serving as role models for followers (Bass & Riggio, 2006) represent important behaviors that do not cleanly fit into the broad task, relations, or change-oriented behavioral categories. Finally, servant and empowering leadership represent two newer styles of leadership which have gained momentum in recent years (van Dierendonck, 2011; Seibert et al., 2011) and represent important leadership behaviors not accounted for in the other four broad categories of leadership.

### **Review of Contingency Theories**

In the next sections, I discuss three of the most often cited contingency theories. For each theory, I introduce the theory, describe the leader behaviors associated with the theory, and then provide a brief review of the relevant empirical research.

*Contingency model of leader effectiveness.* Fiedler (1964; 1971) proposed a model of situational leadership that at its most basic level, suggested that the effectiveness of leadership depends on the interaction of two things—the leader’s style and the situation in which the leader is leading. Situations are classified as either favorable or unfavorable based on the extent to which the leader has power and influence over the behavior of others and this influence is based on the three dimensions of position power, leader-member relations, and task structure (Fiedler, 1971). This model utilizes the least preferred co-worker (LPC) score in which low scores roughly correspond with high value placed on task achievement, and high scores correspond with high value placed on relationship-oriented behaviors. Task-oriented leadership behaviors are predicted to be most effective when the leader experiences both favorable and



unfavorable situations and relationship-oriented leadership behaviors are most effective when leaders experience situations that are moderately favorable. The LPC scale has been criticized based on its difficulty to fill out, its lack of correlation with other leadership measures, and its general lack of friendliness for use in practical settings (Fiedler, 1993; Schriesheim, Tepper, & Tetrault, 1994). Furthermore, meta-analytic research has concluded that field data did not accurately demonstrate the predictions laid out in the theory, suggesting that our knowledge of this theory is still incomplete (Peters, Hartke, Pohlmann, 1985; Schriesheim et al., 1994).

***Path-Goal Theory.*** The path-goal theory of leadership (House, 1971; House & Dessler, 1974) is rooted within the motivational framework of expectancy theory and concerns leaders' influence over the motivation, performance, and satisfaction of their followers. The first iteration of this theory included the two meta-categories of instrumental (task) and supportive (relations) leadership (House, 1971). Within this framework, successful leaders help followers succeed by defining their goals and clearing the path for followers to achieve these goals by providing support and removing obstacles. Information from both the environment (such as task structure and the dynamics of a work team) as well as characteristics of the employees themselves (such as their ability to perform a task, level of experience, and self-esteem) interact with a leader's style to predict leader effectiveness. A revised version of this framework added two additional categories of participative leadership and achievement-oriented leadership, although there is considerable overlap between the four dimensions (House, 1996; House & Mitchell, 1974). Support for path-goal theory of leadership has been mixed due to the complexity of the theory, its assumptions, and the relative difficulty to use the theory in

order to improve the leadership process (House, 1996). Additionally, empirical findings have only partially supported the predictions of path-goal theory (House, 1996; Podsakoff, MacKenzie, Ahearne, & Bommer, 1995; Schriesheim & Neider, 1996).

***Situational leadership theory.*** Hersey and Blanchard (1971) advanced a third contingency theory of leadership that initially included directive and supportive leadership behaviors but later added decision procedures as a third category (Blanchard, Zigarmi, & Nelson, 1993). In this model, appropriate leader behavior depends on follower ability and confidence to do a task. When followers lack readiness, leaders are expected to utilize a high amount of directive behavior and a low amount of supportive behavior. When followers demonstrate high readiness, leaders should utilize a low amount of directive behavior and a high amount of supportive behavior. Finally, when followers demonstrate a moderate amount of readiness, leaders can maximize their effectiveness when they utilize moderate amounts of both directive and supportive behavior (Yukl, 2011). This contingency approach to leadership has received minimal support in the literature (Vecchio & Boatwright, 2002), with researchers stating that until we have more convincing evidence of its validity, we should remain skeptical about the utility of the approach (Fernandez & Vecchio, 1997).

### **Weaknesses of the Contingency Approach**

There are at least four conceptual weaknesses in contingency theories beyond the lack of empirical support for the three theories reviewed above. First, contingency research has approached leader behavior in an overly simplistic manner such that aspects of the situation combined with certain leader behaviors determine leadership effectiveness. This is akin to considering simple interactions—for example in Situational

Leadership Theory (Hersey and Blanchard, 1971), leaders' maximize their effectiveness when they demonstrate delegating behavior when their followers have high readiness. Fiedler's Contingency theory similarly suggests that leader behavior interacts with aspects of the situation—leader-member relations, task structure, and leader position power to determine leader effectiveness (Fiedler, 1964; 1971). Finally, Path-Goal Theory suggests that there are five employee characteristics as well as two environmental factors that interact with leader behaviors to ultimately determine leader effectiveness (House, 1971; House & Dessler, 1974).

In each theory described above, leader effectiveness is determined by simple interactions between leader behavior and either employee characteristics or environmental factors. I suggest that this approach is too simplistic. Leader effectiveness depends on a whole host of factors from the environment as well as aspects unique to a followers' situation at a given point in time. To achieve the ultimate level of leader effectiveness, leaders must be able to understand how best to support their followers. Thus, I suggest that choice in leader behavior should be based on what followers most require from their leaders at a given point in time. Similar to recent work on individual differences (Ilies et al., 2011) and motives (Scott et al., 2014), in press) which have been shown to have high within person variability, followers' needs are expected to vary based on their experiences and aspects of the environment in which they operate. In other words, different followers may require different leader behaviors and these same employees may have different needs on different days. This emphasizes the importance of taking into account the changing nature of these needs within followers as well as across days and suggests that methodologies such as experience sampling may be

especially pertinent to testing such theories. The situation alters followers' needs in unique ways, which then calls for different leadership behaviors. I go beyond previous contingency theories to suggest that effective leadership is about truly adapting leadership behaviors to best support followers. This requires an understanding of the individual characteristics, environmental characteristics, and the specific situations that followers face. This approach is consistent with research that has underscored the importance of using a contingency perspective of leadership to adequately consider the complexity of relationships and situational factors that exist within the workplace (Wu, Tsui, & Kinicki, 2010).

Second, contingency theories have typically started with leader behaviors as the independent variable and leader effectiveness as the dependent variable without reference to how the leader decides to use a particular type of leader behaviors in the first place. Stated differently, contingency models have not articulated the processes by which leaders come to understand what followers require relative to the situational demands taking place. For example, the contingency model of leader effectiveness (Fiedler, 1978) states that leaders high in relationship focus are more effective in situations with moderate control but does not discuss how leaders may be able to flex or match their leader behaviors to best support followers and demands of the situation in order to remain highly effective. This limitation reflects one possible explanation for why contingency theories have not been supported by past research. This study attempts to overcome this void by introducing mindfulness as a state of consciousness that allows leaders to feel empathy for their followers and tailor their leadership behaviors to best support their followers and meet the demands of the situation.

Third, contingency theories have been predominantly leader-focused and I suggest that contingency theories of leadership should be more follower-centric (Bligh, 2011; Shamir, 2007). For example, follower performance and follower OCBs should be emphasized rather than the more narrow set of criterion variables that contingency theories have predicted such as follower perceptions of leader effectiveness and objective team performance. I emphasize which behaviors leaders should exhibit in order to ensure their *followers* are more effective by holistically taking information into account from their followers, the unique situations they are facing, and the organizational context. Finally, there has been an overemphasis on task and relations-oriented leader behaviors in contingency leadership (see Wu et al., 2010 for a notable exception) which have excluded change and transformational (DeRue et al., 2011; Yukl, 2011; Yukl, 2012), empowering (Arnold, Arad, Rhoades, & Drasgow, 2000), and servant leadership behaviors (Liden, Wayne, Zhao, & Henderson, 2008). The number of leader behaviors that can meet the needs of followers within the contingency leadership framework has thus been limited. I include behaviors from all six leadership theories in my conceptualization of contingency leadership in order to more accurately encompass a full range of leadership behaviors that leaders can provide for followers.

### **Toward a New Conceptualization of Contingency Leadership: Situationally-driven leadership**

First, I seek to advance a novel conceptualization of contingency leadership that overcomes some of the shortcomings present in previous approaches. I suggest a model of contingency leadership that is characterized by leaders considering holistically how best to support followers and tailoring their leadership behaviors appropriately. This new

conceptualization takes contingency leadership to a new level of complexity by emphasizing the dynamic unfolding of followers' needs and suggesting that what follower "A" requires most for time period "T" might be XYZ leader behaviors but that these behaviors ultimately shift as features of the context and situation change. In other words, unlike previous contingency theories, what worked for follower A in one situation should not be assumed to work for follower A in the future given that his/her needs are determined by a plethora of factors. I call this conceptualization of contingency leadership "situationally-driven leadership." I re-emphasize that this conceptualization of leadership is not an *additional* leadership type that I am seeking to advance, but rather an *approach* to leadership that considers the importance of adapting leader behaviors over time in response to the needs of their followers and the situation.

Secondly, I explicate the mechanisms by which leaders come to understand which leader behaviors will best benefit followers' at a given time based on internal, situational, and contextual variables. As I discuss in more depth later in this chapter, mindful leaders engage in self-regulation which allows them to holistically understand how best to support followers by adapting their leadership behaviors. In so doing, I advance both mindfulness and contingency leadership theory by explaining how mindfulness as a leader characteristic helps ensure followers receive the leadership behaviors they most need from their leaders which ultimately leads to follower effectiveness.

Finally, I also expand the bandwidth of leader behaviors considered within the contingency leadership framework to include transformational, change, servant, and empowering leadership in addition to the most commonly studied task and relations-oriented leader behaviors. I am not interested in which leadership behaviors better predict

follower effectiveness but rather want to ensure that I represent a broader bandwidth of leader behaviors. In order for leaders to respond appropriately once they have determined how best to support their followers, they must be able to flex their leadership behaviors which includes utilizing multiple types of behaviors suited to meeting situational demands. Task and relationship leadership behaviors alone simply cannot meet the complex situational needs that leaders encounter. Given the breadth and holistic nature of the mindfulness construct, I draw on a bandwidth fidelity argument to suggest that the follower criterion variable (follower effectiveness) match the breadth of the predictor variable (leader mindfulness) so that they have a stronger association with each other (Hogan & Holland, 2003; Hogan & Roberts, 1996). I thus move toward a broad conceptualization of follower effectiveness which encompasses aspects of task performance and extra-role-performance. In sum, I suggest that through situationally-driven leadership, leaders “provide followers with the specific leadership behaviors they need when they most need them” and that this has important implications for follower performance and organizational citizenship behaviors (OCBs).

### **Mindfulness**

*In this moment, there is plenty of time.  
In this moment, you are precisely as you should be.  
In this moment, there is infinite possibility.  
~ Victoria Moran*

In this section, I introduce the construct of mindfulness as the mechanism by which leaders are able to understand how to best support their followers and act on that understanding behaviorally. I begin by articulating the importance of including this construct within my model of situationally-driven leadership. Next, I review the history

and foundations of the construct, explain how it differs from other related constructs, articulate its state or trait nature, review the outcomes of mindfulness, review the various scales used to measure the construct, and compare and contrast two theoretical models of workplace mindfulness. Finally, I propose a new conceptualization of mindfulness for leaders. Leader mindfulness and its proximal outcomes then become the mechanisms through which leaders come to understand the needs of their followers and ensure follower effectiveness.

### **Historical Overview of East vs West Approaches to Mindfulness**

Mindfulness researchers have differentiated between two distinct approaches to mindfulness. The first arises from Eastern traditions that emphasize contemplation and non-judgmental awareness of one's moment-to-moment experience and is derived from cultural and philosophical traditions such as Buddhism (Brown & Ryan, 2003; Kabat-Zinn, 1994). In this tradition, mindful individuals are able to clear their minds through meditation and through non-judgmental attention of their inner experience which ultimately allows them to see the world as it really is, a concept known as veridical perception (see Yeganeh, 2006). A second approach to mindfulness comes from a more Western perspective and emphasizes a mindset toward seeking out novelty and categorizing information in new and innovative ways (Beard, 2014; Langer, 1989; Weick & Sutcliff, 2006). Individuals who are mindful exist within a heightened state of involvement in the present and experience increased environmental sensitivity, openness to new information, the ability to create new categories to structure perception, and increased awareness of multiple perspectives (Langer & Moldoveanu, 2000).



The current dissertation focuses on the Eastern tradition of mindfulness as a state of consciousness rather than the Western perspective which discusses mindfulness similar to a cognitive style (Sternberg, 2000). Both approaches are similar in their focus on the present moment and the importance placed on carefully attending to information in the environment (Dane, 2011), but the Western tradition heavily emphasizes the process of drawing novel distinctions (Langer, 2009; Langer & Modoveanu, 2000), which is not a main focus within the Eastern tradition. In this dissertation, I conceptualize mindfulness from an Eastern perspective because of its holistic approach to conceptualizing present-moment awareness rather than the more narrowly-focused cognitive differentiation characteristic of the Western tradition.

### **Mindless vs Mindful Processing**

The concepts of awareness and attention figure prominently in defining mindfulness given their importance in facilitating the emergence of consciousness. Awareness refers to “conscious registration of stimuli, including the five physical senses, the kinesthetic senses, and the activities of the mind. Awareness is our most direct, most immediate contact with reality.” (Brown et al., 2007, p. 212). Awareness becomes attention when a stimulus is strong enough to cause an individual to take notice of a particular stimulus and turn toward it (Nyaniponika, 1973). In the case of *mindless* processing, individuals experience cognitive and emotional reactions to the stimuli which are characterized by three features. The first is a discriminative primary appraisal that assigns valence to the object. Second, these reactions are informed by prior experiences and third, these reactions are fit into existing schemas that inform future reactions (Brown et al., 2007). Together, these three features lead individuals to process information and

experiences automatically in such a way that creates labels, automatically imposes judgments, and fits information into existing boxes (e.g. Bargh & Chartrand, 1999).

According to self-determination theory (Deci & Ryan, 2000), these automatic processes convey adaptive benefits through reinforcing stability but also necessarily ensure that individuals process information in a self-centered manner that bolsters further goal pursuit and attainment. The result is processing characterized by *mindlessness*, or processing that adds filters to the objective reality of the world and interprets events through the lens of prior conditioning rather than openness to new perspectives. On the other hand, *mindful* processing strips away the added layers of subjectivism to objective reality leaving a stream of consciousness intact that has a “clarity and freshness that permits more flexible, more objectively informed psychological and behavioral responses” (Brown et al., 2007, p. 212). Mindful processing operates outside the automaticity that pervades mindless information processing by separating the three features described above such that they do not occur in rapid succession, but rather unfold via conscious, thoughtful reflection.

### **The Foundation of Mindfulness**

The foundation of mindfulness is composed of six characteristics. It is also important to discuss the importance of an individual’s “intentions” when it comes to being mindful. Kabat-Zinn (1994, p. 4) discusses mindfulness as paying attention “on purpose” which suggests the importance of intentionality. I thus suggest that each of the following six characteristics that compose mindfulness take effort and must be cultivated. Over time, an individual may develop the capacity to demonstrate each of these characteristics with less effort, but the idea that an individual must intend to be mindful

remains. First, individuals are aware of both their inner and outer worlds at any moment in time which allows them to experience “bare” attention (Gunaratana, 2002; Nyaniponika, 1973). They are aware of what is going on inside them as well as what is going on around them (Dane, 2010). It is as if an individual is standing in front of a perfectly polished mirror that exactly reflects their appearance. This mirror is not fogged up with steam nor streaked with fingerprints and thus is free from all impurities that add bias to the reflected image.

Second, mindful individuals do not tightly intertwine attention and cognition together as with cognitive processing but rather allow themselves to become aware of inputs by simply noticing what is going on (Brown & Ryan, 2003). One does not interfere with the observance of events by comparing, labeling, judging, evaluating, or ruminating on events; instead, mindful individuals are able to see thoughts as objects of attention and awareness just like other stimuli that an individual sees, hears, or touches. Individuals who are aware that their thoughts are simply thoughts and emotions are simply emotions in reaction to these thoughts, can break free from unenlightened processing which couples thoughts and emotions together into a tangled web of beliefs and prejudices that are not supported by objective experience (Niemic, Brown & Ryan, 2008).

Third, mindfulness consists of a nonjudgmental openness and receptivity to new information (Brown et al., 2007). Mindful individuals fully participate in life by being open to information from all their senses and take on the role of objective scientists seeking to accurately collect information. They are engaged (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) and alert (Gunaratana, 2002) and actively seek out

information while at the same time, immerse themselves in their experiences. All told, this characteristic of mindfulness helps people make informed decisions more objectively (Nyaniponika, 1973).

Fourth, mindful individuals are fully present in the current moment and do not allow themselves to be taken away inside their head to the past or future. While such “time travel” or rumination can assist with goal pursuit by facilitating planning (Sheldon & Vansteenkiste, 2005), living in any moment other than the current one wastes the only thing that we are guaranteed in life—time. Simply put, dwelling on the past and dreaming about the future wastes the present moment and there is no way to get it back once it’s gone. Colloquial sayings emphasize the importance of the current moment by calling it a gift (i.e. the “present”) but few say it as well as Eckart Tolle: “the past gives you an identity and the future holds the promise of salvation, of fulfillment in whatever form. Both are illusions” (1999, p. 36).

Fifth, mindfulness is based on flexibility in awareness and attention. Similar to a zoom lens on a camera, a mindful individual can zoom out completely to observe a clear picture of the larger perspective and then also zoom in very closely to expose the details of a specific object (Kornfield, 1993). An example of this would be an individual on a hike. A mindful individual is able to intentionally alternate his/her awareness and attention while on the hike such that he/she may focus on the overall experience of the hike comprised of the beautiful mountain foliage and crisp air in one moment and then purposefully direct attention toward a specific flower in another moment by intentionally bending down to smell the flower and enjoy its essence. Awareness is the larger field of what is unfolding in front of an individual and attention represents the object that grabs

an individual's focus. Mindful individuals can seamlessly alternate between selecting objects to focus attention on while not losing perspective on the larger whole (Brown et al., 2007).

Finally, mindful individuals are able to recognize that they have slipped out of present moment awareness and into ruminations about past or future experiences. They are present in the current moment and also aware when they are not. Researchers consider mindfulness an inherent human capacity (Brown & Ryan, 2003; Kabat-Zinn, 2003) that varies in strength among individuals and can be learned and developed. Mindful individuals have control over their awareness and attention such that they reduce the opportunity for emotions and thoughts to hijack their present-moment awareness. They experience mindfulness with more continuity and thus are able to maintain their ability to seamlessly move from broad vision to narrow focus without becoming distracted (Brown et al., 2007).

### **Is Mindfulness a State or a Trait?**

Mindfulness is a state of consciousness (Hanh, 1976) in which individuals focus their attention on the phenomena that are occurring in the present moment rather than the future or the past (Brown & Ryan, 2003). Early research discussed mindfulness almost interchangeably with meditation (Conze, 1956), and many of the contemporary approaches to mindfulness such as mindfulness-based stress reduction (Kabat-Zinn, 1990) still utilize meditation to cultivate mindfulness. However, mindfulness and meditation should not be viewed interchangeably. As a psychological state, mindfulness does not require that an individual meditate to be mindful (Brown & Ryan, 2003); rather the determining factor of mindfulness relates to one's ability to focus attention on the

present moment (Giluk, 2009). As a state, individuals have the capacity to be mindful at any given moment (Kabat-Zinn, 2005), and indeed some individuals are mindful more often than others across situations (Baer, Smith, & Allen, 2004; Giluk, 2009). As an inherent human capacity (Brown & Ryan, 2003; Kabat-Zinn, 2003), all individuals are capable of being mindful but the strength as well as duration of this mindfulness may differ greatly between and within individuals (Brown et al., 2007). Thus, mindfulness is inherently a state-level construct with its present-moment focus, but can be measured at the trait level given that individuals vary greatly in their average levels of mindfulness across a variety of situations (Dane, 2010; Glomb et al., 2011; Hülshager, Alberts, Feinholdt, & Lang, 2013). Finally, given the extensive research demonstrating that mindfulness can indeed be trained and developed through interventions (Hülshager et al., 2013; Wolever et al., 2012; see also Chiesa & Serretti, 2009; 2011 for reviews), mindfulness is appropriately considered a state of being.

### **Differentiating Mindfulness from Other Constructs**

In this section, I discuss how mindfulness differs from six other attentional constructs and two additional constructs—emotional intelligence and self-monitoring that at face value may appear similar.

*Mindfulness and other states of attention.* Dane (2011) clearly distinguishes mindfulness from three other constructs that deal with how individuals focus their attention (see Figure 2). The two dimensions of temporal orientation and attentional breadth can be divided into high and low values on these two dimensions, resulting in a 2 x 2 matrix. Mindfulness corresponds to the situation in which an individual has high present-moment orientation and a relatively wide attentional breadth. That is, an

individual is simultaneously attentive to the present moment as well as highly aware of both the larger picture as well as the details and nuances of the stimuli: the zooming characteristic previously discussed (Brown et al., 2007). This differentiates mindfulness from “absorption” and “flow” which share a high present-moment orientation with mindfulness but differ in their narrow focus of attentional breadth. *Absorption* is a state in which an individual is highly engaged in a particular role, activity, or task (Agarwal & Karahanna, 2000; Rothbard, 2001) and is considered a vital part of job engagement (Macey & Schneider, 2008; Rich, LePine, & Crawford, 2010). When individuals are in a state of absorption, they are highly present but are often so narrowly focused that they may ignore or miss information and stimuli that do not directly relate to the task at hand (Rothbard, 2001).

-----  
Insert Figure 2 about here  
-----

Similarly, *flow* involves a narrow direction of high levels of engagement and concentration (Csikszentmihalyi, 1990; Nakamura & Csikszentmihalyi, 2009). When individuals are experiencing flow, they become one with the activity they are performing (Quinn, 2005) and are unlikely to be attentive to internal and external stimuli that are not directly related to the task at hand (Csikszentmihalyi, 1990). Mindfulness is similar to *mind wandering* in its wide attentional breadth, but differs in its low present moment orientation. Individuals whose minds are wondering continually shift their attention between various thoughts and targets and are anywhere but present in the current moment. Research has shown that this occurs quite frequently within the human mind (Mason, Norton, Van Horn, Wegner, Grafton, & Macrae, 2007). Finally, *couterfactual*

*thinking, prospection, and fantasizing* are three additional states of attention that differ from mindfulness in their low present moment orientation as well as their relatively narrow attentional breadth. For example, when individuals focus on what they wish would have happened rather than what actually happened, they are engaging in counterfactual thinking which is characterized by low present moment orientation and narrow attentional breadth (Roese, 1997). Similarly, when individuals fantasize about a future event, they are low in present moment orientation and have a narrow focus (Oettinger & Meyer, 2002).

***Mindfulness and emotional intelligence.*** Emotional intelligence refers to an individual's ability to be aware of their own and others' emotions as well as to regulate their emotions (Mayer & Salovey, 1997). Research has demonstrated that while emotional intelligence and mindfulness are positively related, they are distinct constructs (Baer et al., 2006; Brown & Ryan, 2003). Mindfulness and emotional intelligence both contain emotion-regulation components, but the scope of awareness for mindful individuals is much larger than simply being aware of one's own emotions and those of others. For example, mindful individuals take in information and stimuli non-judgmentally, reduce self-biased processing, and experience emotions in a balanced way which taps into a different set of processes that occur within an individual's mind. Additionally, mindful individuals are able to focus both internally and externally simultaneously, including bodily sensations, thoughts, and aspects of the environment which emotional intelligence does not include (Reb, Narayanan, & Chaturvedi, 2014).

***Mindfulness and self-monitoring.*** Mindfulness differs from self-monitoring both theoretically as well as empirically. Defined as the extent to which individuals "value,



create, cultivate, and project social images and public appearances (Gangstead & Snyder, 1985, p. 531), this construct is much more limited in scope than mindfulness and deals with how individuals shape others' perceptions. It is thus a calculated process that individuals utilize to accomplish a certain goal—to portray themselves in certain way. At face value, it might seem that individuals high on self-monitoring can adapt their behavior to meet the needs of a situation which may give the impression they are in tune with others similar to a mindful individual, but mindfulness differs significantly in that mindfulness is an end rather than just a means to accomplishing a certain goal. Additionally, mindful individuals nonjudgmentally take in information and do not interpret and act on information in order to enhance their image. Given the theoretical distinction between the two constructs, it is not surprising that empirical research has demonstrated a non-significant relationship between mindfulness and self-monitoring (Brown & Ryan, 2003).

### **Outcomes of Mindfulness**

Mindfulness has been linked to a variety of important health outcomes such as reduced emotional and behavioral disorders (Bishop et al., 2004), increased psychological well-being of non-clinical samples (Collard, Avny, & Boniwell, 2008; Irving, Dobkin, & Park, 2009), and reduced dysfunctional symptoms in clinical samples (for meta-analytic reviews, see Bohlmeijer, Prenger, Taal, & Cuijpers, 2010; Grossman, Niemann, Schmidt, & Walach, 2004). Recently, researchers have theoretically linked mindfulness to outcomes in the workplace such as task performance (Dane, 2011), physical and psychological health (Glomb et al., 2011), and empirically to work-family balance (Allen & Kiburz, 2012), stress reduction (Wolever et al., 2012), and emotional

exhaustion and job satisfaction (Hülshager et al., 2013). Additionally, mindfulness has been shown to be related to mental health and psychological well-being, physical health, behavioral regulation, and relationship and social interaction quality in both field and intervention studies (see Brown et al., 2007 for a review).

Additionally, clinical practitioners have frequently utilized mindfulness within their treatment programs to reduce patient symptoms. Two of the most frequently used methods include mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1982) and mindfulness-based cognitive therapy (MBCT; Segal, Williams, & Teasdale, 2002). These two interventions include several dimensions and have some similarities as well as differences. Both include mindfulness as a central element and are group-based, but MBSR predominantly utilizes an Eastern philosophy approach whereas MBCT combines Eastern elements with Western cognitive/ behavioral features. Additionally, MBSR also primarily targets healthy populations who are experiencing stress while MBCT is primarily used to assist psychiatric populations (Brown et al., 2007). Two meta-analyses have demonstrated that both MBSR and MBCT interventions demonstrate effect sizes around .50 (see Baer, 2003; Grossman, Niemann, Schmidt, & Walach, 2004).

### **Theoretical Models of Mindfulness**

As Glomb et al. (2011) state, mindfulness research to date has largely lacked a coherent theoretical framework that explains the underlying mechanisms by which mindfulness leads to outcomes. In this dissertation, I fill this gap by discussing how mindfulness allows leaders to effectively use situationally-driven leadership to ultimately ensure follower effectiveness. Below I review two models that provide a framework for how mindfulness translates to outcomes.

Shapiro et al. (2006) conceptualize mindfulness as a construct built on three axioms—intentions, attention, and attitude which correspond with Kabat-Zinn’s (1994, p. 4) definition of mindfulness as “paying attention in a particular way: on purpose, in the present moment, and non-judgmentally.” They suggest that these three processes are cyclical rather than separate stages and that they occur simultaneously to produce the moment-to-moment phenomenon of mindfulness. They theorize that mindfulness leads to *reperceiving*, which they define as the process by which individuals are able to disidentify with their own thoughts to bring about a shift in perspective. Reperceiving leads to the mechanisms of self-regulation and self-management, emotional, cognitive, and behavioral flexibility, values clarification, and exposure. These processes then lead to outcomes such as psychological symptom reduction and cultivation of positive psychological qualities. See Figure 3 for their theoretical model.

-----  
Insert Figure 3 about here  
-----

Glomb et al. (2011) propose a second theoretical model of mindfulness that suggests core and secondary processes by which mindfulness ultimately leads to self-regulation (see Figure 4). They describe core processes as neurobiological and mental processes that mindfulness directly affects and secondary processes as specific processes through which mindfulness-based practices are believed to contribute to improved employee functioning. Decoupling of the self, which is similar to the idea of reperceiving discussed by Shapiro et al. (2006), decreased use of mental processes, and awareness of physiological regulation are the most proximal outcomes of mindfulness which then lead to response flexibility, empathy, affective regulation, decreased rumination, increased

self-determination/persistence, increased working memory, and more accurate affective forecasting. These outcomes lead to improved self-regulation of thoughts/emotions/behavior which impacts a plethora of work-related activities ranging from decision making, communication, organizational citizenship behaviors, positive leadership behaviors, improved coping of stressful events, and quicker recovery from negative events (Glomb et al., 2011). Collectively, they suggest that this bundle of outcomes impact employee resiliency, social relationships, and task performance. This model is arguably the most extensive model that exists detailing the processes by which mindfulness impacts individual behavior in the workplace and provides an excellent framework from which to empirically test key relationships between mindfulness and its downstream outcomes.

-----  
Insert Figure 4 about here  
-----

The two models are similar in that they both discuss the importance of re-perceiving (Shapiro et al., 2006) or decoupling (Glomb et al., 2011) and suggest that mindfulness includes multiple components that unfold in a cyclical process. While mindfulness can be simply defined as nonjudgmental, present-moment awareness (Kabat-Zinn, 1990), the underlying components that mutually reinforce each other to bring about this present-moment awareness are much more complex. Despite these similarities, the two models differ in their focus. The goal of Shapiro et al. (2006) is to articulate the components of mindfulness and the goal of Glomb et al. (2011) is to lay out a foundation for future mindfulness research to test the relationships between mindfulness and its downstream outcomes. Thus, Glomb et al. (2011) do not include mindfulness facets

within their model linking mindfulness to self-regulation, and Shapiro et al. (2006) do not link mindfulness to specific outcomes. Additionally, the two models differ in their motivation for articulating how mindfulness unfolds—Shapiro et al. (2006) are primarily concerned with intervention and training outcomes in the clinical psychology space whereas Glomb et al. (2011) seek to bring mindfulness into the realm of organization behavior.

### **Measuring Mindfulness**

With the surge in mindfulness research over the last decade, the number of measures that assess the construct have also expanded in response to researchers' calls to develop psychometrically-sound measures of mindfulness (Dimidjian & Linehan, 2003a). Both unidimensional and multifaceted operationalizations of the construct have emerged and below I review five of the most-often utilized measures of mindfulness.

The Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), which is the most frequently used assessment, measures an individual's proclivity to be present in the moment during his/her everyday lives. The 15 items assess how much an individual runs on autopilot, is aware of his/her actions, and pays attention to the events that unfold in the present moment. It is not surprising that the MAAS yields a single-factor structure given its items primarily tap the present-moment awareness/attention aspects of mindfulness. The Freiburg Mindfulness Inventory (FMI; Buchheld, Grossman, & Walach, 2001) is a 30 item scale that measures present moment awareness and whether individuals are open to negative experience in a nonjudgmental way. Researchers created this scale to measure mindfulness growth between pre and post intensive mindfulness retreats (3-14 days). Exploratory factor analysis suggested a four-factor solution, but

given the scale exhibited some instances of instability across pretreatment and posttreatment, the authors suggest that the scale be treated as a unidimensional measure.

The Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004) consists of 39 items that measure four facets of mindfulness: observing, describing, acting with awareness, and accepting without judgment. Authors created this scale using the dialectical behavior therapy (DBT; Linehan, 1993a, 1993b) conceptualization of mindfulness skills (Baer, Smith, & Allen, 2004) and the scale reproduced the proposed four-factor structure using student and clinical samples. The Cognitive and Affective Mindfulness Scale (CAMS; Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007; Hayes & Feldman, 2004) measures an individual's attention, awareness, present-focus, and nonjudgment throughout his/her daily experience. Although it captures multiple aspects of mindfulness, authors recommend summing the items and using a single total mindfulness score. Finally, the Mindfulness Questionnaire (MQ; Chadwick, Hember, Mead, Lilley, & Dagnan, 2005 as cited in Baer et al., 2006) measures the extent to which individuals mindfully approach stimuli that are distressing. The authors again measure multiple aspects of mindfulness including mindful observation, nonjudgment, non-reactivity, and withholding antipathy but suggest that a single factor structure provides the best fit for the data and do not recommend interpretation of the four factors.

Baer et al. (2006) considered the factor structure of mindfulness by examining the psychometric properties of the five mindfulness questionnaires discussed above. They concluded that mindfulness consists of five interpretable facets, four of which loaded on a second order mindfulness factor. These four factors are: nonreactivity to inner experience, acting with awareness/concentration, describing/labeling with words, and

nonjudging of experience. A fifth component, *observing* which encompasses being in tune with one's internal and external sensations, only emerged utilizing a sample of participants with mindfulness meditation experience.

A new instrument to measure mindfulness is justified for several reasons and would confer at least four benefits to organizational researchers and practitioners. First, researchers have argued that mindfulness is a multifaceted construct (Dimijian & Linehan, 2003a, 2003b; Roemer & Orsillo, 2003) but yet psychometrically, mindfulness scales have measured the construct unidimensionally. Baer et al. (2006) empirically concluded that there are five facets of mindfulness after factor analyzing the combination of five well-cited mindfulness measures. However, with the exception of the Kentucky Inventory of Mindfulness Skills (KIMS; Baer et al., 2004) and the combination of the five mindfulness scales, each of the individual mindfulness scales reproduced a one-factor solution rather than multiple dimensions (as opposed to a multi-dimensional solution that also had a higher order factor structure). Thus, there is a mismatch between mindfulness theory and measurement of the construct.

Second, a new measure would capture the theoretical bandwidth of the mindfulness construct in one instrument rather than relying on the combined items of several instruments. Given that mindfulness is indeed a multifaceted construct according to mindfulness theory, it is important that researchers are able to identify and measure each facet reliably over time and that each facet correlates uniquely with other psychological constructs (Smith, Fischer, & Fister, 2003). For example, the most commonly used measure of mindfulness, the Mindfulness Attention and Awareness Scale (MAAS; Brown & Ryan, 2003), largely taps only the attention and awareness aspects of

mindfulness so it is not surprising that the factor structure is unidimensional. Third, mindfulness has only recently begun to be studied within the field of management, and little attention has been given to defining mindfulness within this context. For example, the MAAS measures trait mindfulness during daily life activities which may limit its relevance for measuring mindfulness within the workplace. Items such as “I drive places on autopilot and wonder why I went there” and “I snack without being aware that I’m eating” may be indicative that individuals are not aware of their actions but the question remains whether these aspects of mindfulness translate to the work domain. This is especially true given that mindfulness is often referred to as state of mind, which can fluctuate over the course of the day, and these items seem to assess mindfulness more as a trait-like phenomenon.

Finally, since organizational behavior scholars and practitioners seek to train employees to be more mindful, a measure of mindfulness for use in the workplace should be able to be easily understood by individuals with varying degrees of experience with mindfulness and meditation. It should also be able to differentiate individuals for whom mindfulness is new from those individuals who are experienced with mindfulness and accurately trace their growth over time.

### **Toward a New Conceptualization of Mindfulness**

In this dissertation I seek to redefine mindfulness and to understand how this construct facilitates leader understanding of the needs of their followers through the approach of situationally-driven leadership. I contribute to the mindfulness literature by using insights from self-determination theory (Ryan & Deci, 2000; Ryan, Kuhl, & Deci, 1997) and self-regulation theory (Carver & Scheier, 1981) to theorize that mindfulness



consists of six dimensions that capture the theoretical bandwidth of the mindfulness construct. Eastern conceptualizations of mindfulness and the proposed relationships between mindfulness and organizational researchers have only recently begun to theoretically link mindfulness to organizational outcomes and articulate the mechanisms by which these processes unfold (e.g. Glomb et al., 2011). In this dissertation, I directly incorporate leadership into the study of mindfulness which Glomb et al. (2011) hint at and others have articulated the need to do (Beard, 2014; Reb et al., 2014).

In re-conceptualizing mindfulness, I heavily draw on the work of Glomb et al. (2011), Shapiro et al. (2006), Brown et al. (2007) and Baer et al. (2006). Baer et al. (2006) statistically derived five facets of mindfulness by combining five mindfulness scales together. Four of their derived facets (nonreactivity, observing, awareness, and nonjudgment) are highly in line with how I conceptualize mindfulness and thus I retain these four components (although I label the awareness dimension “present” as in present-moment awareness). The fifth derived component in Baer et al. (2006) is “describing/labeling with words” which is not consistent with much of the theoretical work to date on mindfulness. For example, none of the major theory pieces on mindfulness from an Eastern perspective (Baer et al., 2006; Brown et al., 2007; Glomb et al., 2011; Shapiro et al., 2006) discuss labeling or categorizing phenomena. This type of behavior is not in line with nonjudgmental and open awareness since labeling refers to the opposite phenomenon. Additionally, most of the items from this labeling component were from the KIMS (Baer et al., 2004), which differed from the other four measures in its inclusion of a labeling dimension. I thus do not include this dimension since it is not discussed in either of the two most comprehensive theoretical discussions of mindfulness

(Glomb et al., 2011; Shapiro et al., 2006) and represents a dimension represented in only one of the five mindfulness measures.

Next, I add two components—decentering and awareness of interconnections to account for two aspects of mindfulness which are discussed in the literature but are not represented in any of the measures of mindfulness. Decentering is frequently discussed within the mindfulness literature but is not included in measures of mindfulness because it is typically discussed as an outcome of mindfulness (Glomb et al., 2011; Shapiro et al., 2006). However, I have a different view based on self-regulation theory. I suggest that every thought an individual has is interpreted through the lens of satisfying his/her own needs and goals (Ryan et al., 1997). When individuals focus on themselves, they commit their energy and resources inward which leads to information processing that reinforces efficiency and maintenance of the self-concept and identity (Brown & Ryan, 2007). As long as an individual is operating within this biased, automatic cognitive processing (Bargh, 1994; Kahneman & Treisman, 1984), other aspects of mindfulness such as nonjudgment, equanimity, and observing openly cannot take place. I thus include decentering as a vital element *within* mindfulness and suggest that it works in tandem with every other component to ensure that automatic processing does not take precedence.

The second component I add is awareness of interconnections. This component is discussed generally in the mindfulness literature as a “greater insight into self, others, and human nature” (Brown et al., 2007, p. 226). It refers to a greater awareness that one’s own goal pursuit exists within the collective goal pursuit of everyone else with whom one interacts. This component does not suggest any specific feelings or cognitions that

accompany this awareness such as putting oneself in the shoes of another as one does when feeling empathy (Eisenberg, 2000). Instead, individuals are simply aware that they are part of a larger whole and are thus able to step away from the biased processing that occurs automatically inside their heads. This allows them to gain control of their thoughts, emotions, and behaviors. When individuals are mindful such that they are operating outside of ego control, they are fully aware of what is happening internally and externally, are processing information nonjudgmentally, and they are more in tune with others which reinforces compassion and similarity (Shapiro & Carlson, 2009). I now consider in detail each of the underlying dimensions of mindfulness.

***Nonreactivity.*** The first component is nonreactivity which refers to the ability to remain even-keeled and balanced despite one's initial reactions to think or behave in a way that creates suffering (Hanson, 2009). Individuals who experience nonreactivity are fully engaged in the world but do not get derailed when a negative event happens—rather, they remain centered. Similarly, positive events do not sweep them away—they are fully engaged and present in the positive event but do not grasp for such experiences or mourn when they are over. Over time, nonreactivity brings about an inner stillness that leads to contemplative absorption (Brahm, 2006). As the Dalai Lama says, “With Equanimity, you can deal with situations with calm and reason while keeping your inner happiness” (as cited by Hanson, 2009). Individuals high in equanimity do not have high reactivity with their own inner experience and are able to reflect on their own thoughts and emotions without getting wrapped up into these thoughts and emotions too intensely. Consistent with the tenets of self-regulation theory, individuals continually seek to balance proactive as well as reactive control over their environment (Bandura, 1991) and

by maintaining nonreactivity, mindful individuals are able to ensure their thoughts and emotions do not upset their internal balance.

***Decentering.*** The second component corresponds with the creation of a mental gap between a stimulus and one's behavior (Baumeister & Sommer, 1997) which other researchers have discussed using a variety of terms such as "decoupling" (Glomb et al., 2011), "decentering" (Fresco et al., 2007; Safran & Segla, 1990; Shapiro et al., 2006), and "silencing egoic thought" (Brown et al., 2007). While much of human behavior is influenced by processes that occur automatically and nonconsciously (Bargh, 1994; Kahneman & Treisman, 1984), self-regulation theory suggests that individuals must pay attention to their thoughts and behaviors in order to understand their motivations (Ryan et al., 1997). By paying attention to the content and the extent to which their thoughts impact emotions and behaviors, mindful individuals break free from automatic processing and "ego-invested preconceived notions" (Hodgin & Knee, 2002, p. 89). In other words, in order for individuals to be mindful, they must understand that the ego is constantly operating in the background of their own consciousness. When individuals have control over this ego, it does not affect their behavioral responses, emotions, or relationships with individuals or objects in their environment. Recognizing that we are not merely "the voice in [our] head" (Tolle, 2005, p. 59) is a key aspect of mindfulness that has been understudied in relation to the sheer power it has to unlock authentic functioning (Kernis & Goldman, 2006; Niemiec et al., 2008).

***Present moment awareness.*** Awareness refers to "conscious registration of stimuli, including the five physical senses, the kinesthetic senses, and the activities of the mind. Awareness is our most direct, most immediate contact with reality." (Brown et al.,

2007, p. 212). Awareness is broader than attention which occurs when a stimuli is sufficiently strong to be noticed. Mindful individuals thus are attentive to their internal and external experiences and experience consciousness moment to moment (Shapiro et al., 2006). Dane (2011) provides a useful matrix which distinguishes mindfulness from other constructs and emphasizes the wide attentional breadth and high present moment focus which characterizes mindfulness (see Figure 2). Mindfulness has often been called “bare attention” given this process occurs before any cognitive processing takes place (Gunaratana, 2002). This component of mindfulness fits squarely within the framework of self-determination theory in its focus on individual autonomy. Individuals who are mindful are fully aware of their internal and external environments and are thus able to effectively engage in self-regulation, which allows them to maintain autonomy rather than lose their autonomy to the automatic processes that take place within the mind (Deci & Ryan, 2000). I call this component “present” throughout the dissertation.

***Nonjudgment.*** Non-judgment represents a fourth dimension of mindfulness. Individuals process information in a way that separates attention and cognition so that they do not occur together (e.g. Marcel, 2003), which allows them to refrain from evaluating or categorizing incoming information (Brown & Ryan, 2003). Thus, mindful individuals simply notice what is going on around them and inside them but do not attach cognitions to these events. The result is a disentangling of consciousness from the content within consciousness, effectively allowing individuals to escape from the bias that necessarily becomes associated with bare awareness. Mindful individuals are aware that their thoughts and emotions are exactly that—thoughts and emotions. Thoughts are simply the cognitions that occur in the head, and emotions are the reactions to these

cognitions. This enlightened consciousness allows individuals to separate these two from the actual sensory phenomena that enter consciousness, allowing mindful individuals to experience non-judgmental, non-discriminatory awareness without the prejudices and biases brought about by cognitions and emotions (Niemic et al., 2008). This awareness extends to the thoughts and emotions individuals have about themselves, about others with whom they interact, and also the environment. Consistent with self-regulation and self-determination theories, removing judgment and bias reinforces authentic and integrated functioning through a reduction of self-esteem concerns (Niemic et al., 2010) and an increase in autonomous self-regulation (Brown & Ryan, 2003).

**Observing.** Observing is the fifth component of mindfulness and it includes being able to see both the big and small picture. This component encompasses the ability to be flexible in one's attention and awareness" (Brown et al., 2007) or in other words, to be able to zoom out to have clear awareness of what is taking place in the larger perspective as well as be able to zoom in to focus attention in a more narrow way depending on the circumstance. Someone who has high flexibility of thought and awareness is mindful because they are able to seamlessly shift back and forth from understanding the larger connections between events, people, and actions to focusing attention more narrowly when necessary. This component has been described as an individual's ability to notice what is present internally or externally as well as notice what is *no longer* present by moving their attention from "narrow focus to broad vista without distraction or loss of collectedness" (Brown et al., 2007, p. 214). This is similar to Dane's (2011) conceptualization of mindfulness as a state of consciousness that has relatively wide attentional breadth and high present moment orientation. Mindful individuals can adjust

their focus from wide attentional breadth to a more narrow attentional breadth seamlessly like a zoom lens which has important implications for their ability fully grasp the complexity of a situation and behave accordingly (Ryan & Deci, 2000).

***Awareness of interconnections.*** The final component of mindfulness is an awareness of interconnections and this component encompasses the idea of “expanding the category of us” (Hanson, 2009). It boils down to the idea that we are all part of one world and everyone and everything is connected to everything else. Mindful individuals can see the big picture and keep this in mind when making decisions and carrying out their day-to-day actions. Mindful individuals experience integrated functioning characterized by disassociation from an existence that continually reinforces self-preservation. In other words, mindful individuals step away from a self-serving day-to-day existence and step into an existence characterized by freedom *from* this “self” biasing lens, which supports feelings of belongingness and relatedness within the social determination theory framework (Ryan et al., 1997; Ryan & Deci, 2000). This allows individuals to see themselves as players *within* the larger whole rather than spectators that merely observe the larger whole. The journey from mindless to mindfulness is akin to an individual awakening to the idea that the sun is *not* the center of the universe as heliocentrists once thought, but rather exists in a galaxy that itself exists within the universe. Similarly, individuals, like the sun or any star, do not exist such that all other objects revolve around them—rather, there is a delicate interplay between all individuals and mindfulness brings about an awareness of these interconnections.

Together nonreactivity, decentering, present moment awareness, observing, non-judgment, and an awareness of interconnections are the six components that comprise

mindfulness. Similar to how Shapiro et al. (2006, p. 375) describes the three axioms of mindfulness (intention, attention, and attitude) not as separate stages but rather as “interwoven aspects of a single cyclical process” that occur simultaneously, I too posit that the six components of mindfulness previously discussed reinforce each other in a dynamic process in which the facets are indicators of a higher-order latent construct of mindfulness. All six components fit within the theoretical framework of self-determination theory (Deci & Ryan, 1980; Deci & Ryan, 2000) and accordingly share conceptual overlap in their core feature of reducing the bias and “static” that ultimately interferes with integrated and authentic human behavior in relation to others and the environment.

### **Leader Self-Regulation**

In articulating how leader mindfulness impacts situationally-driven leadership, it is necessary to discuss self-regulation which is the immediate outcome of mindfulness and ultimately shapes leader behavior. I discuss the definition of self-regulation and briefly review research on self-regulation, review previous theoretical models of mindfulness that include self-regulation, and discuss the three affective and cognitive self-regulatory processes that I believe to be most important to leadership given their effect on social relationships.

### **Background on Self-Regulation at Work**

Self-regulation refers to a set of processes in which individuals set goals, check their progress against these goals, and modify their thoughts or behaviors in order to minimize the discrepancy between the goal and their current state (Karoly, 1993). A series of negative feedback loops ensure that individuals are able to adjust their thoughts



and behaviors in order to minimize this discrepancy (Carver & Scheier, 1998). Both affective and cognitive systems operate concurrently in order to shape self-regulation (Lord, Diefendorff, Schmidt, & Hall, 2010) and they influence each other (Allen, Kaut, & Lord, 2008; LeDoux, 1995). Typically, self-regulation first begins when an individual consciously selects a goal (Carver & Scheier, 1998), but research has shown that affect can also influence behavior without operating through conscious processes (Bargh, 1990). Affect can thus re-orient and adjust cognitive processing during the pursuit of goal-oriented activities and these two systems interact continually to achieve a dynamic balance.

### **Theoretical Models of Mindful Self-Regulation**

Self-regulation refers to the process by which individuals initiate, coordinate, and govern their behavior and is closely tied to the idea of autonomy within the organizational context, which refers to the extent to which an individual acts in accordance with their “self-endorsed values, needs and intentions rather than in response to controlling forces external to the self” (Ryan et al., 1997, p. 702). Autonomous individuals are “centres of regulation” (Polanyi, 1958) which direct their behavior toward satisfying their needs. Self-regulation and autonomy play important roles in adaptation by “facilitating the identification and efficient expression of goals related to predominant needs and shielding such goals from competing impulses” (Ryan et al., 1997, p. 706). It is thus through the process of self-regulation that individuals decide how to behave based on what would most facilitate goal completion. Given that mindfulness is a state of consciousness (Hanh, 1976) in which consciousness itself is decoupled from its mental content through the process of decentering, mindful individuals experience heightened

awareness which drives the process of self-regulation (Brown et al., 2007). Below I discuss two of the dominant theoretical models of mindfulness that include emotional and cognitive self-regulation.

**Glomb et al. (2011).** Glomb et al. (2011) articulate a model of mindfulness that explicates the mechanisms by which mindfulness ultimately leads to the self-regulation of thoughts, emotions, and behaviors (See Figure 4). They discuss two core mental processes and one core neurobiological process (decoupling of the self, decreased use of automatic mental processes, and awareness of physiological regulation, respectively). Decoupling of the self involves creating a separation between one's self concept and self-esteem such that events and experiences are seen for what they are without the overlay of meaning attached to them. Decreased use of automatic mental processes refers to an individual's ability to reduce the automaticity of mental processes which reinforces efficiency but diminishes present-moment awareness and control (Bargh, 1994). Finally, awareness of physiological regulation refers to individuals' noticing of their own internal physiological states (such as increased heart rate) which allows them to better regulate their body's response system.

The three core processes I just discussed then lead to seven "secondary processes" (empathy, affective regulation, response flexibility, decreased rumination, increased self-determination and persistence, increased working memory, and accurate affective forecasting) which predict self-regulation of thoughts, emotions and behaviors. These seven secondary processes are all self-regulatory in nature given that they facilitate goal achievement. Empathy refers to an individual's ability to see a situation from the perspective of another (Glomb et al., 2011). Affective regulation refers to an individual's

ability to both reduce the amount of negative emotion as well as increase the amount of positive emotion (Glomb et al., 2011). Response flexibility refers to an individual's ability to slow down and pause rather than speaking or acting automatically in response a stimulus (Siegel, 2007). Decreased rumination refers to an individual's decreased likelihood of engaging in thought processes that are repetitive and focus on symptoms, causes, and consequences of distress (Nolen-Hoeksema, 1991). Increased self-determination and persistence refers to an individual's likelihood of persevering through obstacles and remaining committed to pursuing and achieving goals. Increased working memory refers to the amount of information an individual can keep active in their brain for a period of time (Elzinga & Roelofs, 2005). Finally, improved accuracy in affective forecasting corresponds with an individual's ability to accurately predict how they will respond to emotions in the future (Wilson & Gilbert, 2003).

*Shapiro et al. (2006)*. Shapiro et al. (2006) articulate a similar model of mindfulness to Glomb et al. (2011) in that they also include self-regulation (See Figure 4). Mindfulness leads to re-perceiving or decentering which then leads to four processes: self-regulation, values clarification, cognitive, emotional and behavioral flexibility, and exposure. These four proximal outcomes of decentering then lead to important outcomes.

Through the processes of self-regulation and self-management, individuals become less controlled by certain emotions and thoughts and thus likely to fall into habitual patterns of reactivity (Shapiro et al., 2006). Value clarification refers to a process by which individuals come to understand what it is they truly value by being able to step back from their automatic processing to observe these values objectively. Previous research has suggested that automatic processing limits individuals' ability to consider

options that may be more in line with their underlying need and values (Brown & Ryan, 2003; Ryan et al., 1997). Cognitive, emotional, and behavioral flexibility refers to individuals' ability to "see the present situation as it is in this moment and to respond accordingly, instead of with reactionary thoughts, emotions, and behaviors triggered by prior habit, conditioning, and experience (Shapiro et al., 2006, p. 381). Finally, exposure refers to individuals' desensitization to negative emotional states through repeated exposure to such states such that they eventually diminish and no longer have their overwhelming effect.

### **The Process of Self-Regulation**

I view self-regulation as the immediate outcome of mindfulness. It represents the capacity to be more purposeful by reducing automatic processing and explains how mindfulness leads to individual outcomes. I view affective and cognitive processes as distinct from behaviors and thus separate them in this dissertation consistent with previous emotion research (Elfenbein, 2007). I suggest that leader mindfulness predicts leader affective and cognitive self-regulatory processes which in turn, predict leader behaviors. This differs slightly from how Glomb et al. (2011) conceptualize self-regulation as encompassing thoughts, emotions, and behaviors together. I separate affective and cognitive regulatory processes and suggest that behaviors are instead *outcomes* of self-regulation. Leader behaviors thus represent the outcomes of affective and cognitive self-regulation in my model of mindfulness. Additionally, my conceptualization differs from Glomb et al. (2011) and Shapiro et al. (2006) because I include decoupling/decentering *within* my conceptualization of mindfulness rather than as an outcome of mindfulness. The process of realizing that one is not the center of the

universe and that every event and stimuli should not be interpreted in a way that promotes or reduces one's sense of self, allows the other aspects of mindfulness such as awareness, observing the connections, and nonjudgement to co-occur rather than these aspects of mindfulness leading to decentering. Decoupling then, is an integral component of mindfulness rather than a result of being mindful. I also include decreased use of automatic mental processes and awareness of physiological regulation as integral aspects of mindfulness rather than as outcomes of mindfulness. When an individual is mindful, he/she is aware of what is going on internally in their body and mind, as well as what is going on around them. My expanded conceptualization of mindfulness thus encompasses the three core processes discussed by Glomb et al. (2011) and contains all the pieces they discuss in their theoretical model, but we differ slightly in how we conceptualize mindfulness and its downstream outcomes.

Additionally, the model I articulate in this dissertation is very similar to the model suggested by Shapiro et al. (2006) after making the same modifications as I previously made from the Glomb et al. (2011) model. I encompass re-perceiving within my conceptualization of mindfulness and separate self-regulation behaviors from affective and cognitive self-regulation which is consistent with previous research on emotion (Elfenbein, 2007) and social learning theory (Bandura, 1976) which has separated affect, cognition, and behavior. I suggest that the processes of values clarification, cognitive/emotional/behavioral flexibility, and exposure discussed by Shapiro et al. (2006) are all self-regulatory in nature and can be labeled "self-regulation." Labeled as such, the Shapiro et al. (2006) model then suggests that mindfulness predicts self-regulation which in turn, predicts certain behaviors. These behaviors then lead to important outcomes. The

current model of mindfulness I articulate is thus very similar to that of Shapiro et al. (2006). See Table 1 for a comparison of the current conceptualization in relation to Shapiro et al. (2006) and Glomb et al. (2011).

-----  
Insert Table 1 about here  
-----

Given that self-regulation is a vital outcome of mindfulness, I seek to develop an integrated view of self-regulation that combines the self-regulation processes discussed in previous mindfulness theories (Glomb et al., 2011; Shapiro et al., 2006). Previous work has suggested that mindfulness activates areas in the brain which are responsible for emotional regulation such as increased neural activity in the right prefrontal cortex and decreased activity in the amygdala (Hariri Bookheimer, & Mazziotta, 2000; Siegel, 2007). Mindfulness also reduces automatic thought processes which allow individuals to escape from self-relevant processing in order to respond to situations more flexibly (Bargh & Chartrand, 1999). Mindful individuals are able to keep the larger picture in mind while they focus on the details (Kornfield, 1993), which aids in flexible responding. Additionally, affective regulation and response flexibility are discussed heavily both by Shapiro et al. (2006) and Glomb et al. (2011) and I believe this theoretical overlap demonstrates the importance of these two processes. I thus include both of them in my conceptualization of the most important outcomes of leader mindfulness.

A third important outcome that I believe to flow from mindfulness is empathy. Previous research has suggested that mindfulness leads to empathy when leaders operate with their ego “silenced” (Brown et al., 2007) such that they process information nonjudgmentally and without self-bias (Block-Lerner, Adair, Plumb, Rhatigan, & Orsillo,

2007). Additionally, neurobiological research has demonstrated that mindful individuals who understand their own mental processes are better able to understand and empathize with others' perspectives (Siegel, 2007). Empathy encompasses both cognitive and affective components in that there is a cognitive part to empathy in which an individual reconstructs the mental state of another (i.e. they think about what it is like from another's perspective), and an affective part in which an individual shares the emotional state of another (Eisenberg, 2000; Smith, 2006). Empathy thus has important implications for leadership in predicting follower outcomes (Kellett, Humphrey, & Sleeth, 2002; Scott, Colquitt, Paddock, Laybe, & Judge, 2010) given the social nature of the construct (Houston, 1999). By choosing these three processes, I include one affective self-regulatory process (affective regulation), one cognitive self-regulatory process (response flexibility), and one affective/cognitive process self-regulatory process (empathy) which provides a balanced approach to investigating the processes through which leader mindfulness impacts follower outcomes. Given that all three are self-regulatory processes that impact downstream behaviors, I conceptualize empathy, response flexibility, and affective regulation as a latent construct called leader self-regulation which is encompassed by the immediate outcomes of leader mindfulness.

***Empathy.*** Mindful individuals can better tolerate negative emotions in themselves and others (Tipsord, 2009, as cited by Glomb et al., 2011), which facilitates empathy. Research has shown that empathy relates to interactional justice (Douglas & Martinko, 2001), organizational citizenship behaviors (Kamdar, McAllister, & Turban, 2006), and positive leadership behaviors (Kellett et al., 2002; Scott et al., 2010) and that mindfulness increases empathy (Shapiro, Schwartz, & Bonner, 1998). Because empathy includes both

putting oneself in another's shoes and imagining what it is like to be in those shoes, it has both affective and cognitive components (Davis, 1983; Eisenberg, 2000).

***Response flexibility.*** When individuals take time to pause, they increase the number of possible responses and are able to act in ways that are more consistent with their goals, needs, and values (Brown et al., 2007) and thus represents a cognitive process. Research has shown that mindfulness relates to response flexibility among frequent gambling individuals such that they are able to concentrate better and make less risky decisions due to being able to step back and think through their responses more fully (Lakey, Campbell, Brown, & Goodie, 2007).

***Affective regulation.*** Mindfulness leads to increased positive emotions (Giluk, 2009) as well as to the increased ability to replenish lost self-regulatory resources (Giluk, 2010, as cited by Glomb et al., 2011) and thus is an affective process. The ability to experience more positive emotions and fewer negative emotions has been shown to generate success across multiple life domains (Lyubomirsky, King, & Diener, 2005), lead to better employee functioning (Brief & Weiss, 2002), and to contribute to the moods of followers (Sy, Côté, & Saavedra, 2005).

### **Unit Effectiveness**

In this section, I discuss unit effectiveness which consists of unit performance and unit organizational citizenship behaviors (OCBs). Given the breadth and holistic nature of the mindfulness construct, I suggest that the outcomes of interest also be similarly broad in order to adequately capture the bandwidth of the mindfulness construct (Hogan & Holland, 2003; Hogan & Roberts, 1996). I select these measures of unit effectiveness in order to demonstrate the relationship mindfulness has with a traditional OB leadership



outcome (unit performance) and an OB construct that has gained much momentum in the past years which assesses a unit's collective behaviors that contribute to the overall effectiveness of an organization (OCBs; Organ, 1988; Organ, 1997). I suggest that leaders who holistically consider how best to support followers and tailor their leadership behaviors accordingly, ensure that their followers collectively thrive in their work roles and positively support the organization.

### **Organizational Citizenship Behaviors**

Organizational citizenship behavior (OCB) is defined as “performance that supports the social and psychological environment in which task performance takes place” (Organ, 1997, p. 95). OCB has been conceptualized as a multidimensional construct with seven facets: altruism, courtesy, conscientiousness/compliance, civic virtue, sportsmanship, peacekeeping, and cheerleading (Organ, 1990). In practice, it is difficult for managers to differentiate altruism, courtesy, peacekeeping, and cheerleading and thus tend to view these four dimensions as representing a second-order latent construct that encompasses “helping” behavior (Podsakoff, Whiting, Podsakoff, & Blume, 2009).

OCB can also be conceptualized based on the target of the behavior—either toward other individuals (OCBI), or toward the organization (OCBO; Williams & Anderson, 1991). William and Anderson's (1991) approach provides a framework for each of Organ's (1990) dimensions to fit into—for example, conscientiousness within OCBO, and altruism within OCBI. Multiple meta-analyses have studied OCBs, with most focusing on the antecedents of OCBs (e.g. Ilies, Nahrgang, & Morgeson, 2007; Judge Thoresen, Bono, & Patton, 2001; Podsakoff, MacKenzie, Moorman, & Fetter, 1990).

Podsakoff and colleagues (2009) provide a notable exception in their recent meta-analysis considering the outcomes of OCBs. They found that OCBs are related to a number of individual-level outcomes such as managerial ratings of employee performance, turnover intentions, actual turnover, and absenteeism and related to a number of organizational-level outcomes such as productivity, efficiency, reduced costs, customer satisfaction, and unit-level turnover.

### **Organizational Constraints**

Finally, I introduce organizational constraints as a theoretically important variable that may play a role in determining how effective an individual is in engaging in the process of self-regulation despite their level of mindfulness. Organizational constraints represent “situations or things that prevent employees from translating ability and effort into high levels of job performance” (Spector & Jex, 1998, p. 357). Organizational constraints fit into the realm of job stressors more generally, as aspects of work that interfere with individuals’ ability to effectively complete their jobs, which produces stress and strain. Peters and O’Connor (1980) first discussed organizational constraints by introducing eleven areas in which workers could experience events largely outside of their control that had detrimental effects on their performance. These constraints range from faulty equipment to interruptions by others and although each of these constraints does not necessarily hinder an individual’s performance equally, it is generally assumed that the higher the number of constraints an individual faces at work, the more stress and strain they will experience and the more their performance will suffer (Spector & Jex, 1998).

## Chapter 3

### THEORY AND HYPOTHESES

This chapter explicates the theory and hypotheses which explain the relationship between leader mindfulness and follower effectiveness. This represents a new approach to studying mindfulness as neither the mindfulness nor leadership literatures have examined the role of leader mindfulness on important work-related outcomes. This is an oversight because conceptual work in both areas suggests the importance of being aware in the present moment and escaping biased processing through self-regulation, but empirical research has been slow to address these areas. Moreover, the processes through which leader mindfulness may affect other individuals have yet to be tested empirically despite conceptual work which has suggested various underlying processes (e.g. Glomb et al., 2011). I propose a model that explains how mindfulness leads to leader self-regulation which translates to specific leader behaviors and ultimately, to follower effectiveness. Specifically, I propose that the relationship between leader mindfulness and follower effectiveness is fully mediated by leader self-regulation and situationally-driven leadership. See Figure 1 for an overview of my theoretical model.

#### **Leader Mindfulness and Leader Self-Regulation**

I consider outcomes of leader mindfulness by explaining how mindfulness impacts the way in which individuals interact in the workplace and come to understand others' needs. The theoretical arguments are based on Glomb et al. (2011) and Shapiro et al. (2006). Accordingly, I propose that leader mindfulness leads to self-regulation, which is operationalized as a latent construct composed of empathy, response flexibility, and affective regulation. All three of these constructs have been discussed as self-regulatory

processes that are important proximal outcomes of mindfulness (Brown & Ryan, 2007; Glomb et al., 2011; Shapiro et al., 2006) and I suggest that they synergistically encompass a leader's affective and cognitive self-regulation. I discuss four specific points below that support the link between leader mindfulness and self-regulation.

First, leaders who are mindful are able to separate what happens to them from who they are by creating space between the two through the process of decentering (Brown et al., 2007; Glomb et al., 2011; Safran & Segla, 1990). Decentering is akin to taking a “detached view of one's thoughts and emotions” (Fresco et al., 2007, p. 235). Leaders low in ego involvement realize that the thoughts in their heads are simply that—thoughts, rather than accurate portrayals of themselves as individuals (Feldman, Greeson, & Senville, 2010) which opens them up to process information in a way that is less self-focused. Mindful leaders operating with the ego turned off or “silenced” (Brown et al., 2007) process information in a non-biased way which leads to the increased ability to understand others' perspectives (Block-Lerner et al., 2007). Such leaders do not view life through a self-serving lens such that every decision, event, and interaction in the workplace has implications for their self-view. When self-worth is removed from the equation, mindful individuals do not feel attacked when negative situations arise nor get wrapped up into feeling that they have higher self-worth when they experience positive events. They are thus free to connect with others and take on situations without their own cognitive and emotional baggage in tow.

Recent social neurobiology research has demonstrated that individuals' ability to experience another individual's perspective depends partly on their own ability to understand their own internal state and mental processes (Siegel, 2010). I suggest that

through the understanding of self that individuals gain via mindfulness, leaders will have increased capacity to consider others' perspectives. Mindfulness leads individuals to better understand themselves and when individuals better understand their own thought processes and emotions, this allows them to increase their understanding of others' thoughts and emotions (Teasdale, Moore, Hayhurst, Pope, Williams, & Segal, 2002). As the Dalai Lama notes, "Ultimately, how we act and behave in relation to our fellow humans and the world, depends on how we perceive ourselves" (2002, p. 67). Only when individuals understand their own feelings, thoughts, and how their actions affect others, are they able to respond to others in a flexible way such that their emotions are controlled and they are truly able to empathize with others.

Second, mindful individuals stick to the facts when observing events, their thoughts about others, and their thoughts about themselves. They process information in a nonjudgmental matter rather than through a lens biased by history, past experience, and expectations. When individuals notice their thoughts and emotions without attaching judgment to them, they break free from the automaticity that takes over inside their brain by remaining "outside" of these thoughts (i.e. aware that they are having thoughts rather than merely going from thought to thought without awareness of these racing thoughts). These automatic thought processes diminish an individual's ability to respond flexibly to a situation because they reinforce self-relevant processing that relies on fitting information to schemas based on past experience (Bargh & Chartrand, 1999). Tolle (2005) refers to this automaticity as the voice in the head that incessantly chatters. This chatter ultimately results in a narrative that diminishes one's ability to remain present in the moment and maintain a sense of control and ability to think outside of previously

created schemas (Bargh, 1994). Mindful individuals quiet this (judgmental) voice in their head, which increases their intentional, cognitive processing and reduces their automatic, biased processing (Bishop et al., 2004).

Third, when mindful individuals experience a thought or emotion, accept these thoughts and emotions, and label them as such rather than ruminating on them by attaching meaning to them through a judgmental process, they are better able to regulate their emotions (Brown et al., 2007). Indeed, individuals who completed a task of labeling a negative emotion without assigning any judgment, experienced a decrease in felt negative emotions via increased neural activity in the right prefrontal cortex and decreased activity in the amygdala (Hariri et al., 2000). Thus, when individuals simply accept their thoughts and emotions for what they are rather than assign meaning to them, this represents an important step in reducing the power these thoughts and emotions have to derail healthy functioning. Mindful individuals are thus better able to regulate their emotions. Neurobiological research additionally supports the link between mindfulness and emotional regulation. For example, mindfulness activates a brain region called the middle prefrontal cortex (mPFC) which is responsible for regulating awareness and attention (see Chiesa & Serretti, 2009 for a review). Additionally, mindfulness has been associated with increased activation of the prefrontal cortex (PFC) and reduced activation of the amygdala during affective-related tasks which suggests that individuals high in trait mindfulness may be better able to regulate their emotions and thus avoid depressive symptoms (Way, Creswell, Eisenberger, Lieberman, 2010). Mindful individuals are thus less likely to have their amygdala “hijacked” by their emotions (Hanson, 2009). Mindfulness appears to activate the brain circuits responsible for emotional regulation

(Siegel, 2007) which allows individuals to both bounce back from the experience of negative emotions as well as create positive emotions (Frederickson, Cohn, Coffey, Pek, & Finkel, 2008). By engaging areas of the brain related to higher thinking rather than the more basic “fight or flight” mode of operation characteristic of the amygdala, mindfulness allows individuals to retain control of their emotions rather than simply reacting to them which overrides their ability to carefully reason (Cozolino, 2006).

Finally, mindful individuals operate outside automatic, habitual processing and are thus able to carefully evaluate a situation and the available response options by creating some space between thought and action (Siegel, 2007), which leads to self-regulation. Mindful leaders are able to keep the larger picture in mind while working through the details (Kornfield, 1993), they feel a sense of connection with others (Hutcherson et al., 2008) which leads to social connectedness (Cohen & Miller, 2009), and they remain in a balanced state of equanimity. In sum, mindful leaders demonstrate an increased ability to regulate both their emotions and thoughts which I suggest forms the latent construct of leader self-regulation.

Based on the above discussion, I formally hypothesize:

*Hypothesis 1: Leader mindfulness is positively related to leader self-regulation.*

### **Leader Self-Regulation and Situationally-Driven Leadership**

The core of the contingency approach to leadership suggests that in order for leaders to achieve maximum effectiveness, the behaviors they display must appropriately match characteristics of the situation and the needs of followers. I suggest that followers require different leader behaviors over time and that leaders should be in tune with their followers to ensure they tailor their leadership behaviors to best support their followers.

However, situational approaches have not explicitly modeled the mechanism by which leaders adapt their leadership behaviors to align with the ever-changing needs of followers. There is evidence to suggest that the leadership context is continuously changing and requires increasingly higher amounts of adaptiveness (Martin, 2007), but academic researchers have tended to select one type of leadership type at a time to study rather than looking at several types of leadership concurrently. I suggest that the leaders who are most effective across a variety of situations and follower needs are those leaders who have the best sense of how to support their followers by *tailoring* their leadership approach based on this knowledge. I thus introduce the idea of situationally-driven leadership which is characterized by leaders demonstrating a specific set of leader behaviors that are most appropriate to support followers and meet the demands of the situation as they change and thus is a dynamic, rather than static, construct.

I propose that leader self-regulation represents the mechanism by which leaders gain the knowledge and insight about how to best support their followers to ensure their success. Leaders high in self-regulation are able to put themselves in the shoes of their followers both cognitively and affectively (Houston, 1990) which allows them to understand what it is that followers might need most from them in order to overcome whatever challenges they are facing. For example, followers who typically respond well to a task leader who clarifies expected performance, rewards performance, and takes corrective action when necessary, might benefit most from a more relational approach from their leader when taking on a new project that is outside of their realm of expertise. In this case, building follower respect, showing concern, and providing support would be the behaviors that would likely benefit followers most. Indeed, leader ability to self-



regulate and understand others' perspectives has been shown to be positively related to the amount of consideration and concern given to others (Eisenberg & Miller, 1987). This understanding of how best to support followers would then allow leaders to adapt their leadership behavior accordingly.

Similarly, leaders who have high self-regulation refrain from impulsively reacting to situations that arise in the work domain and instead thoughtfully consider how to best proceed (Glomb et al., 2011). The work environment is stressful, and leaders are continuously confronted with difficult decisions that have to be made under tight time pressures. Leaders who take the time to reflectively think before speaking or acting will consider a wider variety of alternative actions. This expanded thinking increases the chances that a leader will respond to the needs of followers in a way that is most beneficial for followers and the organization as a whole rather than simply a reaction to an environmental stimulus which may not be in the best interests of their followers, the organization, or the leader him/herself. Self-regulation contributes to less reactive decisions (Glomb et al., 2011), more awareness of physical and emotional signals, and more sensitivity to the signals of followers (Siegel, 2007). I argue that these processes lead to leader flexibility and adaptiveness in behavioral responses. Indeed, Yukl's (2004) conceptualization of tridimensional leadership suggests that organizations need leaders who are "able to analyze the situation, determine what pattern of leadership behavior is needed to influence processes that are important for unit performance, and then carry out the behavior in a skillful way" (p. 75). Similarly, behavioral complexity theory (CB; Hooijberg & Quinn, 1992) suggests that those individuals who are able to demonstrate a wide array of behaviors (that sometimes even are in contrast to one another) may be

better able to exhibit high levels of performance despite often changing situations (Lawrence, Lenk, & Quinn, 2009). I suggest that this flexibility and adaptiveness is largely determined by leaders' levels of self-regulation.

Finally, leaders high in self-regulation are able to remain emotionally balanced. They do not get bogged down in negative emotions and they do not get lost in extreme positive emotions such that they lose touch with the present moment. In general, however, individuals who are able to self-regulate spend more time in the positive realm such that they are able to reframe events and feelings in order to focus on the good rather than dwelling on the negative (Fredrickson et al., 2008). Fredrickson's (2001) broaden-and-build theory of positive emotions states that positive emotions widen individuals' reservoirs of physical, intellectual, and psychological resources such that these positive emotions increase the breadth of thoughts and actions that individuals experience. This implies that leaders who experience positive emotions will be more open to a wider variety of behaviors to support followers. Research has demonstrated that leaders' emotions exhibit a contagion effect to followers and that leaders who are in more positive moods are better able to coordinate their followers since less energy is expended managing volatile emotions (Sy et al., 2005). Leaders high in self-regulation are freed from their maladaptive thoughts due to their ability to reduce their negative emotions and thoughts (Glomb et al., 2011). Such down-regulation of negative emotion and maintenance of positive emotion, avoids the narrowing of behavioral responses which results from negative emotions and increases the broadening of thoughts and actions (Fredrickson, 2001). Self-regulation thus prepares leaders to respond to situations with clarity of thought since negative emotions are not present to inhibit their thought

processes. This increases the likelihood of responding flexibly and adaptively to the needs of the situation given the broadening effects of increased positive emotions (Fredrickson, 1998; 2001).

In sum, I suggest that leader self-regulation prepares leaders to be adaptive and flexible in their use of leadership behaviors. Leaders high in self-regulation are able to see situations from the perspective of their followers in order to tailor their leadership behaviors to best support their followers. They regulate their emotions effectively which expands their reservoir of possible actions and thoughts because they are not tied to negative emotions and their narrowing effects, nor are they tied to the reactivity that often accompanies non-reflective information processing. Together these processes lead to the adaptive, flexible behaviors that behavioral complexity theory (Lawrence et al., 2009) and Yukl (2004) suggest are needed to create leaders who are capable of leading effectively in turbulent environments. Additionally, given that mindfulness includes an awareness of the interconnections between individuals which emphasizes compassion and similarity (Shapiro & Carlson, 2009), I assume that mindful leaders *want* to do the right thing to support their followers because they are seen as similar to the leader (Tajfel, 1978; Tajfel & Turner, 1979). Based on the above discussion, I formally hypothesize:

*Hypothesis 2: Leader self-regulation is positively related to situationally-driven leadership.*

Hypothesis 1 suggests a positive relationship between leader mindfulness and leader self-regulation and Hypothesis 2 suggests a positive relationship between leader self-regulation and situationally-driven leadership. Together, these hypotheses suggest that leader self-regulation mediates the relationship between leader mindfulness and

situationally-driven leadership. My hypothesis development is in line with how mindfulness has been theorized previously such that the positive effects of mindfulness are transmitted via self-regulatory processes to behaviors (Glomb et al., 2011; Shapiro et al., 2006). I thus formally hypothesize:

*Hypothesis 3: Leader self-regulation mediates the relationship between leader mindfulness and situationally-driven leadership.*

### **Situationally-Driven Leadership and Unit Effectiveness**

The bandwidth of the mindfulness construct as well as its outcomes are theorized to be broad in scope (Brown & Ryan, 2007; Glomb et al., 2011; Shapiro et al., 2006), hence the need to consider multiple performance outcomes of mindfulness (Hogan & Roberts, 1996). Leaders who demonstrate situationally-driven leadership effectively make use of the various leadership behaviors they have in their repertoire to holistically address the situation and understand how to best support the individuals with whom they interact. In other words, situationally-driven leaders are able to “flex” their leadership behaviors to support followers and the needs of the situation on an ongoing basis.

The leadership literature has generally focused on the importance of one type of leadership (e.g., task) over another (e.g., relationship), suggesting that leaders should select the one that works best for them (or that is prescribed by their organization) and use it regularly. However, lack of flexibility in leadership behaviors may result in leaders not delivering on the needs of followers or the demands of the situation. In contrast, a leader who exhibits situationally-driven leadership is able to tailor his/her leadership behaviors to meet the dynamic, changing demands of the situation and leadership requirements of followers. Rather than considering a situation from their own perspective

and what *they* would most require to be successful in a given situation, situationally-driven leaders exhibit the leadership behaviors that *followers* most require to be successful. Situationally-driven leaders thus escape the limiting “Golden Rule” which advocates “treating others how *you* would want to be treated” and replaces it with the more inclusive and other-focused approach of “treating others how *they* would most want to be treated.” This marks a shift from a leader-centric approach to the study of leadership using a more follower-centric approach (e.g. Bligh, 2011; Shamir, 2007).

Countless studies have demonstrated that various leadership behaviors have positive relations with follower effectiveness (see reviews by Judge et al., 2004 for task and relations leadership, Judge & Piccolo, 2004 for transformational, van Dierendonck, 2010 for servant, and Seibert et al., 2011 for empowering) but less research has considered how leaders’ dynamic ability to “flex” their leadership behaviors according to changing situational demands impacts follower effectiveness. This is interesting given the focus of early leadership training which suggested that a leader’s basic job is to ensure that their followers receive the support they most need to be successful (e.g. McGrath, 1962). Additionally, leaders are expected to be in tune with the environment to help prevent negative effects for followers. This suggests that leaders should continually re-evaluate how they can best support followers (McGrath, 1962). Given that situationally-driven leaders demonstrate the leader behaviors that are most appropriate for the situation and best support their followers, it follows that situationally-driven leadership will be positively related to follower job performance. Collectively, then followers within a leader’s unit will receive the combination of leader behaviors that are most beneficial for their effectiveness at a given point in time. Given the above discussion, I formally

hypothesize:

*Hypothesis 4a: Situationally-driven leadership is positively related to unit performance.*

Meta-analytic results have demonstrated positive relationships between multiple types of leader behaviors (such as LMX, transformational leadership, supportive behaviors, and transactional behaviors) and organizational citizenship behaviors (see Podsakoff, MacKenzie, Paine, Bachrach, 2000 for a summary). Blau's (1964) social exchange theory states that when followers feel supported and satisfied with their leaders, they are likely to reciprocate by carrying out activities that ultimately help their leader in achieving his/her goals. Building on this argument, I suggest that when leaders engage in situationally-driven leadership behavior, they are in tune with the needs of their unit as a whole which contributes to the unit feeling supported. In turn, unit members will reciprocate by engaging in organizational citizenship behaviors that benefit the unit as a whole. This line of reasoning is consistent with the results of previous research in which leadership behaviors were positively linked to organizational citizenship behaviors at the unit level (Ehrhart, 2004). I thus formally hypothesize:

*Hypothesis 4b: Situationally-driven leadership is positively related to unit OCBs.*

I have hypothesized that leader mindfulness is positively related to leader self-regulation (H1), that leader self-regulation is positively related to situationally-driven leadership (H2), and that situationally-driven leadership is positively related to unit performance (H4a) and unit OCBs (H4b). According to this line of reasoning, both leader self-regulation and situationally-driven leadership mediate the relationship between leader mindfulness and unit performance and OCBs. This is in line with prior

mindfulness theorizing which suggests that there are multiple processes that link mindfulness to outcomes such as performance and well-being (Glomb et al., 2011; Shapiro et al., 2006) and supports recent research which found that there are both self-regulatory processes and behaviors which ultimately produce work outcomes (Hülshager et al., 2013). I thus formally hypothesize:

*Hypothesis 5a: Leader self-regulation and situationally-driven leadership completely mediate the relationship between leader mindfulness and unit performance.*

*Hypothesis 5b: Leader self-regulation and situationally-driven leadership completely mediate the relationship between leader mindfulness and unit organizational citizenship behaviors.*

### **Organizational Constraints**

Although mindful leaders are generally able to be present in any given moment and take a step back to view a situation in a non-biased, nonjudgmental way, I suggest that leaders may encounter some situations in which they find it very difficult to be mindful and to subsequently self-regulate their behavior. I expect that the extent to which leaders' work environments exert heavy strains and stressors on them that are *outside* their control and/or unexpected, this will play a large role in determining the ultimate extent to which these leaders can self-regulate their behavior. This is consistent with the tenets of control theory which discusses how individuals process and make sense of information in the external environment according to how it may affect their progress toward accomplishing a desired goal (Carver & Scheier, 1981). In the current model, organizational constraints represent the "disturbances" external to the leader that interfere

with his/her ability to effectively accomplish his/her goals. This conceptualization is also consistent with recent theoretical work which suggests that a wide variety of such disturbances have important implications for leadership at both the macro and micro levels of analysis (Kinicki, Jacobson, Galvin, & Prussia, 2011).

As leaders encounter daily disturbances such as stressors and strains, they are largely able to diffuse them by being mindful and not getting caught up in self-defeating thoughts and negative self-talk. When these stressors and strains are dealt with effectively, they do not accumulate and can allow a leader to go on largely uninhibited. An analogy of a bathtub drain illustrates this idea very simply. Individuals are able to continually self-regulate their behavior because the stressors and strains they experience are washed down the drain as they occur and thus do not raise the level of the water in the tub. However, if the amount of stress and strain is so great that it begins to raise the water level quickly, an individual's level of mindfulness may be ineffective in diffusing these stressors and strains. I suggest that if these stressors and strains are largely outside of the leaders' control and/or are unexpected and as such represent organizational constraints—such as faulty equipment and red tape/bureaucracy, they will strongly challenge leaders' abilities to self-regulate their behavior.

I suggest that leaders are likely knowledgeable about the problems and issues they will experience in their daily job. For example, leaders typically have a good understanding of which employees tend to cause problems, which projects are the most difficult, and so forth. In other words, while these stressors and strains may create pressure for leaders and produce stress and strain, they do not likely harm leaders' abilities to self-regulate. On the other hand, when individuals experience heavy amounts



of stressors or strains that are beyond their control or arise unexpectedly from the organization, these problems are seen as more challenging because they are “unnecessarily thwarting personal growth and goal attainment” (LePine, Podsakoff, & LePine, 2005, p. 765). As such, even though leaders may be mindful, these types of stressors and strains represent threats that work against leaders’ ability to remove themselves from the situation and step back from the anxiety (i.e. reduces their ability to decenter or re-perceive the situation, Shapiro et al., 2006). Borrowing from the challenge-hindrance stressor framework (Cavanaugh, Boswell, Roehling, & Boudreau, 2000; LePine et al., 2005), I suggest that organizational constraints represent hindrance stressors, which create negative affect and frustration and thus are distracting and use up resources that leaders would otherwise have available to engage in self-regulation. On the other hand, other stressors in the work environment such as problematic team members or difficult projects likely represent challenge stressors that leaders are well acquainted with and well-equipped to handle. The stressors represent common managerial challenges and leaders have likely had the time and space to mindfully develop strategies and processes to effectively deal with them such that they do not have negative implications for their ability to self-regulate their behavior. Thus, I suggest that the level of stressors and strains that arise unexpectedly and represent organizational-level constraints will interact with leaders’ levels of mindfulness to predict their ability to self-regulate. In other words, leader mindfulness is only part of the equation in determining self-regulation—organizational constraints represent an important situational factor beyond the control of leaders that can deplete their ability to self-regulate by hindering their level of mindfulness. Based on the above discussion, I formally hypothesize:

*Hypothesis 6: The extent to which leaders experience organizational constraints moderates the relationship between leader mindfulness and leader self-regulation such that the positive relationship is diminished when leaders experience high levels of organizational constraints and strengthened when leaders experience low levels of organizational constraints.*

## **Chapter 4**

### **Method**

As discussed in chapter two, my theoretical conceptualization of mindfulness consists of six dimensions: (1) nonreact, (2) observe, (3) present, (4) nonjudging, (5) interconnections, and (6) decentering. Below I detail the process I used to develop the new mindfulness scale according to suggestions of DeVellis (1991) and Hinkin (1998) to ensure the content validity, reliability, and stable factor structure of this new scale. I then discuss the sample and procedure I utilize to test the hypotheses outlined in chapter three.

#### **Mindfulness Scale Development and Validation**

I used the Baer et al. (2006) five-dimension and Brown & Ryan (2003) unidimensional mindfulness scales as a guide when generating items for each of the dimensions of mindfulness. My goal was to expand the bandwidth of the mindfulness construct as conceptualized by Brown & Ryan (2003), and develop items that would explicitly capture mindfulness in the workplace which I believe is associated with a different set of behaviors and thoughts than general mindfulness in everyday life. Table 2 summarizes my new conceptualization of mindfulness and the two additional conceptualizations of Baer et al. (2006) and Brown and Ryan (2003).

-----  
Insert Table 2 about here  
-----

#### **Phase 1: Item generation and content validity assessment**

Using a deductive approach, I created an initial pool of 58 items based on my understanding of the content domain of the six dimensions of mindfulness. I then asked for feedback on these items from two management professors familiar with the

mindfulness construct and the definitions of each of the dimensions. I revised the 58 items based on this feedback to ensure item clarity. Next, according to the practices suggested by Hinkin (1998), I asked six Ph.D. students to sort each item into the one category in which it fit best according to the definition of each of the six dimensions. I instructed participants to record whether there were multiple categories in which they thought an item could fit. Across the students, twenty seven items were categorized into multiple categories. Based on this feedback, I studied the items and categories in which participants were unclear and revised my definitions of the dimensions in order to more clearly distinguish between items. I deleted eight items that were put in three or more categories across raters, leaving a total of 50 items. I then sent the list of items and new definitions of the dimensions to five scholars very familiar with the construct of mindfulness, asking them to sort each item into the category in which it fit best. I also asked them to note if any items did not clearly fit into only one category. Across the five scholars, a total of four items were identified that did not fit clearly into one category. I deleted these items, leaving a total of 46 items. Of these 46 items an additional four items were deleted based on wordiness, possible difficulty in understanding based on wording, and items that were double barreled, leaving a total of 42 items.

## **Phase 2: Exploratory Factor analysis and item reduction**

In order to further reduce items and establish a stable factor structure I conducted exploratory factor analyses. This step is necessary in order to suggest additional items for deletion (Ford, MacCallum, & Tait, 1986) and is consistent with the work of instrument development researchers who combine both EFA and confirmatory factor analysis (CFA) in order to develop theory (Gerbing & Hamilton, 1996; Kinicki et al., 2013).

**Sample 1 Participants and procedure.** I administered the 42 items to a sample of 226 undergraduate students from a public university in the southwestern United States. Students were recruited to participate via an announcement on their course website and offered extra credit to take part in the survey. Fifty percent of these students were women, with 73% of participants being 18-22 years of age. Multiple suggestions exist in the literature regarding the appropriate number of participants per item. For example, Rummel (1970) suggests a minimum of 1:4 while Schwab (1980) suggests as many as 1:10. This student sample size met the requirements of Rummel (1970) at around 1:5. I asked participants to indicate their agreement with each of the statements according to how they usually feel or act while working using a seven-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = neither agree nor disagree, 5 = somewhat agree, 6 = agree, and 7 = strongly agree).

**Analyses.** I first ran a principal-axis factor analysis without constraining the number of factors to determine the number of factors with eigenvalues greater than one (Kaiser, 1958). I also examined the scree plot (Cattell, 1966). Second, I ran principal component analyses with varimax rotation. I considered items for possible deletion if they 1) did not load at least 0.4 on their theorized dimension, 2) had high cross-loadings on other factors besides the factor it was supposed to measure, or (3) did not load on the factor that it was theoretically supposed to load on (DeVellis, 1991; Hinkin, 1998). I deleted items that meet any of the above criteria and repeated the process until a clean set of items emerged. I calculated Cronbach's alphas to ensure that each of the scales had a reliability of .70 or greater (Nunnally, 1978).

**Results.** The principal-axis factor analysis resulted in ten factors with eigenvalues greater than one but the scree plot suggested five factors. Because my theory predicted six factors rather than five factors, I decided to proceed with a six-factor model principal components EFA analysis (i.e., requesting 6 factors in the EFA command) to explore the factor structure at the item-level to determine what might be going on with the items. The principal components analysis revealed that only two items from the “interconnections” dimension met the criteria outlined above. Multiple items assessing “interconnections” loaded highly on both the “observe” and “interconnections” factor, suggesting that these dimensions might be candidates for collapsing into a single dimension. The way I theoretically conceptualized the “observe” dimension included being aware of both the details as well as the big picture. It thus makes sense that if an individual is taking in information, he/she would also be aware of the interconnections between individuals and events. Awareness of the big picture and the small details would likely reveal an awareness of how things are interconnected as well (Brown et al., 2007).

I thus collapsed the “observe” and the “interconnections” dimensions into one and proceeded again with a five-factor principal components analyses. The final five dimensions are listed in Table 3. From this point on, I will refer to this dimension as simply “observe.” I used .55 as a loading cutoff to further cull the set of items. In all, I deleted a total of 19 items, leaving 23 total items for the five dimensions. Table 3 shows the factor structure after removing items that did not meet the inclusion criteria. A total of 6 items passed the criteria for the observe and interconnections combined dimension (alpha = .73), 4 for the “present” dimension (alpha = .80), 5 for the “decentering” dimension (alpha = .78), 4 for “nonreact” (alpha = .77), and 4 for “nonjudge” (alpha =

.73), resulting in a total of 23 items for the 5 dimensions. These 23 items had no cross-loadings above .40, and each had a factor loading above .55 on its respective factor with an average loading of 0.66.

-----  
Insert Table 3 about here  
-----

### **Phase 3: Mindfulness Scale Refinement and Validation**

Based on the suggestions of DeVellis (1991) and Hinkin (1998), I obtained three more samples to further validate the mindfulness scale. Sample 2 was collected to conduct CFA analyses to reproduce the factor structure from the EFA analyses and to ensure appropriate model fit by further validating the factor structure if needed. Sample 3 was collected to assess the mindfulness scale's construct, convergent, discriminant, and criterion-related validity (Schwab, 1980). Sample 4 was collected to cross-validate the factor structure of the state mindfulness scale and to assess the incremental validity of the mindfulness scale.

**Sample 2 Participants and Procedures.** I administered the 23 items to a second sample of 177 undergraduate students from the same public university in the southwestern United States. Students were recruited to participate via the school's official subject pool. Thirty-three percent of these students were women, with 79% of participants being 18-22 years of age.

**Analyses.** I conducted the following analyses to validate the mindfulness measure. First, I conducted confirmatory factor analyses (CFA) on the 23 items using Bollen's (1989) model modification procedure in Mplus Version 6.12. I specified that each of the items load on its a-priori factor based on theory and then considered the fit

indices. Using Hu and Bentler (1999), I selected root-mean-square error of approximation (RMSEA), Tucker-Lewis index (TLI), and comparative fit index (CFI) for fit indices. Acceptable fit values for each of these indices are less than .05 for RMSEA, and higher than .90 for TLI and CFI (Hu & Bentler, 1999). I checked the modification indices to identify items that may have been reducing the overall model fit. Modification indices correspond with the amount of decrease in chi square value that results when a given parameter is freed (allowed to correlate) or fixed to zero. Items that generated modification indices of more than 10 were candidates for deletion. I especially considered items in which MPlus identified that the fit of the model would significantly increase if error terms on individual items were allowed to correlate or if items were allowed to load on multiple factors. I deleted items that met this criteria and reran the model until there were no more items that generated modification indices greater than 10.

**Results.** The initial set of mindfulness items that underwent the measurement refinement process included 23 items for 5 dimensions. The refinement process eliminated four items total. Table 4 shows the measurement refinement process. The baseline model generated the following goodness-of-fit indices:  $\chi^2(220) = 490.82$ ,  $p < 0.05$ ; CFI = 0.88, TLI = 0.86, and RMSEA = 0.083. RMSEA, CFI, and TLI did not pass the cutoff values. The items generating the highest modification indices were deleted. In all, four items total were deleted, leaving a total of 19 items (4 decenter, 4 observe, 4 nonreact, 4 nonjudge, and 3 present). The final model generated the following goodness-of-fit indices:  $\chi^2(142) = 222.45$   $p < 0.01$ ; CFI = 0.95, TLI = 0.94, and RMSEA = 0.057.

Because all five dimensions relate to mindfulness, a second order CFA was conducted to determine whether a higher order factor could better account for the item



structure. I added a second order factor to Model 2 such that each of the five mindfulness dimensions also was used as an indicator of a second order mindfulness factor. Because comparison between non-nested models is not appropriate using the fit indices previously discussed, I used Akaike's Information Criterion (AIC: Akaike, 1987) to compare Models 2 and 3. Model 3 generated a higher AIC than model 2 ( $AIC_{diff} = 10.1$ ). This suggests that the second order measurement model fit the data less well when compared to the measurement model with five first-order factors.

-----  
Insert Table 4 about here  
-----

**Sample 3 Participants and procedures.** The purpose for Sample 3 was to assess the mindfulness scale's construct, convergent, discriminant, and criterion-related validity. Participants were recruited to participate via an organizational contact who sent out a request for participation to all business school staff employees at the same public university in the southwestern United States. A total of 168 usable surveys were completed out of total possible 306 for a response rate of 55 percent. Sixty two percent of the participants were female with 53% of the sample 31-50 years of age and 64% of the sample had over ten years of work experience.

**Measures.** All measures were obtained on a six-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = somewhat agree, 5 = agree, 6 = strongly agree) unless otherwise noted.

**Reina trait mindfulness.** Mindfulness was measured with the 19 items that resulted from the Sample 2 CFA analyses using a six-point frequency scale (1 = almost

always, 2 = very frequently, 3 = somewhat frequently, 4 = somewhat infrequently, 5 = very infrequently, 6 = almost never). The Cronbach's alpha of this scale was 0.87.

***Brown and Ryan (2003) measure of trait mindfulness.*** A second measure of trait mindfulness was collected using 15 items from Brown and Ryan (2003). A sample item was "I break or spill things because I am careless, not paying attention, or thinking of something else." The Cronbach's alpha of this scale was 0.88.

***Social desirability.*** Social desirability was measured with four items from Paulhus (1991). A sample item was "I never regret my decisions." The Cronbach's alpha of this scale was 0.59.

***Emotional intelligence.*** Emotional intelligence was measured with two items from Wong and Law (2002). A sample item was "I have good control of my own emotions." The Cronbach's alpha of this scale was 0.74.

***Openness to experience.*** Openness to experience was measured with two items from Gosling, Rentfrow, and Swann (2003). A sample item was "I see myself as someone who is open to new experiences, complex." The Cronbach's alpha of this scale was 0.71.

***Neuroticism.*** Neuroticism was measured with two items from Gosling, Rentfrow, and Swann (2003). A sample item was "I see myself as someone who is anxious and easily upset." The Cronbach's alpha of this scale was 0.85.

***Anxiety.*** Anxiety was measured with four items from Bieling, Antony, & Swinson (1998). A sample item was "I worry too much over something that really doesn't matter." The Cronbach's alpha of this scale was 0.85.

**Core self-evaluation.** Core self-evaluation was measured with four items from Judge, Erez, Bono, & Thoresen (2003). A sample item was “I am confident I get the success I deserve in life.” The Cronbach’s alpha of this scale was 0.70.

**Self-monitoring.** Self-monitoring was measured with four items from Lennox and Wolfe (1984). A sample item was “I have found that I can adjust my behavior to meet the requirements of any situation I find myself in.” The Cronbach’s alpha of this scale was 0.79.

**Analysis.** Using this refined set of items, I ran several CFAs to evaluate the construct validity of the mindfulness scale. Using the procedures suggested by Podsakoff and MacKenzie (1994), construct validity of the mindfulness construct would be demonstrated if (1) the five-factor structure of the data would adequately explain the covariance between items, (2) each item loaded significantly on its respective factor, and (3) all five of the dimensions account for a substantial amount of variance for their respective indicators.

I evaluated the discriminant validity of the mindfulness measure as compared with other constructs including anxiety, neuroticism, core self-evaluation, self-monitoring, and openness to experience. I utilized the Anderson and Gerbing (1988) approach which utilizes CFA. I ran a six-factor baseline model with mindfulness, anxiety, neuroticism, core self-evaluation, self-monitoring, and openness to experience each as their own factor. I then compared this baseline model to a series of five-factor models in which I combined mindfulness and another one of the constructs. When all of the five-factor models generated worse fit indices when compared with the six-factor model, the results support the discriminant validity of the mindfulness construct.

Nomological validity of the mindfulness measure was assessed by considering the correlations between mindfulness and other related constructs including emotional intelligence, neuroticism, openness to experience, anxiety, self-monitoring, social desirability, neuroticism, and the Brown and Ryan (2003) measure of mindfulness. Mindfulness was expected to relate positively to emotional intelligence, self-monitoring, openness to experience, the Brown and Ryan (2003) mindfulness measure, and negatively with neuroticism and anxiety.

## Results

***Construct validity of the mindfulness dimensions.*** I assessed the construct validity of the mindfulness measure by confirming the factor structure obtained from Sample 2, this time using an employee sample (Sample 3). The CFA generated good results  $\chi^2(142) = 216.26, p < 0.01$ ; CFI = 0.95, TLI = 0.93, and RMSEA = 0.056. All items loaded on their specified factors significantly, and the standardized loadings were substantial in size ( $M = 0.74, SD = 0.05$ ). The average composite reliability was .82, ranging from .79 for observe and .86 for present. The five factors explained a moderate amount of variance in the items ( $M = 55\%, SD = .07$ ). Based on the overall model fit, the significant factor loadings, and amount of variance in items accounted for by the factor structure, the mindfulness scale demonstrated good construct validity. Table 5 demonstrates the factor structure and composite reliability for each dimension and lists the items for the final 19 item mindfulness scale.

-----  
Insert Table 5 about here  
-----

***Discriminant validity of the new mindfulness measure and other constructs.*** I used Omnibus CFA to evaluate the discriminant validity of the new mindfulness measure. I fit a six-factor model in which I used the average score of each dimension as an indicator of mindfulness and each item as an indicator of its respective construct (i.e. anxiety, neuroticism, core self-evaluation, self-monitoring, and openness to experience). The baseline model generated good fit indices:  $\chi^2(209) = 356.14$   $p < 0.01$ ; CFI = 0.91, TLI = 0.89, and RMSEA = 0.065. I then compared this baseline model to six alternative models in which the mindfulness indicators were combined with the items from one of the other scales (i.e. I combined mindfulness with each of the other constructs). The sequential chi-square difference test (SCDT) tests were all significant, indicating that the baseline model with six dimensions for the six separate constructs was the best-fitting model, subsequently supporting the discriminant validity of the mindfulness construct. Table 6 summarizes these omnibus CFA results when comparing mindfulness to these related measures.

-----  
Insert Table 6 about here  
-----

***Nomological validity of the mindfulness measure.*** Table 7 shows the correlations between the new mindfulness measure, the Brown and Ryan (2003) mindfulness measures and other constructs. As expected, mindfulness exhibited small positive correlations with emotional intelligence, self-monitoring and core self-evaluation and it exhibited small to medium negative correlations with anxiety and neuroticism after controlling for social desirability.

-----  
Insert Table 7 about here  
-----

**Sample 4 participants and procedures.** Sample 4 was collected to cross-validate the factor structure of the state mindfulness scale and to assess the incremental validity of the mindfulness scale. Participants were recruited to participate via Amazon’s Mechanical Turk (MTurk). A total of 237 usable surveys were completed out of a total of 310 for a response rate of 76 percent. Thirty eight percent of the participants were female with 54% of the sample 25-34 years of age.

**Measures.** All measures were obtained on a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neither agree or nor disagree, 4 = agree, 5 = strongly agree).

***Reina state mindfulness.*** State mindfulness was measured with the 19 items from the previously validated trait mindfulness scale with the items adjusted to be more general. These items are listed in Table 8. The Cronbach’s alpha of this scale was 0.89.

-----  
Insert Table 8 about here  
-----

***Brown and Ryan (2003) state mindfulness.*** State mindfulness was also measured by the five items from Brown and Ryan (2003) that have been used in previous research to assess state mindfulness. A sample item was “I rushed through activities without being really attentive to them.” The Cronbach’s alpha of this scale was 0.88.

***Psychological well-being.*** Psychological well-being was measured with 18 items from Ryff and Keyes (1995). A sample item was “I have aims and objectives for living.” The Cronbach’s alpha of this scale was 0.90.

**Job satisfaction.** Job satisfaction was measured with three items from Hackman & Oldham (1974). A sample item was “I am generally satisfied with the kind of work I do in this job.” The Cronbach’s alpha of this scale was 0.89.

**Life satisfaction.** Life satisfaction was measured with five items from Diener, Emmons, Larsen and Griffin (1985). A sample item was “In most ways, my life is close to ideal.” The Cronbach’s alpha of this scale was 0.91.

**Social desirability.** Social desirability was measured with four items from Paulhus (1991). A sample item was “I never regret my decisions.” The Cronbach’s alpha of this scale was 0.66.

**Analysis.** In order to further ensure the factor structure of the new mindfulness measure, I adjusted the language of the items to be more consistent with a state measure rather than a trait measure. For example, I adjusted the trait item “I am able to shift my focus from the big picture to the details” to “I was able to shift my focus from the big picture to the details” and shifted the directions from “how do you feel in general at work?” to “how do you feel at work right now?” in order to be more applicable to an ESM context (i.e. to capture an individual’s level of mindfulness at work at a particular time of day, rather than in general). Table 8 lists the adjusted state mindfulness items.

In order to investigate the incremental validity of the mindfulness scale, I conducted usefulness analysis (Darlington, 1990). I used hierarchical regression to test the contribution of the current mindfulness scale over and above the predictive power of the Brown and Ryan (2003) Mindfulness Attention and Awareness Scale (MAAS), and emotional intelligence consistent with the approach taken by Judge et al. (2003). I compared the results of the MAAS predicting job satisfaction in the first step and the

current state mindfulness scale entered into the second step of the hierarchical regression analysis with the reverse ordering of variables in which the current mindfulness scale was entered first. I also conducted this analysis with psychological well-being and life satisfaction as dependent variables. All told, 12 separate hierarchical regressions were conducted which attenuates multicollinearity that may be present between the independent measures (Cohen, Cohen, West, & Aiken, 2003). In order to control for the effects of social desirability given that all measures were self-report, I also included social desirability in the first step with the predictor.

**Results.** I assessed the convergent validity of the mindfulness construct by applying the factor structure previously validated. The CFA generated good results  $\chi^2(142) = 226.02, p < 0.05$ ; CFI = 0.96, TLI = 0.96, and RMSEA = 0.050 providing support for the state mindfulness measure.

As shown in Table 9, usefulness analysis results revealed that adding the current mindfulness measure in the second step resulted in significant  $R^2$  increases for job satisfaction (.14,  $p < .001$ ), psychological well-being (.18,  $p < .001$ ), and life satisfaction (.08,  $p < .001$ ). When the order was reversed, the current mindfulness measure accounted for all of the variance in job satisfaction and psychological well-being with no significant  $R^2$  increase when adding the Brown and Ryan (2003) mindfulness measure. For life satisfaction, the Brown and Ryan (2003) mindfulness measure predicted an additional two percent of variance. Overall, these results provide strong evidence for the incremental validity of the new mindfulness measure.

-----  
Insert Table 9 about here  
-----



## **Main Study for Hypothesis Testing**

### **Sample and Procedure**

Participants were recruited through an organizational contact at a local fire department. The organizational contact then recruited individuals who were interested in participating in the study via email. In order to qualify to take part in the study, both supervisors and their direct reports were required to work full time for the fire department, which corresponded with a “48 hours on, 96 hours off” schedule. In order to facilitate high levels of participation, feedback reports for mindfulness, leadership behaviors, and levels of follower effectiveness were promised after the data collection process was complete. Additionally, a \$250 “donation” was offered to the entire department for their “activity fund” if response rates for the surveys are 80% or higher. This incentive was consistent with the rules and regulations, which stipulate that incentives given to city governments must be offered to an entire unit (not to an individual) and must be as a “donation”.

Experience sampling methodology (ESM) was used to collect data for all of the main variables in the study (except for the organizational constraints moderator) because they were expected to vary from day to day and I wanted to fully capture the episodic nature of these constructs. ESM is advantageous for at least four reasons. First, it allows participants to respond to surveys within the context of their workday, which enhances ecological validity (Brunswick, 1949; Uy, Foo, & Aguinis, 2010). Second, it asks participants to respond within a relatively short period of time after the experience occurs which reduces memory bias that can be introduced when participants are asked to remember the events that transpired over a longer period of time as is the case in

recollective judgments (Beal & Weiss, 2003; Csikszentmihalyi & Larson, 1987). Indeed, Robinson and Clore (2002) found that the accuracy of self-report surveys is severely biased by memory processes. Third, it allows researchers to consider both between- and within-person variability of a variable (Beal & Weiss, 2003). This allows for a more nuanced understanding of the relationships between variables which is important considering that between and within-level relationships of a variable are independent and can thus have different signs at each level (Ostroff, 1993). Finally, due to multiple data points for a given variable, researchers can capture and ultimately reduce the number of third variable explanations that can also explain the observed effect (Beal & Weiss, 2003).

Data was collected from 70 supervisors and their three direct reports. The organizational contact arranged for all participants to receive a reminder notice through the internal computing system in the morning to complete the AM survey and a reminder in the afternoon to complete the PM survey. In designing the surveys, I followed the guidelines suggested by Dillman, Smyth, and Christian (2009) and Dillman (2011) which included giving directions to participants right before they need the directions rather than at the beginning of the survey, using shorter lines of text to ensure words are not skipped, contacting participants multiple times (reminder emails, etc.), personalized email correspondence, and giving a financial incentive to ensure a high response rate.

All survey items were pilot tested with a representative sample prior to administering the survey site-wide. This ensured that all items were written in a way that was easily interpretable for participants. Two supervisors and two direct-reports completed all survey items and gave feedback regarding any items that could be worded

better for their particular context. This resulted in a number of changes being made to the wording of the directions and terminology used (i.e. say “chief” instead of leader, etc.). This process also helped ensure there were no glitches with the internet survey collection process.

Data was collected for a total of 10 shifts both in the morning and in the evening in order to reduce method bias by incorporating time delays (Ostroff, Kinicki, & Clark, 2002). Supervisors reported their perceptions of their own mindfulness in the morning of each shift and their perceptions of their own self-regulation and the performance of their unit as a whole as well as OCBs in the evening of each shift. Direct reports completed questionnaires in the evening of each shift and assessed their supervisor’s situationally-driven leadership behavior. Participants were given a four hour window in which to complete their daily survey (7:30 – 11:30 am for the morning survey, and 4:30 – 8:30 pm for the evening survey) after which their results would no longer be counted in order to eliminate bias introduced by late responses. A response rate between 50 and 80% was expected which is in line with other ESM studies (e.g. Scott, et al., 2010) and was calculated by dividing the total obtained observations by the total possible observations. A total of 470 valid surveys were completed for supervisors and 1337 for direct-reports. The response rate for the current study was 68% for supervisors and 54% for direct-reports. Ninety seven percent of the supervisor participants (Male = 98%, 91% white), had worked with the organization for over seven years, 93% were between the ages of 31 and 60, 24% had either a Bachelor’s or Master’s degree, and 88% had been in charge of their current unit for more than one year. Seventy five percent of the direct-report participants (Male = 96%, 79% white) had worked with the organization for over seven

years, 89% were between the ages of 31 and 60, 31% had either a Bachelor's or Master's degree, and 68% had worked in their unit for more than one year.

## Measures

Unless noted, all measures were collected using a Likert response scale in which "1" indicated "strongly disagree" and "6" indicated "strongly agree". Scales with more than five points have been shown to exhibit higher reliability and validity than scales with fewer response options (Alwin & Krosnick, 1991; Lozano, Garcia-Cueto, & Muniz, 2008) and they also result in increased amounts of variance. Additionally, scales with more response options overcome the downward biasing of the observed correlation between a predictor variable and the criterion variable (Aguinis, Pierce, & Culpepper, 2009). Each Cronbach's alpha listed below is the average alpha across all ten days for a given scale. Table 10 presents the daily Cronbach's alphas for each of the main study variables.

-----  
Insert Table 10 about here  
-----

***Leader state mindfulness.*** Leader state mindfulness was measured via leader self-report each morning for a total of 10 consecutive shifts using the 19-item state mindfulness scale previously validated. Sample items included "I experienced thoughts and emotions but did not let them distract me" (nonreact), "My mind wandered which made it difficult for me stay focused in the present moment" (present), "During conversations, I found myself evaluating what an individual was saying and making judgments about their character" (nonjudgment), "I was able to shift my focus from the big picture to the details" (observing), and "I felt the need to reinforce my

accomplishments at work to maintain my self-esteem” (decentering). The daily Cronbach’s alphas ranged from .69 – .95 and the average was 0.88.

***Leader self-regulation.*** Leader self-regulation was measured using two empathy items (Kellet et al., 2002), two response flexibility items (Martin & Rubin, 1995), and two items for affective regulation (Gratz & Roemer, 2004) each evening via leader self-report for a total of 10 shifts. Sample items included “Today, I showed sensitivity and understanding” (empathy), “Today, I was willing to listen and consider alternatives for handling a problem” (response flexibility), and “Today, when I wanted to feel less negative emotion, I changed the way I thought about the situation” (affective regulation). The daily Cronbach’s alphas ranged from .75 – .94 and the average was 0.86.

***Situationally-driven leadership.*** Situationally-driven leadership was collected from direct-reports each evening for a total of 10 shifts. This measure was created by giving definitions of leadership types and then asking followers the extent to which their leaders exhibited each of the following leadership behaviors: empowering leadership (Srivastava et al., 2006), servant leadership (Liden et al., 2008), transformational leadership (MLQ Form 5X; Bass & Avolio, 1995), change leadership (Yukl et al., 2002), task leadership (Pierce & Newstrom, 2000), and relations leadership (Pierce & Newstrom, 2000). A sample item was “Relational leadership emphasizes interpersonal support by encouraging group members’ involvement in decision-making, by instituting group members’ suggestions, by demonstrating respect for group members, and by treating group members as equals” (relations-oriented leadership).

The goal of this study was to assess the extent to which leaders “flexed” or “changed” the behaviors they exhibited to their followers over time rather than to suggest

that any one leadership type is superior to any other. Given this goal, this new approach to assess situationally-driven leadership was chosen because it avoided asking participants to fill out multiple items to assess each leadership type for each data collection period in order to minimize participant fatigue (Uy et al., 2010) and keep the total time for each ESM survey to three minutes or less which researchers consider reasonable (Hektner et al., 2007; Uy et al., 2010). The daily Cronbach's alphas ranged from .96 – .99 and the average was 0.98.

***Unit performance.*** Unit performance was assessed by supervisors in the evening for a total of 10 shifts using a six item scale from Williams and Anderson (1991). A sample item was “The unit met formal performance requirements of the job”. The daily Cronbach's alphas ranged from .59 – .97 and the average was 0.86.

***Unit OCBs.*** Unit OCBs were assessed by supervisors in the evening for a total of 10 shifts using a six item scale from Van Dyne and LePine (1998). A sample item was “Unit members assisted others with their work for the benefit of the whole unit” (helping behavior), and “Unit members spoke up with ideas for new projects or changes in procedures” (voice behavior). The daily Cronbach's alphas ranged from .87 – .98 and the average was 0.95.

***Organizational constraints.*** At Time 0 one week before the ESM portion of the data collection began, organizational constraints were measured using six items from Spector and Jex (1998). A sample item was “Organizational rules and procedures make it more difficult or impossible to do my job”. The Cronbach's alpha of this scale was 0.85.

***Daily control variables.*** Supervisors completed one question each day in the evening that assessed the extent to which a particular day was “a typical day on the job”

and allowed participants to write in comments about their day. This question was asked daily in order to account for important critical moments throughout the day (i.e. fires) that may have impacted some of the theoretical relationships specified in the model.

***Time 0 control variables.*** Demographic information including age, gender, full-time work experience, company tenure, team tenure, time with supervisor, and education was collected consistent with prior mindfulness scale validation studies (Baer et al., 2004; Brown & Ryan, 2003).

## **Analyses**

In order to account for the hierarchical data structure of the data and the inaccurate standard errors and biased statistical conclusions that result when the assumption of independence is violated (Bliese, 2000; Bliese & Hanges, 2004), it is necessary to account for the nested structure of the data (i.e. daily surveys nested within individuals). I thus tested hypotheses with multilevel modeling techniques. Because my theory is at the leader level (i.e. leaders adapting their leadership behaviors daily to best support their followers), I accounted for nesting by aggregating follower-reported situationally-driven leadership to the daily leader level which is in line with previous leadership studies (e.g. Kirkman, Chen, Farh, Chen, & Lowe, 2009; Rubin et al., 2005) after first ensuring proper interrater agreement values ( $r_{wg(j)}$ ; James, Demaree, & Wolf, 1984) and intraclass correlation coefficients, ICC(1) and ICC(2).

To test hypotheses 1-5, I used daily assessments of state mindfulness, self-regulation, situationally-driven leadership, unit performance, and unit OCBs (Level 1). Only the organizational constraints moderator was measured at Level 2, which was used to test Hypothesis 6. After aggregation, the data structure of the measurement model was

effectively two-level such that daily follower responses were nested within individual leaders and thus corresponded with a 1-1-1-1 model with a cross-level (level 2) moderator (Zhang, Zyphur, & Preacher, 2009). To test for multilevel mediation, I used the methods outlined in Preacher and colleague's work (Preacher, Zhang, & Zyphur, 2011; Preacher, Zyphur, & Zhang, 2010) with MPlus Version 6 (Muthén & Muthén, 2010) to utilize multilevel path modeling (Preacher et al., 2010). I treated each variable as a manifest (observed) variable. This approach was necessary in order to effectively parse the within and between variance and avoid inaccurate standard errors (Bliese, 2000) and at the same time to ensure model convergence given this complexity. Multilevel path modeling also allows for all hypotheses to be tested simultaneously (Preacher et al., 2010). I also utilized Stata 13.1 with the "mixed" procedure with "vce(robust)" and "residuals(ar1, time)" option in order to control for the effects of autoregression on the dependent variables across adjacent days of the data collection and compared my results to the Mplus output, which does not allow for the modeling of autocorrelation across adjacent days.

I centered all Level 1 variables at each person's mean value in order to improve the model interpretability and reduce confounding (Hofmann, Griffin, & Gavin, 2000; Zhang et al., 2009). I centered the Level 2 moderator, organizational constraints, at the grand mean. When variables are centered at Level 1 (within person), this effectively removes all Level 2 between variance and thus the level 1 variables are uncorrelated with the Level 2 (between-person) variables (Enders & Tofighi, 2007). This suggests that coefficients indicate pure within-person relationships at Level 1 and pure between-person relationships at Level 2.



In order to test the mediation hypotheses (Hypotheses 3, 5a, and 5b), I calculated compound coefficients which are not normally distributed (Edwards & Lambert, 2007; Shrout & Bolger, 2002). In order to adjust for this non-normal distribution, it is recommended that confidence intervals be generated via resampling methods to ensure that they do not exhibit bias (Shrout & Bolger, 2002). I used the Monte Carlo approach which allowed parameter-based bootstrapping to generate confidence intervals (<http://quantpsy.org>) developed by Preacher and colleagues using the R statistical package (Preacher & Selig, 2012), and I used this calculator to test the mediation hypotheses. Using this approach, if the 95% calculated confidence intervals of the indirect effects do not include zero, this indicates that the mediation hypotheses are supported.

Finally, in order to test the moderation hypothesis (Hypothesis 6), I followed the guidelines outlined by Edwards and Lambert (2007) which provide a framework for combining both mediation and moderation and overcomes some of the challenges of subgroup analysis (Wegener & Fabrigar, 2000) and the causal steps procedure (Baron & Kenny, 1986). Given where the moderator falls in my model, my model represents a first-stage moderation model (Edwards & Lambert, 2007) such that organizational constraints moderate the relationship between leader mindfulness and leader self-regulation. I tested whether the indirect effects varied across high and low levels of organizational constraints (one standard deviation above and below the mean) and calculated 95% Monte Carlo confidence intervals (Preacher & Selig, 2012). I utilized Dawson's (2014) Excel worksheet to plot the interaction effects (available from [www.jeremydawson.co.uk/slopes.htm](http://www.jeremydawson.co.uk/slopes.htm)).

## CHAPTER 5

### Results of the Main Study

Between-person correlations were calculated by aggregating daily-level variables to the leader level and are shown in Table 11. As a daily follower-rated variable, situationally-driven leadership was manually aggregated to the leader (unit) level by averaging the ratings of situationally-driven leadership across all followers of a given leader for each day. In order to justify aggregation, ICC(1), ICC(2), and  $r_{wg(j)}$  statistics were calculated for each day. ICC(1) values ranged from -.19 to .85 and the median daily ICC(1) was .09, ICC(2) values ranged from -.89 to .83 and the median daily ICC(2) was .28. Finally,  $r_{wg(j)}$  ranged from .72 to .99 with the standard deviation ranging from .01 to .43, and the average daily  $r_{wg(j)}$  was .85 with an average standard deviation of .85. In some cases the ICC(1) statistics were negative or close to zero, indicating that between group means had very little variability (Bliese, 2000). Table 12 displays the daily ICC(1), ICC(2), and  $R_{wg(j)}$  statistics computed using the Biemann, Cole, & Voelpel (2012) Excel tool.

-----  
Insert Tables 11 and 12 about here  
-----

Before testing the hypotheses, I calculated the percentage of variance at the daily and leader levels for each of the main study variables by estimating intraclass coefficients ICC (1). The percentage of daily-level variance of leader mindfulness that was attributable to within-leader daily variability was 72%, leader self-regulation was 18%, situationally-driven leadership was 74%, unit performance was 74%, and unit OCBs was 22%. These percentages suggest that there is sufficient variance at the daily level to

warrant testing hypotheses at the daily (within) level as consistent with recent mindfulness ESM studies (Hülshager et al., 2014).

Additionally, I conducted confirmatory factor analysis (CFA) to ensure the discriminant validity for the leader mindfulness, self-regulation, unit performance, and unit OCB variables for each day of data collection. I created parcels as indicators for each factor. I used the five dimension scores as indicators of mindfulness, the two dimension scores of helping behavior and voice behavior for OCBs, the three dimension scores of empathy, response flexibility, and emotional regulation for self-regulation, and created two dimension scores for performance (first dimension consisting of 1<sup>st</sup>, 4<sup>th</sup>, and 5<sup>th</sup> highest loading items, and the second dimension consisting of the 2<sup>nd</sup>, 3<sup>rd</sup>, and 6<sup>th</sup> highest loading items) according to the item-to-construct balanced approach suggested by Williams & O'Boyle (2008). As shown in Table 13, the baseline four-factor multilevel measurement model for Day 1 fit the data well:  $\chi^2(48) = 70.63$ ,  $p < 0.05$ ; CFI = 0.92; TLI = 0.89; RMSEA = 0.08. I then compared the three-factor baseline model to four alternative models to evaluate discriminant validity of the main study variables. The first alternative model was a one-factor model in which I loaded all variables on one factor. The model had poor fit to the data:  $\chi^2(54) = 134.12$ ,  $p < 0.01$ ; CFI = 0.70; TLI = 0.64; RMSEA = 0.15 and the chi-square difference test suggested that the model fit the data significantly worse than the four-factor model. This indicated that the four constructs were indeed distinct.

I ran an additional four, three-factor models by combining constructs together. All four models fit worse than did the baseline model. Specifically, Model 3 combined leader mindfulness and leader self-regulation, Model 4 combined unit performance and OCBs,

Model 5 combined leader self-regulation and unit, and Model 6 combined leader self-regulation and unit OCB. Given that sequential chi square difference tests demonstrated that each of the alternative models fit the data worse than the four-factor baseline model, I concluded that the study variables exhibit discriminant validity. I reran these analyses for each of the study days. On Day 5 and beyond, there were more parameters being estimated than observations which resulted in non-positive definite residual covariance matrices and thus untrustworthy model results. Chi square difference tests suggest that some of the alternative three-factor nested models did not fit the data significantly worse than the four-factor baseline model, but this could be due to the untrustworthy standard errors. It could also be that the leaders who filled out surveys on days 1-5 differed significantly from leaders on days 6-10 according to how they rated their own self-regulation, unit OCBs, and unit performance. The fact that combining these variables did not significantly reduce the overall model fit indicates that these constructs were not as clearly distinguished by leaders toward the end of the data collection as they were at the beginning of the data collection period. I show the results of the four-factor baseline and comparative models for Day 5 in the bottom part of Table 13.

-----  
Insert Table 13 about here  
-----

**Hypothesized Model and Alternative Model Comparisons**

I conducted nested model comparisons between my hypothesized model and a set of alternative models. Given that multilevel day (in this case, data collected over 10 days from the same leader) violates the assumption of variance independence (Hu, Bentler, & Kano, 1992), I used the Satorra-Bentler chi-square test to test whether there were

significant differences between the nested models (Satorra & Bentler, 1988) as the traditional chi-square difference test is not appropriate. I compared my hypothesized model to models in which I added direct paths from leader mindfulness and leader self-regulation to more distal constructs in the model which were not explicitly hypothesized. Table 14 shows the six alternative models I tested. I added a path between mindfulness and 1) situationally-driven leadership (Model Two), 2) performance (Model Three), and OCBs (Model Four) with no significant improvements in model fit demonstrated by the Satorra-Bentler adjusted chi square difference test. However, when I added direct paths from leader self-regulation to 1) performance (Model Five) and 2) OCBs (Model Six), the model exhibited a significantly better fit according to the Satorra-Bentler adjusted chi square difference test. Model 7 tested the model fit between the hypothesized model and a model adding one direct path from situationally-driven leadership to performance and one direct path from situationally-driven leadership to OCBs. Given the improvement in model fit over the baseline model, I selected Model 7 as the most parsimonious model to move forward with for hypothesis testing.

-----  
Insert Table 14 about here  
-----

### **Hypothesis Testing**

Hypotheses 1-5 were tested using a random intercept, fixed slope model. Figure 5 demonstrates the theoretical model and unstandardized path coefficients of the parsimonious model previously derived. The fit statistics indicated that the model fit was good ( $\chi^2(8) = .309$ , scaling correction factor = 1.47, RMSEA = .00, CFI = 1.00, TLI = 1.05, SRMR = .01). Leader mindfulness was significantly related to leader self-regulation

( $b = .16, p < .05$ ) on a daily basis when controlling for day and the daily-level “normal” variable, supporting Hypothesis 1. Hypothesis 2 was not supported as leader self-regulation was not significantly related to situationally-driven leadership on a daily basis ( $b = .05, ns$ ). Similarly, Hypotheses 4a and 4b which predicted that situationally-driven leadership would significantly relate to unit performance ( $b = .02, ns$ ) and unit OCBs ( $b = -.03, ns$ ) were not supported.

-----  
Insert Figure 5 about here  
-----

Results of the multilevel mediation model testing an indirect relationship between leader mindfulness and situationally-driven leadership (Hypothesis 3) did not support a significant indirect effect ( $b = .01, ns$ ) due to the non-significant relationship between leader self-regulation and situationally-driven leadership. Similarly, Hypotheses 5a and 5b which predicted that leader self-regulation and situationally-driven leadership together would mediate the relationship between unit performance ( $b = .00, ns$ ) and unit OCBs ( $b = .00, ns$ ) respectively, were not supported.

Analysis of the between and within correlation matrices showing the bivariate correlations between situational driven leadership items and scale items of the other study variables, revealed no significant correlations. Thus, it is not surprising that Hypotheses 2-5 were not supported given that this key variable in the mediation chain is unrelated to the other variables in the chain.

In order to test Hypothesis 6 which stated that the relationship between leader mindfulness and leader self-regulation depended on the level of organizational constraints experienced by leaders, I specified a random intercept, random slope model in which I

tested whether the relationship between leader mindfulness and leader self-regulation varied across levels of leaders' perceptions of their organizational constraints.

Organizational constraints did not predict slope variability between leader mindfulness and leader self-regulation ( $b = -.11, ns$ ). Thus, Hypothesis 6 was not supported.

In order to better understand the role of the context in influencing the relationships in the study, I tested a reduced model by removing situationally-driven leadership and testing whether leader self-regulation directly predicted unit performance and unit OCBs post-hoc and whether these relationships depended on the extent to which a given day was rated as “normal” by leaders. In other words, I wanted to see whether the relationship between leader self-regulation and follower unit outcomes depended on the particular day and what may have happened during that day. If a particular day was filled with many difficult situations (i.e. multiple casualties, etc.) and thus represented a “low normal” day, a leader’s level of self-regulation may be more important in determining the overall level of performance and OCBs of the unit. Results demonstrated that leader self-regulation significantly predicted unit performance ( $b = .32, p < .01$ ) as well as unit OCBs ( $b = .53, p < .01$ ) on a daily basis and as expected, there was a significant interaction of leader self-regulation and the level of day normality in predicting unit performance ( $b = -.12, p < .05$ ) and OCBs ( $b = -.23, p < .001$ ). To examine the nature of this significant interaction, I plotted simple slopes at one standard deviation above and below the mean of day normality (Aiken & West, 1991; see Figures 6 and 7). Unit performance and OCBs increased as levels of leader self-regulation increased but the relationship between these variables was stronger when workdays were less normal. Tests of the significance of the two simple slopes for unit performance yielded a nonsignificant simple slope for

individuals experiencing “high normal” days (+1 *SD*: estimate = .22, *ns*) and a significant simple slope for leaders experiencing “low normal days (-1 *SD*: estimate = .43,  $p < .001$ ). Tests of the significance of the two simple slopes for unit OCBs similarly yielded a nonsignificant simple slope for individuals experiencing “high normal” days (+1 *SD*: estimate = .33, *ns*) and a significant simple slope for leaders experiencing “low normal days (-1 *SD*: estimate = .72,  $p < .001$ ).

-----  
Insert Figures 6 and 7 about here  
-----

Next, I tested whether the indirect effects of leader mindfulness on unit performance and unit OCBs via leader self-regulation depended on the level of day normality. I multiplied the simple slopes predicting leader self-regulation (path a) with the coefficient of leader self-regulation predicting unit performance (path b), while the direct effect of leader mindfulness (path c’) was estimated. When leaders experienced days with *low* normality, the indirect effect via leader self-regulation on unit performance was nonsignificant and positive (.08, *ns*, 95% Monte Carlo bootstrapped CI = -.007, .19). When leaders experienced days characterized by *high* normality, the indirect effect was also nonsignificant and positive (.04, *ns*, 95% Monte Carlo bootstrapped CI = -.02, .15.) for unit performance. When leaders experienced days with *low* normality, the indirect effect via leader self-regulation on unit OCBs was nonsignificant and positive (.14, *ns*, 95% Monte Carlo bootstrapped CI = -.01, .33. Finally, when leaders experienced days characterized by *high* normality, the indirect effect was nonsignificant and positive (.07, *ns*, 95% Monte Carlo bootstrapped CI = -.01, .19). Given that all of the confidence



intervals included zero, I concluded that neither indirect effect was significantly moderated by day normality.

## CHAPTER 6

### Discussion

This study seeks to understand how leaders' ability to adapt their leader behaviors to meet the needs of followers and demands of the situation impacts the ultimate performance of their followers. The concept of mindfulness is introduced as an exogenous variable to explain how leaders are able to understand how to best support followers across a wide variety of changing needs and situations. The idea of situationally-driven leadership behavior is advanced which is not proposed as a new leadership type, but rather a more dynamic *approach* to understanding situational leadership which can better account for the constantly shifting leadership environment leaders face on a daily basis. I integrate mindfulness research which has largely been conducted within the realm of psychology and create and validate a measure of workplace mindfulness. Finally, this study utilizes a ten-day experience sampling methodology to test a three-chain mediation model, which explicates how leader mindfulness unfolds within the work environment by affecting the leader behaviors they exhibit to followers which then have important implications for followers' performance and organizational citizenship behaviors.

### Summary of Results

Results confirm that leader mindfulness is positively related to leader self-regulation (Hypothesis 1) but do not support the path between leader self-regulation and situationally-driven leadership (Hypothesis 2). Situationally-driven leadership does not significantly relate to either unit performance (Hypothesis 4a) or unit OCBs (Hypothesis 4b) nor do the tests of mediation confirm that self-regulation mediates the relationship

between leader mindfulness and situationally-driven leadership (Hypothesis 3) or that self-regulation and situationally-driven leadership together mediate the relationship between leader mindfulness and follower unit-level outcomes (Hypotheses 5a and 5b). Hypothesis 6 also is not supported in that organizational constraints do not moderate the path between leader mindfulness and leader self-regulation. In all, only the first path in the mediation chain is supported (Hypothesis 1).

I conducted post-hoc analyses in order to further explore the relationships between the variables in the study. I removed situationally-driven leadership and tested the relationship between a) leader self-regulation and unit performance and 2) leader self-regulation and unit OCBs as moderated by the extent to which a particular day is “normal” in the firehouse. Both of these relationships were positive and significant, as was the interaction of leader self-regulation and day normality on the dependent variables. The simple slopes reveal that when day normality is low, the slope is significant and positive between leader self-regulation and both unit performance and OCBs, but when day normality is high, the relationship between leader self-regulation and both outcomes is positive but the slope is not significant. This suggests that leader self-regulation is not vital for unit performance and OCBs when a day in the firehouse is normal, but significantly increases both performance and OCBs on days in which firefighters face many difficult situations. Tests of mediation and moderated mediation were not supported for this reduced model. Below, I discuss the theoretical and practical implications, future research directions, and the limitations of the current study.

## **Theoretical Contributions**

This study makes four primary theoretical contributions to the mindfulness literature broadly and to the mindfulness at work literature more specifically. The first contribution is expanding the conceptual bandwidth of the mindfulness construct and creating a measure that differentiates between different aspects of mindfulness. The most often used scale to measure mindfulness by Brown and Ryan (2003) is unidimensional and primarily assesses an individual's attention and awareness in the present moment. This scale exhibits positive and moderate relationships with each of the five dimensions of mindfulness of the newly created and validated mindfulness scale, suggesting that the Brown and Ryan (2003) scale does a good job of getting at a "core" idea of mindfulness, but in doing so, is only gently tapping aspects of each of the underlying dimensions of mindfulness that are often referred to within mindfulness theory (cf. Brown & Ryan, 2003; Brown et al., 2007; Shapiro et al., 2006). This study advances mindfulness theory by adding decentering as a fundamental component of mindfulness rather than an outcome of mindfulness. The current conceptualization of mindfulness suggests that recognizing the presence of one's ego being constantly activated in self-preservation mode, is a key component of enabling an individual to be present in the current moment. When individuals are less driven by their ego and reinforcing their self-value and worth, they exist more authentically within the here and now rather than being distracted by "head-talk" that pulls them away from the present moment and toward the future or the past.

A second theoretical contribution is to add to our understanding of how mindfulness is manifest in the work domain. The new conceptualization of mindfulness

created and validated in this study advances mindfulness theory at work by demonstrating that a broader conceptualization of mindfulness exhibits higher correlations with outcomes in the work domain than does the Brown and Ryan (2003) mindfulness measure. This makes sense theoretically given the more general nature of the items of the Brown and Ryan (2003) measure versus the more tightly worded items from the new conceptualization of workplace mindfulness that specifically taps into how mindfulness is manifest within the work domain. Thus, the expanded theoretical conceptualization of the mindfulness construct makes it more applicable to the work domain, and the new measure allows for a more nuanced understanding of mindfulness in the workplace rather than a general sense of being aware and paying attention that the Brown and Ryan (2003) scale provides.

The third theoretical contribution is an increased understanding of the specific processes underlying the impact of mindfulness in the work domain. The extent to which an individual at work is present in the current moment has implications for the regulatory behaviors they exhibit and ultimately how they interact with others. While previous research has suggested that one key outcome of mindfulness is self-regulation (Glomb et al., 2011; Shapiro et al., 2006), this study adds to mindfulness theory at work by explicating and testing the specific outcomes of mindfulness that allow leaders to connect with their followers (through empathy, affective regulation, and response flexibility). I thus distinguish between “other-oriented” outcomes of mindfulness (i.e. behaviors that directly or proximally influence one’s interactions with coworkers) by specifically including them in the theoretical model. This study excludes other behaviors discussed as outcomes of mindfulness such as decreased rumination and increased working memory

(Glomb et al., 2011), which likely impact the leader him/herself directly and followers more distally. I suggest that these processes may be of less interest for leaders in the work domain.

A fourth theoretical contribution is to add to our understanding of mindfulness as a state that exhibits high amounts of within-person variation. Mindfulness has been discussed as inherently a state of consciousness (Hanh, 1976) but often measured as a trait (Dane, 2010; Glomb et al., 2011). Recent studies (Hülshager et al., 2013; 2014) have utilized a reduced set of items from the Brown and Ryan (2003) measure which are worded more generally as to allow for them to be utilized to assess *state* mindfulness. In recent studies, within-person variation of mindfulness across days was shown to be 38% (Hülshager et al., 2013) and 47% (Hülshager et al., 2014) while in the current study, I found that 74% of the variation in mindfulness was due to within-person variation. This difference may exist due to the non-normal schedule worked by the firefighters (2 days on, 4 days off) which is very different than employees working a 9-5 job, five days a week (the context of the other two mindfulness studies). This high amount of within-person variation across days provides further support for conceptualizing mindfulness as a state.

Mindfulness may be best conceptualized as a state-like construct in the workplace given that individuals' thoughts come and go and largely are influenced by the events that occur on a given day. For example, a leader may come to work one day after having had an argument with his/her partner and may be replaying the conversation over and over in his/her head. If this individual filled out a measure of trait mindfulness on this particular morning, he/she would likely score lower on mindfulness than if he/she hasn't had that

particular incident occur previously. Thus, it may be much more accurate and informative to measure individuals' levels of state mindfulness at multiple points in time to empirically derive an "average" level of mindfulness that is more indicative of their trait mindfulness than it is to collect a measure of trait mindfulness at one point in time. That being said, individuals will exhibit higher or lower average levels of mindfulness across a wide variety of situations but based on the results of the current study, it may be more instructive to consider state mindfulness aggregated over time to best understand how mindfulness operates within the work environment to affect important outcomes.

### **Plausible Explanations of Findings**

Although a number of hypotheses related to leadership are not supported, the results suggest some ideas for future research which may help elucidate why I did not find what I expected and offers some direction for future research studies. Below I discuss possible reasons for these results.

The measure of situationally-driven leadership is one plausible explanation for the lack of significant findings. The fact that follower-rated situationally-driven leadership demonstrates very disparate ICC(1) values across days ranging from negative to highly positive suggests that for some days, all leaders were rated very similarly (i.e. very little or in some cases, *no* between leader variance), while on other days, there were very high levels of between leader variance [i.e. ICC(1) of .85]. Together with evidence that individual followers took the daily survey multiple times a day in some cases (to apparently make up for having missed prior survey dates) with differing scores attributed to their leader's situationally-driven leadership across each instance, I suggest that the situationally-driven leadership variable may include high amounts of error variance.

Although these individuals were removed from the database before data analysis, the fact that these rating patterns occurred diminishes some confidence in the quality of the follower-rated data, especially given that this did not occur among leader respondents.

The high range of ICC(1) values supports this line of thinking, as some days random responding by followers could lead to high levels of between-leader variance and for other days, this could lead to low levels of between-leader variance. This is especially likely given that roughly 20% of the participants who filled out a Day 1 survey for their leader also filled out a Day 10 survey for their leader. This attrition is significant because whereas on Day 1 a leader's situationally-driven leadership aggregate score likely represented three followers' average perception of their leader, as the data collection period progressed, each leader's situationally-driven leadership value for a given shift was more likely to be derived from fewer followers' perceptions of their leaders' behaviors. When three versus two followers rated a leader for each day, the effect of random responding could be even more severe. Analyses support the idea that attrition may have been problematic, given the differences in overall model fit between the early days of data collection and the final days (e.g. see Table 13).

In order to understand why the situationally-driven leadership variable may have behaved the way it did, it is useful to draw on the research of Johns (2006). He notes that organizational context can have a major impact on research in industrial and organizational psychology, and most researchers ignore the role of context when interpreting empirical results. Two levels of context are at play in the particular sample—the organizational characteristics that provide context for individuals in the workplace, and the external environment which further provides context for the organization



(Cappelli & Scherer, 1991). As Johns (2006) states, context can serve as a main effect or interact with personality variables to affect organizational phenomenon. Below, I articulate how both the omnibus and discrete context (Johns, 2006) of a firehouse, the relationships followers have with their leaders, and how the external environment may have attenuated the results.

In the current study, context exhibited a “strong situation” (Mischel, 1968; 1977) in which employees were subject to rigid roles and agreed-upon norms, which limited the expression of their individual behaviors for both leaders and followers. The firehouse context can be viewed as an environment that exhibits a force on organizational actors (Lewin, 1951) which provides both behavioral constraints as well as behavioral opportunities that ultimately play out in determining organizational behavior (Johns, 1991). The environment in a firehouse is characterized by very close working quarters and comradery among coworkers and leaders and is thus very different from the typical arrangement in corporate America where leaders and followers do not typically respond to life-threatening situations on the front lines together.

This tight-knit community atmosphere could act as a constraint (Ross & Nisbett, 1991) in limiting the likelihood that crew members would rate their captain’s leadership poorly, for example, given the strong norm of solidarity and the familial structure that exists within a firehouse. On the other hand, such a strong environment reinforces other organizational norms like being able to switch between tasks that have various levels of importance, predictability, and danger all at a moment’s notice (Colquitt, LePine, Zapata, & Wild, 2011). In both cases, the context plays a role in determining the behavior of individuals.

The current study design is a second plausible explanation for the lack of significant findings. Specifically, the current study design does not allow me to assess the extent to which leaders actually needed to adapt their behavior to meet situational demands. If there is no need to adapt, then there is no need for situationally-driven leadership. A core argument I make in the study is that mindful leaders are better able to understand the needs of their followers and the situation as they continually change. An underlying assumption is that the situation and the needs of followers do indeed change and that the leader changes his/her behaviors according to these needs. In the current study I conceptualize these behaviors as leadership types (i.e. transformational, servant, change-oriented, etc.) and ask followers to rate how well their leaders exhibited each type of leadership behavior daily according to how much it is needed. The particular context of the current study may have required that I study additional variables as well (such as openness for change) in order to understand the extent to which leader behaviors would be expected to change on a daily basis (Johns, 2006). Given that “fire departments are places where progress is hindered by tradition” (actual quote gleaned from a follow-up interview with a firefighter), it is likely that this strong culture reinforces hierarchy, tradition, and span of control rather than valuing changing leader behaviors on a daily basis.

For example, Dane (2011) posits that the wide internal and external breadth aspects of mindfulness may either have a positive or negative relationship with task performance depending on the moderating variables of task expertise and the level of dynamism in the task environment. Within the context framework articulated by Johns (2006), these moderating variables form aspects of the *discrete context*. When task

expertise is high and the level of environment dynamism is high, mindfulness is expected to relate positively to task performance whereas when task expertise is low and the environment is very static, mindfulness is expected to hinder task performance. Given the nature of the work in a firehouse, which is characterized by repetitive tasks when not responding to emergency situations (such as checking fire hydrants and washing the fire trucks), a firehouse may exhibit many of the characteristics in which Dane (2011) suggests may not be benefitted by mindfulness. On the other hand, when responding to emergency situations, task expertise is high and the environment is very dynamic. In such situations (which are generally the minority of time on a given shift), mindfulness may be a vital asset which aids in improved task performance. Follow-up conversations with the organizational contact confirmed that this characterization of task expertise and dynamic environment is indeed accurate when responding to emergency situations and it is during these times that mindfulness would likely be most beneficial.

The results of the post-hoc analysis lend some credibility to this line of thinking in that the daily-level moderator of “day normality” (which assumed that a normal day was characterized by low dynamism) significantly impacted the relationship between leader self-regulation and the performance and level of OCBs exhibited by a leader’s unit. In other words, when leaders exhibited higher self-regulation, their units performed better, and this was especially true when the day in the firehouse was characterized by dynamism and multiple events that were out of the norm for a typical day (e.g. the simple slope of leader self-regulation predicting unit performance and unit OCBs was not significant when day normality was high).

In hindsight, more questions around how firefighters' viewed each particular shift and whether the shift itself called for a different set of behaviors or instead was a very routine day, would have further allowed me to understand how specific shifts may have unfolded and whether situationally-driven leadership was a relevant variable for the work environment in general. Given the null findings associated with this variable, it suggests that in the particular context of a firehouse, leaders engaging in different leadership behaviors that change based on the needs of the firefighters and of the particular shift, simply may not be relevant.

Moreover, when firefighters responded to the questionnaire about their leaders' behaviors, their frame of reference may have been specifically directed at either the routine, low complexity/low danger aspects of the day or the more complex/dangerous aspects of the day that involved fighting fires and putting oneself in harm's way. In other words, without specifically providing a reference point for firefighters to have them focus on a particular aspect of the shift (i.e. firefighting situations or chores around the firehouse), crew members' ratings of captain leadership behaviors may include a lot of noise and variation which could have contributed to the lack of findings with this variable.

A third plausible explanation for the null results could have been that there exists other mediating and moderating mechanisms that account for the relationship between leader self-regulation and leadership behavior (i.e. the relationship between self-regulation and leadership is more distal than the current model assumed). For example, in a working paper, Reb, Narayanan, Chaturvedi (2013) found that leaders who are more mindful have higher quality relationships with their subordinates and that this

relationship quality mediated the relationship between leader mindfulness and follower outcomes such as task performance and job satisfaction. Relationship quality provides one important mediating mechanism, but also opens up another question—why do mindful individuals form better relationships with others? The ability to self-regulate behavior through the processes of empathy, behavioral flexibility, and affective regulation as found in the current study and discussed in Reb et al. (2013) shed some light on this question, but future studies should test which of these processes most strongly predicts relationship quality and whether there are other predictors of relationship quality that flow from mindfulness and its proximal outcomes.

One theoretical contribution that was not supported in this dissertation was my new conceptualization of a more dynamic approach to situational leadership. As discussed earlier, previous conceptualizations of situational leadership have suggested that leadership behaviors should take information into account both from followers and from the situation. The missing link however, has been time—these approaches have not taken into account the influence of time and how leader behaviors that are uniquely matched to meet the needs of followers and the situation at one point in time may not be as relevant at another point in time when needs have changed. While the results in this study support the idea that leader behaviors do indeed change over time (given that there did exist some within-leader variance in situationally-driven leadership), it is not certain whether these fluctuations are reliably captured by followers as previously discussed. The current results thus do not shed light on whether followers would benefit (i.e. better performance and higher OCBs) from leader behaviors that change over time despite the theoretical support for such thinking.

Furthermore, the current study design does not allow for conclusions to be drawn about how *much* change is required over time to meet the needs of the situation and of followers. In other words, the extent to which followers and leaders perceive that situations continuously call for adapting behaviors is important to consider in future research. It could be that in some contexts or environments (such as within fire departments), fluctuations of leader behaviors is simply not expected or desired on the part of followers, as this could be confusing and debilitating to followers given their reliance on having very structured procedures and processes to deal with dangerous and traumatic situations. This raises the point that the assumptions underlying management of for-profit firms which continually need to innovate to stay relevant, may be very different than those governing nonprofit, government, or (para)military organizations.

In line with this thinking, Starik and Marcus (2000) called for more research that looks at different contexts such as military organizations in their introduction to the special issue of organizations in the natural environment. While this special issue primarily focused on how organizations exist within and impact the natural environment, the implications are extensive for organizations whose primary purpose is to serve the larger environment and society (such as a fire department). The extent to which organizations exist primarily to *stabilize* and *preserve* order and control in a given situation by putting out fires (i.e. return a chaotic situation back to equilibrium), could be an important factor in determining whether differences in perceptions of how leaders change to situations may be institutionally constrained or reinforced (Ross & Nisbett, 1991). Future research should include this as a boundary condition within models of

situational leadership broadly and models of situationally-driven leadership more specifically.

### **Future Research Directions**

There are at least five important directions for future research that can build off of the findings of the current study. First, future research should continue to utilize the current mindfulness scale as well as the Brown and Ryan (2003) scale in order to investigate how mindfulness interventions lead to changes in state and trait mindfulness over time. Teasing apart the predictive power of average levels of state mindfulness versus the predictive power of trait mindfulness will further contribute to mindfulness theory and to our understanding of mindfulness in the workplace.

Second, future research should include more aspects of the context by further investigating and empirically testing Dane's (2011) propositions to tease apart how elements of the context such as task complexity, task expertise, and stability/dynamism play a role in how leader mindfulness flows through an organization. Johns' (2006) suggestions to interweave discussions of the who, what, where, when, and why of the larger organizational (omnibus) context to tell a compelling research story (Daft, 1995), would be a good place to start by more fully articulating the role that the organizational context plays when studying organizational phenomena.

Third, future research should seek to better understand the relationships crewmembers in the firehouse have with their leaders and with each other. For example, if there are rifts between team members and/or their leader, this could contribute to disparate leader ratings by team members which could lead to low ICC(1) agreement values across days. Other potentially interesting and relevant variables to study in tandem

with mindfulness could be humility (Ou, Tsui, Kinicki, Waldman, Xiao, & Song, 2014), emotional carrying capacity ( ), learning orientation (Bunderson & Sutcliffe, 2003; Dweck, 2000), and compassion (Madden, Duchon, Madden, & Plowman, 2012). These variables may be very important in helping researchers understand the mediating mechanisms by which leader mindfulness filters throughout the organization. It is possible that mindfulness primarily has its impact on leader behaviors through relationship quality rather than directly on leader behaviors as suggested in the current study.

Fourth, future research should also consider potential moderators that may impact the relationship between these mediating variables and leadership behaviors. For example, if followers are rating their leader's behaviors, the extent to which these followers are mindful may play an important role in determining whether their ratings are accurate and in tune with the leader's intentions rather than biased by the followers' own views of their leader or judgments they may make about him/her. In sum, while the current study does not find support for a positive relationship between leader self-regulation and situationally-driven leadership, future theoretical and empirical work should focus on further explicating the mediating and moderating mechanisms by which leader mindfulness transfers to followers in the organizational context. Integrating a more follower-centric approach to leadership (Bligh, 2011; Shamir, 2007) by including both leader and follower mindfulness as well as studying the contagion effects of mindfulness across organizational members, are two additional ways to advance the study of mindfulness in the workplace in the future.



Finally, future research should further consider and test the theoretical distinction made in this study between those outcomes of mindfulness that proximally impact the performance of the *leaders* themselves (e.g., decreased rumination and increased working memory) versus the outcomes which proximally impact follower work outcomes (e.g., empathy, affective regulation, and response flexibility). As suggested by Glomb et al. (2011), mindfulness affects multiple outcomes via a diversity of mechanisms. Future research should aim to tease apart the relative strength of each of the relationships between mindfulness and its intermediary outcomes as well as how strongly these intermediary outcomes then in turn predict specific organizational outcomes.

### **Limitations**

This study has three primary limitations. First, the sample consists of firefighters from a local fire department, which raises the question of the generalizeability of the results to more traditional 9-5 corporate working environments. Firefighters spend considerable amounts of time working, eating, sleeping, and interacting only with other members of their crew for a period of 48 hours straight which includes alternating periods of high stress and danger interspersed with a lot of time spent doing routine tasks. They then have little work contact with their fellow crew members for a period of 96 hours. These features of a fire department make it a very different environment than corporate employees who typically work 9-5, spend little to moderate amounts of time working closely with their co-workers, and see each other daily rather than in intense bursts followed by four days of little contact. Future research should test the theoretical model proposed in the current study using a more traditional corporate setting as this environment may prove to be a much more fertile ground for observing the situationally-

driven leadership behaviors that are a vital component of the current theory but were not observed within the context of the current study.

A second limitation is that the current study does not allow for causal conclusions to be drawn between mindfulness and self-regulation. I avoid causal language but the hypotheses proposed in this study suggest that mindfulness precedes self-regulation rather than self-regulation preceding mindfulness. This is consistent with mindfulness theory (Glomb et al., 2011; Shapiro et al., 2006), but it is possible that the causal direction is reversed or at least reciprocal and future research should examine this possibility. In addition, this study does not allow for both the relationships between study variables to be tested at both the between and within-leader level due to the small sample size at the between-leader level. While the current procedure of person-mean centering study variables to remove between-person variance is typical of studies employing an event-sampling methodology, a larger sample size at the between-person level would have allowed me to test the hypotheses at the between level as well as to test for the presence of emergent effects similar to the recent work of Hülshager and colleagues (2014).

Finally, given that the current sample represents a strong culture (Mischel, 1968; 1977), perhaps I was unable to attain the expected results because this strong culture limited leadership variability. Interaction frequency between leaders and followers may have also played an important role in influencing my results. For example, frequency of interaction may be relatively low in highly normal situations (around the firehouse) where unit members execute the tasks laid out for them with minimal interaction with their captains. However, frequency and intensity of leader-follower interaction may be

much stronger when operating in emergency situations such that the real “value” of a leader emerges under non-normal (i.e. emergency) situations. Research on leadership in extreme and dangerous contexts (Campbell, Hannah, & Matthres, 2010; Hannah, Uhl-Bien, & Avolio, 2009) suggests that it is important to take into account variables that act as “attenuators” and “intensifiers” to determine the ultimate level of adaptability demonstrated by leaders in such contexts. Future research should take into account a fuller range of such variables in order to better understand the context and predict the ultimate emergence of leader adaptive behavior.

### **Practical Contributions**

The current study has at least five practical contributions. The first is that the current conceptualization and measurement of leader mindfulness introduces a new tool for managers and practitioners to track individuals’ levels of mindfulness over time. Mindfulness interventions and workshops are increasingly being offered at multiple organizations across the world. For example, Google has offered its employees a mindfulness-based training program called “Search Inside Yourself” since 2007 in which employees focus on three main activities—attention training, self-knowledge and self-mastery, and creating useful mental habits (Tan, 2014). Employees have seen improvements in their ability to manage their emotions, how they react to stressors, their levels of compassion toward others, and have learned how to accomplish more by giving themselves the mental and physical space to clear the head and calm their racing thoughts.

Aetna similarly offers employees free yoga and meditation classes, which has led to increased levels of employee productivity and reduced reports of stress and pain

(Gelles, 2015). The mindfulness instrument designed in the current study provides an additional tool for companies such as Google and Aetna who are leading the way among Fortune 100 companies in integrating mindfulness-based practices to help employees achieve higher levels of well-being. The new measure validated in this study can help employees better understand their strengths and opportunities when it comes to integrating mindfulness more holistically into their work and personal lives given the multidimensional nature of the new instrument. For example, individuals can learn that they may be weak on the ability to decenter in the moment but strong on being aware of internal and external stimuli in the moment. This may lead to improved self-awareness and to the development of more effective interventions targeted toward improving specific aspects of mindfulness.

Second, the current study aids in further demystifying the mindfulness construct and normalizing its relevance and applicability to the workplace. Organizational scholars have been slow to integrate mindfulness perhaps because some have equated it with Eastern practices of spirituality, lack of understanding, or have dismissed it as simply the newest “fad” in management (see Fiol & O’Connor, 2003 for a discussion of mindfulness and bandwagons). However, given its age-old practice and focus on how to truly connect with the world and the people in it, mindfulness has a vital place within our organizations given the importance of working in harmony with those around us in an organization to ensure its success. As people are increasingly seen as an organization’s “most valuable asset” (Duncan, 2013), mindfulness will only continue to become more relevant as it makes genuine and compassionate interactions between organizational members more likely and frequent. Additionally, given that organizations are always trying to find ways

to develop employees, the current results which suggest that mindfulness is highly variables across days (a state-like variable), is highly useful information for human resource and training departments. These departments seek to *develop* employees already working at a company, rather than solely relying on trait assessments of personality to aid in *selection* of employees.

Third, the current conceptualization of mindfulness is very accessible for organizational employees because it presents mindfulness more as a series of behaviors than a philosophical way of viewing the world. While mindfulness is indeed a way of viewing the world, this conceptualization may not appeal to many organizational employees as it may seem foreign and too “touchy-feely” for wide adoption. However, the way I discuss mindfulness distills its underlying principles into practical ways in which individuals can connect more authentically with others in the workplace or gain additional insight into their own biases and ways of processing information. Former CEO of Aetna Ron Williams used to challenge his employees to think about “how much better our workplaces would be if we all *assumed positive intent* on behalf of everyone with whom we interacted”. When employees are mindful, I suggest that they *do* assume the best from others given that they are less likely to be driven by the need to reinforce their own egos. When individuals escape from this ego-based processing, they can more authentically connect with their coworkers.

Fourth, this study has practical implications related to the relationship between leader self-regulation and follower outcomes. Training leaders how to more effectively self-regulate their behaviors is a powerful way to create organizational cultures in which respect permeates across all organizational levels and workplaces become characterized

by adaptability and responsibility. In his new book, *The Responsible Leader: Developing a Culture of Responsibility in an Uncertain World*, author Tim Richardson suggests that there are four primary characteristics exhibited by responsible leaders who can achieve true organizational change (Richardson, 2015).

The first is internal assuredness which consists of avoiding irrational swings in emotions and behaviors by not getting caught up in the moment. Second, leaders are adaptable and adopt a learning orientation in which they are not judgmental but rather open to new ways of doing things by genuinely connecting with and engaging with others. Third, leaders recognize the importance of existing in harmony with others—as interdependent co-creators rather than autocratic, individual contributors. Finally, responsible leaders exhibit purpose and focus, which is manifest by focusing on *others* rather than just on oneself and committing one’s full energy and attention toward achieving a higher purpose. In sum, through the processes of empathy, behavioral flexibility, and affective regulation, mindful leaders are well on their way to becoming more responsible leaders who can lead their organizations effectively through change initiatives. Self-regulation thus represents an important mechanism by which leaders can further develop their ability to be responsible leaders and represents a vital training tool that can be utilized by managers and practitioners alike. This is especially relevant given the highly positive correlation between self-regulation and performance and OCBs demonstrated in the current study.

Finally, although the results do not support many of the leadership ideas proposed in the study, the complexity of the new approach to understanding situational leadership approach is hard to capture. While I cannot say for sure why there was no support for the

dynamic approach to leadership that I believe mindful leaders are better able to display over their less mindful counterparts, it could be that leadership behaviors in general are harder to flex and change based on the needs of the situation than I previously thought. At face value, the results reinforce that perhaps researchers need to be open to recognizing that leaders may simply be set in their styles and behavioral ways despite their levels of mindfulness. Future research should further seek to untangle this fascinating and elusive question regarding leaders' ultimate ability to "flex" their behaviors to meet the needs of dynamically changing environments.

## **Conclusion**

This study validates a new measure of workplace mindfulness to assess mindfulness specifically at work in a way that allows researchers and practitioners to better understand the subtleties of the construct. Previous theoretical work on mindfulness has suggested that one of the primary outcomes of mindfulness is self-regulation (Glomb et al., 2011; Shapiro et al., 2006) but empirical tests of this link have largely been missing within the literature. The current study confirms that leaders' daily levels of mindfulness in the morning of a work shift predict their levels of self-regulation at the end of the workday. This dissertation advances mindfulness theory by examining mindfulness within the workplace and adds to the small number of mindfulness studies currently published in the management literature (Hülshager, 2013; 2014). With the exception of one published empirical study (e.g. Hülshager et al., 2013) and one theoretical piece (Dane, 2011), outcomes such as employee performance have not yet been fully considered in mindfulness studies which has limited the traction of the mindfulness construct within the business realm. By integrating mindfulness, self-

regulation, and leadership literatures, I provide and test a model which is both theoretically and practically interesting and introduces the relevance of mindfulness to the workplace.



## REFERENCES

- Agarwal, R., & Karahanna, E. (2000). Time flies when you're having fun: Cognitive absorption and beliefs about information usage. *MIS Quarterly*, 24, 665-694.
- Aguinis, H., Pierce, C. A., & Culpepper, S. A. (2009). Scale coarseness as a methodological artifact: Correcting correlation coefficients attenuated from using coarse scales. *Organizational Research Methods*, 12(4), 623-652.
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Akaike, H. (1987). Factor analysis and AIC. *Psychometrika*, 52(3), 317-332.
- Allen, P. A., Kaut, K. P., & Lord, R. R. (2008). Emotion and episodic memory. In E. Dere, A. Easton, L. Nadel, and JP Juston (Eds.), *Handbook of Behavioral Neuroscience: Episodic Memory Research* (pp. 115-132). New York: Elsevier.
- Allen, T. D., & Kiburz, K. M. (2012). Trait mindfulness and work-family balance among working parents: The mediating effects of vitality and sleep quality. *Journal of Vocational Behavior*, 80, 372-379.
- Alwin, D. F., & Krosnick, J. A. (1991). The reliability of survey attitude measurement the influence of question and respondent attributes. *Sociological Methods & Research*, 20(1), 139-181.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411-423.
- Arnold, J. A., Arad, S., Rhoades, J. A., & Drasgow, F. (2000). The empowering leadership questionnaire: The construction and validation of a new scale for measuring leader behaviors. *Journal of Organizational Behavior*, 21(3), 249-269.
- Ashkanasy, N. M., & Tse, B. (2000). Transformational leadership as management of emotion: A conceptual review. In N. M. Ashkanasy, C. E. J. Hartel, & W. J. Zerbe (Eds.), *Emotions in the workplace: Theory, research and practice* (pp. 221-235). Westport, CT: Quorum Books.
- Avolio, B. J. (1999). *Full Leadership Development: Building the Vital Forces in Organizations*. Thousand Oaks, CA: Sage.
- Avolio, B. J., & Sosik, J. J. (1999). A life-span framework for assessing the impact of work on white collar workers. In S. L. Willis & J. D. Reid (Eds.), *Life in the*

- Middle: Psychological and Social Development in Middle Age* (pp. 251-274). San Diego, CA: Academic Press.
- Avolio, B. J., Bass, B. M., & Zhu, F. W. W. (2004). *Multifactor Leadership Questionnaire: Manual and Sampler Set*. Menlo Park, CA: Mind Garden.
- Avolio B.J., Gardner W.L., Walumbwa F.O. (2007). *Authentic leadership scale* (ALQ Version 1.0 Self). Redwood City, CA: Mind Garden.
- Avolio, B. J., Walumbwa, F. O., & Weber, T. J. (2009). Leadership: Current theories, research, and future directions. *Annual review of psychology*, *60*, 421-449.
- Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice*, *10*, 125–143.
- Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report the Kentucky inventory of mindfulness skills. *Assessment*, *11*(3), 191-206.
- Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, *13*(1), 27-45.
- Bandura, Albert (1976). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes*, *50*(2), 248-287.
- Bargh, J. A. (1990). Auto-motives: Preconscious determinants of social interaction. In E. Higgins, and R. Sorrentino (Eds.), *Handbook of Motivation and Cognition* (Vol 2, pp. 93-110). New York: Guilford.
- Bargh, J. A. (1994). The four horsemen of automaticity: Intention, awareness, efficiency, and control as separate issues. In R. S. Wyer, & T. K. Srull (Eds.), *Handbook of social cognition: Vol. 1, Basic processes* (2nd ed., pp. 1–40). Hillsdale, NJ: Erlbaum
- Bargh, J. A., & Chartrand, T. L. (1999). The unbearable automaticity of being. *American Psychologist*, *54*, 462–479.
- Barnes, S., Brown, K. W., Krusemark, E., Campbell, W. K., & Rogge, R. D. (2007). The role of mindfulness in romantic relationship satisfaction and responses to relationship stress. *Journal of marital and family therapy*, *33*(4), 482-500.

- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173.
- Bass, B. M. (1985). *Leadership and Performance Beyond Expectations*. New York: Free Press.
- Bass, B. M. (1990). *Bass and Stogdill's handbook of leadership*. New York: Free Press.
- Bass, B. M. & Avolio, B. J. (1993). Transformational leadership: A response to critiques. In M. M. Chemmers & R. Ayman (Eds), *Leadership Theory and Research: Perspectives and Directions*, (pp. 49–88). San Diego, CA: Academic Press.
- Bass, B.M. & Riggio, R.E. (2006), *Transformational Leadership*. Mahwah, NJ: Lawrence Erlbaum.
- Baumeister, R. E., & Sommer, K. L. (1997). Consciousness, free choice, and automaticity. In Wyer, R. S. (Ed.), *Advances in social cognition* (Vol. 10, pp. 75–82). Mahwah, NJ: Lawrence Erlbaum.
- Beal, D. J., & Weiss, H. M. (2003). Methods of ecological momentary assessment in organizational research. *Organizational Research Methods*, *6*(4), 440-464.
- Beard, A. (2014). Mindfulness in the age of complexity: An Interview with Ellen Langer. *Harvard Business Review (Reprint R1403D)*, March, 1-7.
- Bersin, J. (2014). Why companies fail to engage today's workforce: The overwhelmed employee. *Forbes*, March 15, 2014. Retrieved from: <http://www.forbes.com/sites/joshbersin/2014/03/15/why-companies-fail-to-engage-todays-workforce-the-overwhelmed-employee/>.
- Bieling, P. J., Antony, M. M., & Swinson, R. P. (1998). The state-trait anxiety inventory, Trait version: Structure and content re-examined. *Behavior Research and Therapy*, *36*, 777-788.
- Biemann, T., Cole, M. S., & Voelpel, S. (2012). Within-group agreement: On the use (and misuse) of rwg and rwg(j) in leadership research and some best practice guidelines. *The Leadership Quarterly*, *23*, 66-80.
- Birkinshaw, J., Hamel, G., Mol, M. J. (2008). Management innovation. *Academy of Management Review*, *33*, 825-845.
- Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., ... & Devins, G. (2004). Mindfulness: A proposed operational definition. *Clinical psychology: Science and practice*, *11*(3), 230-241.

- Blanchard, K. H., Zigarmi, D., & Nelson, R. B. (1993). Situational Leadership® after 25 years: A retrospective. *Journal of Leadership & Organizational Studies*, 1(1), 21-36.
- Blau, P. M. (1964). Exchange and power in social life. New York: Wiley.
- Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations* (pp. 349-381). San Francisco: Jossey-Bass.
- Bliese, P. D., & Hanges, P. J. (2004). Being both too liberal and too conservative: The perils of treating grouped data as though they were independent. *Organizational Research Methods*, 7(4), 400-417.
- Bligh, M. C. (2011). Followership and follower-centred approaches. In A. Bryman, D. Collinson, K. Grint, B. Jackson, and M. Ulh-Bien (Eds), *The Sage Handbook of Leadership*, (pp. 425-436). Los Angeles, CA: Sage.
- Block-Lerner, J., Adair, C., Plumb, J. C., Rhatigan, D. L., & Orsillo, S. M. (2007). The case for mindfulness-based approaches in the cultivation of empathy: Does nonjudgmental, present-moment awareness increase capacity for perspective-taking and empathic concern? *Journal of Marital and Family Therapy*, 33(4), 501-516.
- Bohlmeijer, E., Prenger, R., Taal, E., & Cuijpers, P. (2010). The effects of mindfulness-based stress reduction therapy on mental health of adults with a chronic disease: A meta-analysis. *Journal of Psychosomatic Research*, 68, 539–544.
- Bollen, K. A. (1989). *Structural equations with latent variables*. New York: Wiley.
- Bommer, W. H., Rubin, R. S., & Baldwin, T. T. (2004). Setting the stage for effective leadership: Antecedents of transformational leadership behavior. *The Leadership Quarterly*, 15(2), 195-210.
- Bowers, D. G., & Seashore, S. E. (1966). Predicting organizational effectiveness with a four-factor theory of leadership. *Administrative Science Quarterly*, 11, 238-263.
- Brahm, A. (2006). *Mindfulness, bliss, and beyond: A meditator's Handbook*. Boston: Wisdom Publications.
- Brief, A. P., & Weiss, H. M. (2002). Organizational behavior: Affect in the workplace. *Annual Review of Psychology*, 53(1), 279-307.

- Brown, K. W., & Kasser, T. (2005). Are psychological and ecological wellbeing compatible? The role of values, mindfulness, and lifestyle. *Social Indicators Research, 74*, 349–368.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*(4), 822.
- Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry, 18*(4), 211-237.
- Brunswick, E. (1949). *Systematic and representative design of psychological experiments*. Berkeley: University of California Press
- Buchheld, N., Grossman, P., & Walach, H. (2001). Measuring mindfulness in insight meditation (Vipassana) and meditation-based psychotherapy: The development of the Freiburg Mindfulness Inventory (FMI). *Journal of Meditation and Meditation Research, 1*, 11–34.
- Bunderson, J. S., & Sutcliffe, K. M. (2003). Management team learning orientation and business unit performance. *Journal of Applied Psychology, 88*(3), 552-560.
- Cameron, K. S., Bright, D., & Caza, A. (2004). Exploring the relationships between organizational virtuousness and performance. *American Behavioral Scientist, 47*(6), 766-790.
- Campbell, D. J., Hannah, S. T., & Matthews, M. D. (2010). Leadership in military and other dangerous contexts: Introduction to the special topic issue. *Military Psychology, 22*, S1-S14.
- Cappelli, P. and Scherer, P. D. (1991). The missing role of context in OB: the need for a meso- level approach. *Research in Organizational Behavior, 13*, 55-110.
- Carmeli, A., & Gittell, J. H. (2009). High-quality relationships, psychological safety, and learning from failures in work organizations. *Journal of Organizational Behavior, 30*(6), 709-729.
- Carver, C. S., & Scheier, M. F. (1981). *Attention and self-regulation: A control-theory approach to human behavior*. New York: Springer-Verlag.
- Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. New York: Cambridge University Press.
- Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate*

- Behavioral Research*, 1(2), 245-276.
- Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., & Boudreau, J. W. (2000). An empirical examination of self-reported work stress among US managers. *Journal of Applied Psychology*, 85(1), 65.
- Chiesa, A., & Serretti, A. (2009). Mindfulness-based stress reduction for stress management in healthy people: a review and meta-analysis. *The Journal of Alternative and Complementary Medicine*, 15(5), 593-600.
- Chiesa, A., & Serretti, A. (2011). Mindfulness based cognitive therapy for psychiatric disorders: a systematic review and meta-analysis. *Psychiatry Research*, 187(3), 441-453.
- Cohen, P., Cohen, J., West, S., & Aiken, L. (2003). *Applied Multiple Regression/Correlation for the Behavioral Sciences* (3rd ed.). NY: Routledge.
- Cohen, J. S., & Miller, L. J. (2009). Interpersonal mindfulness training for well-being: A pilot study with psychology graduate students. *Teachers College Record*, 111, 2760-2774.
- Collard, P., Avny, N., & Boniwell, I. (2008). Teaching mindfulness based cognitive therapy (MBCT) to students: The effects of MBCT on the levels of mindfulness and subjective well-being. *Counselling Psychology Quarterly*, 21, 323-336.
- Colquitt, J. A., Baer, M. D., Long, D. M., & Halvorsen-Ganepola, M. D. (2014). Scale indicators of social exchange relationships: A comparison of relative content validity. *Journal of Applied Psychology*. doi: 10.1037/a0036374
- Colquitt, J. A., Scott, B. A., & LePine, J. A. (2007). Trust, trustworthiness, and trust propensity: a meta-analytic test of their unique relationships with risk taking and job performance. *Journal of Applied Psychology*, 92(4), 909-927.
- Colquitt, J. A., LePine, J. A., Zapata, C. P., & Wild, R. E. (2011). Trust in typical and high-reliability contexts: Building and reacting to trust among firefighters. *Academy of Management Journal*, 54(5), 999-1015.
- Conger, J. A., & Kanungo, R. N. (1998). *Charismatic leadership in organizations*. Thousand Oaks, CA: Sage Publications.
- Conze, E. (1956). *Buddhist Meditation*. London, UK: Allen & Unwin.
- Cozolino, L. (2006). *The neuroscience of human relationships: Attachment and the developing social brain*. New York: Norton.

- Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management*, *31*, 874–900.
- Csikszentmihalyi, M. (1990). *Flow: The Psychology of Optimal Experience*. New York: Harper & Row.
- Csikszentmihalyi, M., & Larson, R. (1987). Validity and reliability of the experience-sampling method. *The Journal of Nervous and Mental Disease*, *175*(9), 526-536.
- Daft, R. L. (1995). Why I recommended that your manuscript be rejected and what you can do about it. In L. L. Cummings & P. J. Frost (Eds.), *Publishing in the Organizational Sciences* (pp. 164–182). Thousand Oaks, CA: Sage.
- Dalai Lama. (2002). *Live in a better way: Reflections on truth, love, and happiness*. New York: Penguin Compass.
- Dane, E. (2011). Paying attention to mindfulness and its effects on task performance in the workplace. *Journal of Management*, *37*, 997-1018.
- Darlington RB. (1990). *Regression and linear models*. New York, NY: McGraw-Hill.
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*, 113-126.
- Dawson, J. F. (2014). Moderation in management research: What, why, when and how. *Journal of Business and Psychology*, *29*, 1-19. Excel tool for plotting interaction effects downloaded from: <http://www.jeremydawson.co.uk/slopes.htm>
- Deci, E. L., & Ryan, R. M. (1980). The empirical exploration of intrinsic motivational processes. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 13, pp. 39-80). New York: Academic.
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227-268.
- DeRue, D. S., Nahrgang, J. D., Wellman, N. E. D., & Humphrey, S. E. (2011). Trait and behavioral theories of leadership: An integration and meta-analytic test of their relative validity. *Personnel Psychology*, *64*(1), 7-52.
- DeVellis, R. F. (1991). *Scale development: Theory and applications*. Newbury Park, CA: Sage.
- Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*(1), 71-75.

- Dillman, D. (2011). *Mail and internet surveys: The tailored design method- 2007 update with new internet, visual, and mixed-mode guide*. Hoboken, NJ: John Wiley & Sons.
- Dillman, D., Smyth, J. & Christian, L. (2009). *Internet, Mail, and Mixed-Mode Surveys: The Tailored Design Method*, New York: Wiley.
- Dimidjian, S., & Linehan, M. M. (2003a). Defining an agenda for future research on the clinical application of mindfulness practice. *Clinical Psychology: Science and Practice*, *10*, 166-171.
- Dimidjian, S., & Linehan, M. M. (2003b). Mindfulness practice. In W. O'Donohue, J. E. Fisher, & S. C. Hayes (Eds.), *Empirically supported techniques of cognitive behavior therapy: A step-by-step guide for clinicians*. New York: John Wiley.
- Dimotakis, N., Ilies, R., & Judge, T. A. (2013). Experience sampling methodology. In J. Cortina & R. Landis (Eds.), *Modern Research Methods for the Study of Behavior in Organizations* (319-348). New York: Routledge.
- Douglas, S. C., & Martinko, M. J. (2001). Exploring the role of individual differences in the prediction of workplace aggression. *Journal of Applied Psychology*, *86*(4), 547.
- Duncan, R. D. (2013). *Nine Ways To Keep Your Company's Most Valuable Asset – Its Employees*. Forbes, 8/20/2013. Retrieved 3/15/15 from <http://www.forbes.com/sites/forbesleadershipforum/2013/08/20/nine-ways-to-keep-your-companys-most-valuable-asset-its-employees/>
- Dweck, C. S. (2000). *Self-theories: Their role in motivation, personality, and development*. Philadelphia: Psychological Press.
- Edwards, J. R., & Lambert, L. S. (2007). Methods for integrating moderation and mediation: a general analytical framework using moderated path analysis. *Psychological methods*, *12*(1), 1-22.
- Ehrhart, M. G. (2004). Leadership and procedural justice climate as antecedents of unit-level organizational citizenship behavior. *Personnel Psychology*, *57*, 61-94.
- Ekvall, G., & Arvonen, J. (1991). Change-centered leadership: An extension of the two-dimensional model. *Scandinavian Journal of Management*, *7*(1), 17-26.
- Eisenberg, N. (2000). Empathy and sympathy. In M. Lewis & J. M. Haviland-Jones (Eds.), *Handbook of emotions* (pp. 677-691). New York: Guilford Press.
- Eisenberg, N., & Miller, P. A. (1987). The relation of empathy to prosocial and related behaviors. *Psychological Bulletin*, *101*(1), 91.



- Eisenberger, R., Armeli, S., Rexwinkel, B., Lynch, P. D., & Rhoades, L. (2001). Reciprocation of perceived organizational support. *Journal of Applied Psychology, 86*(1), 42-51.
- Elfenbein, H. A. (2007). 7 Emotion in Organizations: A Review and Theoretical Integration. *The Academy of Management Annals, 1*(1), 315-386.
- Elzinga, B. M., & Roelofs, K. (2005). Cortisol-induced impairments of working memory require acute sympathetic activation. *Behavioral Neuroscience, 119*(1), 98.
- Enders, C. K., & Tofighi, D. (2007). Centering predictor variables in cross-sectional multilevel models: A new look at an old issue. *Psychological Methods, 12*(2), 121-138.
- Feldman, G., Greeson, J., & Senville, J. (2010). Differential effects of mindful breathing, progressive muscle relaxation, and loving-kindness meditation on decentering and negative reactions to repetitive thoughts. *Behaviour Research And Therapy, 48*(10), 1002-1011.
- Feldman, G., Hayes, A., Kumar, S., Greeson, J., & Laurenceau, J.-P. (2007). Mindfulness and emotion regulation: The development and initial validation of the Cognitive and Affective Mindfulness Scale– Revised (CAMS-R). *Journal of Psychopathology and Behavioral Assessment, 29*, 177–190.
- Fernandez, C. F., & Vecchio, R. P. (1997). Situational leadership theory revisited: A test of an across-jobs perspective. *The Leadership Quarterly, 8*(1), 67-84.
- Fiedler, F. E. (1964). A contingency model of leadership effectiveness. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology*. New York: Academic Press.
- Fiedler, F. E. (1971). Validation and extension of the contingency model of leadership effectiveness: A review of empirical findings. *Psychological Bulletin, 76*(2), 128-148.
- Fiedler, F. E. (1978). The contingency model and the dynamics of the leadership process. *Advances in Experimental Social Psychology, 11*, 59-112.
- Fiedler, F. E. (1993). The leadership situation and the black box of contingency theories. In M. Chemers and R. Ayman (Eds.), *Leadership theory and research: Perspectives and directions* (pp. 2-28). New York: Academic Press.
- Fiol, C. M., & O'Connor, E. J. (2003). Waking up! Mindfulness in the face of bandwagons. *Academy of Management Review, 28*(1), 54-70.

- Fleishman, E. A. (1953). The description of supervisory behavior. *Journal of Applied Psychology, 37*, 1–6.
- Fleishman, E. A. (1973). Twenty years of consideration and structure. In E. A. Fleishman & J. G. Hunt (Eds.), *Current developments in the study of leadership* (pp. 1–40). Carbondale, IL: Southern Illinois University Press.
- Ford, J. K., MacCallum, R. C., & Tait, M. (1986). The application of exploratory factor analysis in applied psychology: A critical review and analysis. *Personnel Psychology, 39*(2), 291-314.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist, 56*(3), 218.
- Fredrickson, B. L., Cohn, M. A., Coffey, K. A., Pek, J., & Finkel, S. M. (2008). Open hearts build lives: positive emotions, induced through loving-kindness meditation, build consequential personal resources. *Journal of Personality and Social Psychology, 95*(5), 1045.
- Fresco, D. M., Moore, M. T., van Dulmen, M. H., Segal, Z. V., Ma, S. H., Teasdale, J. D., & Williams, J. M. G. (2007). Initial psychometric properties of the experiences questionnaire: validation of a self-report measure of decentering. *Behavior Therapy, 38*(3), 234-246.
- Gangestad, S. W., & Snyder, M. (2000). Self-monitoring: appraisal and reappraisal. *Psychological Bulletin, 126*(4), 530.
- Gelles, D. (2015). At Aetna, a C.E.O.'s Management by Mantra. *New York Times*, February 27, 2015. Retrieved 3/15/2015 from [http://www.nytimes.com/2015/03/01/business/at-aetna-a-ceos-management-by-mantra.html?\\_r=3](http://www.nytimes.com/2015/03/01/business/at-aetna-a-ceos-management-by-mantra.html?_r=3)
- Gerbing, D. W., & Hamilton, J. G. (1996). Viability of exploratory factor analysis as a precursor to confirmatory factor analysis. *Structural Equation Modeling: A Multidisciplinary Journal, 3*(1), 62-72.
- Giluk, T. L. (2009). Mindfulness, Big Five personality, and affect: A meta-analysis. *Personality and Individual Differences, 47*(8), 805-811.
- Giluk, T. L. (2010). Mindfulness-based stress reduction: facilitating work outcomes through experienced affect and high-quality relationships.
- Glomb, T. M., Duffy, M. K., Bono, J. E., & Yang, T. (2011). Mindfulness at work. *Research in personnel and human resources management, 30*, 115-157.

- Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, 37(6), 504-528.
- Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly*, 6(2), 219-247.
- Graham, J. W. (1991). Servant-leadership in organizations: Inspirational and moral. *The Leadership Quarterly*, 2(2), 105-119.
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*, 26(1), 41-54.
- Greenleaf, R. K. (1977). *Servant Leadership: A Journey into the Nature of Legitimate Power and Greatness*. NY: Paulist Press.
- Greenleaf, R. K. (1991). *The Servant as Leader*. Indianapolis, IN: Robert Greenleaf Center.
- Griskevicius, V., Shiota, M. N., & Neufeld, S. L. (2010). Influence of different positive emotions on persuasion processing: a functional evolutionary approach. *Emotion*, 10(2), 190-206.
- Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research*, 57, 35-43.
- Gunaratana, B. H. (2002). *Mindfulness in Plain English*. Somerville, MA: Wisdom.
- Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. *Journal of Applied psychology*, 60(2), 159-170.
- Hannah, S. T., Uhl-Bien, M., Avolio, B. J., & Cavarretta, F. L. (2009). A framework for examining leadership in extreme contexts. *The Leadership Quarterly*, 20(6), 897-919.
- Hanson, R. (2009). *Buddha's brain: The practical neuroscience of happiness, love, and wisdom*. Oakland, CA: New Harbinger Publications
- Hanh, T. N. (1976). *Miracle of Mindfulness*. Boston: Beacon.

- Hariri, A. R., Bookheimer, S. Y., & Mazziotta, J. C. (2000). Modulating emotional responses: effects of a neocortical network on the limbic system. *Neuroreport*, *11*(1), 43-48.
- Harter, J. K., Schmidt, F. L., & Keyes, C. L. (2002). Well-being in the workplace and its relationship to business outcomes: A review of the Gallup studies. In C. L. Keyes & J. Haidt (Eds.), *Flourishing: The positive person and the good life* (pp. 205-224). Washington D.C.: American Psychological Association.
- Hayes, A. M., & Feldman, G. (2004). Clarifying the construct of mindfulness in the context of emotion regulation and the process of change in therapy. *Clinical Psychology: Science and Practice*, *11*, 255-262.
- Hektner, J. M., Schmidt, J. A., & Csikszentmihalyi, M. (Eds.). (2007). *Experience sampling method: Measuring the quality of everyday life*. Thousand Oaks, CA: Sage.
- Hempel, P. S., Zhang, Z. X., & Han, Y. (2012). Team Empowerment and the Organizational Context Decentralization and the Contrasting Effects of Formalization. *Journal of Management*, *38*(2), 475-501.
- Hemphill, J. K. (1950). Relations between the size of the group and the behavior of "superior" leaders. *The Journal of Social Psychology*, *32*(1), 11-22.
- Hersey, P. & Blanchard, K. H. (1971). *The Management of Organizational Behavior*, 3rd ed. Englewood Cliffs, NJ: Prentice Hall.
- Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational research methods*, *1*(1), 104-121.
- Hodgins, H. S., & Knee, C. R. (2002). The integrating self and conscious experience. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 87-100). Rochester, NY: University of Rochester Press.
- Hofmann, D. A., Griffin, M., & Gavin, M. (2000). The application of hierarchical linear modeling to organizational research. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multi-level theory, research, and methods in organizations* (pp. 467-511). San Francisco: Jossey-Bass.
- Hogan J, & Holland B. (2003). Using theory to evaluate personality and job-performance relations: A socioanalytic perspective. *Journal of Applied Psychology*, *88*, 100-112.
- Hogan, J., & Roberts, B. W. (1996). Issues and non-issues in the fidelity-bandwidth trade-off. *Journal of Organizational Behavior*, *17*(6), 627-637.

- Hooijberg, R., & Quinn, R. E. (1992). Behavioral complexity and the development of effective managers. In R. L. Phillips & J.G. Hunt (Eds.), *Strategic management: A multiorganizational-level perspective*. New York: Quorum.
- House, R. J. (1971). A path goal theory of leader effectiveness. *Administrative Science Quarterly*, *16*, 321-339.
- House, R. J. (1996). Path-goal theory of leadership: Lessons, legacy, and a reformulated theory. *The Leadership Quarterly*, *7*(3), 323-352.
- House, R. J., & Dessler, G. (1974). The path-goal theory of leadership: Some post hoc and a priori tests. *Contingency Approaches to Leadership*, *29*, 55.
- House, R. J., & Mitchell, T. R. (1974). Path-goal theory of leadership. *Journal of Contemporary Business*, *3*, 81-97.
- Houston, D. A. (1990). Empathy and the self: Cognitive and emotional influences on the evaluation of negative affect in others. *Journal of Personality and Social Psychology*, *59*(5), 859-868.
- Hu, J., & Liden, R. C. (2011). Antecedents of team potency and team effectiveness: an examination of goal and process clarity and servant leadership. *Journal of Applied Psychology*, *96*(4), 851.
- Hülshager, U. R., Alberts, H. J., Feinholdt, A., & Lang, J. W. (2013). Benefits of mindfulness at work: The role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *Journal of Applied Psychology*, *98*(2), 310.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*(1), 1-55.
- Hu, L., Bentler, P. M., & Kano, Y. (1992). Can test statistics in covariance structure analysis be trusted? *Psychological Bulletin*, *112*(2), 351-362.
- Hutcherson, C. A., Seppala, E. M., & Gross, J. J. (2008). Loving-kindness meditation increases social connectedness. *Emotion*, *8*(5), 720.
- Ilies, R., Johnson, M. D., Judge, T. A., & Keeney, J. (2011). A within-individual study of interpersonal conflict as a work stressor: Dispositional and situational moderators. *Journal of Organizational Behavior*, *32*(1), 44-64.
- Ilies, R., Nahrgang, J. D., & Morgeson, F. P. (2007). Leader-member exchange and citizenship behaviors: a meta-analysis. *Journal of Applied Psychology*, *92*(1), 269.

- Irving, J. A., Dobkin, P. L., & Park, J. (2009). Cultivating mindfulness in health care professionals: A review of empirical studies of mindfulness-based stress reduction (MBSR). *Complementary Therapies in Clinical Practice, 15*, 61–66.
- James, L. R., Demaree, R. G., & Wolf, G. (1984). Estimating within-group inter-rater reliability with and without response bias. *Journal of Applied Psychology, 69*, 85-98.
- Johns, G. (1991). Substantive and methodological constraints on behavior and attitudes in organizational research. *Organizational Behavior and Human Decision Processes, 49*, 80–104.
- Johns, G. (2006). The essential impact of context on organizational behavior. *Academy of Management Review, 31*(2), 386-408.
- Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits—self-esteem, generalized self-efficacy, locus of control, and emotional stability—with job satisfaction and job performance: A meta-analysis. *Journal of applied Psychology, 86*(1), 80.
- Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2003). The core self-evaluations scale: Development of a measure. *Personnel Psychology, 56*(2), 303-331.
- Judge, T. A., & Piccolo, R. F. (2004). Transformational and transactional leadership: a meta-analytic test of their relative validity. *Journal of Applied Psychology, 89*(5), 755.
- Judge, T. A., Piccolo, R. F., & Ilies, R. (2004). The forgotten ones? The validity of consideration and initiating structure in leadership research. *Journal of Applied Psychology, 89*(1), 36.
- Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The job satisfaction–job performance relationship: A qualitative and quantitative review. *Psychological Bulletin, 127*(3), 376.
- Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry, 4*, 33–47.
- Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain and illness*. New York: Delacourt
- Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life*. New York: Hyperion.

- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice, 10*, 144–156.
- Kabat-Zinn, J. (2005). *Coming to Our Senses: Healing Ourselves and the World Through Mindfulness*. New York, NY: Hyperion.
- Kaiser, H. F. (1958). The varimax criterion for analytic rotation in factor analysis. *Psychometrika, 23*(3), 187-200.
- Kahneman, D., & Treisman, A. (1984). Changing views of attention and automaticity. *Varieties of attention, 1*, 29.
- Kamdar, D., McAllister, D. J., & Turban, D. B. (2006). "All in a day's work": how follower individual differences and justice perceptions predict OCB role definitions and behavior. *Journal of Applied Psychology, 91*(4), 841.
- Karoly, P. (1993). Mechanisms of self-regulation: A systems view. *Annual review of psychology, 44*(1), 23-52.
- Kellett, J. B., Humphrey, R. H., & Sleeth, R. G. (2002). Empathy and complex task performance: Two routes to leadership. *The Leadership Quarterly, 13*(5), 523-544.
- Kernis, M. H., & Goldman, B. M. (2006). A multicomponent conceptualization of authenticity: Theory and research. *Advances in Experimental Social Psychology, 38*, 283-357.
- Kinicki, A. J., Jacobson, K. J., Galvin, B. M., & Prussia, G. E. (2011). A multilevel systems model of leadership. *Journal of Leadership & Organizational Studies, 18*, 133-149.
- Kirkman, B. L., Chen, G., Farh, J. L., Chen, Z. X., & Lowe, K. B. (2009). Individual power distance orientation and follower reactions to transformational leaders: A cross-level, cross-cultural examination. *Academy of Management Journal, 52*(4), 744-764.
- Kirkman, B. L., & Rosen, B. (1999). Beyond self-management: Antecedents and consequences of team empowerment. *Academy of Management Journal, 42*(1), 58-74.
- Kirkman, B. I., & Rosen, B. (2001). Powering up teams. *Organizational Dynamics, 28*(3), 48-66.
- Kornfield, J. (1993). *A Path with Heart*. New York: Bantam.

- Kreft, I. G., De Leeuw, J., & Aiken, L. S. (1995). The effect of different forms of centering in hierarchical linear models. *Multivariate Behavioral Research, 30*(1), 1-21.
- Lakey, C. E., Campbell, W. K., Brown, K. W., & Goodie, A. S. (2007). Dispositional mindfulness as a predictor of the severity of gambling outcomes. *Personality and Individual Differences, 43*(7), 1698-1710.
- Langer, E. J. (1989). *Mindfulness*. Reading, MA: Addison-Wesley.
- Langer, E. J. (2009). Mindfulness versus positive evaluation. In C. R. Snyder & S. J. Lopez (Eds.), *Oxford Handbook of Positive Psychology* (2nd ed., pp. 279-293). Oxford, UK: Oxford University Press.
- Langer, E. J., & Moldoveanu, M. (2000). The construct of mindfulness. *Journal of Social Issues, 56*(1), 1-9.
- Lawrence, K. A., Lenk, P., & Quinn, R. E. (2009). Behavioral complexity in leadership: The psychometric properties of a new instrument to measure behavioral repertoire. *The Leadership Quarterly, 20*(2), 87-102.
- Lennox, R. D., & Wolfe, R. N. (1984). Revision of the self-monitoring scale. *Journal of Personality and Social Psychology, 46*, 1349-1364.
- LePine, J. A., Podsakoff, N. P., & LePine, M. A. (2005). A meta-analytic test of the challenge stressor–hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. *Academy of Management Journal, 48*(5), 764-775.
- Lewin, K. (1951). *Field theory in social science*. New York: Harper & Row.
- Liden, R. C., Wayne, S. J., Zhao, H., & Henderson, D. (2008). Servant leadership: Development of a multidimensional measure and multi-level assessment. *The Leadership Quarterly, 19*(2), 161-177.
- Linehan, M. (1993a). *Cognitive-behavioral treatment of borderline personality disorder*. New York: Guilford.
- Linehan, M. (1993b). *Skills training manual for treating borderline personality disorder*. New York: Guilford.
- Lord, R. G., Diefendorff, J. M., Schmidt, A. M., & Hall, R. J. (2010). Self-regulation at work. *Annual Review of Psychology, 61*, 543-568.



- Lozano, L.M., Garcia-Cueto, E., & Muniz, J. (2008). Effect of the number of response categories. *Behavioral and Social Sciences*, 4, 73-79.
- Lubinski, D. (2000). Scientific and social significance of assessing individual differences: "Sinking shafts at a few critical points". *Annual Review of Psychology*, 51(1), 405-444.
- Luthans, F. (2002). Positive organizational behavior: developing and maintaining psychological strengths. *Academy of Management Executive*, 16, 57-72
- Luthans, F. & Avolio, B. J. (2003). Authentic leadership: A positive developmental approach. In K. S. Cameron, J. E. Dutton & R. E Quinn (eds.). *Positive Organizational Scholarship: Foundations of a New Discipline*, pp. 241-58. San Francisco, CA: Berrett-Koehler.
- Luthans, F., & Youssef, C. M. (2007). Emerging positive organizational behavior. *Journal of management*, 33(3), 321-349.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: does happiness lead to success? *Psychological Bulletin*, 131(6), 803.
- Macey, W. H., & Schneider, B. (2008). The meaning of employee engagement. *Industrial and Organizational Psychology*, 1, 3-30.
- Madden, L. T., Duchon, D., Madden, T. M., & Plowman, D. A. (2012). Emergent organizational capacity for compassion. *Academy of Management Review*, 37(4), 689-708.
- Marcel, A. J. (2003). Introspective report: Trust, self-knowledge and science. *Journal of Consciousness Studies*, 10, 167-186.
- Martin, A. (2007). *The changing nature of leadership*. Center for Creative Leadership research white paper. Available at: <http://www.ccl.org/Leadership/pdf/research/NatureLeadership.pdf>.
- Martin, M. M., & Rubin, R. B. (1995). A new measure of cognitive flexibility. *Psychological Reports*, 76(2), 623-626.
- Mason, M. F., Norton, M. I., Van Horn, J. D., Wegner, D. M., Grafton, S. T., & Macrae, C. N. (2007). Wandering minds: the default network and stimulus-independent thought. *Science*, 315, 393-395.
- Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. Sluyter (Eds.), *Emotional development and emotional intelligence: Educational implications* (pp. 3-31). New York: Basic Books.

- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20(3), 709-734.
- McAllister, D. J. (1995). Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations. *Academy of Management Journal*, 38, 24–59.
- McGrath, J. E. (1962). *Leadership behavior: Some requirements for leadership training*. Washington DC: US Civil Service Commission.
- Mierlo, H. V., Rutte, C. G., Vermunt, J. K., Kompier, M. A. J., & Doorewaard, J. A. C. M. (2007). A multi-level mediation model of the relationships between team autonomy, individual task design and psychological well-being. *Journal of Occupational and Organizational Psychology*, 80(4), 647-664.
- Mischel, W. (1968). *Personality and assessment*. New York: John Wiley.
- Mischel, W. (1977). The interaction of person and situation. In D. Magnusson & N. S. Endler (Eds.), *Personality at the cross-roads: Current issues in interactional psychology* (pp. 333-352). Hillsdale, NJ: Lawrence Erlbaum.
- Molm, L. D. (2000). Theories of social exchange and exchange networks. In G. Ritzer and B. Smart (Eds.), *The Handbook of Social Theory* (pp. 260-272). Thousand Oaks, CA: Sage Press.
- Molm, L. D. (2003). Theoretical comparisons of forms of exchange. *Sociological Theory*, 21(1), 1-17.
- Muthén, L. K., & Muthén, B. O. (2010). *1998–2010 Mplus user's guide*. Muthén and Muthén.
- Myers, D. G. (2000). The funds, friends, and faith of happy people. *American Psychologist*, 55, 56–67.
- Nakamura, J., & Csikszentmihalyi, M. (2009). Flow theory and research. In C. R. Snyder & S. J. Lopez (Eds.), *Oxford handbook of positive psychology* (2nd ed., 195-206). Oxford, UK: Oxford University Press.
- Nielsen, K., Randall, R., Yarker, J., & Brenner, S. O. (2008). The effects of transformational leadership on followers' perceived work characteristics and psychological well-being: A longitudinal study. *Work & Stress*, 22(1), 16-32.
- Niemiec, C. P., Brown, K. W., Kashdan, T. B., Cozzolino, P. J., Breen, W. E., Levesque-Bristol, C., & Ryan, R. M. (2010). Being present in the face of existential threat:

- The role of trait mindfulness in reducing defensive responses to mortality salience. *Journal of Personality and Social Psychology*, 99(2), 344.
- Niemiec, C. P., Ryan, R. M., & Brown, K. W. (2008). The role of awareness and autonomy in quieting the ego: A Self-determination Theory perspective. In H. A. Wayment & J. J. Bauer (Eds.), *The quiet ego: Research and theory on the benefits of transcending egoistic self-interest*. Washington, DC: American
- Nisbett, R., & Ross, L. (1991). *The person and the situation*. NY: McGraw Hill.
- Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration depressive episodes. *Journal of Abnormal Psychology*, 100, 569-582.
- Nunnally, J. C. (1978). *Psychometric theory*. New York, NY: McGraw-Hill.
- Nyaniponika, T. (1973). *The Heart of Buddhist Meditation*. New York: Weiser Books.
- Oettingen, G., & Mayer, D. (2002). The motivating function of thinking about the future: Expectations versus fantasies. *Journal of Personality and Social Psychology*, 83, 1198-1212.
- Organ, D. W. (1988). *Organizational citizenship behavior: The good soldier syndrome*. Lexington, MA: Lexington.
- Organ, D. W. (1990). The motivational basis of organizational citizenship behavior. In B. M. Staw & L. L. Cummings (Eds.), *Research in Organizational Behavior* (vol. 12, pp. 43-72). Greenwich, CT: JAI.
- Organ, D. W. (1997). Organizational citizenship behavior: It's construct clean-up time. *Human Performance*, 10(2), 85-97.
- Ostroff, C. (1993). Comparing correlations based on individual-level and aggregated data. *Journal of Applied Psychology*, 78, 569-582.
- Ostroff, C., Kinicki, A. J., & Clark, M. A. (2002). Substantive and operational issues of response bias across levels of analysis: an example of climate-satisfaction relationships. *Journal of Applied Psychology*, 87(2), 355.
- Ou, A. Y., Tsui, A. S., Kinicki, A. J., Waldman, D. A., Xiao, Z., & Song, L. J. (2014). Humble chief executive officers' connections to top management team integration and middle managers' responses. *Administrative Science Quarterly*, 59, 34-72.
- Paulhus, D. L. (1991). Measurement and control of response bias. In J. P. Robinson, P. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 17-59). San Diego, CA: Academic Press.

- Peters, L. H., & O'Connor, E. J. (1980). Situational constraints and work outcomes: The influences of a frequently overlooked construct. *Academy of Management Review*, 5, 391-397.
- Peters, L. H., Hartke, D. D., & Pohlmann, J. T. (1985). Fiedler's Contingency Theory of Leadership: An application of the meta-analysis procedures of Schmidt and Hunter. *Psychological Bulletin*, 97(2), 274.
- Peterson, S. J., Galvin, B. M., & Lange, D. (2012). CEO servant leadership: Exploring executive characteristics and firm performance. *Personnel Psychology*, 65(3), 565-596.
- Peterson, S. J., Luthans, F., Avolio, B. J., Walumbwa, F. O., & Zhang, Z. (2011). Psychological capital and employee performance: A latent growth modeling approach. *Personnel Psychology*, 64(2), 427-450.
- Pierce, J. L., & Newstrom, J. W. (2000). *Leaders and the leadership process* (2nd ed.). Boston: McGraw-Hill.
- Podsakoff, P. M., & MacKenzie, S. B. (1994). An examination of the psychometric properties and nomological validity of some revised and reduced substitutes for leadership scales. *Journal of Applied Psychology*, 79(5), 702-713.
- Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H., & Fetter, R. (1990). Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors. *The Leadership Quarterly*, 1(2), 107-142.
- Podsakoff, P. M., MacKenzie, S. B., Ahearne, M., & Bommer, W. H. (1995). Searching for a needle in a haystack: Trying to identify the illusive moderators of leadership behaviors. *Journal of Management*, 21(3), 422-470.
- Podsakoff, P. M., MacKenzie, S. B., Paine, J. B., & Bachrach, D. G. (2000). Organizational citizenship behaviors: A critical review of the theoretical and empirical literature and suggestions for future research. *Journal of Management*, 26(3), 513-563.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903.
- Podsakoff, N. P., Whiting, S. W., Podsakoff, P. M., & Blume, B. D. (2009). Individual- and organizational-level consequences of organizational citizenship behaviors: A meta-analysis. *Journal of Applied Psychology*, 94(1), 122.

- Polanyi, M. (1958). *Personal knowledge*. Chicago: University of Chicago Press.
- Preacher, K. J. & Selig, J. P. (2012). Advantages of Monte Carlo confidence intervals for indirect effects. *Communication Methods & Measures*, 6, 77-98.
- Preacher, K. J., Zhang, Z., & Zyphur, M. J. (2011). Alternative methods for assessing mediation in multilevel data: The advantages of multilevel SEM. *Structural Equation Modeling*, 18(2), 161-182.
- Preacher, K. J., Zyphur, M. J., & Zhang, Z. (2010). A general multilevel SEM framework for assessing multilevel mediation. *Psychological methods*, 15(3), 209.
- Quinn, R. W. (2005). Flow in knowledge work: High performance experience in the design of national security technology. *Administrative Science Quarterly*, 50, 610-641.
- Rammstedt, B., & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality*, 41(1), 203-212.
- Reb, J., Chaturvedi, S., Narayanan, J. (2013). The benefits of mindful leadership: Examining LMX as mediator and job complexity as moderator. Paper presented in symposium on Mindfulness at Work: Promising Areas of Research Inquiry. *Annual meeting of the Academy of Management*, Orlando, USA.
- Reb, J., Narayanan, J., & Chaturvedi, S. (2014). Leading mindfully: Two studies on the influence of supervisor trait mindfulness on employee well-being and performance. *Mindfulness*, 5(1), 36-45.
- Reis, H. T., & Gable, S. L. (2000). Event-sampling and other methods for studying everyday experience. *Handbook of research methods in social and personality psychology*, 190-222.
- Rich, B. L., Lepine, J. A., & Crawford, E. R. (2010). Job engagement: Antecedents and effects on job performance. *Academy of Management Journal*, 53(3), 617-635.
- Richardson, T. (2015). *The Responsible Leader: Developing a Culture of Responsibility in an Uncertain World*. London, UK: Kogan Page.
- Robinson, M. D., & Clore, G. L. (2002). Episodic and semantic knowledge in emotional self-report: evidence for two judgment processes. *Journal of Personality and Social Psychology*, 83(1), 198.
- Roemer, L., & Orsillo, S. M. (2003). Mindfulness: A promising intervention strategy in need of further study. *Clinical Psychology: Science and Practice*, 10(2), 172-178.

- Roese, N. J. (1997). Counterfactual thinking. *Psychological Review*, 121, 133-148.
- Rothbard, N. P. (2001). Enriching or depleting: The dynamics of engagement in work and family roles. *Administrative Science Quarterly*, 46, 655-684.
- Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, 23(3), 393-404.
- Rubin, R. S., Munz, D. C., & Bommer, W. H. (2005). Leading from within: The effects of emotion recognition and personality on transformational leadership behavior. *Academy of Management Journal*, 48(5), 845-858.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, 55(1), 68.
- Ryan, R. M., Kuhl, J., & Deci, E. L. (1997). Nature and autonomy: An organizational view of social and neurobiological aspects of self-regulation in behavior and development. *Development and psychopathology*, 9, 701-728.
- Rummel, R. J. (1970). *Applied factor analysis*. Evanston, IL: Northwestern University Press.
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069.
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69(4), 719-727.
- Saavedra, M. C., Chapman, K. E., & Rogge, R. D. (2010). Clarifying links between attachment and relationship quality: Hostile conflict and mindfulness as moderators. *Journal of Family Psychology*, 24, 380-390.
- Safran, J. D., & Segal, Z. V. (1990). *Interpersonal process in cognitive therapy*. New York: Basic Books.
- Saha, S. K. (1979). Contingency theories of leadership: A study. *Human Relations*, 32, 313-322.
- Satorra, A., & Bentler, P. M. (1988). *Scaling corrections for statistics in covariance structure analysis (UCLA Statistics Series 2)*. Los Angeles: University of California at Los Angeles, Department of Psychology.

- Scott, B. A., Colquitt, J. A., Paddock, E. L., & Judge, T. A. (2010). A daily investigation of the role of manager empathy on employee well-being. *Organizational Behavior and Human Decision Processes*, 113(2), 127-140.
- Scott, B. A., Garza, A. S., Conlon, D. E. & Kim, Y. J. (2014). Why do managers act fairly in the first place? A daily investigation of “hot” and “cold” motives and discretion. *Academy of Management Journal*, 57(6), 1571-1591.
- Schaubroeck, J., Lam, S. S. K., & Cha, S. E. (2007). Embracing transformational leadership: Team values and the relationship between leader behavior and team performance. *Journal of Applied Psychology*, 92, 1020–1030.
- Schriesheim, C. A., & Neider, L. L. (1996). Path-goal leadership theory: The long and winding road. *The Leadership Quarterly*, 7(3), 317-321.
- Schriesheim, C. A., Tepper, B. J., & Tetrault, L. A. (1994). Least preferred co-worker score, situational control, and leadership effectiveness: A meta-analysis of contingency model performance predictions. *Journal of Applied Psychology*, 79(4), 561.
- Schwab, D. P. (1980). Construct validity in organizational behavior. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (Vol. 2, pp. 3-43). Greenwich, CT: JAI Press Inc.
- Scott, B. A., Colquitt, J. A., Paddock, E. L., & Judge, T. A. (2010). A daily investigation of the role of manager empathy on employee well-being. *Organizational Behavior and Human Decision Processes*, 113(2), 127-140.
- Scott, B. A., Garza, A. S., Conlon, D. E., & Kim, Y. J. (2014). Why do managers act fairly in the first place? A daily investigation of “hot” and “cold” motives and discretion. *Academy of Management Journal*.
- Segal, Z. V., Williams, J. M., & Teasdale, J.D. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York: Guilford.
- Seibert, S. E., Wang, G., & Courtright, S. H. (2011). Antecedents and consequences of psychological and team empowerment in organizations: a meta-analytic review. *Journal of Applied Psychology*, 96(5), 981.
- Seligman, M. E. (2011). *Flourish: A visionary new understanding of happiness and well-being*. New York: Simon and Schuster.
- Seligman, M. E., & Csikszentmihalyi, M. (2000). *Positive psychology: An introduction* (Vol. 55, No. 1, p. 5). American Psychological Association.

- Samuels, A. (2013). As employers push efficiency, the daily grind wears down workers. *Los Angeles Times*, April 7, 2013. Retrieved from: <http://articles.latimes.com/2013/apr/07/business/la-fi-harsh-work-20130407>.
- Shamir, B. (2007). From passive recipients to active co-producers: Followers' roles in the leadership process. In B. Shamir, R. Pilli, M. C. Bligh, & M. Uhl-Bien (eds), *Follower-centered perspectives on leadership a tribute to the memory of James R. Meindl*. Greenwich, CT: Information Age Publishing. pp ix-xxxix.
- Shapiro, S. L., & Carlson, L. E. (2009). *The art and science of mindfulness: Integrating mindfulness into psychology and the helping professions*. Washington, DC: American Psychological Association
- Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2006). Mechanisms of mindfulness. *Journal of Clinical Psychology*, *62*, 373-386.
- Shapiro, S. L., Schwartz, G. E., & Bonner, G. (1998). Effects of mindfulness-based stress reduction on medical and premedical students. *Journal of Behavioral Medicine*, *21*(6), 581-599.
- Sheldon, K. M., & Vansteenkiste, M. (2005). Personal goals and time travel: How are future places visited, and is it worth it? In Strathman, A. & Joreman, J. (Eds.), *Understanding behavior in the context of time: Theory, research, and application* (pp.143–163). Mahwah, NJ: Lawrence Erlbaum
- Shockley, K. M., & Allen, T. D. (2014). Deciding between work and family: An episodic approach. *Personnel Psychology*. doi: 10.1111/peps.12077.
- Shore, L. M., Tetrick, L. E., Lynch, P., & Barksdale, K. (2006). Social and economic exchange: Construct development and validation. *Journal of Applied Social Psychology*, *36*(4), 837-867.
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: new procedures and recommendations. *Psychological Methods*, *7*(4), 422.
- Siegel, D. J. (2007). *The mindful brain: Reflection and attunement in the cultivation of well-being*. New York: Norton.
- Siegel, R. D. (2010). *The mindful solution: Everyday practices for everyday problems*. New York, NY: Guilford Press.
- Sin, N. L., & Lyubomirsky, S. (2009). Enhancing well-being and alleviating depressive symptoms with positive psychology interventions: A practice-friendly meta-analysis. *Journal of clinical psychology*, *65*(5), 467-487.



- Smith, A. (2006). Cognitive Empathy and Emotional Empathy in Human Behavior and Evolution. *Psychological Record*, 56(1), 3.
- Smith, G.T., Fischer, S., & Fister, S.M. (2003). Incremental validity principles in test construction. *Psychological Assessment*, 15, 467-477.
- Spears, L. C. (2004). The understanding and practice of servant leadership. In L.C. Spears & M. Lawrence (eds.), *Practicing Servant-Leadership: Succeeding Through Trust, Bravery, and Forgiveness*. San Francisco, CA: Jossey-Bass.
- Spector, P. E., & Jex, S. M. (1998). Development of four self-report measures of job stressors and strain: Interpersonal conflict at work scale, organizational constraints scale, quantitative workload inventory, and physical symptoms inventory. *Journal of Occupational Health Psychology*, 3(4), 356-367.
- Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*, 38(5), 1442-1465.
- Srivastava, A., Bartol, K. M., & Locke, E. A. (2006). Empowering leadership in management teams: Effects on knowledge sharing, efficacy, and performance. *Academy of Management Journal*, 49(6), 1239-1251.
- Starik, M., & Marcus, A. A. (2000). Introduction to the special research forum on the management of organizations in the natural environment: A field emerging from multiple paths, with many challenges ahead. *Academy of Management Journal*, 43(4), 539-547.
- Sternberg, R. J. (2000). Images of mindfulness. *Journal of Social Issues*, 56, 11-26.
- Stephens, J. P., Heaphy, E. D., Carmeli, A., Spreitzer, G. M., & Dutton, J. E. (2013). Relationship quality and virtuousness: Emotional carrying capacity as a source of individual and team resilience. *The Journal of Applied Behavioral Science*, 49, 13-41.
- Sy, T., Côté, S., & Saavedra, R. (2005). The contagious leader: impact of the leader's mood on the mood of group members, group affective tone, and group processes. *Journal of Applied Psychology*, 90(2), 295.
- Tajfel, H. E. (1978). *Differentiation between social groups: Studies in the social psychology of intergroup relations*. Oxford, England: Academic Press.
- Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. *The Social Psychology of Intergroup Relations*, 33(47), 74.

- Tan, C-M. (2014). *Search Inside Yourself: The Unexpected Path to Achieving Success, Happiness (and World Peace)*. New York: HarperCollins.
- Teasdale, J. D., Moore, R. G., Hayhurst, H., Pope, M., Williams, S., & Segal, Z. V. (2002). Metacognitive awareness and prevention of relapse in depression: empirical evidence. *Journal of Consulting and Clinical Psychology, 70*(2), 275.
- Tipsord, J. M. (2009). The effects of mindfulness training and individual differences in mindfulness on social perception and empathy (Doctoral dissertation, University of Oregon).
- Tolle, E. (2005). *A new earth: Awakening to your life's purpose*. NY: Penguin.
- Uy, M. A., Foo, M. D., & Aguinis, H. (2010). Using experience sampling methodology to advance entrepreneurship theory and research. *Organizational Research Methods, 13*(1), 31-54.
- Van Dierendonck, D. (2011). Servant leadership: A review and synthesis. *Journal of Management, 37*(4), 1228-1261.
- Van Dierendonck, D., Nuijten, I., & Heeren, I. (2009). Servant leadership, key to follower well-being. In D. Tjosvold & B. Wisse (Eds.), *Power and interdependence in organizations* (pp. 319-337). Cambridge, UK: Cambridge University Press.
- Van Dyne, L., & LePine, J. A. (1998). Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Academy of Management Journal, 41*(1), 108-119.
- Vecchio, R. P., & Boatwright, K. J. (2002). Preferences for idealized styles of supervision. *The Leadership Quarterly, 13*(4), 327-342.
- Way, B. M., Creswell, J. D., Eisenberger, N. I., & Lieberman, M. D. (2010). Dispositional mindfulness and depressive symptomatology: correlations with limbic and self-referential neural activity during rest. *Emotion, 10*(1), 12.
- Wheatley, M. J. (2006). *Leadership and the new science: Discovering order in a chaotic world* (3<sup>rd</sup> ed.). San Francisco: Berrett-Koehler.
- Wheeler, L., & Reis, H. T. (1991). Self-recording of everyday life events: Origins, types, and uses. *Journal of Personality, 59*(3), 339-354.
- Wegener, D. T., & Fabrigar, L. R. (2000). Analysis and design for nonexperimental data: Addressing causal and noncausal hypotheses. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp. 412-450). New York: Cambridge University Press.

- Weick, K. E., & Sutcliffe, K. M. (2006). Mindfulness and the quality of organizational attention. *Organization Science*, 17(4), 514-524.
- Williams, L. J., & Anderson, S. E. (1991). Job satisfaction and organizational commitment as predictors of organizational citizenship and in-role behavior. *Journal of Management*, 17, 601-617.
- Williams, L. J., & O'Boyle, E. H. (2008). Measurement models for linking latent variables and indicators: A review of human resource management 153 research using parcels. *Human Resource Management Review*, 18(4), 233-242.
- Wilson, T. D., & Gilbert, D. T. (2005). Affective forecasting knowing what to want. *Current Directions in Psychological Science*, 14(3), 131-134.
- Wolever, R. Q., Bobinet, K. J., McCabe, K., Mackenzie, E. R., Fekete, E., Kusnick, C. A., & Baime, M. (2012). Effective and viable mind-body stress reduction in the workplace: A randomized controlled trial. *Journal of Occupational Health Psychology*, 17, 246-258.
- Wong, C. S., & Law, K. S. (2002). The effects of leader and follower emotional intelligence on performance and attitude: An exploratory study. *The Leadership Quarterly*, 13(3), 243-274.
- Wu, J. B., Tsui, A. S., & Kinicki, A. J. (2010). Consequences of differentiated leadership in groups. *Academy of Management Journal*, 53(1), 90-106.
- Yeganeh, B. (2006). *Mindful experiential learning* (Doctoral dissertation). Retrieved from [https://etd.ohiolink.edu/!etd.send\\_file?accession=case1163023095&disposition=online](https://etd.ohiolink.edu/!etd.send_file?accession=case1163023095&disposition=online).
- Yukl, G. (2004). Tridimensional leadership theory: A roadmap for flexible, adaptive leaders. In R. J. Burke & C. L. Cooper (Eds.), *Leading in Turbulent Times: Managing in the New World of Work* (pp. 75-90). Malden, MA: Blackwell.
- Yukl, G. (2011). Contingency theories of effective leadership. In A. Bryman, D. Collinson, K. Grint, B. Jackson, & M. Uhl-Bien (Eds), *The Sage Handbook of Leadership* (pp. 286-298). Los Angeles, CA: Sage.
- Yukl, G. (2012). Effective leadership behavior: What we know and what questions need more attention. *The Academy of Management Perspectives*, 26(4), 66-85.

- Yukl, G., Gordon, A., & Taber, T. (2002). A hierarchical taxonomy of leadership behavior: Integrating a half century of behavior research. *Journal of Leadership & Organizational Studies*, 9(1), 15-32.
- Yukl, G., & Lepsinger, R. (2005). Why integrating the leading and managing roles is essential for organizational effectiveness. *Organizational Dynamics*, 34, 361-37.
- Yukl, G., & Mahsud, R. (2010). Why flexible and adaptive leadership is essential. *Consulting Psychology Journal: Practice and Research*, 62(2), 81.
- Zhang, Z., Zyphur, M. J., & Preacher, K. J. (2009). Testing multilevel mediation using hierarchical linear models problems and solutions. *Organizational Research Methods*, 12(4), 695-719.

**Table 1**

*Comparison between Glomb et al. (2011), Shapiro et al., (2006) and current conceptualization of mindfulness and its outcomes*

|                                  | <b>Decoupling</b>              | <b>Cognitive/<br/>Affective Self-<br/>Regulation</b> | <b>Ultimate Outcome</b>                        |
|----------------------------------|--------------------------------|--|--|
| <b>Glomb et al. (2011)</b>       | Primary outcome of mindfulness | Secondary outcomes of mindfulness                    | Self-regulation of thoughts/emotions/behaviors |
| <b>Shapiro et al. (2006)</b>     | Primary outcome of mindfulness | Secondary outcomes of mindfulness                    | Psychological and physiological well-being     |
| <b>Current Conceptualization</b> | Integral piece of mindfulness  | Primary outcomes of mindfulness                      | Behaviors that lead to well-being of others    |

**Table 2**

*New Conceptualization of Mindfulness in Relation to Previous Conceptualizations*

| <b>Initial Conceptualization Of New Scale (6 dimensions)</b> | <b>Dimension Definition</b>                           | <b>Baer et al. (2006) (5 dimensions)</b> | <b>Brown &amp; Ryan (2003) (1 dimension)</b> | <b>Final Conceptualization Of New Scale (5 dimensions)</b> |
|--|---|--|--|--|
| 1. Nonreact  | Remaining even-keeled and balanced                    | 1. Nonreact                              |  | 1. Nonreact  |
| 2. Observe   | Seeing both the big and small picture                 | 2. Observe                               |  | 2. Observe and interconnections                            |
| 3. Present (Attention and awareness)                         | Attending to internal and external experiences        | 3. Attention and Awareness               | 1. Attention and Awareness                   | 3. Present (Attention and awareness)                       |
| 4. Nonjudging  | Separating attention and cognition                    | 4. Nonjudging                            |  | 4. Nonjudging  |
| 5. Interconnections  | Seeing how individuals and events are connected       | 5. Describing/ Labeling with Words       |  |  |
| 6. Decentering   | Creating a mental gap between a stimulus and behavior |  |  | 5. Decentering   |

**Table 3**

*Factor Loadings from EFA Principal Components Analysis with Varimax rotation of*

*23 Mindfulness items (N = 226) using Sample 1 student data*

| Item   | Cronbach's Alpha | MF E | MF O | MF NJ | MF NR | MF P |
|--|------------------|------|------|-------|-------|------|
| <b><u>Decentering (MF D)</u></b>   | <b>.78</b>       |      |      |       |       |      |
| 1. I feel the need to reinforce my accomplishments at work to maintain my self-esteem  |                  | .70  |      |       |       |      |
| 2. I get defensive at work in order to protect my feelings of self-worth   |                  | .63  |      |       |       |      |
| 3. I feel threatened when others outperform me at work   |                  | .61  |      |       |       |      |
| 4. When I experience a setback at work, my ego takes a blow  |                  | .60  |      |       |       |      |
| 5. I feel personally attacked when my ideas are not validated at work  |                  | .66  |      |       |       |      |
| <b><u>Observe (MF O)</u></b>   | <b>.73</b>       |      |      |       |       |      |
| 6. I notice how individuals at work seem to share an energy that is contagious   |                  |      | .69  |       |       |      |
| 7. I recognize that my work impacts others both inside and outside my organization   |                  |      | .72  |       |       |      |
| 8. I notice how people are interconnected at work.   |                  |      | .71  |       |       |      |
| 9. I am able to shift my focus from the big picture to the details at work   |                  |      | .63  |       |       |      |
| 10. I understand how everyday tasks at work contribute to achieving the big picture  |                  |      | .69  |       |       |      |
| 11. I am able to take in a wide breadth of stimuli from the external environment which includes both small details and the big picture |                  |      | .63  |       |       |      |
| <b><u>Nonjudge (MF MJ)</u></b>   | <b>.73</b>       |      |      |       |       |      |
| 12. During a conversation at work, I often evaluate what an individual is saying and make judgments about their character              |                  |      |      | .74   |       |      |
| 13. I tend to form opinions about how worthwhile or worthless others' experience are at work   |                  |      |      | .64   |       |      |

|  |            |  |  |     |     |     |
|--|------------|--|--|-----|-----|-----|
| 14. I am critical of others when they are irrational or display inappropriate emotions at work   |            |  |  | .66 |     |     |
| 15. I tend to make judgments about individuals quickly at work when meeting them for the first time  |            |  |  | .61 |     |     |
| <b><u>Nonreact (MF NR)</u></b>   |            |  |  |     |     |     |
| 16. I don't allow my mood to be swayed when I experience negative or self-defeating thoughts at work.  | <b>.77</b> |  |  |     | .61 |     |
| 17. When something bad happens to me at work, I am able to quickly let it go   |            |  |  |     | .65 |     |
| 18. I am able to step back and be aware of my thoughts and emotions at work without getting taken over by them                                   |            |  |  |     | .58 |     |
| 19. I experience thoughts and emotions at work but don't let them distract me  |            |  |  |     | .66 |     |
| <b><u>Present (MF P)</u></b>   |            |  |  |     |     |     |
| 20. When I'm at work, my mind wanders off and I'm easily distracted  | <b>.80</b> |  |  |     |     | .77 |
| 21. I find it difficult to stay focused on what's happening in the current moment at work due to being distracted                                |            |  |  |     |     | .74 |
| 22. When I'm working on something, part of my mind is occupied with other things, such as what I'll be doing later or things I'd rather be doing |            |  |  |     |     | .69 |
| 23. My mind often wanders at work which makes it difficult for me to stay focused in the present moment  |            |  |  |     |     | .66 |

*Note: Loadings less than .40 are omitted.*



**Table 4*****Summary of the Mindfulness Refinement Process using Sample 2 student data***

| <b>Model</b>  | <b><math>\chi^2</math></b> | <b><i>df</i></b> | <b>RMSEA</b> | <b>CFI</b> | <b>TLI</b> |
|---|----------------------------|------------------|--------------|------------|------------|
| Baseline Model 1<br><i>Five-factor with 23 items</i>            | 490.82                     | 220              | .083         | 0.88       | 0.86       |
| Model 2 (Final model)<br><i>Five-factor model with 19 items</i> | 222.45                     | 142              | .057         | 0.95       | 0.94       |
| Model 3<br><i>2<sup>nd</sup> order model based on Model 2</i>   | 242.59                     | 147              | .061         | 0.94       | 0.93       |
| Model 4<br><i>1 factor model, 19 items</i>                      | 1153.87                    | 152              | .193         | 0.39       | 0.31       |

*Note.* RMSEA = root-mean-square of approximation. CFI = comparative fit index. TLI = Tucker-Lewis index.

**Table 5**

*Standardized Factor Loadings and Composite Reliability for Each Dimension of the Mindfulness Measure after Refinement Process using Sample 3 Employee Data <sup>a</sup>*

| <b>Items</b>  | <b>CR</b> | <b>Loading</b> |
|---|-----------|----------------|
| <b><u>Present</u></b>   | .86       |                |
| 1. When I'm working on something, part of my mind is occupied with other things, such as what I'll be doing later or things I'd rather be doing |           | .61            |
| 2. My mind often wanders at work which makes it difficult for me stay focused in the present moment   |           | .95            |
| 3. I find it difficult to stay focused on what's happening in the current moment at work due to being distracted                                |           | .88            |
| <b><u>Observe</u></b>   | .79       |                |
| 4. I am able to shift my focus from the big picture to the details at work  |           | .78            |
| 5. I understand how everyday tasks at work contribute to achieving the big picture  |           | .66            |
| 6. I recognize that my work impacts others both inside and outside my organization  |           | .71            |
| 7. I notice how people are interconnected at work   |           | .64            |
| <b><u>Nonreact</u></b>  | .82       |                |
| 8. I don't allow my mood to be swayed when I experience negative or self-defeating thoughts at work   |           | .58            |
| 9. When something bad happens to me at work, I am able to quickly let it go   |           | .78            |
| 10. I experience thoughts and emotions at work but do not let them distract me  |           | .79            |
| 11. I am able to step back and be aware of my thoughts or emotions at work without getting taken over by them                                   |           | .74            |
| <b><u>Nonjudge</u></b>  | .83       |                |
| 12. I tend to form opinions about how worthwhile or worthless others' experiences are at work   |           | .75            |
| 13. I tend to make judgments about individuals quickly at work when meeting them for the first time   |           | .81            |
| 14. I am critical of others when they display irrational or inappropriate emotions at work  |           | .68            |
| 15. During a conversation at work, I often evaluate what an individual is saying and make judgments about their character                       |           | .72            |
|   |           |                |

| <b><u>Decentering</u></b>  | .82 |     |
|--|-----|-----|
| 16. I feel the need to reinforce my accomplishments at work to maintain my self-esteem |     | .65 |
| 17. I get defensive at work in order to protect my feelings of self-worth              |     | .78 |
| 18. I feel personally attacked when my ideas are not validated at work                 |     | .76 |
| 19. When I experience a setback at work, my ego takes a blow                           |     | .74 |

*Note.* <sup>a</sup> Final items for the new mindfulness scale. CR = composite reliability.

**Table 6*****Results of Omnibus Confirmatory Factor Analysis for Mindfulness Discriminant******Validity with Other Constructs using Sample 3 Employee Data***

| <b>Model</b>   | <b><math>\chi^2</math></b> | <b>df</b> | <b>SCDT</b> | <b>RMSEA</b> | <b>CFI</b> | <b>TLI</b> |
|--|----------------------------|-----------|-------------|--------------|------------|------------|
| Model 1 Baseline 7 –Factor Model<br>(Mindfulness, anxiety,<br>neuroticism, core self-evaluation,<br>self-monitoring, openness to<br>experience, and emotional<br>intelligence) | 356.14                     | 209       |             | .065         | .91        | .89        |
| Model 2 Mindfulness and anxiety  | 405.62                     | 215       | 49.48**     | .073         | .88        | .86        |
| Model 3 Mindfulness and<br>neuroticism   | 405.26                     | 215       | 49.12**     | .073         | .88        | .86        |
| Model 4 Mindfulness and core<br>self-evaluation  | 410.16                     | 215       | 54.02**     | .074         | .88        | .86        |
| Model 5 Mindfulness and self-<br>monitoring  | 505.81                     | 215       | 149.67**    | .090         | .82        | .78        |
| Model 6 Mindfulness and<br>openness to experience  | 434.62                     | 215       | 78.48**     | .078         | .86        | .84        |
| Model 7 Mindfulness and<br>emotional intelligence  | 466.00                     | 215       | 109.86**    | .083         | .84        | .81        |

*Note.* SCDT = sequential chi-square difference test.

\*\*  $p < .01$ .

**Table 7**

*Correlations between Mindfulness and Related Measures using Sample 3 Employee*

*Data*

|                        | <b>New Mindfulness Scale</b> | <b>Brown &amp; Ryan (2003)</b> |
|------------------------|------------------------------|--------------------------------|
| Emotional intelligence | .34**                        | .21**                          |
| Self-monitoring        | .26**                        | .15                            |
| Core self-evaluation   | .32**                        | .29**                          |
| Anxiety                | -.45**                       | -.45**                         |
| Openness to experience | .04                          | -.07                           |
| Neuroticism            | -.32**                       | -.23*                          |

*Note.* The standardized correlations between mindfulness and related measures partialling out the influence of social desirability to control for common method variance.

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

**Table 8**

*State Mindfulness items used to test nomological validity in Sample 4 Mturk data*

| <b>Items</b>   |
|--|
| <b><u>Present</u></b> <ol style="list-style-type: none"><li>1. Part of my mind was occupied with other things, such as what I'll be doing later or things I'd rather be doing</li><li>2. My mind wandered which made it difficult for me stay focused in the present moment</li><li>3. I found it difficult to stay focused on what was happening due to being distracted</li></ol>  |
| <b><u>Observe</u></b> <ol style="list-style-type: none"><li>4. I was able to shift my focus from the big picture to the details</li><li>5. I felt I understand how everyday tasks of my role contribute to achieving the big picture</li><li>6. I recognized how my work impacts others both inside and outside my organization</li><li>7. I noticed how people are interconnected at work</li></ol>   |
| <b><u>Nonreact</u></b> <ol style="list-style-type: none"><li>8. I did not allow my mood to be swayed when I experienced negative or self-defeating thoughts</li><li>9. When something bad happened to me, I was able to quickly let it go</li><li>10. I experienced thoughts and emotions but did not let them distract me</li><li>11. I found myself able to step back and be aware of my thoughts or emotions without getting taken over by them</li></ol>   |
| <b><u>Nonjudge</u></b> <ol style="list-style-type: none"><li>12. I tended to form opinions about how worthwhile or worthless others' experiences were at work</li><li>13. I tended to make judgments about individuals quickly when seeing them for the first time in the morning</li><li>14. I found myself being critical of others when they were irrational or displayed inappropriate emotions</li><li>15. During conversations, I found myself evaluating what an individual was saying and making judgments about their character</li></ol> |
| <b><u>Decentering</u></b> <ol style="list-style-type: none"><li>16. I felt the need to reinforce my accomplishments at work to maintain my self-esteem</li><li>17. I became defensive at work in order to protect my feelings of self-worth</li><li>18. I felt personally attacked when my ideas were not validated at work</li><li>19. When I experienced a setback at work, my ego took a blow</li></ol>   |

**Table 9**

*Usefulness Analysis and Incremental Validity of the Current Mindfulness Scale  
Compared to Brown & Ryan (2003) Mindfulness Measure using Sample 4 Mturk Data*

| Predictor                      | Job satisfaction |                         | Psychological Well-being |                         | Life Satisfaction |                         |
|--------------------------------|------------------|-------------------------|--------------------------|-------------------------|-------------------|-------------------------|
|                                | R <sup>2</sup>   | $\Delta$ R <sup>2</sup> | R <sup>2</sup>           | $\Delta$ R <sup>2</sup> | R <sup>2</sup>    | $\Delta$ R <sup>2</sup> |
| 1 <sup>st</sup> ordering step: |                  |                         |                          |                         |                   |                         |
| 1. Brown & Ryan                | .23**            |                         | .34**                    |                         | .23**             |                         |
| 2. Reina                       |                  | .14**                   |                          | .18**                   |                   | .08**                   |
| 2 <sup>nd</sup> ordering step: |                  |                         |                          |                         |                   |                         |
| 1. Reina                       | .38**            |                         | .51**                    |                         | .32**             |                         |
| 2. Brown & Ryan                |                  | 0                       |                          | .02**                   |                   | 0                       |

*Note.* Analyses include social desirability as a control variable to minimize common method bias. R<sup>2</sup> is adjusted R<sup>2</sup>.

\*\* p<.001.

**Table 10***Daily Alphas for Main Study Variables*

| <b>Day</b> | <b>Leader Mindfulness</b> | <b>Leader Self-regulation</b> | <b>Situationally-Driven Leadership</b> | <b>Unit Performance</b> | <b>Unit Organizational Citizenship Behaviors</b> |
|------------|---------------------------|-------------------------------|--|-------------------------|--|
| 1          | 0.90                      | 0.82                          | 0.96                                   | 0.91                    | 0.87   |
| 2          | 0.95                      | 0.75                          | 0.96                                   | 0.90                    | 0.95   |
| 3          | 0.90                      | 0.85                          | 0.99                                   | 0.84                    | 0.95   |
| 4          | 0.87                      | 0.82                          | 0.99                                   | 0.80                    | 0.96   |
| 5          | 0.92                      | 0.84                          | 0.99                                   | 0.59                    | 0.94   |
| 6          | 0.93                      | 0.90                          | 0.99                                   | 0.95                    | 0.94   |
| 7          | 0.88                      | 0.92                          | 0.99                                   | 0.85                    | 0.98   |
| 8          | 0.88                      | 0.82                          | 0.99                                   | 0.94                    | 0.97   |
| 9          | 0.78                      | 0.94                          | 0.99                                   | 0.97                    | 0.99   |
| 10         | 0.69                      | 0.91                          | 0.99                                   | 0.71                    | 0.95   |
| 11         | 0.95                      | 0.89                          | 0.99                                   | 0.99                    | 0.98   |
| Average    | 0.88                      | 0.86                          | 0.98                                   | 0.86                    | 0.95   |



**Table 11*****Descriptive Statistics and Intercorrelations Among Study Variables from Main Sample******for Hypothesis Testing***

| Variable                           | Cronbach's Alpha | <i>M</i> | <i>SD</i> | Daily Level Correlations |        |       |     |       |
|------------------------------------|------------------|----------|-----------|--------------------------|--------|-------|-----|-------|
|                                    |                  |          |           | 1                        | 2      | 3     | 4   | 5     |
| <b>Time 0 questionnaire</b>        |                  |          |           |                          |        |       |     |       |
| 1. Organizational constraints      | .85              | 1.7      | 0.58      |                          |        |       |     |       |
| <b>Daily questionnaires</b>        |                  |          |           |                          |        |       |     |       |
| 2. State mindfulness               | .88              | 4.8      | 0.66      | -.04                     |        |       |     |       |
| 3. Self-regulation                 | .86              | 5.0      | 0.66      | -.12                     | 0.60** |       |     |       |
| 4. Situationally-driven leadership | .98              | 5.8      | 1.07      | -.04                     | .09    | .03   |     |       |
| 5. Unit performance                | .86              | 5.4      | 0.66      | .04                      | .48**  | .69** | .03 |       |
| 6. Unit OCBs                       | .95              | 5.1      | 0.81      | .04                      | .53**  | .75** | .07 | .66** |

*Note.*  $n = 159 - 335$  at the leader level. Cronbach's alpha was calculated for each of the ten shifts for the daily questionnaires and then these ten reliabilities were averaged.

\*  $p < .05$ . \*\*  $p < .01$  (two-tailed).

**Table 12**

*Daily ICC(1), ICC(2), and  $R_{wg(j)}$  Statistics for Situationally-Driven Leadership to*

*Justify Aggregation*

| <b>Day</b>                | <b>ICC(1)</b>    | <b>ICC(2)</b>    | <b><math>R_{wg(j)}</math></b> | <b><i>SD</i> of <math>R_{wg(j)}</math></b> |
|---------------------------|------------------|------------------|-------------------------------|--|
| 1                         | 0.24             | 0.52             | 0.94                          | 0.09                                       |
| 2                         | -0.19            | -0.89            | 0.71                          | 0.39                                       |
| 3                         | 0.21             | 0.52             | 0.72                          | 0.42                                       |
| 4                         | -0.10            | -0.51            | 0.72                          | 0.41                                       |
| 5                         | 0.09             | 0.28             | 0.83                          | 0.31                                       |
| 6                         | 0.16             | 0.47             | 0.76                          | 0.40                                       |
| 7                         | 0.02             | 0.07             | 0.95                          | 0.10                                       |
| 8                         | 0.05             | 0.17             | 0.75                          | 0.43                                       |
| 9                         | 0.70             | 0.83             | 0.99                          | 0.01                                       |
| 10                        | 0.85             | 0.91             | 0.98                          | 0.01                                       |
| 11                        | 0.04             | 0.07             | 0.97                          | 0.03                                       |
|                           |                  |                  |                               |  |
| <b>Summary Statistics</b> | 0.09<br>(median) | 0.28<br>(median) | 0.85<br>(mean)                | 0.24<br>(mean)                             |

**Table 13*****Confirmatory Factor Analysis Tests of Discriminant Validity***

| <b>Day 1 Models</b>   | $\chi^2$ | <i>df</i> | <b>RMSEA</b> | <b>CFI</b> | <b>TLI</b> | $\Delta\chi^2$ | $\Delta df$ |
|---|----------|-----------|--------------|------------|------------|----------------|-------------|
| 1. 4-factor model: distinct factors for leader mindfulness, leader self-regulation, unit performance, and unit OCBs | 70.63*   | 48        | .08          | .92        | .89        |                |             |
| 2. One factor model   | 134.12** | 54        | .15          | .70        | .64        | 61.49**        | 6           |
| 3. 3 factor model with leader mindfulness and self-regulation combined  | 104.84** | 51        | .12          | .80        | .74        | 34.21**        | 3           |
| 4. 3 factor model with unit performance and OCBs combined   | 85.32**  | 51        | .10          | .87        | .84        | 14.69**        | 3           |
| 5. 3 factor model with self-regulation and unit performance combined  | 89.32**  | 51        | .10          | .86        | .82        | 18.69**        | 3           |
| 6. 3 factor model with self-regulation and unit OCB combined  | 94.25**  | 51        | .11          | .84        | .79        | 23.62**        | 3           |

*Note.* Models 2-6 are compared to the Model 1. Each of the RMSEA = root-mean-square of approximation. CFA = comparative fit index. TLI = Tucker-Lewis index.

\*  $p < .05$

\*\*  $p < 0.01$ .

***Confirmatory Factor Analysis Tests of Discriminant Validity***

| <b>Day 5 Models</b>   | $\chi^2$ | <i>df</i> | <b>RMSEA</b> | <b>CFI</b> | <b>TLI</b> | $\Delta\chi^2$ | $\Delta df$ |
|---|----------|-----------|--------------|------------|------------|----------------|-------------|
| 1. 4-factor model: distinct factors for leader mindfulness, leader self-regulation, unit performance, and unit OCBs | 74.36**  | 48        | .12          | .88        | .83        |                |             |
| 2. One factor model   | 102.16** | 54        | .15          | .78        | .73        | 27.80**        | 6           |
| 3. 3 factor model with leader mindfulness and self-regulation combined  | 93.18**  | 51        | .14          | .80        | .75        | 18.82**        | 3           |
| 4. 3 factor model with unit performance and OCBs combined   | 79.88**  | 51        | .10          | .86        | .83        | 5.52           | 3           |
| 5. 3 factor model with self-regulation and unit performance combined  | 74.61**  | 51        | .11          | .89        | .86        | 0.25           | 3           |
| 6. 3 factor model with self-regulation and unit OCB combined  | 82.43**  | 51        | .12          | .85        | .81        | 8.07*          | 3           |

*Note.* Models 2-6 are compared to the Model 1. Each of the RMSEA = root-mean-square of approximation. CFA = comparative fit index. TLI = Tucker-Lewis index.

\*  $p < .05$

\*\*  $p < 0.01$ .

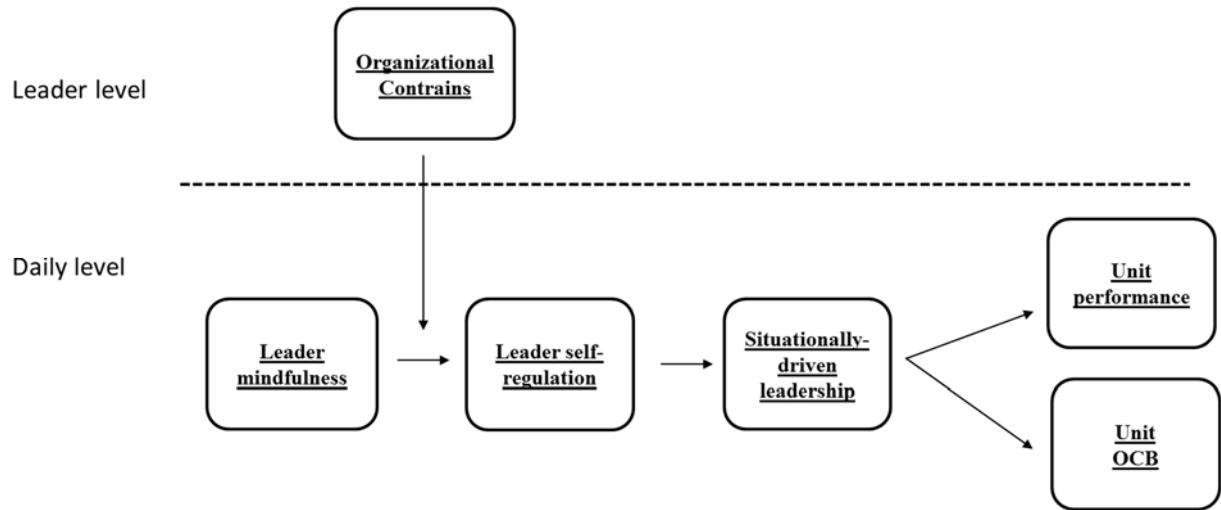
**Table 14*****Model Fit Indices for Hypothesized Model and Alternative Model Comparisons***

| <b>Model</b>  | <b>SCF<sup>a</sup></b> | <b><math>\chi^2</math><sup>b</sup></b> | <b>df</b> | <b>RMSEA</b> | <b>CFI</b> | <b>TLI</b> | <b><math>\Delta\chi^2</math><sup>c</sup></b> | <b><math>\Delta df</math></b> |
|---|------------------------|--|-----------|--------------|------------|------------|--|-------------------------------|
| 1. Hypothesized model   | 0.773                  | 118.12<br>**                           | 5         | .300         | .604       | -.427      |  |                               |
| 2. Add path from mindfulness to situationally-driven leadership | 0.868                  | 105.05<br>**                           | 4         | .317         | .646       | -.593      | .31  | 1                             |
| 3. Add path from mindfulness to performance                     | 0.737                  | 123.46<br>**                           | 4         | .344         | .581       | -.884      | .34  | 1                             |
| 4. Add path from mindfulness to OCB                             | 0.684                  | 130.57<br>**                           | 4         | .354         | .556       | -.996      | 1.77   | 1                             |
| 5. Add path from self-regulation to performance                 | 0.850                  | 98.16<br>**                            | 4         | .306         | .670       | -.485      | 16.93 **                                     | 1                             |
| 6. Add path from self-regulation to OCB                         | 1.11                   | 39.88<br>**                            | 4         | .189         | .874       | .434       | -81.81 <sup>d</sup><br>**                    | 1                             |
| 7. Add paths from self-regulation to performance and OCB        | 1.472                  | 0.309                                  | 3         | 0.00         | 1.00       | 1.06       | -329.77 <sup>d</sup><br>**                   | 2                             |

*Note.* <sup>a</sup> SCF is scaling correction factor. <sup>b</sup>  $\chi^2$  is Satorra-Bentler scaled  $\chi^2$ . <sup>c</sup>  $\Delta\chi^2$  is Satorra-Bentler scaled adjusted  $\chi^2$  difference. <sup>d</sup> Given the negative values, the Satorra-Bentler scales adjusted  $\chi^2$  difference is not interpretable, but given the reduction in the Satorra-Bentler scaled  $\chi^2$  when comparing Model 1 and Model 5, it follows that an even more decreased Satorra-Bentler scaled  $\chi^2$  value for Models 6-7 when compared to Model 1 as well as the increase in the other fit statistics in Models 6-7 when compared to Model 1 suggest that Model 7 provides the best fit for the data (i.e. paths from self-regulation to performance and OCB should be retained) and Model 7 should be utilized for hypothesis testing. Furthermore, given that the coefficients are significant for these paths also suggests that these should be included in the model for hypothesis testing.  
\*\* p < 0.01.

**Figure 1**

*Proposed Theoretical Model*



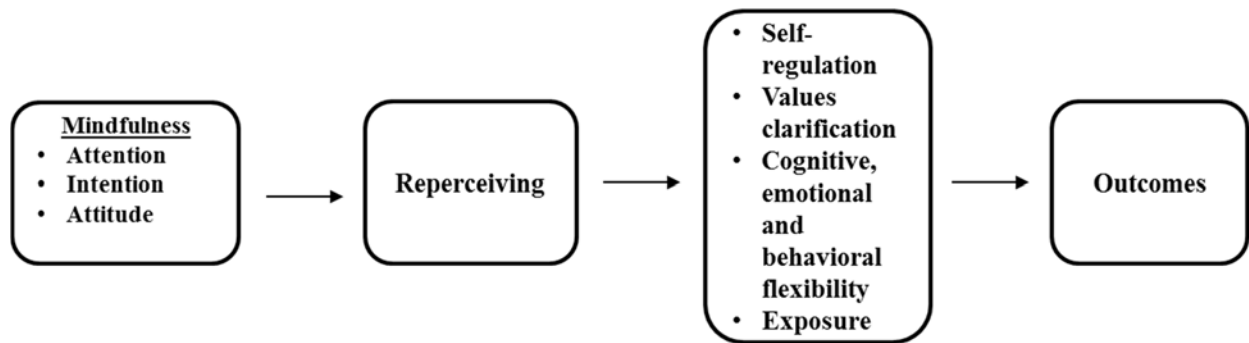
**Figure 2**

*Differentiating Mindfulness from other States of Attention (from Dane, 2011)*

|                            |      | Attentional Breadth   |  |
|----------------------------|------|-----------------------|--|
|                            |      | Relatively Wide       | Relatively Narrow  |
| Present Moment Orientation | High | <i>Mindfulness</i>    | <i>Absorption Flow</i>   |
|                            | Low  | <i>Mind Wandering</i> | <i>Counterfactual Thinking</i><br><i>Prospection</i><br><i>Fantasizing</i> |

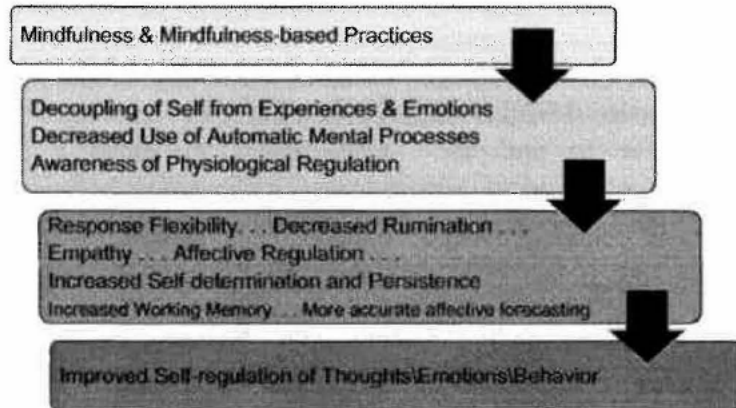
**Figure 3**

*Theoretical Model of Mindfulness (adapted from Shapiro et al., 2006)*



**Figure 4**

*Core and Secondary Processes Linking Mindfulness to Self-Regulation (from Glomb et al., 2011)*

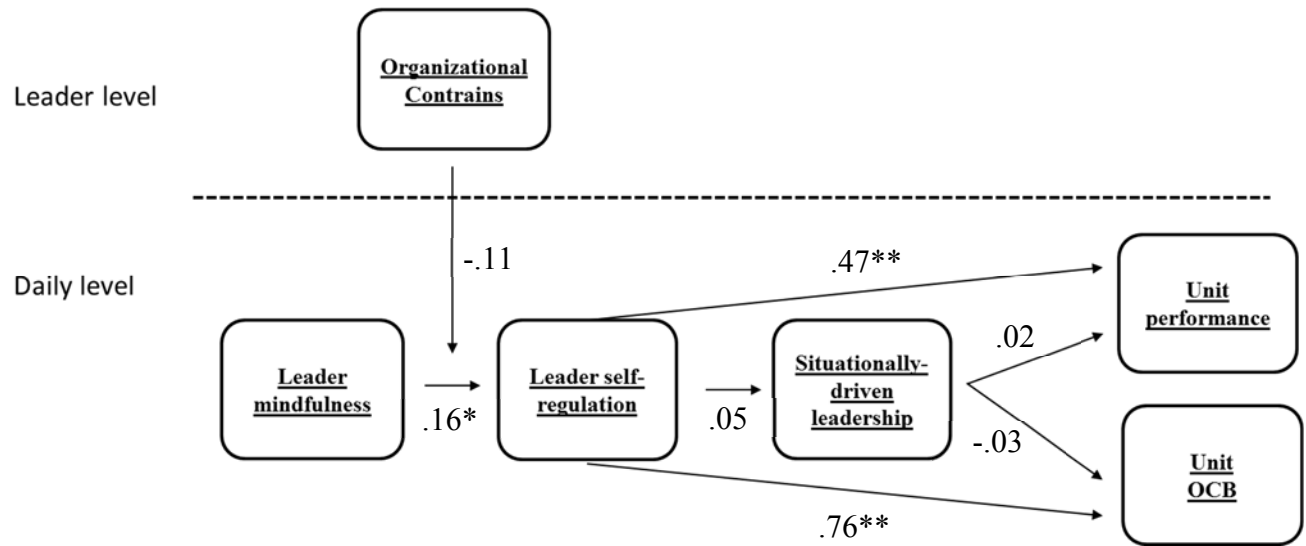




**Figure 5.**

*Theoretical Model with Unstandardized Path Coefficients Linking Main Study*

*Variables*

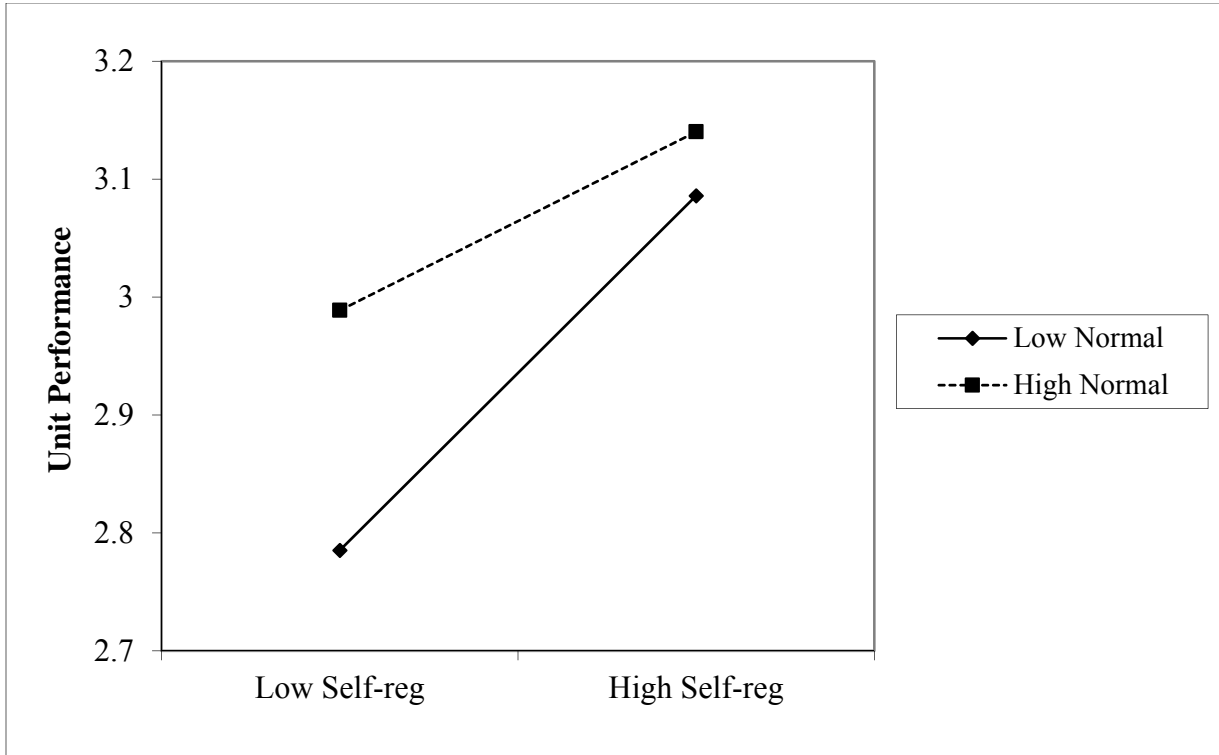


*Note.* Control variables were omitted to simplify the figure.

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

**Figure 6**

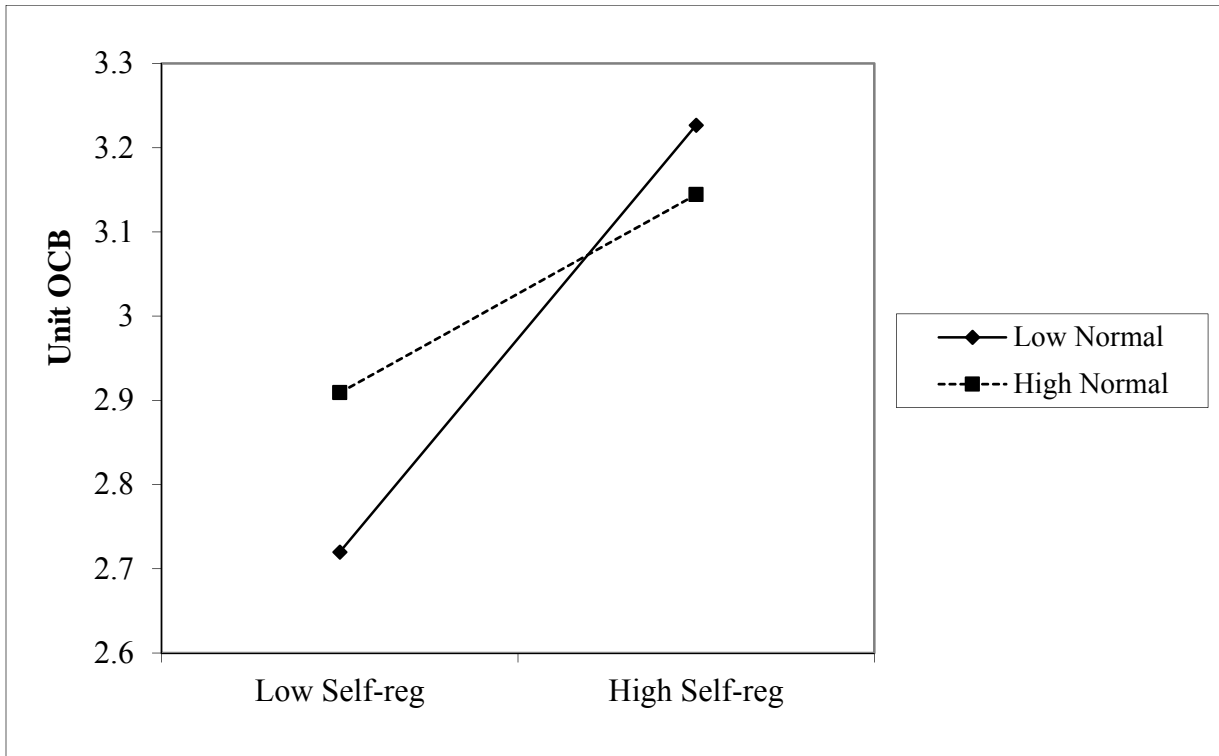
*Unit Performance as a Function of Leader Self-Regulation and Day Normality<sup>1</sup>*



<sup>1</sup> Interaction graph plotted using Dawson (2014) Excel worksheet

**Figure 7**

*Unit OCB as a Function of Leader Self-Regulation and Day Normality*<sup>1</sup>



<sup>1</sup> Interaction graph plotted using Dawson (2014) Excel worksheet

APPENDIX A

INTERNATIONAL REVIEW BOARD

APPROVAL FORM FOR MINDFULNESS SCALE DEVELOPMENT



EXEMPTION GRANTED

Suzanne Peterson  
WPC - Management  
480/727-6241  
Suzanne.Peterson@asu.edu

Dear Suzanne Peterson:

On 3/17/2014 the ASU IRB reviewed the following protocol:

|                     |   |
|---------------------|---|
| Type of Review:     | Initial Study   |
| Title:              | The Impact of Mindfulness on Leader and Follower Flourishing  |
| Investigator:       | Suzanne Peterson  |
| IRB ID:             | STUDY00000762   |
| Funding:            | None  |
| Grant Title:        | None  |
| Grant ID:           | None  |
| Documents Reviewed: | <ul style="list-style-type: none"> <li>• HRP-502c Peterson Consent Document Short Form - Students, Category: Consent Form;</li> <li>• HRP-502c Peterson Consent Document Short Form - Participants, Category: Consent Form;</li> <li>• Peterson - Protocol Template Social Behavioral, Category: IRB Protocol;</li> <li>• Peterson - Survey Items, Category: IRB Protocol;</li> <li>• Recruitment - Students, Category: Recruitment Materials;</li> <li>• Recruitment - Participants, Category: Recruitment Materials;</li> </ul> |

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (2) Tests, surveys, interviews, or observation on 3/17/2014.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Christopher Reina Christopher Reina

APPENDIX B

INTERNATIONAL REVIEW BOARD

APPROVAL FORM FOR HYPOTHESIS TESTING SAMPLE

EXEMPTION GRANTED

Suzanne Peterson  
 Management  
 480/727-6241  
 Suzanne.Peterson@asu.edu

Dear Suzanne Peterson:

On 12/15/2014 the ASU IRB reviewed the following protocol:

|                     |   |
|---------------------|---|
| Type of Review:     | Initial Study   |
| Title:              | The Impact of Mindfulness on Leader Adaptable Behavior  |
| Investigator:       | Suzanne Peterson  |
| IRB ID:             | STUDY00001967   |
| Funding:            | None  |
| Grant Title:        | None  |
| Grant ID:           | None  |
| Documents Reviewed: | <ul style="list-style-type: none"> <li>• IRB coverletter consent form - time 0 collection.pdf, Category: Consent Form;</li> <li>• IRB coverletter consent form - ESM collection.pdf, Category: Consent Form;</li> <li>• Peterson protocol 12-4.docx, Category: IRB Protocol;</li> <li>• All Time 0 Survey Items 12-4.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);</li> <li>• All ESM Survey Items 12-4.docx, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);</li> <li>• Scottsdale Fire Department Confirmation.pdf, Category: Off-site authorizations (school permission, other IRB approvals, Tribal permission etc);</li> <li>• recruitment - time 0 collection.pdf, Category: Recruitment Materials;</li> <li>• recruitment - ESM collection.pdf, Category: Recruitment Materials;</li> </ul> |

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (2) Tests, surveys, interviews, or observation on 12/15/2014.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,  
 IRB Administrator  
 cc: Christopher Reina Christopher Reina

APPENDIX C  
SCALE VALIDATION SURVEY ITEMS



## Reina Trait Mindfulness

See Table 5.

## Brown and Ryan (2003) Trait Mindfulness.

1. I rush through activities without being really attentive to them.
2. I get so focused on the goal I want to achieve that I lose touch with what I am doing right now to get there.
3. I do jobs or tasks automatically, without being aware of what I'm doing
4. I drive places on "automatic pilot" and then wonder why I went there.
5. I find myself doing things without paying attention.
6. I could be experiencing some emotion and not be conscious of it until some time later.
7. I break or spill things because I am careless, not paying attention, or thinking of something else.
8. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.
9. I tend not to notice feelings of physical tension or discomfort until they really grab my attention.
10. I forget a person's name almost as soon as I've been told it for the first time.
11. It seems I am "running on automatic" without much awareness of what I am doing.
12. I find myself listening to someone with one ear, doing something else at the same time.
13. I find myself preoccupied with the future or the past.
14. I snack without being aware that I'm eating.
15. I find it difficult to stay focused on what's happening in the present.

## Social Desirability

1. I never regret my decisions.
2. I am a completely rational person.
3. I never cover up my mistakes.
4. I have never taken sick-leave from work or school even though I wasn't really sick

## Emotional Intelligence

1. I am able to control my temper so that I can handle difficulties rationally.
2. I have good control of my own emotions.

## Openness to Experience

1. I see myself as someone who is open to new experiences, complex
2. I see myself as someone who is conventional, uncreative

### Neuroticism

1. I see myself as someone who is anxious and easily upset
2. I see myself as someone who is calm and emotionally stable

### Anxiety

1. I worry too much over something that really doesn't matter
2. I feel nervous and restless
3. Some unimportant thoughts run through my mind and bothers me
4. I take disappointments so keenly that I can't put them out of my mind

### Core Self-Evaluation

1. I am confident I get the success I deserve in life
2. Sometimes when I fail, I feel worthless
3. I am filled with doubts about my competence
4. I am capable of coping with most of my problems

### Self-Monitoring

1. I have found that I can adjust my behavior to meet the requirements of any situation I find myself in
2. I do not have trouble changing my behavior to suit different people and different situations
3. In social situations, I have the ability to alter my behavior if I feel that something is called for
4. Once I know what the situation calls for, it's easy for me to regulate my actions accordingly

### Reina State Mindfulness

See Table 8.

### Brown and Ryan (2003) State Mindfulness

1. I rushed through activities without being really attentive to them
2. I did jobs or tasks automatically, without being aware of what I was doing
3. I found myself doing things without paying attention.
4. I found myself more preoccupied with the future or the past than the present
5. I found it difficult to stay focused on what's happening in the present

### Psychological Well-Being

1. I possess a positive attitude toward myself
2. I am disappointed with what has occurred in my past life

3. I acknowledge and accept multiple aspects of myself, including good and bad qualities
4. I have warm, satisfying, trust relationships with others
5. I find it difficult to be warm, open, and concerned about others
6. I am not willing to make compromises to sustain important ties with others
7. I am self-determining and independent
8. I rely on judgments of others to make important decisions
9. I evaluate myself by my personal standards
10. I have difficulty managing everyday affairs
11. I feel unable to change or improve my surrounding context
12. I am able to choose or create contexts suitable to personal needs and values
13. I lack a sense of meaning in life
14. I have goals in life and a sense of directness
15. I have aims and objectives for living
16. I have a sense of personal stagnation
17. I am open to new experiences and have a sense of realizing my potential
18. I feel bored and uninterested with life

#### Job Satisfaction

1. Generally speaking, I am very satisfied with this job
2. I frequently think of quitting this job
3. I am generally satisfied with the kind of work I do in this job

#### Life Satisfaction

1. In most way, my life is close to my ideal
2. The conditions of my life are excellent
3. I am satisfied with my life
4. So far, I have gotten the important things I want in life
5. If I could live my life over, I would change almost nothing

APPENDIX D

MAIN STUDY TIME 0 LEADER AND FOLLOWER SURVEY ITEMS

LEADER

Organizational Constraints

How OFTEN do you find it difficult or impossible to do your job because of each of the following?

1. Poor equipment or supplies
2. Organizational rules and procedures
3. Inadequate training
4. Interruptions by other people
5. Lack of necessary information about what to do or how to do it
6. Conflicting job demands

Demographic Information

1. What is your age? \_\_\_\_\_
2. What is your gender?      Male              Female
3. How many years of full-time work experience have you had? (circle one below)  
Less than 1 year, 1-2 years, 2-4 years, 4-7 years, more than 7 years
4. How long have you worked for City of Scottsdale? (circle one below)  
\_\_\_\_\_yrs. \_\_\_\_\_ months
5. How long have you been in your team ? (circle one below)  
\_\_\_\_\_yrs. \_\_\_\_\_ months
6. How long have you supervised your current unit ? (circle one below)  
\_\_\_\_\_yrs. \_\_\_\_\_ months
7. What is the highest level of education you have completed? (circle one below)  
High school/GED equivalent, some college, Associate's degree,  
Bachelor's degree, Master's degree, professional or doctorate degree

FOLLOWER

Demographic Information

1. What is your age? \_\_\_\_\_
2. What is your gender?      Male              Female
3. How many years of full-time work experience have you had? (circle one below)  
Less than 1 year, 1-2 years, 2-4 years, 4-7 years, more than 7 years
4. How long have you worked for City of Scottsdale? (circle one below)  
\_\_\_\_\_yrs. \_\_\_\_\_ months
5. How long have you been in your team ? (circle one below)  
\_\_\_\_\_yrs. \_\_\_\_\_ months
6. How long have you worked for your current supervisor ? (circle one below)  
\_\_\_\_\_yrs. \_\_\_\_\_ months
7. What is the highest level of education you have completed? (circle one below)  
High school/GED equivalent, some college, Associate's degree,  
Bachelor's degree, Master's degree, professional or doctorate degree

APPENDIX E

MAIN STUDY DAILY LEADER AND FOLLOWER SURVEY ITEMS

## LEADER

### Reina State Mindfulness

See Table 8.

### Leader Self-Regulation

#### Empathy

1. Showed sensitivity and understanding
2. Asked questions to be sure I understood the unit

#### Response Flexibility

3. I was willing to work at creative solutions to problems
4. I was willing to listen and consider alternatives for handling a problem

#### Emotional Regulation

5. When I experienced emotions, I lost control over my behaviors
6. I paid attention to how I was feeling and was able to change my thoughts and emotions

### Unit Performance

1. The unit adequately completed assigned duties.
2. The unit fulfilled specified responsibilities.
3. The unit performed its expected tasks
4. The unit met formal performance requirements of the unit.
5. The unit performed aspects of the job it is obligated to perform.
6. The unit performed essential duties.

### Unit OCBs

#### Helping (affiliative-promotive) behavior

1. Individuals in the group assist others in this group with their work for the benefit of the group
2. Individuals in the group get involved to benefit this work group
3. Individuals in the group help others in this group learn about the work



### Voice (challenging-promotive) behavior

4. Individuals in the group develop and make recommendations concerning issues that affect this work group
5. Individuals in the group speak up and encourage others in this group to get involved in issues that affect the group
6. Individuals in the group speak up in this group with ideas for new projects or changes in procedures

### Daily Control Variables:

1. To what extent would you consider today a “normal” day on the job?

### FOLLOWER

#### Situationally-Driven Leadership Items

Below is a list of six (6) categories of leadership behavior. Each is defined very broadly simply to give you a feel for the category. These definitions are not meant to be exhaustive. We are not interested in simply finding out whether your leader demonstrates these behaviors in general, but instead, we want to know if your leader displayed the type of behaviors today that your unit as a whole desired or needed to do its job effectively. Read each leadership behavior description below and indicate your level of agreement with each statement that follows:

Task-oriented leadership: Task leadership focuses primarily on facilitating task accomplishment by defining role relationships among group members, by clarifying expectations and performance standards, and by encouraging the use of standardized rules and regulations to enhance consistency and predictability.

Our leader displayed just the right amount of task-oriented leadership today that we desired or needed to effectively perform our jobs.

Relationship-oriented leadership: Relational leadership emphasizes interpersonal support by encouraging group members' involvement in decision-making, by instituting group members' suggestions, by demonstrating respect for group members, and by treating group members as equals.

Our leader displayed just the right amount of relationship-oriented leadership today that we desired or needed to effectively perform our jobs.

Transformational leadership: Transformational leaders motivate and inspire followers to continually develop by serving as role models for followers, giving them individualized attention, and stimulating their thinking.

Our leader displayed just the right amount of transformational leadership today that we desired or needed to effectively perform our jobs.

Empowering Leadership: Empowering leaders share information and decision-making power with employees in order to enhance their motivation and investment in their work by increasing employees' sense of meaning, confidence, sense of autonomy, and feeling that they have an important impact.

Our leader displayed just the right amount of empowering leadership today that we desired or needed to effectively perform our jobs.

Servant Leadership: Servant leaders serve the needs of a broad range of stakeholders by acting ethically, creating value for the community, putting followers first, and by having the knowledge to effectively support and help their followers grow and succeed.

Our leader displayed just the right amount of servant leadership today that we desired or needed to effectively perform our jobs.

Change-oriented leadership: Change-oriented leaders identify the need for change and courageously take risks to encourage innovation, collective learning, and adaptation to changing situations.

Our leader displayed just the right amount of change-oriented leadership today that we desired or needed to effectively perform our jobs.

Humility: Humble leaders lack a strong ego and pursue group goals over their own self-interest which reduces status differences and creates trust among others.

Our leader displayed just the right amount of humility today that we desired or needed to effectively perform our jobs.