WHAT MAKES US MINDFUL AND WHY DOES IT MATTER?
RELATIONSHIPS AMONG MEANINGFULNESS, STATE MINDFULNESS, AND
COUNTERPRODUCTIVE WORK BEHAVIOR

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ABSTRACT

Erin Cooke Long: What Makes Us Mindful and Why Does It Matter? Relationships Among
Meaningfulness, State Mindfulness, and Counterproductive Work Behavior
(Under the direction of Michael S. Christian)

Mindfulness has received increased attention in organizational research and practice, with
the majority of work focusing on the beneficial, buffering effects of trait mindfulness and
mindfulness interventions. I extend work on mindfulness in the workplace by examining the
causes and consequences of daily and momentary within-person fluctuations in state
mindfulness. Grounded in theories of self-regulation, this research helps shed light on dynamic,
everyday antecedents and outcomes of state mindfulness in work contexts. Specifically, I argue
that increases in meaningful work perceptions activate mindful states, which in turn have
important associations with counterproductive work behavior (CWB). Across two studies—one
laboratory experiment and a second experience sampling study conducted in the field—I test a
mediated moderation model whereby fluctuations in meaningful work perceptions indirectly
impact employee CWB through state mindfulness. Study 1 examines the impact of meaningful
work on state mindfulness and CWB in a sample of undergraduate business students in a
laboratory experiment. Study 2 extends the first study by examining dynamic fluctuations among
nurses' experiences of meaningfulness, mindful states, and their CWB using an experience
sampling methodology (ESM). Evidence from both studies converge to support the indirect
effect of meaningfulness on CWB through state mindfulness, although these relationships were
not conditional on controlled motivation. Implications and future research directions are
discussed in light of these findings

For my husband, Andrew, and my Mom and Dad.
Your love, encouragement, and laughter lift me up on the best and the worst days.
I love you and could not have done this without you.

dissertation and my success.

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CHAPTER 1: INTRODUCTION

What leads us to be mindful in some moments and mindless in others? As mindfulness at work gains traction in organizational research, this question is increasingly important. Mindfulness is a psychological concept associated with attention to and awareness of moment-to-moment experiences (Brown & Ryan, 2003; Brown, Ryan, & Creswell, 2007a; Glomb, Duffy, Bono, & Yang, 2011). Recent empirical work demonstrates that mindfulness buffers against a number of undesirable employee outcomes, including biased decision making (Hafenbrack, Kinias, & Barsade, 2014), emotional exhaustion, (Hülsheger, Alberts, Feinholdt, & Lang, 2013), and retaliation toward those who commit an injustice (Long & Christian, 2015).

While the mindfulness concept suffers from amorphous definitions across literatures, recent work more precisely conceptualizes mindfulness as self-regulatory (e.g., Brown & Ryan, 2003; Brown, Ryan, & Creswell, 2007b; Glomb et al., 2011). Evidence from multiple literatures, including organizational behavior, psychology, and neuroscience, supports the regulatory nature of mindfulness and triangulates the finding that mindfulness enhances regulatory resource capacity (e.g., Alberts, Schneider, & Martijn, 2012; Brown & Ryan, 2003; Brown et al., 2007b; Long & Christian, 2015; Friese, Messner, & Schaffner, 2012; Glomb et al., 2011, Jha, Stanley, Kyionaga, Wong, & Gelfand, 2010; Teper & Inzlicht, 2013; Weger, Hooper, Heier, & Hopthrow, 2012; Zeidan, Johnson, Diamond, David, & Goolkasian, 2010). Thus, state mindfulness—a state of nonjudgmental attention toward and awareness of present-moment experiences (Brown & Ryan, 2003; Brown et al., 2007b—may have important, yet uncovered consequences for the self-regulation of workplace behavior (e.g., Glomb et al., 2011).

Further, antecedents of mindfulness are not well understood, and the present research therefore focuses on two important gaps. First, the majority of research has focused on *trait* mindfulness and suggests that individuals differ in the propensity to experience mindfulness. A smaller body of work investigating *state* mindfulness has examined mindfulness as an induced state typically preceded by a targeted intervention. While the latter has important implications for the role of mindfulness at work, particularly given that mindful states are more proximal to daily behavior and likely to have a stronger influence over and above trait levels, this research is of limited value to managers who may not have the resources to conduct large-scale training programs. Thus, I focus on dynamic, within-person fluctuations in state mindfulness to argue that mindful states are activated by naturally occurring events and contexts and have important consequences for volitional employee behavior.

I integrate both Kahn's (1992) model of psychological presence and self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2000) to argue that employees will experience increased state mindfulness in the moments they perceive greater meaningfulness in the work at hand. Perceived work meaningfulness—a positively valenced, subjective experience in which work is perceived as significant and purposeful (Hackman & Oldham, 1980; Pratt & Ashforth, 2003; Rosso, Dekas, & Wrzesniewski, 2010; Shamir, 1991; Spreitzer, 1995; Steger, Littman-Ovadia, Miller, Menger, & Rothman, 2012)—is a dynamic psychological state (Chalofsky, 2003; Kahn, 1992; Lam, Wan, & Roussin, 2016; Ryff & Singer, 1998) in which individuals feel more connected, or integrated with the work at hand (Chalofsky, 2003; Pratt & Ashforth, 2003). Integration between self and work is characterized by greater volition and autonomous motivation in performing day-to-day tasks (Gagne & Deci, 2005), and theorized to focus attention and broaden awareness of current internal experiences and external circumstances

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(Deci, Ryan, Schultz, & Niemiec, 2015; Hodgins & Knee, 2004). Given these arguments, I expect that employees are more apt to experience increased state mindfulness when they perceive greater meaning in their work.

Second, as mindful states ebb and flow, the psychological resources involved in self-regulation will fluctuate concomitantly, impacting volitional employee behavior. Because mindful states optimize regulatory resource capacity (Hülsheger, 2013; Teper & Inzlicht, 2013; Zeidan et al., 2010), employee mindfulness should also enhance volitional work behaviors that are sensitive to momentary resource capacity, for example resisting temptation and behaving normatively (Christian, Eisenkraft & Kapadia, 2015; Christian & Ellis, 2011; Gino, Schweitzer, Mead, & Ariely, 2011; Welsh, Ellis, Christian, & Mai, 2014). Although individuals generally strive to be good and moral, findings from the aforementioned works demonstrate that employees often fall short and behave counterproductively when the regulatory resources necessary for inhibiting suboptimal behaviors are depleted (Christian et al., 2015; Christian & Ellis, 2011; Gino et al., 2011; Welsh et al., 2014). Given that mindful states have shown to enhance psychological resource capacity (e.g., Alberts et al., 2012; Friese et al., 2012; Jha et al., 2010; Teper & Inzlicht, 2013; Weger et al., 2012; Zeidan et al., 2010), fluctuations in state mindfulness likely have important implications for counterproductive work behavior (CWB), or volitional employee behavior that harms an organization or its members (Fox, Spector, & Miles, 2001; Spector & Fox, 2002). However, the extant literature has yet to investigate CWB as an outcome of state mindfulness, which is an important oversight given that employee mindfulness may help to override these behaviors. Thus, I draw on regulatory resource theories (Baumeister, Heatherton, & Tice, 1994; Muraven, Tice, & Baumeister, 1998) to argue that within-person,

increased state mindfulness is associated with reduced CWB, and ultimately underlie a negative indirect effect of meaningfulness on CWB.

Finally, I introduce a boundary condition of these relationships. Both the model of psychological presence and SDT perspectives on work motivation emphasize that various factors—both intrapersonal and daily social-contextual cues—interact to shape the conscious processing of in-role experiences (Gagne & Deci, 2005; Deci, Connell, & Ryan, 1989) and impact whether individuals feel volitional and integrated with their work in "the here and now" (Ryan, 1995). Thus, the psychological experience of meaningfulness may not be the sole factor contributing to within-person fluctuations in state mindfulness. SDT describes controlled motivation—self-imposed pressures or external contingencies that regulate behavior—as a type of motivation originating from more salient, external and ego-driven reasons for acting (Deci, Eghrari, Patrick, & Leone, 1994; Deci & Ryan, 2004; Ryan & Deci, 2000; Weinstein & Ryan, 2010) that often disrupts autonomous functioning (Deci et al., 1994). Because this form of motivation narrows employees' focus from the work itself to concerns of ego-driven contingencies and pressures (Deci et al., 2015; Hodgins & Knee, 2004), I argue that controlled motivation will fundamentally alter employees' attention and awareness of present moment experiences. Specifically, I expect perceived controlled motivation to attenuate the positive relationship between meaningfulness and state mindfulness, and expect the negative indirect effect of meaningfulness on CWB through state mindfulness to be conditional on perceptions of controlled motivation.

The current research examines the above arguments across two studies. Study 1 examines the effects of a meaningfulness manipulation on state mindfulness and cheating behavior using a sample of undergraduate business students in a laboratory experiment. Study 2 extends the first

study by examining dynamic fluctuations among perceived meaningfulness, employee state mindfulness, perceived controlled motivation, and CWB using an experience sampling methodology (ESM) in a field sample of nurses.

Taken together, this research will contribute in the following ways. This work takes a self-regulatory perspective to shed light on both antecedents and outcomes of mindful states that have yet to be considered in the extant literature. Specifically, the current work extends theories of mindfulness in the workplace (Glomb et al., 2011) by examining within-person fluctuations in state mindfulness as a function of dynamic, everyday work factors (e.g., perceived meaningfulness). Further, the majority of theoretical and empirical work linking mindfulness to behavioral outcomes examines the *buffering* role of induced mindful states (e.g., through meditative and/or breathing exercises) on suboptimal relationships between constructs, while few have considered the possible direct effects of mindfulness on behavioral outcomes in the workplace. Thus, much remains unknown regarding the impact of employee mindfulness on organizationally relevant outcomes. I extend mindfulness research—including work related to organizations—by moving beyond the literature's focus on mindfulness as a moderator, suggesting that it has main effects that explain important variance in behavior (e.g., CWB). Finally, this work addresses recent calls to investigate the existence of momentary fluctuations in meaningful work perceptions (Albrecht, 2015).

The remainder of the paper unfolds as follows. I first review the meaning and regulatory nature of mindfulness. Next, I discuss dynamic perceptions of meaningfulness, its relation to employee state mindfulness, implications for counterproductive work behavior, and the moderating role of perceived controlled motivation. I then report the methods and results of study 1, a laboratory study that tests the main effects of the model, followed by study 2, a field

experience sampling study that tests the full model. Finally, I discuss the findings of this

research, highlighting both theoretical and practical implications, limitations, and future

directions.

CHAPTER 2: LITERATURE REVIEW

Unpacking the Meaning of State Mindfulness

Despite the growing volume of mindfulness research, there remains substantial disagreement and lack of clarity regarding the nature and meaning of the construct (Brown et al., 2007a, 2007b; Glomb et al., 2011; Quaglia, Brown, Lindsay, Creswell, & Goodman, 2014). Below I provide a brief discussion regarding conceptual confusion, following which I build on recent arguments that mindfulness is a regulatory state in an effort to more clearly define and unpack its meaning. Finally, I review both antecedents and outcomes of mindfulness to provide context for the gaps addressed in the present research.

Brief historical overview. The concept of mindfulness is rooted in ancient Buddhism, a plural tradition that offers no single, unified definition (Dreyfus, 2011; Gethin, 2015; Quaglia et al., 2014). Some scholarly interpretations of ancient Buddhist texts emphasize important commonalities among the varying traditions in so far as mindfulness 1) may be interpreted as "a kind of lucid sustaining of attention on the object of awareness, in which the mind is both aware of the object and, in some sense, aware that it is aware…" (Gethin, 2015, p.32), and 2) is bound by an ethical framework in which cognition (e.g., evaluative thought and memories) is discerningly engaged to regulate psychological states and behaviors (Gethin, 2015; Quaglia et al., 2014). However, this latter emphasis on intentional and moralistic cognitive operation differs considerably from the majority of contemporary (Western) definitions. Instead, Western conceptualizations generally omit the moral undertones found in most canonical descriptions that emphasize mindfulness as a value-laden psychological state. Further, Western perspectives often

fail to recognize mindfulness as bringing "together capacities of attention and discerning thought to regulate mental states and behavior" (Quaglia et al., 2014, p. 154). In pitting mindfulness against cognitive evaluation and judgment, many contemporary definitions mistakenly imply a disconnect from all forms of subjective cognitive function (e.g. evaluation, judgment) that influence perceptions and guide behavior.

In addition, various interpretations of both the nature and meaning of mindfulness exist even within Western scientific research. From a psychological point of view, mindfulness is inconsistently defined either as one or a combination of the following: a self-regulatory state (Brown et al., 2007a; 2007b; Long & Christian, 2015; Glomb et al., 2011), or a trait or individual difference characteristic (Brown & Ryan, 2003). Perhaps more problematically, other scholars and practitioners define mindfulness as a meditation practice or clinical treatment (e.g., Linehan, 1993a; Segal, Williams & Teasdale, 2002; Kabat-Zinn, 1982), a skillset (Bishop et al., 2004; Linehan, 1993b; 1994), or as a process (Bishop et al., 2004). The trouble with the latter three conceptualizations is that they either a) fail to distinguish the psychological experience of mindfulness from its practice and/or training, b) define the concept as a process or set of processes and consequences, conflating the experience of mindfulness with explanatory mechanisms and outcomes, and/or c) are paired with conflicting operational definitions. Returning to canonical interpretations for conceptual guidance fosters greater clarity regarding the nature and meaning of mindfulness in more contemporary work (Brown & Cordon, 2009; Brown et al., 2007a; Dreyfus, 2011; Shonin, Van Gordon, & Griffiths, 2014; Quaglia et al., 2014).

Recently, scholars have increased definitional precision, first by distinguishing the psychological experience of mindfulness as separate from its practice, processes, and outcomes,

and second by conceptualizing mindfulness as a self-regulatory state (Brown & Ryan, 2003; Brown et al., 2007a, 2007b; Glomb et al., 2011; Long & Christian, 2015). Thus, the current research refers to the psychological experience of mindfulness as a regulatory state of awareness and nonjudgmental attention toward present-moment experiences, both internal and external. Further, this definition is distinct from the following related concepts: 1) *trait* mindfulness, 2) mindfulness mechanisms and processes, 3) meditative exercises or practices that induce mindful states, and 4) mindfulness treatments or therapies (e.g., Linehan, 1993; Segal et al., 2002; Kabat-Zinn, 1982).

State Mindfulness and Self-Regulation. The current work conceptualizes mindfulness as a regulatory state. Self-regulation is defined as "the self exerting control to override a prepotent response, with the assumption that replacing one response with another is done to attain goals and conform to standards" (Vohs et al., 2008, p. 884), and most simply refers to self-control of thoughts, emotions, and behaviors[1]. Mindfulness is self-regulatory in that it helps maintain saliency of long-term goals in the face of short-term motives and desires—this a key distinction often lost in contemporary mindfulness research in which a present-focused mindful state and

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[1] Traditional control theory models conceptualize self-regulation as a series of feedback loops in which state-goal discrepancies are detected and reduced through psychological and behavioral adjustments—a process that repeats until the discrepancy is resolved (Carver & Scheier, 1981; 1998). These models distinguish two specific functions of consciousness: monitoring (i.e., observation of internal and external experiences and events) and control (i.e., goal-oriented changes to internal experiences and behaviors). Recent work suggests that the control function diminishes the cognitive resource reserve that governs self-regulatory functions; discrepancy-reduction is an act of self-control that depletes a limited pool of available resources (Baumeister, Bratslavsky, Muraven, & Tice, 1998). Mindfulness has alternatively been likened to the monitor function of consciousness (Brown et al., 2007b). However, the two forms are not interchangeable. Compared to the monitor function, state mindfulness is not inherently constrained by a specific goal(s) or outcome(s), and therefore has significantly more breadth. This is not to say that mindfulness and goal-directed behavior are antithetical, rather mindfulness is self-regulatory and enhances self-control over thoughts, emotions, and behaviors, such that behaviors remain guided by overarching values and goals rather than short-sighted, suboptimal reactions to events and experiences (e.g., Long & Christian, 2015).

other temporal orientations are mistakenly conceptualized as mutually exclusive. Moreover, its two defining qualities—awareness *and* attention to present-moment experiences—work *together* to help individuals more effectively regulate thoughts, emotions, and behaviors. Importantly, these defining characteristics are "overlapping and mutually supportive" (Brown et al., 2007a, p. 213; e.g., Brown & Ryan, 2003). Below, I describe the two critical elements of the definition.

First, *attention to the present moment* refers to "an initial 'taking notice' of or 'turning toward' the object" of attention (Brown et al., 2007a, p. 212). This present-moment attentional orientation is fundamental and distinguishes mindful states from other forms of self-focused attention and regulatory states (e.g., reflexive self-awareness, rumination, counterfactual thought, emotion, and/or thought suppression). Second, *awareness of the present* refers to "the conscious registration of stimuli" and "our direct, most immediate contact with reality" (Brown et al., 2007a, p. 212). Simply focusing attention on the present moment, absent the awareness quality of mindfulness, fails to distinguish mindfulness from other regulatory states, for example impulsivity (Eysenck & Eysenck, 1977), flow (Csikszentmihalyi, 1990), or employee engagement (Kahn, 1990; Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). Specifically, mindfulness is characterized by an increased breadth of awareness of both external (environmental) and internal (psychological) experiences, which also include a quality of meta-awareness. This meta-awareness is an explicit awareness of the contents of consciousness—an awareness of having thoughts and emotions, awareness of the temporal regulation of attention (e.g., noticing that one's mind has wandered from the present experience or task), an awareness of one's motives—and means being able to describe one's current internal state (e.g., "I feel angry", or "I keep having that thought", or "I just zoned out") (Schooler & Schreiber, 2005). As such, individuals become active observers of their own internal states, which requires at least

some degree of psychological separation between the self and the experiences being observed. Because "automatic meaning structures are toppled when consciously processed" (Heintzelman & King, 2013, p. 95), maintaining awareness of one's psychological experiences inherently attenuates the power of any single emotion or thought that might otherwise trigger automatic, suboptimal reactions in that moment (Brown & Ryan, 2007a; Glomb et al., 2011).

Evidence supporting the regulatory function of mindfulness spans multiple disciplines—including psychology, neuroscience, and organizational behavior—and suggests that mindfulness optimizes human functioning through enhanced regulatory, or executive functioning capacity (e.g., Alberts et al., 2012; Brown & Ryan, 2003; Brown et al., 2007b; Gallant, 2016; Hülsheger et al., 2013; Friese et al., 2012; Glomb et al., 2011; Jha et al., 2010; Teper & Inzlicht, 2013; Weger et al., 2012; Zeidan et al., 2010). Neuroscientific research finds that mindfulness enhances self-regulation by affecting regions of the brain that govern judgment and decision making processes, emotion management, and behavioral inhibition (Creswell, Way, Eisenberger, & Lieberman, 2007; Taylor et al., 2013). Specifically, evidence from neuroimaging studies finds that increased mindfulness is associated with greater activation in the prefrontal cortex (Creswell et al., 2007; Taylor et al., 2013). This region acts as the executive control center of the brain, and is integral to individuals' capacity to self-regulate thought, emotion, and behavior, particularly effortful and deliberate actions that require cognitive control (Bauer & Baumeister, 2004; Baumeister & Vohs, 2003). Indeed, research examining the impact of brief mindfulness inductions on these areas of the brain demonstrate enhanced emotion regulation and executive function improvement in novice meditators (Teper & Inzlicht, 2013; Zeidan et al., 2010).

Given the neuroscientific evidence that suggests mindfulness improves self-regulation by enhancing regions of the brain associated with executive function capacity, organizational

scholars may benefit from taking a regulatory resource perspective to conceptualize the role of mindfulness in the workplace. Regulatory resource models (Baumeister et al., 1994; Muraven, et al., 1998) suggest that motivation and behavior are governed by a limited and consumable stock of psychological resources, analogous to the executive function, or core faculties of the prefrontal cortex (Bauer & Baumeister, 2004; Baumeister & Vohs, 2003). According to these models, regulatory resources are depleted by efforts that recruit self-control and willpower (e.g., cognitively taxing tasks and decision-making; Baumeister et al., 1998), and this depletion impairs subsequent self-regulation of thoughts, emotions, and behaviors. Empirical evidence supports regulatory resource perspectives as a useful lens for understanding work-related behavior and underlying psychological processes, finding that volitional actions at work are quite susceptible to fluctuations in resource capacity, such that depleted employees are less likely to keep suboptimal behaviors (e.g., interpersonal and production deviance, dishonesty and deception, abusive supervision, resisting unethical influence) in check (Barnes, Lucianetti, Bhave, & Christian, 2015; Christian & Ellis, 2011; Gino et al., 2011; Welsh et al., 2014).

Organizational research on work recovery and enrichment perspectives find that regulatory resource capacity may be replenished through various work and nonwork strategies (e.g., activities that are learning-oriented, relational, meaning-related, and meditative; Fritz, Lam, & Spreitzer, 2011). Further, evidence from both psychological and organizational research supports the beneficial effects of mindfulness on regulatory resource capacity. For example, mindful regulation of emotions is less depleting than more controlled efforts (e.g., emotion suppression, Alberts et al., 2012), and also restores regulatory capacity both in individuals depleted by emotion suppression efforts (Friese et al., 2012) or perceived stereotype threat (Weger et al., 2012). Jha et al. (2010) demonstrate the protective function of mindfulness training on working

memory capacity and subsequent improvement in emotion regulation capacity for military personnel following high-stress time intervals. In addition, employee mindfulness has shown to buffer against the depletion for employees engaged in surface acting as an emotional regulation strategy (Hülsheger et al., 2013). Given recent psychological and neuroscientific evidence that mindfulness optimizes regulatory capacity (e.g., Alberts et al., 2012; Friese et al., 2012; Jha et al., 2010; Teper & Inzlicht, 2013; Weger et al., 2012; Zeidan et al., 2010), and the important role of psychological resource recruitment for volitional employee behavior and underlying regulatory processes, employee mindfulness likely has important work-related consequences that have yet to be explored.

Trait versus state mindfulness. Mindfulness has been conceptualized at both trait and state levels. Although some scholars emphasize one over the other (e.g., Bishop et al., 2004 define mindfulness as a set of processes and thus argue that the construct is more state-like), emerging evidence suggests that individuals both differ in the propensity for mindfulness *and* experience within-person fluctuations in *state* mindfulness over shorter durations (Brown & Ryan, 2003; Hülsheger et al., 2014). While the present research focuses on the latter, distinctions between trait and state mindfulness should reflect a broader understanding of traits as both a stable characteristic *and* a predisposition to experience the same phenomena at the state level (Tellegen, 1985; Watson, 2000). In other words, baseline trait mindfulness levels should impact individuals' propensity to slip into mindful states at a given moment. Indeed, studies continue to show that state mindfulness levels fluctuate considerably within-person following inductions and training exercises, and that trait and state levels tend to be positively correlated (Brown & Ryan, 2003).

While the majority of existing research focuses either on correlates of trait mindfulness or the impact of targeted interventions, a subset of work demonstrates that state mindfulness fluctuates within-person, absent any type of training or practice (Brown & Ryan, 2003; Eisenlohr-Moul, Peters, Pond, & DeWall, 2016; Hülsheger et al., 2014). This evidence suggests that mindfulness may vary with dynamic contextual factors that shift individuals into and out of daily, and even momentary mindful states, however scholars have yet to establish whether these fluctuations are precipitated by naturally occurring events and contexts, and how they affect workplace behavior.

Antecedents and outcomes of mindfulness at work.

As discussed above, mindfulness scholars have traditionally focused either on outcomes associated with trait mindfulness or the impact of targeted mindfulness interventions, and research examining the role of mindfulness at work is no exception. For example, work on employee trait mindfulness suggests that trait mindfulness buffers against the depleting effects of emotional exhaustion and is associated with increased job satisfaction (Hülsheger et al., 2013), improved work recovery processes (e.g., ability to detach, better sleep quality; Hülsheger et al., 2014), enhanced job performance in women (Shao & Skarlicki, 2009), improved job performance and reduced turnover intentions in a dynamic work environment (Dane & Brummel, 2014), increased job satisfaction and reduced turnover (Andrews, Kacmar, & Kacmar, 2014), and reduced occupational safety failures (Dierynck, Leroy, Savage, & Choi, 2016).

Additional research reveals that even brief mindfulness training interventions both increases state mindfulness levels in novice meditators and is associated with important work-related outcomes (Hafenbrack et al., 2014; Hülsheger et al., 2015; Long & Christian, 2015). For example, Hülsheger and colleagues provide evidence of enhanced work recovery processes (e.g.,

improved sleep quality and duration) following a "low-dose" mindfulness intervention. Brief mindfulness inductions have also shown to reduce sunk-cost bias in decision-making (Hafenbrack et al., 2014) and to reduce retaliatory responses to injustice by enhancing underlying cognitive and emotional regulatory processes (Long & Christian, 2015).

With the exception of Long & Christian (2015), who examine mindfulness as a moderator of retaliatory behavior, the extant literature has rarely considered the relationship of state mindfulness to employee CWB. Further, there is a dearth of research examining potential direct effects of employee mindfulness on behavioral outcomes, including CWB. In sum, much remains unknown regarding both the nature and impact of employee mindfulness, and the current research helps to fill these gaps by shedding light on everyday antecedents (e.g., meaningfulness) and direct outcomes (e.g., CWB) of mindful states in the context of work.

CHAPTER 3: MODEL AND HYPOTHESES

In this dissertation, I integrate Kahn's (1992) model of psychological presence with SDT (Deci & Ryan, 1985; Gagne & Deci, 2005; Ryan & Deci, 2000) to argue that perceived work meaningfulness is a dynamic antecedent of state mindfulness. Next, I draw on models of regulatory resources (Baumeister et al., 1994; Muraven et al., 1998) to argue that the dynamic association between meaningful work perceptions and state mindfulness is associated with employee CWB. Finally, I argue that the above relationships are conditional on the presence of perceived controlled motivation, a boundary condition that I suggest undermines the relationship between meaningfulness and employee state mindfulness.

Dynamic Meaningful Work Perceptions

Meaningful work[2]—a positively valenced, subjective experience in which work is perceived as significant and purposeful (Hackman & Oldham, 1980; Lam et al., 2016; Pratt & Ashforth, 2003; Rosso et al., 2010; Shamir, 1991; Spreitzer, 1995)—is a dynamic factor that affects employee self-regulatory capacity and behavior at work (Kahn, 1992; Lam et al., 2016). Perceived meaningfulness is associated with a number of employee outcomes, including greater intrinsic motivation (Gagne, Senecal, & Koestner, 1997; Hackman & Oldham, 1980; Herzberg,

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[2] Meaningful work can be distinguished from a) the meaning *of* work, or "the role of work in a society in terms of norms, values and traditions of work in the day-to-day life of people", and b) meaning *at* work, or the "relationship between the person and the organization or the workplace" (Chalofsky, 2003, p. 73), and sense-making in regards to one's role(s), interactions, and place in the organization. Thus, the term "work meaning" generally refers to work centrality (Dubin, 1956; Dubin, Champoux, & Porter, 1975; Dubin, Hedley, & Traveggia, 1976) and what work signifies to an individual. Alternatively, I focus on meaning*ful* work as the amount of significance and purpose experienced through work (Rosso et al., 2010).

Mausner, & Snyderman, 1959; Johns, Xie, & Fang, 1992; Steger, Dik, & Duffy, 2012; Thomas & Velthouse, 1990), increased engagement (Albrecht, 2013; Kahn, 1990; May, Gilson, & Harter, 2004; Steger et al., 2012), job satisfaction (Deci et al., 1989; Humphrey, Nahrgang, & Morgeson, 2007; Johns et al., 1992; Sparks & Schenk, 2001; Steger et al., 2012), subjective well-being (Humphrey et al., 2007; Steger et al., 2012), improved quality of relationships (Deci et al., 1989), and enhanced perceptions of self-worth (Aktouf, 1992; Rosso et al., 2010).

While meaningfulness has in the past been conceptualized as a stable quality or job attribute (Hackman & Oldham, 1976), scholars have begun to recognize and investigate its more malleable nature (Grant, 2008a, 2008b; Kahn, 1992; Lam et al., 2016; Lips-Wiersma & Wright, 2012; Wrzesniewski, Dutton, & Debebe, 2003). For example, Ryff & Singer (1998, p. 8) describe meaningfulness as "an ongoing, day-by-day, constantly unfolding phenomenon, not an end state that is once-and-for-all resolved," and recent evidence suggests that day-level fluctuations in meaningful work perceptions are likely to occur. For example, Grant (2008a; 2008b) enhanced employees' perceptions that their work was significant and impactful by introducing fundraiser call center employees to beneficiaries. In another study, the extent to which employees of a support service management firm viewed their work activities as meaningful varied daily as a function of daily OCB, role ambiguity, and perceived in-role performance (Lam et al., 2016).

Because perceptions of meaningfulness lie in the eye of the beholder, meaningful work is not limited to a specific type or category of work, but instead reflects a *perception,* or subjective experience about one's psychological connection to the work itself (Pratt & Ashforth, 2003). Perceived meaningfulness is associated with a greater sense of coherence between core personal values and the work at hand (Barrick, Mount, & Li, 2013; Lips-Wiersma & Wright, 2012),

authentic self-expression through one's work (Chalofsky & Cavallaro, 2013; Pitts, 1995), and a more general "feeling of rightness" (Heintzelman & King, 2013). As such, perceived meaningfulness reflects an intrinsic caring about one's work (Hackman & Oldham, 1980; Herzberg et al., 1959; Thomas & Velthouse, 1990), and is described as a "self-regulatory tool" (Baumeister & Vohs, 2002) that draws employees' attention and awareness to the present moment (Deci et al., 2015; Hodgins & Knee, 2004; Kahn, 1992) and facilitates feelings of vigor in performing the work at hand (Lam et al., 2016). Thus, meaningfulness has important implications for everyday work experiences, and particularly those amenable to more volitional motivational states (Johns et al., 1992; Howard, Curtin, & Johnson, 1991).

Dynamic Meaningfulness and State Mindfulness

Drawing from both Kahn's (1992) model of psychological presence and SDT (Deci & Ryan, 1985; Gagne & Deci, 2005; Ryan & Deci, 2000), I theorize that when employees perceive greater meaning in the work at hand, their attention and awareness of present-moment experiences will be enhanced, such that they become more present in their roles and experience increased levels of state mindfulness.

First, perceived meaningfulness will increase one component of mindfulness: present-oriented *attention*. Kahn's (1992) model of psychological presence focuses on what it means to be fully present, or attentive and connected to one's current in-role experience, during a given moment. However, it is important to note that while Kahn's model offers a good starting point for understanding the relationships outlined in the current work by linking meaningful work to in-role present focus, his definition of psychological presence only bears similarity to mindfulness in that it involves present-oriented attention to task and self. This aspect of presence is drawn on in the current work. Alternatively, Kahn conceptualizes psychological presence as a

manifestation of behaviors rather than a psychological state. In addition, Kahn does not include awareness—a critical component of state mindfulness—as a characteristic of psychological presence. This distinction is important to make in order to clarify that the present work is not manufacturing "old wine in new bottles."

In his model, Kahn (1992) outlines individual and systemic dynamics that contribute to what are described as "cycles of psychological presence and absence across roll performance situations," (p. 332). In his model, Kahn describes meaningfulness as a psychological condition that fosters in-role presence, increasing present-oriented attention to one's full experience with the ongoing work. Kahn adds that in these moments, individuals do not ruminate about past events or worry excessively about future events and outcomes, but rather are fully present and focused on the "here-and-now of their experience" and their connection to the work at hand. Indeed, evidence linking perceived meaningfulness and employee engagement finds that employees who perceive their work to be particularly significant and contributing to a greater purpose become more attentive to the process and experience of the job at hand (Albrecht, 2013; Kahn, 1990; May et al., 2004; Steger et al., 2012).

Further, perceived meaningfulness reflects a sense of coherence between core values, goals, or beliefs and one's work in a given moment (Barrick et al., 2013; Michaelson, Pratt, Grant, & Dunn, 2014; Ryff & Singer, 1998). Thus, meaningful work "maintains the integrity of the person and the integrity of the role simultaneously" (Miller & Rice, 1967, as cited by Kahn, 1992, p. 328). During these moments, employees' efforts feel more authentic and freely chosen, versus coerced and alienated (Gagne & Deci, 2005; Ryan, 1995; Ryan & Deci, 2000), and are therefore more "in tune" with the work at hand and encompassing experiences. In other words, they have increased attention to ongoing events and experiences in the present moment. SDT

models of work motivation (Deci et al., 1989; Gagne & Deci, 2005), discuss that the integration between work and self—when one's work reflects personally endorsed values and is viewed as "instrumentally important for personal goals" (Gagne & Deci, 2005, p. 335)—as being characterized by greater volition, or autonomous motivation in performing work activities. Autonomous motivation is experienced as "emanating from or congruent with one's self" and feeling "personal choice or volition in acting" (Weinstein & Ryan, 2010, p. 223), and stems from interest, enjoyment, or the value one finds in her work and behavior. Long standing theoretical and empirical work suggests that when employees experience greater meaningfulness in their work, they become more autonomously motivated in the execution of their responsibilities and tasks (Deci et al., 1994; Fried & Ferris, 1987; Gagne et al., 1997; Hackman & Oldham, 1980; Herzberz et al., 1959; Howard et al., 1991; Renn & Vandenberg, 1995; Thomas & Velthouse, 1990). Importantly, scholars have theorized that autonomous functioning enhances the conscious processing of experiences by increasing present-oriented attention to both internal and external circumstances (Deci et al., 2015; Hodgins & Knee, 2004).

Second, perceived meaningfulness will lead to increased *awareness* of present-moment experiences. When employees feel more autonomously motivated to perform their work, they are also more likely to be open and broadly aware of their immediate experiences (Deci et al., 2015; Hodgins & Knee, 2004). Hodgins and Knee (2004, p. 88) suggests that "when individuals function autonomously, they are open to experiencing what is occurring in the current moment." The authors explain that when people are more connected to their core self through their motivations and actions, they feel more authentic and are less reliant on self-protective motives and ego-driven cognitive filters that distort, narrow, or even thwart awareness. As a result, not only are individuals willing to engage more fully with experiences as they unfold, but they also

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have a much broader, unbiased scope of awareness. Thus, during moments that individuals perceive greater meaning and thus greater autonomous motivation, they will gain fuller access to all aspects of the work and self, and therefore will be more aware of ongoing internal states and external circumstances.

Given the above arguments that perceptions of meaningfulness increase present-oriented attention and broaden awareness of present moment experiences, I hypothesize the following:

H1: *Perceived meaningfulness is positively associated with state mindfulness.*

Meaningful Work Perceptions, State Mindfulness, and CWB

Based on empirical work on regulatory resources and neuroscientific research, I argue that state mindfulness, activated by meaningful work perceptions, is vitalizing and *expands* psychological resource capacity, and ultimately enhances employees' ability to resist engaging in CWB.

Because state mindfulness involves a bare attention and receptive awareness to ongoing experiences, it is more efficient in terms of cognitive resource recruitment relative to other, more controlled regulatory strategies that attempt to suppress, alter, or elaborate on internal states (Alberts et al., 2012). Indeed, research spanning a number of disciplines provides evidence that mindfulness enhances regulatory resource capacity (Alberts et al., 2012; Allen & Kiburz, 2012; Brown & Ryan, 2003; Friese et al., 2012; Hülsheger et al., 2013; Teper & Inzlicht, 2013; Weger et al., 2012; Zeidan et al., 2010). For example, research demonstrating that increased mindfulness is associated with greater feelings of vitality and personal energies (Allen & Kiburz, 2012; Brown & Ryan, 2003; Canby, Cameron, Calhoun, & Buchanan, 2015) supports the generative effects of mindfulness on regulatory capacity. Given that mindfulness optimizes

regulatory resource capacity and evidence that resource availability is a key motivational factor underlying volitional workplace behavior (Christian & Ellis, 2011; Christian et al., 2015; Welsh et al., 2014), I argue that mindfulness will be associated with counterproductive work behavior.

Counterproductive work behavior—volitional behavior by employees that harms an organization or its members (Fox et al., 2001; Spector & Fox, 2002)—is costly to all parties involved. Evidence suggests that employees' ability to resist engaging in CWB is particularly susceptible to momentary regulatory resource capacity, and that depleted employees are far less likely to override the temptation to behave counterproductively (Christian & Ellis, 2011; Welsh et al., 2014). Because mindful states are generative and expand regulatory resource capacities, they should enhance employees' ability to resist engaging in CWB.

Further, when individuals experience increased levels of state mindfulness, automatic processes and impulses lose command over actions and psychological experiences, and individuals gain fuller access to core values, interests, goals, and context (Brown & Ryan, 2003; Deci et al., 2015; Glomb et al., 2011; Parker, Nelson, Epel, & Siegel, 2015). In these moments, employees' expanded capacity for attention and awareness of ongoing experience in relation to personal values should enhance issue recognition (Jones, 1991), or the ability to recognize discordant intentions, circumstances, or opportunities as they unfold. This awareness is a necessary condition for avoiding injurious behavior (Rest, 1986).

Given the above arguments, I hypothesize the following:

H2: *State mindfulness is negatively associated with CWB.*

I further expect perceived meaningfulness to impact employee CWB directly. Drawing on both regulatory resource models and SDT, I theorize that employees are less likely to engage in CWB in the moments they perceived greater meaning in their work. More specifically, I argue

that the autonomous motivation associated with more meaningful work is vitalizing and expands

regulatory resource capacity, and should thus leave employees better equipped to resist

counterproductive behaviors. Regulatory resource models of work motivation have traditionally

argued that any work requiring exertion of willpower depletes regulatory resources and

ultimately undermines subsequent efforts requiring self-control (Baumeister et al., 1998).

However, evidence from an alternative *enrichment* perspective suggests that employee resource

capacity may also be replenished through various work-related strategies, and that even when

effortful, tasks that are learning-oriented, relational, and meaning-related can be energizing (Fritz

et al., 2011). Recent evidence supports this enrichment perspective, finding that vigor, or

enhanced resource availability, was most proximally a function of daily meaningfulness

perceptions related to work that was performed that day (Lam et al., 2016).

SDT offers a parsimonious explanation for these divergent viewpoints on depletion vs.

enrichment of work activities, suggesting that *type* of regulation (versus *amount* of regulation)

determines whether effortful behavior is energizing versus depleting (Moller, Deci, & Ryan,

2006). SDT agrees that controlled motivation—when one feels forced, pressured, or obligated to

act by internal or external controls—requires greater self-control and drains resources, whereas

autonomously motivated behavior—behavior that feels choiceful and self-endorsed—is

generative, particularly when behavior fulfills basic psychological needs of autonomy,

competence, and relatedness (Grant, Nurmohamed, Ashford, & Dekas, 2011; Moller et al., 2006;

Muraven, Gagne, & Rosman, 2008; Nix, Ryan, Manly, & Deci, 1999). Because employees feel

more autonomously regulated in the moments they perceive greater meaning in their work, the

work itself feels less effortful and cognitively taxing than if that same work felt motivated by

more controlling forces (Barrick et al., 2013). Moreover, evidence suggests that perceived

meaningfulness generates regulatory resources in the form of increased vitality (Barrick et al., 2013; Lam et al., 2016), and expands resource reserves through satisfaction of basic needs (e.g., autonomy; Deci et al., 1994). Given the above arguments and evidence supporting the optimizing nature of meaningful work in regards to regulatory resource capacity, I expect increased meaningfulness to enhance employees' resistance to engaging in CWB.

In addition, I expect that state mindfulness will underlie the negative effect of meaningfulness on CWB. Specifically, I argue that the generative effects of meaningful work perceptions may be attributed to increased regulatory resource capacity associated with state mindfulness. Thus, I expect perceived meaningfulness to indirectly affect CWB through state mindfulness, such that in the moments employees perceive greater meaning in the work at hand, they experience increased state mindfulness, and in turn are less likely to engage in CWB. Given that in conjunction, support for both H1 and H2 will provide evidence of both the negative direct effect of meaningfulness on CWB and the negative indirect effect of meaningfulness on CWB through state mindfulness, formal hypotheses regarding these latter predictions are rendered redundant. Thus, should I find support for both H1 and H2, I will conduct tests of the relationships outlined above, despite omission of formal statements.

The Moderating Effect of Controlled Motivation

Kahn's (1992) model of psychological presence and SDT perspectives of work motivation (Deci et al., 1989; Gagne & Deci, 2005) both emphasize that the quality of conscious experience is dynamic and subject to ongoing negotiation among aspects of the self and a number of contextual forces that drive underlying motivational states and shape employees' dynamic connection to the present moment. Thus, the relationships discussed in the present work do not exist in a vacuum, but are likely bounded by other motivational inputs, particularly those

that undermine the effect of perceived meaningfulness on state mindfulness. According to SDT perspectives, this ongoing negotiation reflects internal effort to resolve tensions that arise under autonomy-thwarting conditions, or when sources of both autonomous and controlled motivation simultaneously exert influence. I expect perceptions of controlled motivation to undermine the impact of perceived meaningfulness and to fundamentally alter employees' attention and awareness of present moment experiences.

Theories of self-determination are rooted in the idea that the quality of human experience is largely a function of how self-determined, or volitional, regulation feels in a given context (Ryan, 1995; Ryan & Deci, 2000), and central to this perspective is that two types of motivation—controlled versus autonomous—exist on opposite ends of a self-determination continuum. As discussed earlier, higher levels of autonomous motivation are experienced when activities and behavior reflect personally endorsed values and interests (e.g., when individuals are engaged in meaningful work), and as I have argued, increased attention and awareness to present moment experiences. Alternatively, controlled motivation is experienced when external contingencies (e.g. reward contingencies, punishment, surveillance, evaluation, imposed goals, competition) or internal pressures (e.g., guilt, shame, contingent self-worth) are the impetus for action (Deci & Ryan, 2004; Ryan, 1995; Ryan & Deci, 2000). However, both conceptual (Amabile, 1993; Staw, 1977) and empirical evidence (Amabile, Hill, Hennessey, & Tighe, 1994; Grant et al., 2011; Grant, 2008a) suggest that autonomous and controlled forms of motivation reflect distinct motivational states, rather than opposing ends of a single self-determination continuum (Grant et al., 2011). Given the evidence that these two forms of motivation are not mutually exclusive, it is important to consider that outcomes associated with autonomously

motivating conditions (e.g., perceived meaningfulness) may in fact depend on the extent that individuals simultaneously feel pressure from more controlling motivational forces.

Therefore, I examine controlled motivation as a boundary condition to the relationship between perceived meaningfulness and state mindfulness, arguing that it diminishes feelings of integration and the autonomous nature of meaningful work. Recent empirical evidence from Weinstein and Ryan (2010) supports this argument, finding that when individuals engaging in prosocial behavior lacked volition, their autonomy and sense of connection to the work were undermined, which ultimately thwarted fulfillment of basic psychological needs, reduced feelings of vitality, and diminished well-being. However, when prosocial behavior was volitional, the positive relationships between prosocial efforts and the above outcomes remained intact. Evidence suggests that controlled motivation interferes in part because controlling sources activate more salient, ego-driven reasons for acting (Deci et al., 1994). In addition, controlled motivation shifts one's mindset from "I will" or "I want", to "I should" or "I have to" in mobilizing efforts toward a given activity or outcome (Deci & Ryan, 2004). This change in mindset alters employees' focus from being fully present and aware of their current experience with the work itself, to more narrow concerns of ego-driven contingencies and pressures to get the work done (Deci et al., 2015; Hodgins & Knee, 2004). In these circumstances, employees feel disconnected from their work and the present experience, and are more apt to perform tasks automatically without much awareness (Deci et al., 2015). Thus, I expect perceptions of controlled motivation to attenuate the positive relationship between meaningfulness and state mindfulness.

H3: *Perceived controlled motivation will attenuate the positive effect of perceived work meaningfulness on state mindfulness.*

Given the above arguments that perceptions of controlled motivation undermine the positive relationship between meaningfulness and state mindfulness, I further expect the negative indirect effect of perceived meaningfulness on CWB to be conditional on controlled motivation, such that increased levels of perceived controlled motivation will attenuate the negative indirect effect of perceived meaningfulness on CWB through state mindfulness. When perceived controlled motivation is low, I expect the indirect effect to remain intact. In conjunction, support for H1, H2, and H3 suggests that the moderated mediation model should hold, rendering a formal hypothesis regarding the full model redundant. Thus, should I find support for H1, H2, and H3, I will also conduct a test of the full moderated mediation model described above.

CHAPTER 4: PILOT STUDY

Pilot Study: Methods

  Between-subjects test of hypothesized relationships. Although my arguments focus on dynamic, within-person associations among antecedents and outcomes of state mindfulness, I conducted a pilot study—a between-subjects field study—to establish that on a given day, employees who perceive their work as more meaningful also experience increased state mindfulness and are less likely to behave counterproductively that same day.

  Sample and procedure. Participants were 144 employed individuals in the U.S. who responded to an online survey in exchange for payment of $0.50. Participants were recruited through Amazon's Mechanical Turk (http://mturk.com/), which is argued to be a reliable data source (Buhrmester, Kwang, & Gosling, 2011). Within this sample, 45% of participants self-identified as female and 71% as Caucasian. On average, participants were 34.59 (*SD* = 10.64) years of age. Participants were asked to self-report experiences of meaningful work, state mindfulness, and CWB on the day that the online survey was completed. Trait mindfulness was measured and controlled for in all analyses.

  Measures.

  Work meaningfulness. Participants responded to a six-item meaningfulness scale from May et al. (2004). This scale included three items adapted from Spreitzer's (1995) meaning dimension of psychological empowerment and three items from May (2003). Instructions in the current study were adapted so that participants' responses reflected work experiences that occurred on the same day the survey was completed. Example items are, "My job activities were

personally meaningful to me," and "I felt that the work I did was valuable." Participants indicated their extent of agreement with each item on a scale of 1 (strongly disagree) to 7 (strongly agree). Higher scores reflected greater perceived meaningfulness. See Appendix A for scale items and instructions.

State Mindfulness. The Mindfulness Attention and Awareness Scale (MAAS, Brown & Ryan, 2003) assessed state mindfulness. Instructions were adapted so that participants' responses reflected work experiences that occurred on the same day the survey was completed. Example items are, "I found it difficult to stay focused on what was happening in the present," and "I did jobs or tasks automatically, without being aware of what I was doing." Participants indicated their extent of agreement with each item on a scale of 1 (strongly disagree) to 7 (strongly agree). All items were reverse coded so that higher scores reflected greater state mindfulness. See Appendix A for scale items and instructions.

CWB. A 19-item measure (Bennett & Robinson, 2000) assessed employee deviance behavior. Employee deviance behavior is a form of CWB and the items in this measure map onto dimensions of CWB outlined by Spector and colleagues (2006). These dimensions include abuse toward others, production deviance, and sabotage. Instructions were adapted to refer to experiences that occurred at work on that same day. Example items are, "said something hurtful to someone," and "intentionally worked slower than I could have worked." Participants indicated their extent of agreement with each item on a scale of 1 (strongly disagree) to 7 (strongly agree). Higher scores reflected greater deviance behavior. See Appendix A for scale items and instructions.

Trait Mindfulness. The Toronto Mindfulness Scale (TMS, Lau et al., 2006) assessed employee trait mindfulness. Participants reported the frequency with which they experienced 13

different items on a seven-point scale. Example items are, "I am curious to see what my mind is up to from moment to moment," and "I am more concerned with being open to my experiences than controlling or changing them." Higher scores reflected greater trait mindfulness. See Appendix A for scale items and instructions.

Pilot Study: Results

Intercorrelations, descriptive statistics, and reliabilities are reported in Table 1. Trait mindfulness was entered as a control variable in all main effect and indirect effect models.

Tests of direct effect hypotheses. Hypothesis 1 predicted that meaningful work perceptions would be positively associated with state mindfulness. As Table 2 shows, there was a significant and positive direct effect of meaningful work on employee mindfulness ($B = 0.19$, $p < .01$). Hypothesis 2 predicted that state mindfulness would be negatively associated with employee CWB. As Tables 3 shows, there was a significant and negative direct effect of mindfulness on employee CWB ($B = -0.32$, $p < .01$). These results provide some initial support for hypotheses 1 and 2.

Additional analyses. Although perceived meaningfulness and CWB were not significantly related ($B = -0.09$, $p > .05$), the above support for hypotheses 1 and 2 warranted a follow-up test of the expected indirect effect of perceived meaningfulness on CWB through mindfulness. As Table 5 shows, the indirect effect through mindfulness was significant and negative (coefficient $= -0.06$, $p < .05$), providing initial evidence that perceived meaningfulness is indirectly and negatively related to employee CWB through increased levels of state mindfulness.

Pilot Study: Discussion

The goal of this initial pilot study was to examine and provide preliminary support for the proposed relationships among perceived meaningfulness, state mindfulness, and CWB. Indeed, findings from this cross-sectional between-subjects design pilot suggest that state mindfulness underlies a negative indirect effect of perceived meaningfulness and employee CWB on a given workday. Despite this preliminary support for relationships of interest, these findings are limited due to the cross-sectional self-report design. In addition to concerns regarding common method variance associated with this type of design (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), these findings can't speak to whether these variables fluctuate within-person or whether the observed relationships are dynamic. These questions and limitations are addressed in the subsequent two studies. Finally, trait mindfulness (as measured by the TMS) and state mindfulness (as measured by the MAAS) were not significantly correlated. This lack of relationship is not surprising given operationalization differences between the TMS and MAAS. Relative to items in the TMS, the items in the MAAS are more closely aligned with the conceptual definition of mindfulness in this work, and thus the MAAS is adapted for both state and trait level assessment of mindfulness in the subsequent studies.

CHAPTER 5: STUDY 1

Study 1 Methods

Sample. Participants were 144 undergraduate business school students from a large, southeastern university participating in exchange for course credit. The mean age of participants was 20.6 years of age and approximately 44% self-identified as female.

Procedure. Study 1 was a single factor design conducted in a laboratory setting. Participants were randomly assigned to one of two conditions: (1) meaningful, or (2) control. First, meaningfulness was manipulated. Next, participants were asked to self-report their level of state mindfulness. Afterwards, participants completed three behavioral measures of CWB, which are described in more detail below. Participants completed the spacebar task (von Hippel, Lakin, & Shakarchi, 2005) on which cutting corners reflected CWB, as well as the Deceptive Messaging Task (Gneezy, 2005). I also assessed pen theft. Finally, participants completed demographic measures, were debriefed, and then paid for their performance on the deceptive messaging task.

Manipulation: work meaningfulness. In the meaningful condition, participants were asked to proofread a college essay written by a disadvantaged college applicant who was applying for admission and financial aid. Participants were told this was part of a new program at the university called "Students Helping Students: A Carolina Initiative" (SHSCI), and that their efforts would help the applicant have a better chance of being accepted to college and receiving the financial aid he needed in order to attend. They were given a letter of intent from the applicant as well as background information about the student including hometown, high school, financial need status, and a picture of the applicant. Because participants were actively enrolled

undergraduate students, it was expected that this task would feel particularly purposeful and significant for those assigned to the meaningful condition. In the control condition, participants were asked to proofread the same essay and were given the same instructions, but were not given any background information about the essay writer, nor did they have any knowledge regarding the purpose of the essay. See Appendix B for manipulation scripts and task.

Measures.

State mindfulness. State mindfulness was assessed using the MAAS (Brown & Ryan, 2003). Participants reported the extent to which they experienced six different items on a seven-point scale ranging from 1 (not at all) to 7 (very much) while performing the proofreading task. Example items are "I found it difficult to stay focused on what was happening in the present," and "I found myself preoccupied with the future or the past." All items were reverse coded so that higher scores indicated increased mindfulness. See Appendix B for scale items and instructions.

Meaningfulness Manipulation Check. Participants responded to three items adapted from Spreitzer (1995), with respect to their experience while completing the proofreading task. An example item is, "The proofreading task was personally meaningful to me." Participants indicated their extent of agreement with each item on a scale of 1 (strongly disagree) to 7 (strongly agree), with higher scores reflecting greater perceived meaningfulness. See Appendix B for scale items and instructions.

CWB.

Cutting Corners Behavior (Spacebar Task). The spacebar task (von Hippel et al., 2005) was used to assess cutting corners behavior as CWB. In this task, participants were told that the researchers needed them to test an analytical skills task that was currently under development.

The experimenter explained that participants would be asked to solve a string of math problems, and as part of the test, the researchers needed them to follow specific instructions to disable a program feature while working on each math problem. Specifically, participants were informed that the task was programmed so that the correct answer to each math problem would pop up on the screen after a few seconds, and that this feature was designed so that people could check their work as they completed each problem. However, participants were told that the researchers did not want them to use this feature while testing the program that day. Instead, they were asked to disable the feature by hitting the spacebar on the keyboard within about three seconds of the math problem appearing on the screen. After they hit the spacebar, they were to solve the math problem on their own and record their response. There were a total of 10 math problems presented as separate trials, similar to the following example:

$$4 + 3 + 2 - 5 + 1 - 7 - 2 + 3 + 4 - 1.$$

Consistent with previous research (Jordan, Mullen, & Murnighan, 2011), participants were given 3.5 seconds to press the spacebar. If participants did not hit the spacebar within exactly 3.5 seconds of the math problem appearing on the screen, the "correct answer" popped up and remained on the screen until they moved to the next trial. In reality, the "correct answer" that appeared was an *incorrect* solution to the math problem. Therefore, if participants reported the pop-up "correct" response, it was a clear indication that they did not actually solve or attempt to solve the problem on their own, as they had clearly been instructed to do by the experimenter. Instead, they ignored instructions to disable the feature and cut corners on the task by using the answer that popped up on the screen. Thus, greater instances of reporting the pop-up "correct"

solution reflected increased counterproductive behavior. See Appendix B for instructions and example items.

Deceptive Behavior. The Deceptive Messaging Task (Gneezy, 2005) involved the allocation of $3 between two individuals who were either assigned a "sender role" or "decider role" by the computer. The person in the "sender" role provided information to the "decider" regarding monetary payouts associated with 2 different options while working on the task: Option A earned the sender less money than the decider and Option B earned the sender more money than the decider. The sender was given the option to either tell the truth about which option would earn her more money, or could lie to the decider about the monetary payout of each option. Each participant was told that she was playing against another participant, but in reality, everyone was assigned to the sender role and played against the computer. Deceptive behavior was demonstrated if participants chose to lie to the decider about decision options and in doing so, sent a deceptive message regarding payout. Thus, dishonest behavior that was meant to harm another's outcomes while furthering one's own gains reflected counterproductive behavior on this task. See Appendix B for participant instructions and decision task.

Theft Behavior. Pen theft was used as a second measure of CWB. Adapted from a measure of retaliation used in Colquitt, Scott, Judge, and Shaw (2006) and Long and Christian (2015), the method was slightly altered in the current study so that participants' behavior reflected counterproductive theft behavior instead of retributive action following an injustice. Specifically, a cup of twelve, expensive looking pens was placed at each participant's desk. Adhered to each cup was an obvious label that clearly instructed participants to refrain from taking any of the pens with them when they left the lab. Specifically, the label stated in large, all-caps font, "These pens are property of the lab. Please do not remove any pens from the lab."

Thus, participants were given very clear instructions that the pens were university property and were not to be removed. As such, when participants chose to take a pen(s) despite these instructions, their behavior reflected counterproductive behavior in the form of theft. The greater number of pens stolen reflected increased severity of counterproductive theft behavior.

Study 1: Results

Descriptive statistics, scale reliabilities, and correlations among study 1 demographic and model variables are reported in Table 6.

Manipulation check. Perceived meaningfulness was higher in the meaningful work condition ($M = 3.75$, $SD = 1.93$) than in the control condition ($M = 2.59$, $SD = 1.45$), $F (1, 142) = 16.97$, $p < .001$.

Tests of hypotheses. Hypothesis 1 predicted that perceived meaningfulness would be positively associated with state mindfulness. There was a significant main effect of the meaningfulness manipulation on state mindfulness, such that individuals in the meaningful work condition reported significantly higher levels of state mindfulness ($M = 5.25$, $SD = 1.03$) compared to those in the control condition ($M = 4.85$, $SD = 1.10$), $F (1, 142) = 4.97$, $p < .05$. Thus, hypothesis 1 was supported.

Hypothesis 2 predicted that state mindfulness would be negatively associated with counterproductive work behavior. As shown in table 6, state mindfulness was significantly and negatively related to CWB, both in the form of cutting corners on the spacebar task ($r = -0.20$, $p < .05$) and theft ($r = -0.17$, $p < .05$), but was not related to deceptive behavior on the messaging task ($r = -0.09$, $p > .05$). Thus, hypothesis 2 was partially supported.

Additional analyses. There was a significant and negative main effect of the meaningfulness manipulation on CWB in the form of theft, such that individuals in the

meaningful work condition were significantly less likely to steal a pen ($M = 0.03$, $SD = 0.17$) compared to those in the control condition ($M = 0.20$, $SD = 0.65$), $F (1, 142) = 4.23$, $p < .05$. However, no main effect was found for cutting corners or deceptive messaging behavior.

While an indirect effect of perceived meaningfulness on CWB through state mindfulness may be concluded given support for hypotheses 1 and 2, in conjunction (MacKinnon et al., 2002), a follow-up test of the expected negative indirect effect was conducted. Because hypothesis 2 was only supported for two of the CWB measures in study 1 (e.g., cutting corners and theft), a test of the indirect effect model was conducted only on for models with cutting corners and theft as the outcome variable. Following recommendations from Edwards & Lambert (2007), regression coefficients were estimated for the full sample using Stata (Version 14.2) and are reported in Table 9. Because both cutting corners and theft were count variables, models for the dependent variables were estimated using poisson regression analyses. Coefficients from 1,000 bootstrap samples were then estimated and the indirect effect for each model was computed and tested using bias-corrected confidence intervals in a worksheet downloaded from Edwards' website. As reported in Table 10, there was a significant negative indirect effect for both models, such that individuals in the meaningful work condition experienced increased state mindfulness, and ultimately engaged in less cutting corners behavior (coefficient = -0.12, 95% CI [-0.344, -0.006]) and less theft behavior (coefficient = -0.19, 95% CI [-0.599, -0.002]).

Study 1: Discussion

Study 1 provides evidence of both a main effect of meaningfulness on state mindfulness and a main effect of state mindfulness on CWB in the form of cutting corners and theft, such that individuals assigned to the meaningful work condition experienced increased state mindfulness

and demonstrated reduced counterproductive behavior. However, state mindfulness was not significantly related to deceptive behavior. Thus, hypothesis 1 received support and hypothesis 2 was partially supported. A main effect of perceived meaningfulness on counterproductive behavior was also expected, but not formally hypothesized because it was implied by hypotheses 1 and 2 in conjunction, and was supported in the relationship between the meaningfulness manipulation and theft. However, there was no main effect of meaningfulness on cutting corners. Finally, study 1 results support the expected negative indirect effect of perceived meaningfulness on CWB—both cutting corners and theft—through state mindfulness.

While study 1 provides initial support for both hypotheses 1 and 2, demonstrating that a meaningfulness manipulation *can* lead to increased state mindfulness and that increased state mindfulness levels are associated with reduced counterproductive behavior in a lab setting, findings from study 1 are limited in terms of external validity. In addition, study 1 does not assess dynamic, within-person relationships among variables, and does not test the hypothesized boundary condition of controlled motivation. In order to address limitations and triangulate findings from study 1, a follow-up field ESM study was conducted and is described below.

CHAPTER 6: STUDY 2

Study 2: Methods

Study 2 was an experience sampling field study that examined within-person fluctuations in perceived meaningfulness and dynamic associations with state mindfulness, perceived controlled motivation, and employee CWB. The study was conducted in two parts. Part 1 included a one-time intake survey, and part 2 involved the ESM portion of the study.

Sample. Participants were registered nurses (RNs) working at a large teaching hospital in the southeastern United States. The average age reported was 36 years ($SD = 12.04$), and 94% of respondents self-identified as female. The average tenure of respondents in the sample unit was 4.21 years ($SD = 6.56$).

Participants were recruited both in person and via email to participate in a 10-day experience sampling study. The following eligibility requirements—determined in part by hospital HR restrictions and in part by research goals—were maintained for all participants during the sign-up process: 1) participants must have been RNs working at least 50% time at the hospital's flagship campus (i.e., compared to a smaller, sister campus), and 2) participants must have worked shifts that were a minimum of eight hours in length. This second requirement enabled me to use a 4-hour time referent for items on both mid-shift and late-shift surveys. Although this time window was arbitrarily chosen, I based the decision on theoretical considerations regarding the approximate duration of the psychological states of interest, as I discuss in more detail below. As a practical consideration, to avoid overlap in experiences reported in a given day, there needed to be a 4-hour minimum lag from the time a participant

arrived at work until the time the mid-shift survey was received, as well as a four-hour minimum lag from receipt of the mid-shift survey to receipt of the late-shift survey. Over the course of the data collection period, approximately 6% of nurses worked 8-hour shifts, 90% worked 12-hour shifts, and the remaining 4% worked shifts that fell between 8 and 12 hours in length. Both day and night shift RNs were recruited, resulting in 60% of nurses who worked day shifts only, 33% who worked night shifts only, and 7% who worked a combination of day and night shifts over the course of their participation (see Table 11).

A total of 137 nurses signed up to participate in the study, and of those, 130 completed the initial intake survey and continued to participate in the experience sampling portion of the study, resulting in a response rate of 94.89%. Although 128 nurses completed at least 30% of the daily surveys, analyses were limited to the 120 who completed 50% or more in order to maximize within-person sample size. Over a period of approximately one month, participants were surveyed twice daily for a total of ten work days, based on an interval contingent experience sampling schedule (Alliger & Williams, 1993; Fisher & To, 2012; Wheeler & Reis, 1991). On each day that participants worked, they received two text messages with links to a two-minute survey, once mid-shift and once late-shift. Of the 120 nurses in the final sample, four received and completed all surveys via email because their cell phones were either incompatible with the SMS distribution feature, or because they preferred to refrain from cell phone use while working.

Respondents agreed to participate in exchange for a) $50 cash compensation, and b) entry into a lottery to win free registration to the hospital's annual nursing research symposium. Compensation for participation was based on the percentage of daily surveys completed, such that participants who completed at least 50% (at least 10 daily surveys) received a single entry

into the lottery; participants who completed at least 80% (at least 16 daily surveys) received two entries into the lottery and $50 cash compensation; participants who completed 100% (20 daily surveys) received five entries into the lottery and $50 cash compensation. Overall, a total of 2327 surveys (1183 mid-shift; 1144 late-shift) were completed across all participants. Of the 120 participants included in the analyses, 75 completed 100% of the daily surveys, with the average participant completing 19 surveys ($SD = 3.81$).

Part 1: Intake Survey

The initial intake survey was a one-time online survey that participants received via email and completed immediately upon signing up for the study. On average, the intake survey took about twelve minutes to complete, asked participants to respond to a number of demographic and work history items (see Table 11), and to report their full work schedule for the upcoming month. Participants provided exact shift dates, as well as start and end times for each shift so that the ESM portion of the study could be scheduled appropriately. Thus, all participants were required to complete the intake survey prior to beginning the daily surveys.

Part 2: Experience Sampling Procedure

Based on shift dates provided in the intake survey, participants received a two-minute survey, twice per day via text message, for a total of 10 shifts. Thus, participants had the opportunity to complete a total of 20 daily surveys, and received and completed surveys only on days they worked. Participants notified the researcher if their schedules changed from the original dates provided in the intake survey, and the researcher amended individual survey schedules to reflect such changes. Both mid-shift and late-shift surveys assessed all variables of interest and specifically asked participants to report experiences that occurred in the preceding four hours of work. The four-hour referent for survey responses was chosen for two key reasons.

First, the underlying conceptual arguments frame the relationships of interest as dynamic states that fluctuate concomitantly. While these arguments are grounded both in theory and empirical evidence that support the dynamic nature of both perceived meaningfulness (Lam et al., 2016) and mindful states (Brown & Ryan, 2003; Eisenlohr-Moul et al., 2016; Hülsheger et al., 2014), scholars have yet to determine the duration of these states and the frequency with which they rise and fall over the course of a day. As a starting point, to understand their dynamic nature beyond the day level, the current research assessed each variable twice per day using a four-hour referent, rather than risk narrowing the referent window or intervals between measurement points so much that fluctuations weren't captured in the given time frame. Second, given that previous research finds relatively low base rates using self-report measures of CWB (Christian & Ellis, 2011; Aquino, Lewis, & Bradfield, 1999; Lee & Allen, 2002), using a four-hour referent twice per day maximized the likelihood of capturing this behavior.

Measures. Unless otherwise noted, survey items were preceded by the prompt "In the last four hours at work" and participants were asked to rate their responses to items using a seven-point scale that ranged from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores reflecting increased levels of the variable in question. Scale reliabilities are reported in Table 11.

Perceived meaningfulness. Perceived meaningfulness was assessed using three items that were adapted from Spreitzer's (1995) meaning dimension of psychological empowerment. Example items include, "The work I have done was very important to me" and "My job activities have been personally meaningful to me." See Appendix C for the full set of items and prompt.

State mindfulness. State mindfulness was assessed using two separate instruments. The first included a three-item measure developed in this dissertation work (see Appendix D for list of items and discussion of a supplementary construct validity study for these items). Example

items from the new scale include "I was aware of the present moment" and "I felt attentive to the task at hand". The second measure included three items adapted from the state-level version of the MAAS (Brown & Ryan, 2003). All items from the MAAS were reverse coded so that higher scores indicated increased levels of state mindfulness. See Appendix C for the full set of items and prompt.

Controlled motivation. Perceived controlled motivation was assessed using two items adapted from Weinstein and Ryan (2010) that pertained specifically to controlled motivations for acting. Participants responded to the prompt "In the last four hours, I have done work tasks because" to the following items: "I felt that I had to" and "Others would get mad at me if I didn't." See Appendix C for scale items and prompt.

CWB. Employee CWB was assessed using six items adapted from Spector and colleagues' (2006) CWB-Checklist. Four items reflected CWB directed at the organization and two items reflected CWB directed toward another person. Example items include, "Intentionally worked more slowly than I could have" and "Insulted or made fun of someone." See Appendix C for the full set of items and prompt.

Controls. The influence of between-person factors were removed from all estimated models by mean-centering the data within-person (Hofmann and Gavin, 1998; Hofmann, Griffin, and Gavin, 2000) using dummy coding as described in the results section below. However, for descriptive purposes, demographic and work history information, as well as a few trait level variables (e.g., *trait affect*: Positive and Negative Affect Schedule (PANAS), Watson, Clark, & Tellegen, 1988; *trait mindfulness*: MAAS, Brown & Ryan, 2003; *overall job meaningfulness*: Work as Meaning Inventory (WAMI), Steger et al., 2012; *CWB propensity*, CWB-C-10 Item, Spector, Bauer, & Fox, 2010; Spector et al., 2006) were measured and reported in Table 11.

Study 2: Results

  Descriptive statistics and bivariate correlations. Descriptive statistics, scale

reliabilities, and correlations among study variables are reported in Table 11. In addition to

providing summary data for all variables included in the hypothesized relationships, a number of

demographic, job-descriptive, and individual difference measures captured in the intake survey

were included in Table 11 in an effort to provide greater detail and increased context for the

origins of the data. Table 12 includes the proportion of variance for all model variables, and as

shown, the observed within-person variance was substantial across constructs, ranging from 28%

to 53%.

  In order to account for the nested nature of the data, scale reliabilities were estimated

after removing between-person variance from the data. This was accomplished through a series

of steps that began with creating n-1 dummy variables, where "n" equals the total number of

participants in the sample, resulting in 119 dummy variables that account for each individual in

the sample. For each unique scale item, a regression equation was estimated in which the

individual item was regressed on the full set of 119 dummy variables. Representing individuals

as dummy variables and then using the variables as a set of predictors for each item effectively

models level 2 correlated error and between-person mean differences. From each regression

model, residuals corresponding to the scale item were estimated for every participant observation

on that item (e.g., 2279 residuals for each scale item), and saved as a new variable in the data set.

The new residuals reflected the difference between the observed response on a single occasion

and the mean score across all occasions for a respective participant. Once these steps were

completed for each item in a particular scale, scale reliabilities were estimated using the saved

residuals in place of the raw item data, thus removing any systematic differences among

participants from the reliability estimates.

Tests of hypotheses. Due to the multilevel nature of the data (multiple observed occasions nested within nurses), hypotheses were tested using random effects models in Stata 14.2. Following recommendations by Hofmann and colleagues (1998; 2000), data was centered within-person prior to estimating the models. However, rather than entering already-centered predictor variables, n-1 dummy variables (e.g., where "n" equals the total number of nurses in the sample), were entered as controls in the mixed effects model equation. Not only does this method effectively mean center the data at individuals' means across observations, resulting in model estimations that reflect within-person effects absent the influence of any between-person factors, but it also takes into account the degrees of freedom consumed by estimating each participant's means. Thus, this is the preferred method of accomplishing group-mean centering in mixed level models, and was incorporated in all estimated models.

Consistent with the first hypothesis that perceived meaningfulness positively relates to state mindfulness, results from a within-person random effects model support a significant and positive relationship between nurses' perceptions of meaningfulness and state mindfulness, both for the newly developed measure of state mindfulness (B = .24, p < .001) and the MAAS (B = .31, p < .001) (see Table 14).

Hypothesis 2 predicted that individuals experiencing increased levels of state mindfulness would be less likely to engage in CWB. As expected and reported in Table 15, results from a within-person random effects model support a significant and negative relationship between state mindfulness and CWB, both for the newly developed state mindfulness measure and the MAAS (new measure: *B* = -.18, *p* < .001; MAAS: *B* = -.10, *p* < .001).

Hypothesis 3 predicted that within-person perceptions of controlled motivation would attenuate the positive relationship between perceived meaningfulness and state mindfulness. Table 16 shows a significant interaction between meaningfulness and controlled motivation on state mindfulness (new measure: $B = -.02$, $p < .05$; MAAS: $B = -.03$, $p < .05$). Tests of simple slopes revealed that lower controlled motivation was associated with increased state mindfulness (new measure: $B = .26$, $p < .05$; MAAS: $B = .31$, $p < .001$), and higher controlled motivation was associated with reduced state mindfulness (new measure: $B = .19$, $p < .05$; MAAS: $B = .20$, $p < .001$) when individuals perceived greater meaning in their work (see Figures 2 and 3, respectively). These results support Hypothesis 3.

Additional analyses. As shown in Table 13 there was a significant and negative relationship between perceived meaningfulness and CWB within-person, such that nurses reported engaging in significantly less CWB during times that they perceived greater meaning in their work ($B = -.11$, $p < .001$).

As in Study 1, support for the first two hypotheses was followed up with a test of the indirect effect of perceived meaningfulness on CWB through state mindfulness using the same method recommended by Edwards and Lambert (2007). Regression coefficients were estimated for the full sample using Stata (Version 14.2), and as reported in Tables 14, 15, and 18, were based on random effects models that isolated within-person variation among variables by controlling for n-1 dummy variables (i.e., where "n" equals the total number of nurses participating in the study). Coefficients from 1,000 bootstrap samples were then estimated and the indirect effect for each model was computed and tested using bias-corrected confidence intervals. As reported in Table 19, there was a significant and negative indirect effect through state mindfulness, such that greater meaningfulness was associated with increased state

mindfulness, and ultimately reduced CWB (new measure: coefficient = -.04, 95% CI [-.159, -.058]; MAAS: coefficient = -.03, 95% CI [-.161, -.062]).

Finally, given support for hypothesis 3, the full moderated mediation model was tested to determine whether the indirect effect of perceived meaningfulness on CWB through state mindfulness was conditional on perceptions of controlled motivation. Conditional indirect effect models were tested using the same method described earlier for indirect effect models from Edwards and Lambert (2007). Full sample regression coefficients that were bootstrapped to test the full model are reported in Tables 16, 17, and 18, and were based on random effects models that isolated within-person variation among variables by controlling for n-1 dummy variables (i.e., where "n" equals the total number of nurses participating in the study). As recommended by Edwards and Lambert (2007), coefficients for both direct effect moderation and second stage moderation were estimated for the full sample in order to avoid omission of possible disconfirming evidence regarding the expected first stage moderating effect of controlled motivation. As shown in Table 20, the indirect effect was not significantly different at low versus high levels of controlled motivation (new measure: coefficient = .01, 95% CI [-.005, .036]; MAAS: coefficient = -.002, 95% CI [-.019, .014]). Therefore, the full moderated mediation model was not supported.

CHAPTER 7: GENERAL DISCUSSION

Summary

The purpose of this dissertation was threefold. First, I examined dynamic, within-person fluctuations in state mindfulness and whether mindful states are activated when individuals recognize greater significance and purpose in their work. Second, I assessed the direct relationship between employee state mindfulness and counterproductive work behavior. Across two main studies—a laboratory experiment and an ESM field study with nurses—evidence supported the positive association between perceived meaningfulness and state mindfulness, such that when individuals experienced work-related tasks and activities as particularly meaningful, they reported increased levels of state mindfulness. Further, both studies supported the expected negative relationship between state mindfulness and counterproductive behavior, such that during the moments that individuals experienced more mindful states, they were less likely to engage in CWB. Thus, state mindfulness was found to underlie a negative indirect effect of perceived meaningfulness and CWB in both studies. Third, study 2 examined and found evidence supporting controlled motivation as a boundary condition of the relationship between meaningfulness and state mindfulness. As expected, the positive association between perceived meaningfulness and state mindfulness was attenuated when employees felt driven by external or self-imposed contingencies and pressures to perform their work. However, a test of the full moderated mediation model did not support the expected conditional nature of the indirect relationship between perceived meaningfulness and CWB through state mindfulness.

Theoretical Implications

This dissertation has several theoretical implications and extends the extant literature in at least three ways. First, this dissertation examines the implications of naturally occurring, within-person fluctuations in state mindfulness, and thus contributes to the limited body of research investigating mindfulness as a dynamic state that ebbs and flows over time, even in the absence of any type of training or intervention (Brown & Ryan, 2003; Eisenlohr-Moul et al., 2016; Hülsheger et al., 2014). This is important, as it provides a new lens with which to view state mindfulness, a factor that might predicts other dynamic work outcomes (e.g., fluctuations in job attitudes, work performance, and other behavior). Additionally, state mindfulness likely fluctuates with dynamic antecedents other than meaningfulness, and this work is a starting point for future research exploring everyday factors that influence mindfulness (e.g., daily sleep quantity and quality, relational inputs, contextual cues, and other psychological states).

Second, by theorizing and providing empirical evidence that state mindfulness fluctuates within-person as a function of dynamic meaningfulness perceptions, this work extends theories of mindfulness in the workplace, as well as those in the broader mindfulness literature. To my knowledge, this work is the first to demonstrate that everyday events and contexts, including work, activate mindful states. While existing work has examined naturally occurring, within-person fluctuations in state mindfulness alongside outcomes such as sleep quality and work recovery experiences (Hülsheger et al., 2014), little is known about the factors responsible for shifting individuals into and out of mindful states. Taking a self-regulatory perspective, this dissertation not only sheds light on an everyday work experience that evokes mindful states—perceptions of meaningful work—but also provides evidence that employees' capacity to be mindful may also depend on whether their efforts feel governed and constrained by controlling

motivational forces that undermine feelings of volition. Thus, this dissertation is a starting point for understanding the influences of day-to-day contexts and experiences on dynamic mindful states.

Third, this work extends models of workplace mindfulness by integrating SDT and regulatory resource theories to investigate behavioral outcomes (e.g., CWB) of mindful states that have yet to be considered in the extant literature. While research has linked both trait and state levels of mindfulness with employee outcomes (e.g., sleep quality, work recovery experiences, job satisfaction, emotion regulation strategies, and turnover intentions; Andrews et al., 2014; Hülsheger et al., 2013; Hülsheger et al., 2014; Hülsheger, Feinholdt, & Nübold, 2015), the majority of research to date has not addressed direct behavioral outcomes (see Dane & Brummel, 2013 and Dieynck et al., 2016 for two exceptions that examine the link between trait mindfulness and in-role performance-related outcomes). Further, the limited research that has explored behavioral implications of mindfulness in the workplace has focused on the buffering role of induced state levels of mindfulness (i.e., mindfulness interventions as a moderator). For example, Long & Christian (2015) examine the moderating role of a brief mindfulness induction on the injustice-retaliation relationship, finding that increased mindfulness attenuates retributive behavior in response to unfair treatment at work. Similarly, much of the existing literature focuses on the moderating role of mindfulness, while less attention is given to the possible direct effects of mindfulness on behavioral outcomes, particularly in the workplace. Thus, the current work begins to address this gap by moving beyond the literature's focus on mindfulness as a moderator, and instead examines the main effects of mindfulness on volitional employee behavior.

Practical Implications

Research that focuses on work-related outcomes of trait mindfulness and mindfulness inductions is important, yet has limited value for managers who lack the resources to conduct large-scale training programs with their employees. However, the current work adds to existing evidence that state mindfulness levels fluctuate even in the absence of any type of training, and finds that mindful states may be activated by naturally occurring events and contexts that are more easily manipulated in an organizational setting. Specifically, the results from the present research suggest that managers may harness the beneficial effects of employee mindfulness by enhancing perceived meaningfulness of day-to-day tasks and responsibilities. Further, the present research suggests that employers may benefit from strategies that reduce constraining or controlling forces of motivation (e.g. reward contingencies, punishment, surveillance, evaluation, imposed goals, competition, or internal pressures of guilt, shame, and contingent self-worth; Deci & Ryan, 2004; Ryan, 1995; Ryan & Deci, 2000). Controlling forces may undermine employees' feelings of integration and self-determination in performing meaningful work, which ultimately reduces state mindfulness.

Given the costly effects of CWB for organizations and members (Fox et al., 2001; Spector & Fox, 2002), managers may find the above suggestions even more compelling given evidence from the present research that increased state mindfulness is associated with reduced CWB. Further, recent empirical work suggests that depleted employees are particularly susceptible to behaving counterproductively in the presence of others' unethical influence and behavior on the job (Welsh et al., 2014). Furthermore, this research might be particularly relevant for managing employees working long shifts or performing work that is particularly

depleting. Strategies that increase meaningfulness perceptions (e.g., contact with beneficiaries; Grant, 2008b) may help employers better manage and prevent these types of behaviors when employees find themselves tempted or pressured by others to commit CWB.

Limitations and Future Directions

Alongside the strengths of this research were several limitations that may be addressed in future work. Given that all research designs involve a series of choices and tradeoffs, whereby prioritizing one desirable design quality marginalizes another (McGrath, 1982), the current work implemented two different methodologies in an effort to address the limitations associated with each design. The first study was a laboratory experiment that maximized internal validity and afforded a strong test of the "can it happen?" question (Ilgen, 1986). Random assignment to the meaningfulness manipulation helped to establish temporal order of variables in the relationships of interest, and increased confidence that the observed effects were due to condition assignment, rather than an extraneous or omitted variable. However, given the artificial nature of the lab setting, cutting corners on a math task or prioritizing self-interest at someone else's expense, while participating in a research study for course credit, may not feel as risky or map onto counterproductive behavior in a real work setting with actual consequences. Although external validity was limited in study 1, study 2 addressed this issue. By nature of a field study conducted in a true organizational setting, study 2 helped to answer the "does it happen?" question (Ilgen, 1986) and supported the generalizability of the lab findings from study 1.

A second limitation of study 1 was the possibility that the experimental manipulation of meaningful work might have instead reflected a task significance manipulation, or even induced a state of empathy that led to the observed outcomes. While the manipulation check did indicate that perceived meaningfulness depended on the condition to which participants were assigned, it

is possible that one of these other constructs was affected by the manipulation and preceded the

psychological state of meaningfulness. While future research might test alternative means of

manipulating meaningful work that stand up to this critique, the design of study 2 was also able

to address this issue in a different way. By measuring individuals' perceived meaningfulness of

work in a real organizational setting, perceptions of meaningfulness were not bound by a single

task held constant across participants, nor to a single source of meaningfulness. Rather, any

source(s) that contributed to meaningfulness perceptions were left free to vary across all

participants.

Although the hypothesized relationships and expected indirect effect were supported for

two of the dependent variables models in study 1 (e.g., cutting corners and theft), none of the

relationships held for CWB as deception. Because of the artificial nature of the lab setting and

because this was the only paid task, it is possible that participants viewed deceptive behavior on

this task as "low stakes" relative to employees faced with a comparable situation in a real

organizational setting. On the other hand, it is possible that $3 was not enough of an incentive to

risk harm to another individual. As discussed earlier, generalizability of results to real employees

is a limitation of the laboratory experiment that was offset by the ESM field study.

The preceding discussion also ties into causality-related issues. In order to infer causality,

the variables in question must be distinct entities that covary, the temporal order of the variables

must be demonstrated such that the cause precedes the effect, and the effects of omitted variables

or rival hypotheses for the observed relationship must be ruled out (Edwards & Bagozzi, 2000).

Across both studies, the requirement of covariation between variables was met, and

intercorrelations among variables were not large enough to raise concern regarding their

distinctiveness. While study 2 measured all variables across multiple time points, the

hypothesized relationships did not model time sufficiently to establish temporal precedence. Because the level 1 data were not lagged, they more reflected cross-sectional observations of relationships across multiple time points. Thus, it is not possible to say with certainty that the observed temporal order of relationships mirror the true order. Between-subject explanations for the observed effects were ruled out by controlling for level 2 dummy variables in all models, reducing concerns that omitted cross-level variables might be driving the observed effects. However, it is possible that (a) unit level effects played a role, which would undermine the assumption that the sample was representative of a single population, or (b) alternative within-person factors influenced relationships of interest. To help rule out the former, random-effects models were used to test all hypotheses in the second study. More specifically, models were tested using random intercepts, which accounted for the fact that observations were nested within participants coming from different unit backgrounds. However, modeling random intercepts could not rule out the possibility that different nurses coming from the same unit were affected by omitted within-unit factors, for example, being supervised by separate charge nurses or being responsible for and interacting with separate groups of patients. In order to determine the influence of within-unit factors, models were also tested using random intercepts with random slopes and compared to random-intercepts-only models. Results of each model comparison failed to reject the null hypothesis that random intercepts were nested within random slopes (versus random slopes within random intercepts), leading me to conclude that the random-intercepts-only models were the best fit overall. These tests helped relieve concerns of influential within-unit factors.

Moreover, the lab study helped to address both limitations of study 2 described above by randomly assigning participants to a meaningful work manipulation prior to measuring

psychological and behavioral outcomes. The experimental control afforded by random assignment in study 1 increased confidence that participants did not vary systemically across conditions for any reason unrelated to the experimental manipulation, including measured outcomes, and thus helped compensate for study 2 limitations regarding temporal order and omitted variables. However, it is also plausible that the relationship between meaningfulness and employee mindfulness is more complex than portrayed in the present research. For example, in broadening attention and awareness to present moment experiences, increased mindfulness might in turn make employees more apt to recognize meaningful aspects of their daily work. Future research might further explore the possibility of reciprocal causation and feedback loops in conceptualizing the relationship between these two variables.

While the lab experiment design also helped compensate for concerns of common method variance associated with the cross-sectional self-report design of study 2 (McGrath, 1982; Pedhazur & Schmelkin, 1991; Podsakoff et al., 2003), future research might build on this work by theorizing about and empirically testing potential lagged relationships in a field setting. In addition to relieving concerns of temporal separation and common method variance, lagged analyses of these relationships would also shed light on state length and duration of impact.

Another potential limitation of study 2 involves relying on self-report measures of CWB. However, CWB is difficult to observe in organizational settings (Christian & Ellis, 2011; Ones, Viswesvaran, & Schmidt, 1993), likely because employees actively work to keep these types of behaviors under wraps and are less likely to behave counterproductively in the presence of others. Given that study 2 sampled within subjects over 20 time periods, it was less realistic that an objective measure would be available and assessed at each time point. ESM studies of CWB often depend on self-reports for this reason (e.g., Dalal, Lam, Weiss, Welch, & Hulin, 2009;

Barnes, Schaubroeck, Huth, & Ghumman, 2011; Christian et al., 2015), and research suggests that when assured anonymity, employees are less inhibited in self-reporting counterproductive behaviors (Bennett & Robinson, 2000), and that self-reports are highly indicative of actual behavior (Ones et al., 1993). However, future research investigating within-person CWB might include a more objective measure, study design permitting (e.g., ESM designs with fewer measurement points and larger intervals of time between assessments).

Reliability estimates for both CWB and controlled motivation were relatively low for the within-person measures in study 2. Low reliabilities are known to both deflate and inflate model results (Cochran, 1968), and could have impacted the findings in study 2 in either direction. However, direct and indirect effect models were supported in both a lab experiment using behavioral measures of CWB, as well as a pilot study examining the hypothesized relationships at the day-level, increasing confidence in study 2 findings that also support these relationships. Given the expense and effort involved for researchers conducting intensive ESM studies, as well as the burden for participants involved, researchers often face a number of judgment calls and constraints that must be negotiated into the design of the study (e.g., time, distribution method, access to samples, participant burden and dropout, etc.). In particular, single and two-item measures are frequently argued as the norm given constraints of momentary sampling designs. Still, researchers should carefully weigh the risk that low reliability measures pose to the integrity and interpretation of the data.

Finally, Study 2 included a three-item measure of state mindfulness developed in this dissertation work. The purpose of developing these items was twofold: to develop a brief measure that 1) does not conflate state mindfulness with associated processes outcomes, and 2) more directly assess mindful (versus mindless) states. While it is not recommended that

researchers use the items developed in the current work, it is recommended that future research address some of the issues discussed regarding existing measures of mindfulness (see Appendix D for detailed explanation).

Conclusion

This research adds to the growing body of work examining the implications of mindfulness in the workplace. Specifically, it supports recent findings that state mindfulness fluctuates within-person, even in the absence of interventions and training. Given the growing body of evidence regarding the impact of mindfulness on employee psychological experiences, behavior, and other important work-related outcomes, it is important to consider factors that cause these fluctuations. The present work presents a starting point for uncovering antecedents of dynamic mindful states, demonstrating that everyday work factors (e.g., perceived meaningfulness) can prompt employees to experience greater mindfulness and ultimately reduce CWB. My hope is that this research spurs future work that examines other possible antecedents and direct behavioral outcomes of employee mindfulness.

Table 1

Pilot Study: Means, Standard Deviations, and Correlations

Variable	N	Mean	SD	1	2	3	4
Main							
1. Perceived Meaningfulness	144	5.12	1.56	(.97)			
2. State Mindfulness	138	5.63	1.27	0.20*	(.85)		
3. Deviance	138	1.81	1.30	-0.06	-0.31***	(.98)	
Control							
4. Trait Mindfulness	139	4.24	1.12	0.32**	-0.05	0.10	(.89)

Note. $^*p < .05.$ $^{**}p < .01.$ $^{***}p < .001$
Scale reliabilities (Cronbach's Alpha) reported on the diagonal.

Table 2

Pilot Study: Regression Model for Direct Effect of Perceived Meaningfulness on State Mindfulness

Variable	Step 1			Step 2		
	B	*SE*	*t*	*B*	*SE*	*t*
Constant	5.86	0.44	13.47***	5.21	0.49	10.61***
Trait Mindfulness	-0.05	0.10	-0.49	-0.13	0.10	-1.25
Perceived Meaningfulness				0.19	0.07	2.64**
R^2		.002			.05*	
ΔR^2					.05**	

Note. $N = 127$. Listwise deletion used for missing data. Unstandardized regression coefficients are reported.

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

Table 3

Pilot Study: Regression Model for Direct Effect of State Mindfulness on Deviance Behavior

	Step 1			Step 2		
Variable	*B*	*SE*	*t*	*B*	*SE*	*t*
Constant	1.25	0.46	2.70**	3.07	0.68	4.51***
Trait Mindfulness	0.13	0.10	1.25	0.12	0.10	1.21
State Mindfulness				-0.32	0.09	-3.52**
R^2		.01			.10**	
ΔR^2					.09**	

Note. $N = 128$. Listwise deletion used for missing data. Unstandardized regression coefficients are reported.
* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4

Pilot Study: Regression Model for Direct Effect of Perceived Meaningfulness on Deviance Behavior

	Step 1			Step 2		
Variable	*B*	*SE*	*t*	*B*	*SE*	*t*
Constant	1.29	.44	2.91[**]	1.54	.51	3.01[***]
Trait Mindfulness	.12	.10	1.22	.16	.11	1.46
Perceived Meaningfulness				-.07	.08	-0.97
R^2		.01			.02	
ΔR^2					.01	

Note. $N = 132$. Listwise deletion used for missing data. Unstandardized regression coefficients are reported.
[*] $p < .05$, [**] $p < .01$, [***] $p < .001$.

Table 5

Pilot Study: Test of Indirect Effect on Deviance Behavior

Variable	Indirect Effect	95% CI	
		LL	UL
State Mindfulness	-.06	-0.14	-0.01

Note. $N = 127$. Listwise deletion used for missing data.

CI = 95% confidence interval computed using bias corrected percentile method; LL = lower limit; UL= upper limit. Unstandardized regression coefficients are reported. Coefficients based on 1,000 bootstrap samples.

Table 6

Study 1: Means, Standard Deviations, and Correlations

Variable	N	Mean	SD	1	2	3	4	5	6	7
1. Age	144	20.60	1.79	--						
2. Gender	143	0.44	0.50	-0.09	--					
3. Meaningfulness Manipulation	144	0.47	0.50	0.12	0.01	--				
4. Manipulation Check	144	3.14	1.79	0.13	0.16	0.32**	(.97)			
5. State Mindfulness	144	5.04	1.08	0.01	0.16	0.18*	0.20*	(.75)		
6. CWB1 (Cutting Corners)	144	0.47	0.85	-0.03	0.09	-0.07	-0.12	-0.20*	--	
7. CWB2 (Theft)	144	0.12	0.49	-0.03	-0.13	-0.17*	-0.12	-0.17*	0.13	--
8. CWB3 (Deception)	144	0.34	0.48	-0.05	-0.02	0.03	-0.12	-0.09	0.06	0.04

Note. $^{*}p < .05.$ $^{**}p < .01.$
Gender: 0=Male, 1=Female
Meaningfulness Manipulation: 0=Control Condition, 1=Meaningful Condition
Scale reliabilities (Cronbach's Alpha) reported on the diagonal.

Table 7

Study 1: Means and Standard Deviations by Condition

Variable	Control Condition n=76		Meaningful Condition n=68	
	Mean	SD	Mean	SD
Manipulation Check	2.59 [a]	1.45	3.75 [b]	1.93
State Mindfulness	4.84 [a]	1.10	5.23 [b]	1.03
CWB 1 (Cutting Corners)	0.53 [a]	0.81	0.40 [a]	0.90
CWB 2 (Theft)	0.20 [a]	0.65	0.03 [b]	0.17
CWB 3 (Deceptive Messaging)	0.33 [a]	0.47	0.35 [a]	0.48

Note: N = 144. Means within rows with different superscripts are significantly different from one another at $p \leq .05$.
Manipulation is coded as 0 = Control Condition, 1 = Meaningful Work Condition.
Higher values for manipulation check indicate increased perceived meaningfulness.
Higher values for state mindfulness indicate increased state mindfulness.
Higher values for CWB 1 (Cutting Corners) indicate increased CWB in the form of cutting corners on the spacebar task (von Hippel et al., 2005).
Higher values for CWB 2 (Theft) indicate increased CWB in the form of pen theft.
Higher values for CWB 3 (Deceptive Messaging) indicate increased CWB on the Deceptive Messaging Task (Gneezy, 2005).

Table 8

Study 1: Model Results for CWB 1, CWB 2, and CWB 3 Regressed on State Mindfulness

Variable	CWB 1: Cutting Corners [a]			CWB 2: Theft [a]			CWB 3: Deceptive Messaging [b]		
	B	*SE*	*z*	*B*	*SE*	*z*	*B*	*SE*	*z*
Constant	0.74	0.51	1.45	-0.57	0.93	0.62	0.26	0.83	0.31
State Mindfulness	-0.31	0.11	-2.90[**]	-0.58	0.21	-2.78[**]	-0.18	0.16	-1.12

Note. $N = 144$. Listwise deletion used for missing data. Unstandardized regression coefficients are reported.
[a] Poisson regression analysis was used to estimate dependent variable models CWB 1 and CWB 2 because dependent variables "cutting corners" and "theft" are count variables.
[b] Because deceptive messaging is a binary outcome (0=truthful message, 1=deceptive message), logit regression analysis was used to estimate dependent variable model CWB 3.
[*]$p < .05$, [**]$p < .01$, [***]$p < .001$.

Table 9

Study 1: Coefficient Estimates for Indirect Effect Models

Variable	State Mindfulness			CWB 1: Cutting Corners [a]			CWB 2: Theft [a]		
	B	*SE*	*t*	*B*	*SE*	*z*	*B*	*SE*	*z*
Constant	4.85	0.12	39.66[***]	0.75	0.51	1.46	0.56	0.93	0.60
Meaningfulness Manipulation	0.40	0.18	2.23[*]	-0.16	0.25	-0.62	-1.70	0.76	-2.24[*]
State Mindfulness				-0.30	0.11	-2.73[**]	-0.48	0.21	-2.27[*]
R²		0.03[*]							

Note. *N* = 144. Listwise deletion used for missing data. Unstandardized regression coefficients are reported.
[a] Poisson regression analysis was used to estimate dependent variable models CWB 1 and CWB 2 because dependent variables "cutting corners" and "theft" are count variables.
[*] $p < .05$, [**] $p < .01$, [***] $p < .001$.

Table 10

Study 1: Results for Indirect Effect on CWB 1 and CWB 2

		95% CI	
Model	Indirect Effect	LL	UL
1. Indirect Effect: CWB 1 (Cutting Corners)			
State Mindfulness	-0.12	-0.344	-0.006
2. Indirect Effect: CWB 2 (Theft)			
State Mindfulness	-0.19	-0.599	-0.002

Note. N =144. Listwise deletion used for missing data.

CI = 95% confidence interval computed using bias corrected percentile method; LL = lower limit; UL= upper limit.

Unstandardized regression coefficients are reported. Coefficients based on 1,000 bootstrap samples.

Table 11

Study 2: Means, Standard Deviations, and Correlations Among All Measured Variables [a]

Variable	N	Mean	SD	1	2	3	4	5
Level 1 Variables								
1. Perceived Meaningfulness	2278	0.00	0.62	(.86)				
2. State Mindfulness: New Items	2278	0.00	0.56	0.27***	(.77)			
3. State Mindfulness: MAAS	2278	0.00	0.93	0.21***	0.48***	(.70)		
4. Controlled Motivation	2275	0.00	0.85	-0.18***	-0.19***	0.28***	(.60)	
5. CWB	2275	0.00	0.50	-0.14***	-0.21***	-0.18***	0.16***	(.64)
Level 2 Variables								
6. Age	118	36.07	12.04	0.09	-0.22*	0.05	-0.06	0.19*
7. Gender	120	0.94	0.33	-0.06	0.02	0.09	0.09	-0.12
8. Unit Tenure$_{years}$	119	4.21	6.56	-0.02	-0.03	-0.05	0.01	0.06
9. Hospital Tenure$_{years}$	120	6.84	8.98	0.00	-0.13	-0.10	0.03	0.01
10. Occupation Tenure$_{years}$	120	10.68	11.34	0.03	-0.21*	0.09	-0.08	0.09
11. Day/Night Shift	119	1.72	0.93	0.07	0.14	-0.00	-0.12	0.02
12. Shift Length$_{hours}$	120	11.68	1.02	0.04	0.20*	-0.05	0.02	-0.20*
13. Inpatient/Outpatient	120	2.84	0.55	0.07	-0.04	-0.13	-0.01	-0.05
14. PA	120	5.17	0.64	-0.13	-0.12	0.04	-0.18*	-0.03
15. NA	119	2.91	0.66	0.08	-0.03	-0.19*	-0.16†	-0.17†
16. Overall Job Meaning	120	6.12	0.64	-0.10	-0.10	0.03	0.16†	-0.09
17. Trait Mindfulness	120	4.59	1.03	0.06	0.03	0.16†	0.02	0.05
18. CWB Propensity	119	1.73	0.46	-0.02	0.11	-0.04	-0.07	-0.05

(Table 11 continued)

Variable	6	7	8	9	10	11	12	13
Level 2 Variables								
6. Age	--							
7. Gender	0.01	--						
8. Unit Tenure$_{years}$	0.57***	0.07	--					
9. Hospital Tenure$_{years}$	0.72***	-0.02	0.78***	--				
10. Occupation Tenure$_{years}$	0.88***	0.03	0.62***	0.76***	--			
11. Day/Night Shift	-0.31***	-0.03	-0.28**	-0.29**	-0.30***	--		
12. Shift Length$_{hours}$	-0.32***	-0.06	-0.29**	-0.27**	-0.32***	0.24**	--	
13. Inpatient/Outpatient	-0.12	0.09	0.04	-0.02	-0.14	0.03	0.33***	--
14. PA	0.04	-0.08	-0.03	0.07	0.03	-0.14	-0.12	-0.12
15. NA	-0.09	0.15	0.08	0.07	-0.06	-0.11	0.17†	0.14
16. Overall Job Meaning	0.15	0.00	0.03	0.21*	0.17†	-0.09	-0.16†	-0.11
17. Trait Mindfulness	0.19*	-0.03	0.02	0.08	0.17†	0.04	-0.08	-0.13
18. CWB Propensity	0.09	0.01	0.05	0.09	0.04	-0.02	0.08	0.06

(Table 11 continued)

Variable	14	15	16	17	18
Level 2 Variables					
14. PA	(.87)				
15. NA	-0.47^{***}	(.85)			
16. Overall Job Meaning	0.40^{***}	$-0.15^{\dagger}$	(.91)		
17. Trait Mindfulness	0.40^{***}	-0.45^{***}	0.26^{**}	(.87)	
18. CWB Propensity	-0.35^{***}	0.38^{***}	$-0.17^{\dagger}$	-0.36^{***}	(.72)

*N*ote. [a] Level 1 N = 2278 observations nested within 120 nurses; Level 2 N=120. Means, standard deviations, reliability estimates and correlations among level 1 variables are based on group-mean centered data and reflect within-person relationships among variables. In order to derive estimates of the relationships between level 1 and level 2 variables, level 1 data were aggregated to the individual level of analysis.

Gender: 0=Male; 1=Female

Day/Night Shift: 1=works only day shifts; 2=works a combination of day and night shifts; 3=works only night shifts

Inpatient/Outpatient: 1=works outpatient only; 2=works a combination of inpatient and outpatient; 3=works inpatient only.

Scale reliabilities (Cronbach's Alpha) reported on the diagonal.

$^{\dagger} p < .10,\ ^{*} p < .05,\ ^{**} p < .01,\ ^{***} p < .001$.

Table 12

Study 2: Percentage of Within-Individual Variance for Model Variables

Variable	Within-Individual[b] Variance (e^2)	Between-Individual[b] Variance (r^2)	Within-Individual[c] Variance (%)
Perceived Meaningfulness	0.41	0.50	45%
State Mindfulness (New Items)	0.34	0.33	51%
State Mindfulness (MAAS)	0.91	0.81	53%
Controlled Motivation [a]	0.76	1.92	28%
CWB [a]	0.27	0.28	49%

Note: N = 2278 observations nested within 120 individuals

[a] N = 2275 observations nested within 120 individuals

[b] Residual (within) and random (between) variance estimates were obtained by estimating a null mixed effects model for individual variables, in which the variable of interest is entered as the criterion without any predictors. These models were estimated using uncentered data to avoid underestimation of the random variance.

[c] Percentage of variance within-individuals was computed using the following calculation: $e^2 / (e^2 + r^2)$.

Table 13

Study 2: Within-person Results of One-level Random-effects Models: CWB Regressed on Meaningfulness

Fixed Parts [a]	B	SE	z	LCI	UCI
Constant	2.33	0.15	15.17[***]	2.03	2.64
Perceived Meaningfulness	-0.11	0.02	-6.63[***]	-0.145	-0.079
Random Parts					
N_{groups}	120				
Observations	2,275				

Note. N = 2275 observations nested within 120 nurses. Listwise deletion used for missing data.
[a] 119 dummy variables representing n-1 nurses were included as controls in the model, but are not reported in the table.
[*]$p < .05$, [**]$p < .01$, [***]$p < .001$.

Table 14

Study 2: Within-person Results of One-level Random-effects Models: State Mindfulness Regressed on Meaningfulness

Fixed Parts [a]	Model 1: State Mindfulness (New Items)					Model 2: State Mindfulness (MAAS)				
	B	*SE*	*z*	LCI	UCI	*B*	*SE*	*z*	LCI	UCI
Constant	3.93	0.17	23.46***	3.60	4.26	2.81	0.28	10.01***	2.56	3.36
Perceived Meaningfulness	0.24	0.02	13.25***	0.21	0.28	0.31	0.04	10.09***	0.25	0.37
Random Parts										
N$_{groups}$			120					120		
Observations			2,278					2,278		

Note. N = 2278 observations nested within 120 nurses. Listwise deletion used for missing data.
[a] 119 dummy variables representing n-1 nurses were included as controls in the model, but are not reported in the table.
p < .05, **p* < .01, ***p* < .001.

Table 15

Study 2: Within-person Results of One-level Random-effects Models for CWB Regressed on State Mindfulness

Fixed Parts [a]	Model 1: CWB Regressed on State Mindfulness (New Items)					Model 2: CWB Regressed on State Mindfulness (MAAS)				
	B	*SE*	*z*	LCI	UCI	*B*	*SE*	*z*	LCI	UCI
Constant	2.68	0.15	17.38***	2.377	2.981	2.15	0.13	16.46***	1.894	2.406
State Mindfulness	-0.18	0.02	-10.02***	-0.220	-0.148	-0.10	0.01	-8.74***	-0.110	-0.076
Random Parts										
N_{groups}			120					120		
Observations			2,275					2,275		

Note. N = 2275 observations nested within 120 nurses. Listwise deletion used for missing data.
[a] 119 dummy variables representing n-1 nurses were included as controls in the model, but are not reported in the table.
*p < .05, **p < .01, ***p < .001.

Table 16

Study 2: Within-person Results of One-level Random-effects Model for State Mindfulness Regressed on Meaningfulness, Controlled Motivation, and Meaningfulness X Controlled Motivation Product Term

Fixed Parts [a]	Model 1: State Mindfulness (New Items)					Model 2: State Mindfulness (MAAS)				
	B	*SE*	*z*	LCI	UCI	*B*	*SE*	*z*	LCI	UCI
Constant	4.15	0.28	14.72***	3.599	4.705	4.00	0.46	8.65***	3.094	4.906
Perceived Meaningfulness	0.30	0.04	7.72***	0.221	0.372	0.37	0.06	5.85***	0.245	0.492
Controlled Motivation	0.02	0.05	0.40	-0.083	0.126	-0.08	0.09	0.02	-0.251	0.091
Meaning*Cont Motiv	-0.02	0.01	-2.33*	-0.037	-0.003	-0.03	0.01	-2.32*	-0.060	-0.005
Random Parts										
N$_{groups}$			120					120		
Observations			2,275					2,275		

Note. N = 2275 observations nested within 120 nurses. Listwise deletion used for missing data.

[a] 119 dummy variables representing n-1 nurses were included as controls in the model, but are not reported in the table.

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

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Table 17

Study 2: Additional Random-effects Model Results for Coefficient Estimates used to test Indirect and Conditional Indirect Effect Models for State Mindfulness (New Items) as Mediator Variable

Fixed Parts [a]	Model 1: Coefficients for Indirect Effect Model					Model 2: Coefficients for Conditional Indirect Effect Model				
	B	*SE*	*z*	LCI	UCI	*B*	*SE*	*z*	LCI	UCI
Constant	2.97	0.17	17.62***	2.642	3.304	1.98	0.32	6.26	1.36	2.60
Perceived Meaningfulness	-0.07	0.02	-4.20***	-0.106	-0.039	-0.07	0.04	-1.96	-0.143	0.0001
State Mindfulness	-0.16	0.02	-8.57***	-0.101	-0.125	-0.06	0.04	-1.49	-0.144	0.020
Controlled Motivation						0.18	0.07	2.77**	0.054	0.313
Meaning*Cont Motiv						0.003	0.01	0.35	-0.013	0.019
Mindful*Cont Motiv						-0.02	0.01	-2.26*	-0.042	-0.003
Random Parts										
N$_{groups}$			120					120		
Observations			2,275					2,275		

Note. N = 2275 observations nested within 120 nurses. Listwise deletion used for missing data.
[a] 119 dummy variables representing n-1 nurses were included as controls in the model, but are not reported in the table.
*p < .05, **p < .01, ***p < .001.

Table 18

Study 2: Additional Random-effects Model Results for Coefficient Estimates used to test Indirect and Conditional Indirect Effect Models for State Mindfulness (MAAS) as Mediator Variable

Fixed Parts [a]	Model 1: Coefficients for Indirect Effect Model					Model 2: Coefficients for Conditional Indirect Effect Model				
	B	*SE*	*z*	LCI	UCI	*B*	*SE*	*z*	LCI	UCI
Constant	2.58	0.16	16.59***	2.272	2.221	2.00	0.28	7.21	1.459	2.549
Perceived Meaningfulness	-0.09	0.02	-5.01***	-0.118	-0.052	-0.07	0.04	-1.98*	-0.141	-0.001
State Mindfulness	-0.09	0.01	-7.57***	-0.108	-0.064	-0.06	0.03	-2.31*	-0.114	-0.009
Controlled Motivation						0.08	0.05	1.51	-0.025	0.189
Meaning*Cont Motiv						-0.001	0.01	-0.10	-0.016	0.015
Mindful*Cont Motiv						-0.003	0.01	-0.40	-0.015	0.010
Random Parts										
N_{groups}			120					120		
Observations			2,275					2,275		

Note. N = 2275 observations nested within 120 nurses. Listwise deletion used for missing data.
[a] 119 dummy variables representing n-1 nurses were included as controls in the model, but are not reported in the table.
*p < .05, **p < .01, ***p < .001.

Table 19

Study 2: Results of Random-effects Model of Indirect Effect of Perceived Meaningfulness

		95% CI	
Model	Indirect Effect	LL	UL
1. Indirect Effect: State Mindfulness (New Measure)	-0.04	-0.159	-0.058
2. Indirect Effect: State Mindfulness (MAAS)	-0.03	-0.161	-0.062

Note. N = 2275 observations nested within 120 nurses. Listwise deletion used for missing data.
CI = 95% confidence interval computed using bias corrected percentile method
LL = lower limit; UL= upper limit.
Unstandardized regression coefficients are reported. Coefficients based on 1,000 bootstrap samples.

Table 20

Study 2: Results of Random-effects Model of Conditional Indirect Effects of Perceived Meaningfulness

Model	Indirect Effect	Controlled Motivation	95% CI	
			LL	UL
1. Conditional Indirect Effect: State Mindfulness (New Items)				
Low Controlled Motivation (- 1 SD)	-0.03	-0.85	-0.045	-0.013
High Controlled Motivation (+ 1 SD)	-0.04	0.85	-0.056	-0.020
Difference	-0.01		-0.005	0.036
2. Conditional Indirect Effect: State Mindfulness (MAAS)				
Low Controlled Motivation (- 1 SD)	-0.022	-0.85	-0.036	-0.010
High Controlled Motivation (+ 1 SD)	-0.024	0.85	-0.026	-0.007
Difference	-0.002		-0.019	0.014

Note. N = 2275 observations nested within 120 nurses. Listwise deletion used for missing data.
CI = 95% confidence interval computed using bias corrected percentile method
LL = lower limit; UL= upper limit.
Unstandardized regression coefficients are reported. Coefficients based on 1,000 bootstrap samples.
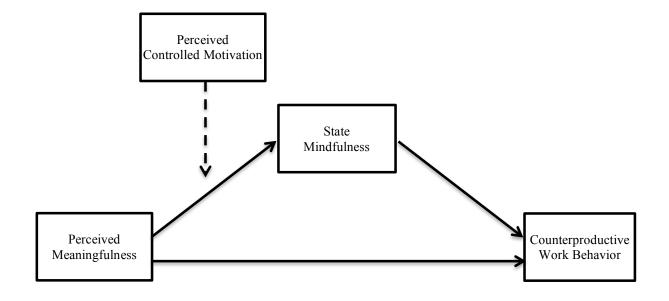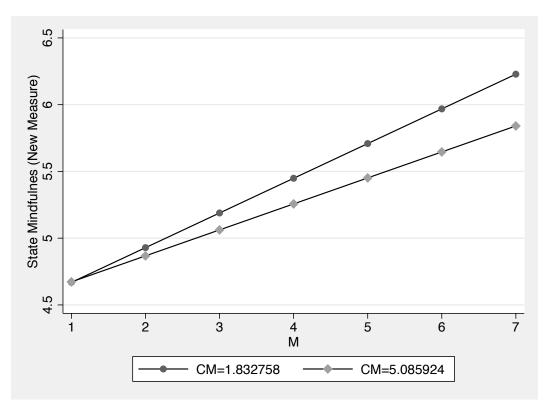
Figure 1. Theoretical Model.

Figure 2. Study 2: Interactive Effects of Meaningfulness and Controlled Motivation on State Mindfulness (New Measure).

N*ote*: Simple slopes plotted at +1 SD, mean, and -1 SD levels of controlled motivation.

Figure 3. Study 2: Interactive Effects of Meaningfulness and Controlled Motivation on
State Mindfulness (MAAS).
 N*ote*: Simple slopes plotted at +1 SD, mean, and -1 SD levels of controlled motivation.

APPENDIX A: PILOT STUDY MATERIALS

Work Meaningfulness Measure (May et al., 2004; adapted from May, 2003 and Spreitzer, 1995)

Instructions: Please carefully read and respond to the following statements based on your experiences at work for today only.

Using the scale below, please indicate the extent that you agree you experienced each of the following at work today.

	1	2	3	4	5	6	7	
strongly disagree								strongly agree

TODAY AT WORK……

1. The work I did was very important to me.
2. My job activities were personally meaningful to me.
3. The work I did was meaningful.
4. The work I did was worthwhile.
5. My job activities were significant to me.
6. I felt that the work I did was valuable.

State Mindfulness Measure
Mindfulness Attention and Awareness Scale (MAAS, Brown & Ryan, 2003)

Instructions: Please carefully read and respond to the following statements based on your experiences at work for today only.

Using the scale below, please indicate the extent that you agree you experienced each of the following at work today.

	1	2	3	4	5	6	7	
strongly disagree								strongly agree

TODAY AT WORK……

1. I experienced an emotion and was not conscious of it until sometime later in the day.
2. I broke or spilled things because of carelessness, not paying attention, or thinking of something else.
3. I found it difficult to stay focused on what was happening in the present moment.
4. I tended to walk quickly to get where I was going without paying attention to what I experienced along the way.
5. I did not notice feelings of physical tension or discomfort until they really grabbed my attention.
6. I forgot a person's name almost as soon as I was told it for the first time.
7. It seemed that I was "running on automatic" without much awareness of what I was doing.
8. I rushed through activities without being really attentive to them.
9. I got so focused on a goal I wanted to achieve that I lost touch with what I was doing right then to get there.
10. I did jobs or tasks automatically, without being aware of what I was doing.
11. I found myself listening to someone with one ear and doing something else at the same time.
12. I walked or drove places on "automatic pilot" and then wondered why I went there.
13. I found myself preoccupied with the future or the past.
14. I found myself doing things without paying attention.
15. I snacked without being aware that I was eating.

CWB Measure
Deviance (Bennett & Robinson, 2000)

Instructions: Please carefully read and respond to the following statements based on your experiences at work for today only.

Using the scale below, please indicate the extent that you agree you experienced each of the following at work today.

	1	2	3	4	5	6	7	
strongly disagree								strongly agree

TODAY AT WORK……

1. Made fun of someone
2. Said something hurtful to someone
3. Made an ethnic, religious, or racial remark
4. Cursed at someone
5. Played a mean prank on someone
6. Acted rudely toward someone
7. Publicly embarrassed someone
8. Took property from work without permission
9. Spent too much time fantasizing or daydreaming instead of working
10. Falsified a receipt to get reimbursed for more money than I spent on business expenses
11. Took an additional or longer break than is considered acceptable at my workplace
12. Came in late to work without permission
13. Littered my work environment
14. Neglected to follow instructions
15. Intentionally worked slower than I could have worked
16. Discussed confidential company information with an unauthorized person
17. Used an illegal drug or consumed alcohol on the job
18. Put little effort into my work
19. Dragged out work in order to get overtime

Trait Mindfulness Measure
Toronto Mindfulness Scale (TMS, Lau et al., 2006)

Instructions: Using the scale below, please indicate how frequently or infrequently you generally have the following experiences. In other words, on average, how often do you experience the following?

IN GENERAL……

1. I experience myself as separate from my changing thoughts and feelings
2. I am more concerned with being open to my experiences than controlling or changing them
3. I am curious about what I might learn about myself by taking notice of how I react to certain thoughts, feelings or sensations
4. I experience my thoughts more as events in my mind than as a necessarily accurate reflection of the way things 'really' are
5. I am curious to see what my mind is up to from moment to moment
6. I am curious about each of the thoughts and feelings that I have
7. I am receptive to observing unpleasant thoughts and feelings without interfering with them
8. I am more invested in just watching my experiences as they arise, than in figuring out what they could mean
9. I approach each experience by trying to accept it, no matter whether it is pleasant or unpleasant
10. I remain curious about the nature of each experience as it arises
11. I am aware of my thoughts and feelings without over-identifying with them
12. I am curious about my reactions to things
13. I am curious about what I might learn about myself by just taking notice of what my attention gets drawn to

APPENDIX B: STUDY 1 (LABORATORY EXPERIMENT) MATERIALS

<u>Meaningfulness Manipulation: Control Condition Packet</u>
<u>Instructions Page (as presented to participants):</u>

<u>Proofreading Task Instructions</u>

Please proofread the following student essay by doing <u>any or all</u> of the following:

1. Read carefully and mark and correct any punctual or grammatical errors you may find in the student's essay.
2. Edit content and make any suggestions for improvement in regards to general writing style, organization, extraneous information that should be removed, or areas that need to be developed or elaborated further.
3. Check to make sure the prompt was answered in full. You may edit content on the essay page, or if you run out of space you may make them on pages 2 and 3 in the blank space provided.
4. Feel free to leave any general comments to the student in the blank space provided on the pages following the essay.

PROOFREADING TASK

Essay Prompt: *Tell us about yourself, why you want to pursue a college degree, and why you believe you would be a good fit as a student at UNC Chapel Hill.* (1,000 word limit)

ESSAY:

College; Many people think about it everyday. Right now I am surrounded by hundreds of my classmates all thinking about the same thing. Where do I want to go? Do I even want to go? How do I get started. Everyone's gets so nervous, and everyone has the right.. We're are all trying to take the next step in moving on after high school. I have already come to a decision about the previous questions. I know I want to go to school, and I want to attend the Universty of North Carolina at Chapel Hill. For starters, I'm not quite sure what exactly I want my essay to say. There are so many things that I want to write about in such a short essay. I am a really indecisive person but I always make sure I think about everything carefully before I make decision. For example, I've been thinking about college ever since I started middle school. It had always scarred me and i wanted to make sure that I was ready. I'd go from thinking I would go to Duke just because a friend wanted to, to being set on going to a local community college just because I knew I wouldn't be able to afford an expensive university. For the past year though; I have been set on going to UNC. It's the school I know I want to attend. Since I've said what I want about me attending your school, I'll tell you a little more about myself. i'm kind of the typed person who has gone through lots of change. I went from being a shy freshman with barely any friends, to an outgoing senior that makes friends with many of the people i comes in contact with. I've learned more about myself in the past couple years than I have in my entire life. School has helped me with that. I've always loved school. Although I know i'll going to be really sad to leave high school having had such a good time and having learnt so much I know, though, that when I graduate I will be moving on and learning new things. I'm absolutely looking forward to it.

Another passion that I hope to pursue at UNC is tennis. Highschool tennis was amazing and has been a part of my life. My Mom actually got me into tennis, forced me a bit really. Eventually, though, I started to like tennis, and then grew to love it. So far this year my partner and I haven't lost a match, and I have been loving it. I made it into the state tournament my junior year which was my proudest moment. I am hoping qualify again this year. I do hope that throughout this essay I have been able to show you that I really want to go to UNC, and that some of my personality has been able to shine through. I am ready to take the next step in my education after high school. To me, that step is going to UNC Chapel Hill and becoming a Taarheel.

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[3] Two blank pages were also included with the essay so that participants could make any additional written comments to the essay writer.

SHSCI Form: SASI - 0138

Applicant ID: 02070104

FINANCIAL AID REQUESTED: ✓ yes _____ no

Student Applicant Submission Form

Student Applicant Information				
Applicant Background				
Student Name	Last: Thompson First: Zachary Middle: E.			
Date of Birth	03/24/1997			
Application Type	Financial Aid, Undergraduate Admissions			
High School	T. Wingate Andrews High School			
	High Point, North Carolina			
Current Education Level	High School Junior			
High School Graduation Date	May, 2017			
Document	**Submitted Response**	**Date Received**	**Status**	**Date Reviewed**
Application Type:	Financial Aid, Undergraduate	01/07/2016	In Process: Review	
Photo Verification:	Attached	01/07/2016	n/a	n/a
Student's Statement of Intent:	Attached	01/11/2016	In Process: Review	
Admission Essay:	Attached	01/11/2016	In Process: Review	

THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

SHSCI ESSAY REVIEW FORM

Applicant ID: 02070104

FINANCIAL AID REQUESTED: ✓ yes _____ no

Student Statement of Intent:

To Who It May Concern,

Thank you very much for helping me with my application to unc. I am working hard on my writing skills and grades this year because I want to be the first one in my family to go to college. My dream is to go to college at UNC in Chapel Hill and I know with your help I have a better chance of getting in. I can't thank you enough for your help.

Sincerely,
Zach Thompson

Meaningfulness Manipulation: Meaningful Condition Packet
Instructions Page (as presented to participants):

UNC Student Reviewer Request

You have been given a copy of a college admissions essay that was written by a local, underprivileged high school student. This student will be formally applying next fall for admission to UNC for the following academic year. We're asking you to proofread and/or provide any feedback about the student's essay and writing. The student is likely the first in his/her family to pursue a college education and in need of a scholarship award, and we have offered to help students who fit these criteria with their applications by providing feedback about his/her personal statement essay from current college students who were successful in writing essays for their own college applications. Any help is appreciated!

Some Helpful Guidelines for Student Reviewers

We ask that you please proofread the essay you were given by doing <u>any or all</u> of the following:

1. Read carefully and mark and correct any punctual or grammatical errors you may find in the student's essay.
2. Edit content and make any suggestions for improvement in regards to general writing style, organization, extraneous information that should be removed, or areas that need to be developed or elaborated further.
3. Check to make sure the prompt was answered in full. You may edit content on the essay page, or if you run out of space you may make them on pages 2 and 3 in the blank space provided.
4. Feel free to leave any general comments to the student in the blank space provided on the pages following the essay.

SHSCI ESSAY REVIEW FORM

Applicant ID: 02070104

FINANCIAL AID REQUESTED: ✓ yes _____ no

Essay Prompt: *Tell us about yourself, why you want to pursue a college degree, and why you believe you would be a good fit as a student at UNC Chapel Hill.* (1,000 word limit).

STUDENT ESSAY:

College; Many people think about it everyday. Right now I am surrounded by hundreds of my classmates all thinking about the same thing. Where do I want to go? Do I even want to go? How do I get started. Everyone's gets so nervous, and everyone has the right.. We're are all trying to take the next step in moving on after high school. I have already come to a decision about the previous questions. I know I want to go to school, and I want to attend the Universty of North Carolina at Chapel Hill. For starters, I'm not quite sure what exactly I want my essay to say. There are so many things that I want to write about in such a short essay. I am a really indecisive person but I always make sure I think about everything carefully before I make decision. For example, I've been thinking about college ever since I started middle school. It had always scarred me and i wanted to make sure that I was ready. I'd go from thinking I would go to Duke just because a friend wanted to, to being set on going to a local community college just because I knew I wouldn't be able to afford an expensive university. For the past year though; I have been set on going to UNC. It's the school I know I want to attend. Since I've said what I want about me attending your school, I'll tell you a little more about myself. i'm kind of the typed person who has gone through lots of change. I went from being a shy freshman with barely any friends, to an outgoing senior that makes friends with many of the people i comes in contact with. I've learned more about myself in the past couple years than I have in my entire life. School has helped me with that. I've always loved school. Although I know i'll going to be really sad to leave high school having had such a good time and having learnt so much I know, though, that when I graduate I will be moving on and learning new things. I'm absolutely looking forward to it.

Another passion that I hope to pursue at UNC is tennis. Highschool tennis was amazing and has been a part of my life. My Mom actually got me into tennis, forced me a bit really. Eventually, though, I started to like tennis, and then grew to love it. So far this year my partner and I haven't

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[4] Two blank pages were also included with the essay so that participants could make any additional written comments under "Reviewer Suggestions" to the essay writer.

lost a match, and I have been loving it. I made it into the state tournament my junior year which was my proudest moment. I am hoping qualify again this year. I do hope that throughout this essay I have been able to show you that I really want to go to UNC, and that some of my personality has been able to shine through. I am ready to take the next step in my education after high school. To me, that step is going to UNC Chapel Hill and becoming a Taarheel.

Meaningfulness Manipulation Check
Adapted from Spreitzer (1995)

<u>Instructions:</u> Please respond to the following statements based on your experience during the previous proofreading task. Using the scale below, please indicate the extent that you agree with each of the following statements.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| strongly disagree | | | | | | strongly agree |

1. The proofreading task that I just did was very important to me.
2. Editing the essay was personally meaningful to me.
3. Proofreading the essay was meaningful to me.

State Mindfulness Measure
MAAS (Brown & Ryan, 2003)

<u>Instructions:</u> Please carefully read and respond to the following statements based on your experience during the previous proofreading task. Using the scale below, please indicate the extent that you agree that you experienced each of the following. Please answer according to <u>what really reflects your experience during the proofreading task</u> rather than what you think your experience should have been.

<div align="center">

1   2   3   4   5   6   7

strongly disagree   strongly agree

</div>

During the proofreading task…..

1. It was difficult to stay focused on what was happening in the present moment.
2. I rushed through the proofreading activity without being really attentive to it.
3. I was so focused on the goal I wanted to achieve that I lost touch with what I was doing right then to get there.
4. I did the proofreading task automatically, without being aware of what I was doing.
5. I found myself preoccupied with the future or the past.
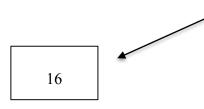6. I found that I was doing things without paying attention.

Spacebar Task

"The next task in the survey requires analytical skill and is currently under development, so I need to tell you a couple things about it before you start. You'll be solving strings of math problems requiring you to add and subtract several numbers. There's a total of 10 problems.

We want you to test out this task for us, and need you to do something specific as part of the test. Right now, the program is set up so the correct answer to each problem will pop up on the screen after a few seconds, so that people can check their work. But, during this test, we actually don't want you to use this feature. To disable the correct answer from popping up, you need to press the spacebar as soon as you begin each problem. Then solve the problem on your own. Does everyone understand?

Ok, so solve all 10 problems and don't forget to hit the spacebar as soon as each problem appears."

Example Item:

The "answer" box only popped up on screen if participant did not press spacebar within 3 seconds of the numerical expression appearing.

16

$$12 + 6 - 2 + 14 + 1 + 9 - 7 + 3 + 5 - 4$$

Deceptive Messaging Task
Gneezy (2005)

Instructions: This is a short experiment in decision-making. In this experiment, you will be matched with another student from a different class. Neither of you will ever know the identity of the other. The money that you earn will be paid to you next week, privately and in cash.

Two possible monetary payments are available to you and your counterpart in the experiment. The two payment options are:

Option A: $1 to you and $2 to the other student

Option B: $2 to you and $1 to the other student

The choice rests with the other student who will have to choose either option A or option B. **The only information your counterpart will have is information sent by you in a message.** That is, he or she will not know the monetary payments associated with each choice.

We now ask you to choose one of the following two possible messages, which you will send to your counterpart:

Message 1: "Option A will earn you more money than option B."

Message 2: "Option B will earn you more money than option A."

We will show the other student your message, and ask him or her to choose either A or B. To repeat, your counterpart's choice will determine the payments in the experiment. However, your counterpart will never know what the payment was offered in the option not chosen (that is, he or she will never know whether your message was true or not). Moreover, he or she will never know the sums you will be paid according to the different options.

We will pay the two of you according to the choice made by your counterpart.

Please indicate below which message you would like to send to the other player.

___ Message 1: "Option A will earn you more money than option B."

___ Message 2: "Option B will earn you more money than option A."

Demographics

1. Gender
2. Age
3. Ethnicity
    a. African-American
    b. Asian / Asian American
    c. Caucasian
    d. Hispanic / Latino
    e. Other

Perceived Work Meaningfulness
Adapted from Spreitzer (1995)

Participants used the following scale to respond to items below.

1	2	3	4	5	6	7
strongly disagree						strongly agree

In the last four hours at work, ……

1. The work I have done was very important to me.
2. My job activities have been personally meaningful to me.
3. The work I have done was meaningful.

State Mindfulness Measure
MAAS (Brown & Ryan, 2003)

Participants used the following scale to respond to items below.

	1	2	3	4	5	6	7	
strongly disagree							strongly agree	

During the last four hours at work…..

1. It has been difficult to stay focused on what was happening in the present moment.
2. I have done jobs or tasks automatically, without being aware of what I was doing.
3. I have rushed through job activities without being really attentive to them.

Controlled Motivation Measure (Weinstein & Ryan, 2010)

Participants used the following scale to respond to items below.

	1	2	3	4	5	6	7	
strongly disagree								strongly agree

During the last four hours at work, I have done work tasks because…..

1. I felt that I had to.

2. Others would get mad at me if I didn't.

CWB Measure
CWB-C-32 Item (Spector et al., 2006)

Participants used the following scale to respond to items below.

<div align="center">

1   2   3   4   5   6   7

strongly disagree   strongly agree

</div>

During the last four hours at work, I…..

1. Complained about insignificant things at work.

2. Told people what a lousy place you work for.

3. Took an additional or longer break than acceptable.

4. Intentionally worked slower than I could have worked.

5. Ignored someone at work.

6. Insulted or made fun of someone at work.

Additional Between-person Variables

Trait PA and NA from PANAS (Watson et al., 1988)

<u>Instructions:</u> This scale consists of a number of words that describe different feelings and emotions. Indicate the extent to which you agree that you generally feel this way, that is, how you feel on average, using the following scale:

	1	2	3	4	5	6	7	
strongly disagree								strongly agree

1. Interested
2. Distressed
3. Excited
4. Upset
5. Strong
6. Guilty
7. Scared
8. Hostile
9. Enthusiastic
10. Proud
11. Irritable
12. Alert
13. Ashamed
14. Inspired
15. Nervous
16. Determined
17. Attentive
18. Jittery
19. Active
20. Afraid

Trait Mindfulness

MAAS (Brown & Ryan, 2003)

Instructions: Please indicate your degree of agreement or disagreement with each of the following statements in the blank space next to each item. Respond to every statement by using the following scale.

	1	2	3	4	5	6	7	
strongly disagree								strongly agree

1. I could be experiencing some emotion and not be conscious of it until sometime later
2. I find it difficult to stay focused on what's happening in the present
3. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way
4. It seems I am "running on automatic" without much awareness of what I'm doing
5. I rush through activities without being really attentive to them
6. 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
7. I do jobs or tasks automatically, without being aware of what I'm doing
8. I find myself listening to someone with one ear, doing something else at the same time
9. I drive places on "automatic pilot" and then wonder why I went there
10. I find myself preoccupied with the future or the past
11. I find myself doing things without paying attention

Overall Job Meaningfulness

Work as Meaning Inventory (WAMI, Steger et al., 2012)

<u>Instructions:</u> Please indicate your degree of agreement or disagreement with each of the following statements about how you generally feel, on average, about your job or work. Respond to every statement by using the following scale.

	1	2	3	4	5	6	7	
strongly disagree								strongly agree

1. I have found a meaningful career.
2. I view my work as contributing to my personal growth.
3. My work really makes no difference to the world. (R)
4. I understand how my work contributes to my life's meaning.
5. I have a good sense of what makes my job meaningful.
6. I know my work makes a positive difference in the world.
7. My work helps me better understand myself.
8. I have discovered work that has a satisfying purpose.
9. My work helps me make sense of the world around me.
10. The work I do serves a greater purpose.

CWB Propensity

CWB-C-10 Item (Spector et al., 2010; Spector et al., 2006)

Instructions: Using the scale below, please indicate how often you have done the following things related to your job.

1	2	3	4	5	6	7
never						always

1. Purposely wasted your employer's materials/supplies

2. Complained about insignificant things at work

3. Told people outside the job what a lousy place you work for

4. Came to work late without permission

5. Stayed home from work and said you were sick when you weren't

6. Insulted someone about their job performance

7. Made fun of someone's personal life

8. Ignored someone at work

9. Started an argument with someone at work

10. Insulted or made fun of someone at work

6. Demographics

   1. Gender
   2. Age
   3. Ethnicity
           a. African-American
           b. Asian / Asian American
           c. Caucasian
           d. Hispanic / Latino
           e. Other

   4. Is English your first language?
           a. Yes
           b. No. If no, what is your first language? _____
   5. Tenure

APPENDIX D: SUPPLEMENTARY CONSTRUCT VALIDITY STUDY
FOR NEW STATE MINDFULNESS ITEMS USED IN STUDY 2

Study 2 included a three-item measure of state mindfulness that was adapted from a five-item measure developed in this dissertation work (items listed at the end of Appendix D). Despite the number of existing mindfulness scales, a new measure was developed for two specific reasons. First, with the exception of the MAAS (Brown & Ryan, 2003), existing measures rely on a combination of items or dimensions that conflate mindfulness with related processes and attitudes. Second, although the MAAS is currently the best alternative to other existing scales, it is most accurately a measure of *mindlessness* rather than mindfulness. Brown and Ryan (2003) acknowledge this potential limitation of the scale, but suggest that individuals can more accurately assess experiences of mindlessness than they can mindfulness. However, whether individuals can accurately report mindful states by responding to items that directly reflect mindfulness is an empirical question that has yet to be examined. Thus, the present research developed a brief measure that excludes items regarding related attitudes and processes, and more directly assesses mindful (versus mindless) states.

Prior to beginning study 2, a small construct validity study was conducted to assess the validity of the new items. Sixteen items were developed, all of which are positively worded such that higher ratings on the items reflected increased state mindfulness (e.g., without having to reverse-score any of the items). Eight items reflected the attention component and 8 items reflected the awareness component of the definition. Attention and awareness were reflected in separate items simply to avoid reliability issues associated with double-barreled items, not to reflect two separate factors. Given the subtle distinction between both attention and awareness, and that these items are expected to be highly correlated (Brown & Ryan, 2003; Brown et al., 2007a), the measure was intended to reflect a single mindfulness factor.

The sample in the construct validity study included 199 employed U.S. adults that participated in an online survey in exchange for payment of $0.50. Participants were recruited through Amazon's Mechanical Turk (http://mturk.com/), which is argued to be a reliable data source (Buhrmester et al., 2011). 46% of participants identified as female, and the average age was 35.89 years (SD = 11.55). Participants responded to the 16 new mindfulness items, as well as full measures of the MAAS (Brown & Ryan, 2003) and TMS (Lau et al., 2006) in order to assess convergent validity using existing scales. See Appendix A for the latter two measures.

Two sets of analyses were conducted. First, a single-factor CFA was conducted with all 16 items from the developed measure, which resulted in a poor-fitting model, χ^2 (104) = 557.26, $p < .001$), CFI = .85. Because the fit was so poor, I re-examined the list of items to determine which were ill-fitting from a conceptual standpoint, prior to running any additional analyses. A total of 11 items were discarded for the following reasons: (1) the item included the word "focus", a word that reflects more narrowed states of attention and awareness than one would expect in a mindful state. In addition, the term "focus" is often used interchangeably with the term "concentration" in everyday language, and concentration is conceptually distinct from state mindfulness (Brown & Ryan, 2003); (2) the item included a qualifying level of attention or awareness (e.g., "highly" or "broad" or "close") because these qualifiers were not consistent across items, and conceptually the items should be worded to consistently reflect state mindfulness, rather than reflecting a combination of state mindfulness and specific levels of state mindfulness across the different items; (3) the item reflected attention toward a specific task, which is too narrow to represent attention and awareness to events and experiences external to the self during mindful states; (4) the item was closely resembled or duplicated another item, given that the goal was to develop a brief measure to use in the ESM study.

A total of five items were retained, three awareness items and two attention items, and are shown below. A single factor CFA demonstrated adequate fit, χ^2 (5) = 15.76, $p < .001$, CFI = .99. Despite a significant chi-square fit statistic, which is sensitive to sample size, the CFI provided evidence of adequate fit, and the chi-square difference test indicated that the five-item single-factor model was a much better fit than the 16-item model, $\Delta \chi^2$ (119) = 541.5, $p < .001$. Reliability for the five-item measure was also high, $\alpha = .93$. Further, the five-item measure was significantly and positively related to state mindfulness as measured by both the MAAS ($r = .51$, $p < .001$) providing evidence of convergent validity. While the correlation between the five-item measure and the TMS was significant ($r = .16$, $p < .05$), the magnitude was not as large as expected. However, the correlation between the TMS and MAAS was even smaller and non-significant ($r = .10$, $p > .05$). These low correlations with the TMS are not surprising given substantial operationalization differences between this five-item measure versus TMS items, and the MAAS versus TMS items; the TMS includes items related to attitudes and processes, whereas this five-item measure and the MAAS omit such items.

The five-item measure demonstrated reasonable fit and convergent validity with the MAAS, and these items were retained as the final set of items from which the three-item scale[5] in study 2 was adapted. The measure was limited to three items since the ESM surveys were

---

[5] Due to a technical error that occurred when exporting the data from the survey software, an item that should have been excluded (i.e., "I felt attentive to the task at hand") for reasons discussed above, was *included* as one of the three items used to assess state mindfulness in study 2. However, a follow-up CFA was conducted on the five-item measure in which the correct item was replaced with the above item that should have been omitted, and while the chi-square test was slightly worse for this model, χ^2 (5) = 22.68, $p < .00$, the CFI = .98 only dropped by .01 and still remained above the threshold for adequate fit. The alpha value remained the same, $\alpha = .93$. Correlations with the other two mindfulness scales remained similar (MAAS: $r = .52$, $p < .001$; TMS: $r = .15$, $p < .05$). All hypothesis tests and additional model tests reported in the ESM field study 2 were conducted twice, once with the new three-item scale and a second time using three items from the MAAS (Brown & Ryan, 2003). However, given the error described in this footnote, it is not recommended that authors adapt this scale in their own research.

administered twice per day while at work, and therefore needed to be very brief. However, given the technical error described in the footnote of this appendix, it is not recommended that authors adapt this scale in their own research.

Mindfulness Items Developed in Supplementary Study

1. I was highly aware of things that were happening around me. (aware)
2. I had a broad awareness of how I felt. (aware)
3. I was aware of things occurring in the here and now. (aware)*
4. I was highly conscious of what I was doing. (aware)
5. I was conscious of how I was feeling. (aware)*
6. I was aware of the present moment. (aware)*
7. I noticed how I was presently feeling. (aware)
8. I was aware of my thoughts in the present moment. (aware)
9. I felt attentive to the task at hand. (attention)
10. I paid attention to my experiences in the present moment. (attention)*
11. My attention was focused on what I was doing right then. (attention)
12. My attention was focused on the present. (attention)
13. I was attentive to how I was feeling. (attention)*
14. My focus was clear. (attention)
15. I was attentive to what I was doing. (attention)
16. I was paying close attention to the world around me. (attention)

*5-Item Measure: Items 3, 5, 6, 10, 13

3-Item Measure used in Study 2 ESM: Items 3, 6, 9

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