

Cultivating leadership Dharma

Measuring the impact of regular mindfulness practice on creativity, resilience, tolerance for ambiguity, anxiety and stress

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Abstract

Purpose – The purpose of this paper is to examine the impact of regular mindfulness meditation practice on five personal qualities that an extensive literature review deems critical for successful leadership in an age of rapid organizational change and uncertainty.

Design/methodology/approach – In this eight-week study, the authors investigated whether a weekly, 45-minute mindfulness practice routine ($n = 20$) would significantly improve five leadership qualities when compared with a weekly, three hour graduate level leadership course ($n = 21$), which in contrast incorporated theoretical instruction, skills practice, and experiential learning. Both samples included organizational leaders throughout the Minneapolis/St Paul area.

Findings – Results of a pre-post survey confirmed that when compared with participants in the leadership course condition, participants in the mindfulness practice condition demonstrated a significant increase in promotional regulatory focus and a significant reduction in trait anxiety and stress. No significant changes were seen for resilience or tolerance for ambiguity. This study also uncovered significant inter-correlations between scores on trait anxiety and a number of variables, most notably promotional regulatory focus. Implications exist for numerous bodies of research concerning leadership, well-being and the leadership development programs they influence, which include leadership psychology, organization development, and mindfulness-based stress reduction.

Originality/value – This is the first study of its kind (to date) to investigate the impact of mindfulness practice on leadership qualities, which according to research, are critical to leadership performance.

Keywords Leadership development, Leadership, Leaders, Learning, Learning methods, Organizational development

Paper type Research paper

Consciousness is the very substance of mental life. It not only makes life personally manageable but worth living (Bandura, 2001, p. 12).

Introduction

The field of leadership studies has adopted the term “VUCA,” an acronym that stands for the “Volatile, Unpredictable, Complex, and Ambiguous” demands faced by modern organizations. These pressures include economic uncertainty, rapid technological



advancements, globalization, and the sheer complexity of social-organizational systems (Bandura, 2001; Hamel and Valikangas, 2003; Lane and Klenke, 2004; Bakker *et al.*, 2005; Chermack, 2011). Research suggests that leaders who emerge and thrive in this environment develop and display certain personal and social qualities (Zaccaro and Klimoski, 2001), which include creativity (Dess and Pickens, 2000; Kim and Mauborgne, 2005; Amabile and Khair, 2008; Choi, 2012), risk taking (Kotter, 1998; Gordon *et al.*, 2002; Chrusciel, 2008), managing stress and quelling anxiety (Hambrick *et al.*, 2005). Leaders are also shown to benefit by cultivating resilience in the face of continuous change (Wanberg and Banas, 2000) and navigating ambiguous situations with aplomb (Huber, 2003). These qualities comprise a leader's way of being in the midst of flux and uncertainty. This study looks specifically at mindfulness practice and tenets grounded in Buddhist tradition, which often refers to an individual's way of being – that cuts across all experience – as Dharma (Purser and Mililo, 2015). Collectively, the qualities described above comprise what might be called leadership Dharma.

Skills practice, job rotation, and coaching have become mainstays in the field of leadership development (Charan *et al.*, 2001), but it is still unclear whether these activities do enough to cultivate a leader's way of being in the face of continuous change. As a result organization and leadership development literature is beginning to shift its focus toward helping leaders develop a mindful relationship with complexity (Avolio *et al.*, 2009) and strategic development (Tovstiga, 2013). Since these theorists have just started to explore mindfulness as an avenue for leadership development (Kahn, 1992; Fiol and O'Connor, 2003; Glomb *et al.*, 2011; Boyatzis and Yeganeh, 2012; Cashman, 2012; Boyatzis and McKee, 2013; Goleman, 2013; Purser and Mililo, 2015), there is a noticeable paucity of empirical research demonstrating how mindfulness practice improves mental qualities in leaders specifically.

Leadership qualities for uncertain times

Numerous qualities are essential to leading effectively in an age of uncertainty. Depending on which qualities one chooses to focus upon, a leadership development offering could take on many different pedagogical frameworks, objectives, and measures. Based off of an extensive literature review, which compared research and theory in the fields of leadership development with mindfulness practice, this study uncovered five personal qualities that are consistent between them. These include: creativity, resilience, tolerance for ambiguity, dealing with stress, and quelling anxiety.

The literature that informed this study focusses on these qualities because they are essential to leaders who navigate multiple demands placed on contemporary organizations. This review also investigated evidence in the form of qualitative and quantitative research of the connection between these qualities and mindfulness practice. Primary sources included leadership journals as well as peer-reviewed literature from the fields of human resource development, organization development, management development, neuro-leadership, organizational psychology, social psychology, and mindfulness and contemplative practices.

Inclusion criteria included literature that theoretically or empirically informed the fields of leadership development, organization development, and mindfulness practice. Databases utilized for research included: Business Source Info, Emerald, JSTOR, ProQuest, PsycInfo, and PubMed. Primary search terms included: adaptive leadership, authentic leadership, leadership intuition, leadership resilience, leadership traits, mindful leadership, mindfulness practice, neuro-leadership, organizational VUCA, organizational innovation, and resonant leadership.

Leadership creativity

Research suggests that organizations capable of out-innovating competitors, “in sharp contrast to companies playing by traditional rules, never use the competition as a benchmark. Instead they make it irrelevant by creating a leap in value [...]” (Kim and Mauborgne, 2005, p. 75). In turn, innovation is an invaluable behavior modeled by contemporary leaders (Kotter, 1998; Chrusciel, 2008) because it influences an organization’s ability to develop and sustain strategic competitive advantages (Bandura, 2001; de Geus, 2002; Hamel and Valikangas, 2003).

Much has been written about leader behaviors that support creativity in followers (Mumford *et al.*, 2002; Jaussi and Dionne, 2003; Amabile *et al.*, 2004; Shalley and Gilson, 2004), yet little has been written about how a leader may cultivate their own creative qualities (Mumford *et al.*, 2003). Leaders are compelled not only to think creatively (Amabile and Khaire, 2008) but also take risks associated with bending their imagination into reality. This is partly why leaders now engage in developmental activities centering on insight-driven strategic planning (Tovstiga, 2013) and intuition development (Sadler-Smith and Shefy, 2007). While research has demonstrated that creative capacity is related to an individual’s breadth of attention (Kasof, 1997), it tells us nothing about whether mindfulness practice is related with the courage to implement novel ideas or make unlikely decisions. By incorporating regulatory focus as a dependent variable, discussed next, this study was not only able to measure a leader’s motivation to create, but to create without worry of being judged. This also enabled the study to determine whether a leader’s historical aversion to creative risk taking might be quelled through mindfulness practice, which by definition is a practice of no judgment (Kabat-Zinn, 2003).

Introduced by Torry Higgins (1997, 1998, 2000), Regulatory Focus Theory delineates two motivational orientations that control approach-avoidance behavior. Individuals with a promotion focus set their sights on accomplishments and aspirations. According to research they generate more distinct alternatives to a given task, and are more likely to persevere when faced with setbacks than individuals with a prevention focus (Crowe and Higgins, 1997). Conversely, individuals with a prevention focus seek safety and protection in decisions as they attempt to avoid mistakes. Research shows that they are more repetitive during idea generation and tend to quit more readily when faced with adversity (Crowe and Higgins, 1997). In this way, regulatory focus is linked with both emotional (Brockner and Higgins, 2001) and behavioral proclivities during strategic decision making (Higgins *et al.*, 1994).

Promotion focus has been theoretically linked (Zhou and George, 2003) and empirically related with employee creativity (Friedman and Förster, 2001; Wu *et al.*, 2008). It is also shown to be predictive of whether an individual is likely to lead change at all (Chan and Drasgow, 2001; Kark and Van Dikj, 2007) and whether they will engage in helping followers through the creative process (Neubert *et al.*, 2008). For these reasons our study sought to determine whether routine mindfulness practice had a positive relationship with promotional focus, despite a leader’s past history in taking pride over their promotion or prevention focus.

Leadership tolerance for ambiguity

Tolerance for ambiguity is general describe as “the tendency to perceive ambiguous situations as desirable” (Budner, 1962, p. 29), and has been applied to literature in organizational behavior as “a coping mechanism for dealing with organizational change” (Judge *et al.*, 1999). Tolerance for ambiguity is said to facilitate creativity,

entrepreneurship, and flexibility (Dollinger *et al.*, 1995; Ghosh, 1994). In a literature review by Furnham and Marks (2013), high tolerance for ambiguity has been correlated with a number of organizational performance drivers, including entrepreneurial performance (Teoh and Foo, 1997), managerial performance (Chong, 1998), a firm's financial and market performance (Westerberg *et al.*, 1997). High tolerance for ambiguity has also been correlated with mindfulness (Le *et al.*, 2012), though it has not yet been correlated as an outcome of mindfulness practice.

Kajs and McCollum (2009) summarized the relationship between the tolerance for ambiguity and various positive leadership behaviors through comprehensive search of organizational, social behavioral, and leadership studies. The major characteristics displayed by people who tend to be better at tolerating ambiguity include: collaborative and receptive to working in cross-cultural environment; suspending closure, having a tolerance for failure, taking risks, and monitoring self; flexibility, entrepreneurship, adaptability, creativity, and innovation (Kajs and McCollum, 2009).

Leadership development literature focusses on cultivating tolerance for ambiguity through practice based pedagogies aimed at helping leaders operate in a "more fluid and unpredictable learning environment – a context that perhaps more closely approximates the ambiguous and rapidly changing world of business" (Huber, 2003, p. 53). Organizations are also beginning to run simulations to help leaders build innovative strategies in the midst of uncertainty (Kavanaugh and Strecker, 2012).

Leadership resilience

Leadership literature describes resilience as a type of psychological capital or mental resource (Luthans *et al.*, 2006; Xanthopoulou *et al.*, 2007) that can be accessed by leaders who face relentless organizational pressures. It is said to entail a way of being that cuts across any number of challenges, as it is a multidimensional characteristic that varies with context, time, age, gender, and cultural origin, as well as within an individual subjected to different life circumstances (Connor and Davidson, 2003, p. 76). Resilience is said to be determined by a leader's ability to face reality as harsh as it may be, draw meaning from it, and utilize whatever resources they have in order to function (Coutu, 2002). By developing this ability to not only see but also reframe setbacks, leaders may be "more apt to not only bounce back quickly from a setback, but may be able to attain levels even above where they started" (Luthans *et al.*, 2006, p. 391).

Little empirical research has broached the connection between resilience and leadership effectiveness. Conversely, however, transformational and distributed leadership behaviors have been shown to increase subordinate resilience (Harland *et al.*, 2004). While it has yet to be studied, Luthans and Avolio (2003) have similarly theorized that resilience is necessary for authentic leadership behavior.

An inherent assumption in our research is that in order to develop resilience, leaders in the midst of setbacks may do well to cultivate their ability to take a step-back. This includes seeing a situation exactly as it is in order to unveil insights, and become aware of a new way of functioning. In this way resilience may be said to also depend on one's ability to let go of one's attachments. This ability is said to be a key attitudinal orientation developed through mindfulness practice (Kabat-Zinn, 1990). More specifically, it is recommended that leaders overcome four obstacles in order to develop resilience, all requiring an ability to let go and see things anew. These include liberating oneself from denial, recognizing alternatives through greater awareness, enabling "breakout" strategic experiments, and breaking free of doctrines such as flawless execution (Hamel and Valikangas, 2003, p. 54).

Leadership stress regulation

Greater levels of stress have been shown to adversely impact a leader's strategic decision making behaviors (Ganster, 2005; Hambrick *et al.*, 2005) and left unchecked is correlated with difficulty recognizing ethical dilemmas (Selart and Johansen, 2011). Despite calls to incorporate mindfulness practices, such as breathing meditation protocols that might mitigate stress in the workplace (Cryer *et al.*, 2003), little effort has been made in leadership development programs to help leaders regulate stress at work (Lovelace *et al.*, 2007). Research is also needed to understand how greater awareness of stress may help leaders become more engaged at work (Malinowski and Lim, 2015). The few programs that do incorporate whole-person approaches merge traditional leadership development with strategies for increasing health (Lovelace *et al.*, 2007) and mindfulness at work.

An impressive quantity of empirical research has demonstrated a positive correlation between mindfulness practice and stress reduction, particularly through the intervention of mindfulness-based stress reduction (MBSR) (Kabat-Zinn, 1982, 1990, 2003), which this study emulated. The MBSR protocol has been linked with decreases in psychological distress (Carmody and Baer, 2008; Carmody *et al.*, 2008; Weinstein *et al.*, 2009) and even changes in gray matter density in the amygdala related to stress (Hölzel *et al.*, 2009). Due to consistent findings across such literature, we felt modestly confident in our hypothesis that perceived stress among leaders would decrease through mindfulness practice. However, our study was also designed to investigate inter-correlations that might be established between fluctuations in perceived stress and other dependent variables described in this section.

Leadership anxiety reduction

Unprecedented change and uncertainty also plays a role in increased anxiety levels among leaders (Rosen, 2008). According to Yerkes and Dodson (1908) who first suggested the inverted U-shaped relation between arousal and task performance, leaders need to maintain moderate levels of anxiety because greater levels of anxiety may decrease their performance. High anxiety is also related with adverse effects on the performance of cognitive tasks (Eysenck, 1992; Eysenck *et al.*, 2007). Unchecked anxiety is also shown to hinder the effectiveness as risk-seeking behaviors (Maner *et al.*, 2012). In addition, Judge *et al.* (2002) have demonstrated that neuroticism, which is closely related with anxiety, is negatively related with effectiveness of leadership through meta-analysis of leadership and big five personality studies.

There is no shortage of studies regarding the effect of MBSR on anxiety reduction (Davidson *et al.*, 2003; Gross *et al.*, 2004; Ramel *et al.*, 2004; Sagula and Rice, 2004; Shapiro *et al.*, 2007; Tacon *et al.*, 2003, 2004; Vieten and Astin, 2008). Using the Hamilton rating scale of anxiety and Beck anxiety inventory, Kabat-Zinn *et al.* (1992) demonstrated that patients with anxiety disorder experienced a significant decrease in anxiety after an MBSR intervention. In a similar study of patients with anxiety disorder Lee *et al.* (2007) demonstrated that an eight-week meditation program significantly reduced scores in State-Trait Anxiety Inventory (STAI). Beyond anxiety disorder patients, normal professionals such as teachers also benefit from meditation (Anderson *et al.*, 1999). According to Anderson *et al.* (1999), STAI scores of K12 teachers who participated in five weeks of meditation decreased significantly compared with a control group. The ability to reduce anxiety has been linked with MBSR but has not yet been studied in the context of leadership, which has traditionally stated that those with greater anxiety are less effective as leaders (Judge *et al.*, 2002).

Mindfulness practice

Presently, research on the impact of mindfulness practice in organizations borrows predominantly from a groundswell of research in the medical community inspired by Jon Kabat-Zinn (1982, 1990, 2003). A secular, eight-week meditation program designed by Kabat-Zinn, called MBSR, defines mindfulness practice as “an awareness that emerges through paying attention on purpose to the present moment and non-judgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, p. 145). For the purpose of operationalizing mindfulness for applied research, this definition has been further operationalized to include the conscious practices of self-regulation of awareness and orientation to experience (Bishop *et al.*, 2004). Self-regulation of awareness includes the practice of sustaining attention, whereas orientation to experience includes flexibility in attention which allows a person to shift focus from one object to another (Jersild, 1927; Posner, 1980).

Regular mindfulness practice, refers to a dedicated period of formal meditation practice that can occur at any point in time during the day, including before, during, and after work. At work, regular mindfulness practice refers to formal practice integrated with routine spaces in the workplace (Chaskalson, 2011). One of the most popular spaces and times for regular practice, which we incorporated for use in this study includes lunchtime because it is typically construed as free time for both nourishment and replenishment (Brendel, 2016).

Formal practice

One of the more common methods of mindfulness practice in the workplace includes simple breathing meditation, in which an individual sits in an upright posture with eyes closed, sustaining attention to their breathing in its full duration. Invariably, the mind will wander, at which time the individual will – without judging themselves for losing track of the breath – switch their attention back to their breathing in the present moment (Chaskalson, 2011). This process can occur countless times in a single meditation session. Therefore, mindfulness is not something that can be achieved *per se*, but rather practiced and cultivated. The physiological and psychological benefits of regular mindfulness practice (Brown *et al.*, 2007; De Vibe, 2012; Carmody, 2009; Hölzel *et al.*, 2011) are shown to extend well beyond the formal practice setting (Buchheld *et al.*, 2001).

In addition to health and wellness, research on the impact of mindfulness practice in the workplace has uncovered many work related benefits, including improved task performance (Dane, 2011) and relationships (Brown *et al.*, 2007), decreased emotional exhaustion, increased job satisfaction (Hülshager *et al.*, 2013), and improved work-family balance (Allen and Kiburz, 2012).

Informal practice

There are greater discussions to be had around mindfulness practice other than developing a sense of well-being, which are often separated from research on formal meditation practice (Klatt *et al.*, 2008; Purser and Mililo, 2015). It might be said that the ultimate purpose of mindfulness practice may be to develop what Buddhists call the Dharma, a mindful way of being that cuts across all experience. Available in every waking moment, this includes the ability to make a “perceptual shift” (Carmody, 2009), “in which one’s thoughts and feelings are recognized as events occurring in the broader field of awareness” (Hölzel *et al.*, 2011). In fact, it has been suggested that future organizational research on mindfulness should focus keenly on developing mental

skills in leaders that can be “generalizable across task domains” (Weick and Putnam, 2006). Therefore, what is called for are studies of mindfulness practice as a continuous process of leadership presence (Küpers, 2014) vs a leadership style (Sauer and Kohls, 2011). This Eastern perspective requires individuals to be persistent in keeping the mind “properly grounded in the present moment and to decrease reactivity to what happens in the moment” (le *et al.*, 2014).

Dependent variables

Accordingly, the dependent variables we have chosen to study, include qualities that are accessible in every moment and shown to help leaders deal with modern demands. These qualities include regulatory focus, tolerance for ambiguity, resilience, perceived stress, and state-trait anxiety.

Regulatory focus

To understand this relationship between regular mindfulness practice and creative bravery, we utilized the Regulatory Focus Questionnaire (RFQ), an 11-item Likert scale survey that gauges two dimensions: historical pride in a given regulatory focus and more recent regulatory focus (Higgins *et al.*, 2001). The majority of the historical questions drive scores on the prevention focus subscale, whereas questions about recent regulatory focus indicate promotional focus. Examples of historical questions on this scale include: “Growing up, would you ever ‘cross the line’ by doing things that your parents would not tolerate?” Examples of questions pertaining to recent regulatory focus include: “Compared to most people, are you typically unable to get what you want out of life?”

Tolerance for ambiguity

For the purpose of investigating correlations between mindfulness practice and tolerance for ambiguity, this study utilized Budner’s (1962) Tolerance for Ambiguity Scale. This scale consists of 16 Likert scale questions split to measure positive and negative orientations to ambiguity. It asks participants to rate the extent to which they agree with statements on a scale from 1-7 (strongly disagree to strongly agree). An example of a positive orientation item includes, “People who fit their lives to a schedule probably miss most of the joy of living.” An example of a negative orientation item includes, “A good job is one where what is to be done and how it is to be done are always clear” (Budner, 1962).

Resilience

In order to study potential correlations between mindfulness practice and leadership resilience as closely as the description theorized above, this study employed the Connor-Davidson Resilience Scale (CD-RISC-10), a ten-item Likert scale instrument where higher scores reflect greater resilience (Connor and Davidson, 2003). Participants are asked to indicate how much they agree with statements as they relate to the last month. This is measured on a scale from 0-4 (not true at all to true nearly all the time). Samples from this scale include “I am able to adapt when changes occur” and “I believe I can achieve my goals, even if there are obstacles.”

Perceived stress

Perceived stress was measured through the Perceived Stress Scale (Cohen *et al.*, 1983; Cohen and Williamson, 1988); as it is both widely used and present in studies on the

effects of MBSR (Carmody and Baer, 2008; Chang *et al.*, 2004; Klatt *et al.*, 2008; Marcus *et al.*, 2003; Robinson Mathews and Witek-Janusek, 2003), and also well validated (Carmody and Baer, 2008). The PSS consists of ten-Likert scale items to determine the degree to which situations over the past month outweighed an individual's ability to cope with stress. Higher scores indicate greater perceived stress. Participants indicate the frequency of feelings or thoughts over the past month on a scale of 0-4 (never to very often). Examples include "In the last month, how often have you been upset because of something that happened unexpectedly?" and "In the last month, how often have you felt that you were on top of things?"

Trait anxiety

This study measured the trait characteristics of anxiety through the STAI for adults (Form Y), which asks participants to rate 20 descriptions of how they generally feel on a scale of 1-4 (not at all to very much so) (Spielberger *et al.*, 1983). Although STAI was originally designed to measure both state and trait anxiety, only the trait anxiety items were used for this study as traits are considered to be strongly associated with leadership effectiveness (Northouse, 2013). According to Spielberger *et al.* (1983), trait anxiety is a feeling of stress, worry, and discomfort, that is related with more general situations that everyone experiences on a daily basis; on the other hand, state anxiety is related with more specific and temporary situations such as a difficult test. Examples of trait anxiety items include "I feel nervous and restless" and "I take disappointments so keenly that I can't put them out of my mind."

Stages of change

Our study also added a pre-post measure to determine the degree to which participants who participated in the mindfulness practice condition actually adopted this meditation practice into their routine following our eight-week protocol. To measure this aspect, we adapted the Prochaska and DiClemente (1983) Stages of Change Questionnaire, originally created to determine the degree to which smokers are in the process of quitting. This measure was validated by studying a sample of 872 subjects who were in the process of quitting smoking on their own. In a highly similar fashion, our participants were asked to select one of five statements which varied in degrees of self-change, from the very lowest stage of change, such as "I'm not thinking about adding a meditation practice into my weekly routine within the next six months" to the very highest stage of change including, "I have a routine meditation practice and I am working to maintain it."

Method

To estimate the causal impact of the mindfulness practice on the regulatory focus, tolerance for ambiguity, resilience, perceived stress, state-trait anxiety, and stage of change, we conducted quantitative research using quasi-experimental design.

Participants

As this study focussed on the impact of mindfulness practice on helpful qualities for leaders, it was essential to identify selection criteria for leaders. Most academic research on what comprises leadership is empirical, fragmentary, and pays little mind to context, which is paramount to actual leadership (Hogan and Kaiser, 2005). It is often incorrectly assumed that leadership is a function of managerial authority.

While managing and leading are complementary, they are distinct in that leadership is about coping with change (Kotter, 1990, p. 104) and motivation to lead is a function of openness to change (Kark and VanDijk, 2007). Additionally, emerging leadership theory considers leadership as a social phenomenon rather than something, that is left up to one individual (Avolio, 2007). Regardless of formal level of authority, several personal and contextual factors within organizations tend to make leadership more likely. Our selection criteria includes three of these factors: organizational expectation and empowerment for distributed leadership, self-identification as leader, and desire to lead.

First, participants were required to work in an organization whose culture not only emphasizes but empowers distributed leadership, defined as “activities tied to the core work of the organization that are designed by organizational members to influence the motivation, knowledge, affect, or practices of other organizational members” (Spillane, 2005, p. 11). Empowerment occurs when “workers can help determine their own work roles, accomplish meaningful work, and influence important decisions” (Yukl and Becker, 2006, p. 210). This was evidenced in a variety of ways, including job descriptions, organizational target audiences for leadership development offerings, and description of their distinct organizational culture on the organization’s website. All organizations represented in this study are reputable for ensuring that all employees are empowered to positively influence the motivation of fellow employees in a way, that is tied to task vs position.

Second, the open call for participation requested participants who self-identify as leaders. Although those in formal positions of authority tend to have greater expectations and leeway to lead, it does not ensure that they do in fact lead. Leadership identity is not only a function of “granting” or a collective endorsement of leadership by the organization, but also a function of “claiming” or role adoption (DeRue and Ashford, 2010). Therefore, participants also had to identify as leaders.

Third, participants were required to demonstrate a desire to lead as evidenced by their investment of time and money in developing their leadership capacity. To do so, our selection targeted professionals pursuing graduate degrees in leadership, as well as general interest in leadership development. This data was mined from attendee registration databases for those who participated in leadership workshops and seminars offered by the university.

Participants in this study were divided into two groups or conditions: mindfulness and leadership. Participants in the mindfulness condition consisted of volunteers from an open call sent to faculty and staff, as well as prior participants from leadership and change oriented workshops and presentations hosted by UST. The leadership condition comprised business professionals enrolled in a graduate level leadership theory and development course at the University of Saint Thomas, Minnesota. See Table I for a breakdown of participant attributes in each condition.

Table I.
Descriptive
information for the
participants in the
mindfulness and
leadership conditions

	Mindfulness	Leadership
<i>n</i>	20	21
Gender	5 male, 15 female	7 male, 14 female
Occupation	16 business professionals, 2 faculty members, 2 staff members	20 business professionals, 1 faculty member
Previous meditation experience	14 yes, 6 no	14 yes, 7 no

Procedure

Our project was approved by the University of Saint Thomas IRB (Protocol 646808-1). Prior to the start of the eight-week study period, all participants completed a 68 question pre-survey, presented on Qualtrics. The beginning of the survey included a consent form asking participants to indicate that they give consent to participate in the research study knowing they can withdraw from the study at any point. After completing the survey, participants in the mindfulness condition attended one weekly 45-minute mindful meditation session for eight weeks. These volunteers had the option of attending sessions in person, streaming them live online, watching previously recorded sessions, or by completing a combination of these approaches. Participants in the leadership condition continued to attend their class, but did not attend mindful meditation sessions during the eight-week study period. After eight weeks, all participants were sent a post-survey consisting of the same 68 questions from the pre-survey, along with an opportunity to provide feedback on their experience.

Measures

The pre- and post-survey was made up of 68 questions taken from six scales.

The first is the Y2 form of the STAI for adults consisting of 20 items; (Spielberger *et al.*, 1983). This measure examined the trait characteristics of anxiety. The second measure was the RFQ, consisting of 11 items (Higgins *et al.*, 2001). The third measure was the Tolerance for Ambiguity Scale consisting of 16 items (Budner, 1962). The fourth scale was the ten-item version of the CD-RISC-10 (Connor and Davidson, 2003). The fifth measure was the ten-item Perceived Stress Scale (Cohen *et al.*, 1983). The final scale was the modified Stages of Change, adapted from Prochaska and DiClemente (1983).

Statistical analysis

Changes from pre- to post-survey for each scale, except for the Stages of Change question, were analyzed within each condition using paired *t*-tests. Differences between the post-survey responses between two conditions for each scale were analyzed using independent *t*-tests. Since each scale was involved in two measures, we divided the α value by 2. Statistical significance was assessed at $p < 0.25$. The data for the Stages of Change question were ordinal so were assessed with non-parametric tests. The change from pre-survey to post-survey on the Stages of Change question was assessed separately for the mindfulness and leadership conditions using Wilcoxon signed-rank tests. The comparison between the post-survey scores on the Stages of Change question between conditions was analyzed with a Mann-Whitney *U*-test. In addition to these analyses, the relationships between the scales were examined post-survey using Pearson's correlations.

Results

Post-survey results were first compared to examine the correlations between survey measures. Significant relationships were found among the trait form of the STAI, the promote subscale of the RFQ, the CD-RISC-10, and the Perceived Stress Scale (Table II). No other inter-correlations were significant ($p > 0.05$).

The mindfulness condition and leadership condition did not differ significantly on any pre-survey measures ($p > 0.025$). Survey measures were compared between the pre- and post-survey for both the mindfulness and leadership conditions. No comparisons were

found to be significant in the leadership condition ($p > 0.025$). For the mindfulness condition, there was a significant decrease in values for the trait subscale of the State-Trait Anxiety Scale, $t(16) = 3.35, p = 0.004$. There was also a significant increase in the Promote subscale scores in the RFQ, $t(17) = 2.62, p = 0.018$. Pre-post values are shown for all measures in Figure 1.

The changes in value from pre to post were calculated for each survey measure. These changes were compared between the mindfulness and leadership conditions. The change between pre- and post-values was significantly greater in the mindfulness condition as compared to the leadership condition for the trait subscale of the STAI ($t(32) = 2.88, p = 0.007$), the promote subscale of the RFQ ($t(34) = 2.50, p = 0.018$), and the Perceived Stress Scale ($t(17) = 2.18, p = 0.018$). All changes are shown in Figure 2.

There were no differences between pre and post-survey answers to the Stages of Change question for the leadership condition, $p = 0.31$. Participants in the mindfulness condition increased their plans for meditation practices between the pre-survey

Table II.
Correlations among measures during the post experiment survey

Measure Pair	Pearson (r)	p -value	n
Trait (STAI) and promote (RFQ)	-0.481	0.002	38
Trait (STAI) and resilience	-0.554	< 0.001	36
Trait (STAI) and perceived stress	0.607	0.002	24
Promote (RFQ) and resilience	0.504	0.001	38
Resilience and perceived stress	-0.469	0.016	26

Note: All other pairings were not significant ($p > 0.05$)

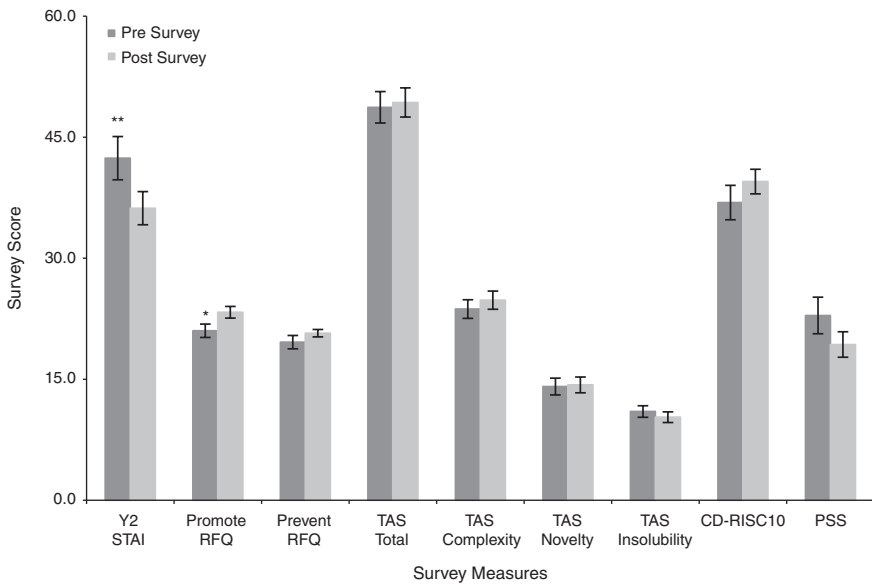
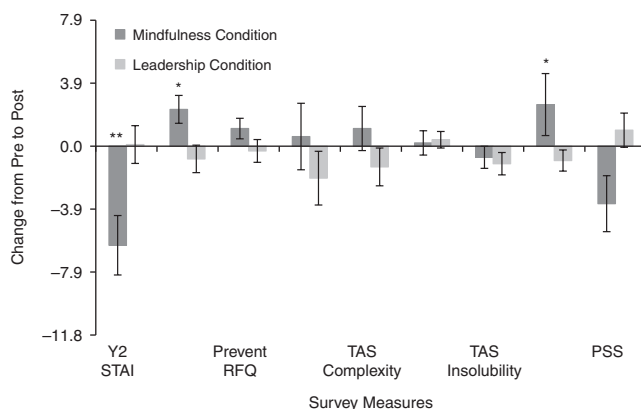


Figure 1.
Comparisons between pre and post-survey results (Mean ± SE) for the mindfulness condition

Notes: * $p < 0.025$; ** $p < 0.01$



Notes: * $p < 0.025$; ** $p < 0.01$

Figure 2.
Changes (Mean±SE)
in survey measures
pre to post for the
mindfulness and
leadership conditions

($M = 3.29$, Mode = 2) and post-survey ($M = 3.89$, Mode = 4; $p = 0.032$). Participant scores changed significantly more in the mindful condition as compared to the leadership condition, $p < 0.001$.

Discussion

When compared with cognitive-behavioral based approaches to leadership, represented in this study with a leadership course, does regular mindfulness practice have a direct impact on personal qualities that have been theoretically and empirically linked to successful leadership in uncertain times? Moreover, do correlations exist between these qualities so that if one were to improve we might also anticipate improvement in the other?

Our findings first demonstrated that attending a weekly 45-minute mindfulness session resulted in a significant reduction in trait anxiety and a significant increase in promotional focus. The same changes were not seen in participants who attended a weekly leadership class. Mindfulness participants also showed significant decrease in perceived stress relative to leadership participants. Our research also demonstrated that leaders can decrease trait anxiety through regular mindfulness practice. Considering that the intent of the trait anxiety scale is “to characterize anxiety as a long standing trait or characteristic” (Julian, 2011, p. 468), our research has demonstrated that regular mindfulness practice can impact this relatively stubborn quality in leaders. Moreover, since high scores on the Big Five trait of neuroticism have been positively correlated with anxiety and negatively correlated with leadership effectiveness (Judge *et al.*, 2002), it can be inferred that mindfulness practice can increase leadership effectiveness by decreasing trait anxiety.

One of the most compelling findings of this study was that regular mindfulness practice resulted in greater promotional regulatory focus or propensity for turning creative ideas into reality. This finding informs literature on leadership as well as the field of organization development, by aiding the argument for incorporating mindfulness practice as an ongoing priming activity in spaces created by organizations for developing innovations. More specifically, mindfulness practice can be integrated into think tanks, futurist work, and scenario planning. Leaders may learn about innovation in formal training settings and practice activities such as

brainstorming said to churn out creative ideas, but unless they are inherently motivated to turn them into reality without hesitation or fear of retribution, new ideas are likely to die on the vine.

Findings concerning greater promotional regulatory focus also have implications not just for literature on leadership studies, but also on contemplative practices such as MBSR. Mindfulness practice in the tradition of MBSR stems from the 2,500 year old tradition of insight meditation (Fronsdal, 1998), known as Vipassana, which is said to open a space for receiving insights presented by the relaxed mind, without striving or conceptualizing. Our study demonstrates a significant link between a once weekly practice and greater insight. One can only imagine how individuals might benefit by participating in a leadership course, workshop, or executive education model that combines theoretical, skills practice and experiential learning with regular mindfulness practice. As discussed at length previously, the demand for innovative leadership warrants serious investigation around this type pedagogy.

Important inter-correlations were also revealed through this study, perhaps none more noteworthy than the decrease in trait anxiety and increase in promotional focus. By demonstrating a negative correlation between anxiety and promotional focus, this study supports the ancient notion that quieting one's level of anxiety through meditation can indeed free individuals from the knee-jerk process of dismissing novel ideas. These inter-correlations also suggest that theorists and researchers should begin to frame leadership not as static or distinct approaches to specific situations, but as a continuous and collective way of being, accessible in every moment through greater awareness.

Bandura (2001, p. 12) has suggested that this greater consciousness not only "makes life personally manageable but worth living." The deeper meaning that may be derived through mindfulness practice has also shown up in comments made by participants in this study who were asked about the most meaningful aspect of participating in this study. Comments included "This meditation practice is one of the best parts of my week and really helps me remain centered and positive" and "I feel more even keeled and content than I did at the beginning of this study." Additionally, the likelihood that an individual will make specific plans to integrate mindfulness practice was also shown to increase significantly, as evidenced in responses to the adapted Stages of Change Questionnaire. In sum, our study presents compelling evidence that quelling anxiety, decreasing stress, cultivating creativity, and adding greater meaning to our work can be cultivated through weekly lunchtime meditation.

This study has two key strengths not frequently seen in previous empirical work on mindfulness. Unlike most research on mindfulness practice, which has been conducted outside of the work environment with student samples (Glomb *et al.*, 2011), our study was intentional in recruiting self-described organizational leaders, many of whom work in the competitive and unpredictable atmosphere of modern organizations. This gives our study high external validity because it can be applied directly to similar working environments. As a result, our study includes and moves beyond the impact of mindfulness practice on stress and anxiety to include additional leadership abilities germane to modern organizational life. Our study also frames mindfulness practice as an ongoing functional consciousness, which "involves intentional accessing and deliberative use of semantic and pragmatic information to manage life events" (Bandura, 2001, p. 12). In doing so it positions mindfulness practice not as an antecedent to a state of greater creativity, for example, but as an ongoing and ever-present activity that impacts a leader's way of being in any given moment.

Contribution to the field of leadership

By selecting specific ways of being that can be measured by psychometrically validated instruments, this study directly addressed a question that lingers in the minds of skeptics: how useful is mindfulness practice as a leadership development application? Mindfulness practices are now incorporated in leadership development workshops in numerous reputable organizations, including General Electric, Google, Apple, IBM, Starbucks, Goldman Sachs, Pfizer, US Air Force, Mayo Clinic, Procter & Gamble, and AT&T (Brendel, 2016). These organizations have done so because they have observed a shift in their leaders, but until this study there has been no way of explaining this change other than assuming a relationship.

Concurrently, well known leadership theorists have recognized the shortcomings of strictly cognitive-behavioral based approaches to preparing leaders for messy twenty-first century challenges (Scharmer, 2009; Boyatzis and McKee, 2013; George, 2007; Schein, 2013). In search of a different approach, theorists have recognized that the ancient practice of consciously shifting attention to the present moment has great potential to influence a quality of mind that positively impacts decision making, communication, and creativity (Goldman-Schuyler, 2010). Beyond these generalizations, however, until this study there has been virtually no research demonstrating a correlation between regular mindfulness practice and qualities that are both theoretically and empirically linked to effective leadership. The results of this study produce these correlations by comparing a cognitive-behavioral leadership course to regular mindfulness practice.

The results of this study also compel leadership development experts to imagine the promise of integrating mindfulness practice with the predominant, cognitive-behavioral tradition leadership training. This study's design also suggests several survey instruments that may be used within organizations to investigate the impact of workshops designed to help leaders balance what they do (ways of acting) with how they do it (ways of being).

Limitations and future research

Our study did not directly assess leadership effectiveness, but rather the abilities that have been suggested as impactful to leadership effectiveness. Future research must cautiously study the fuller link between mindfulness practice and the behaviors and outcomes that represent effective leadership. The second limitation of this study is that it focuses mainly on a leader's individually perceived psychological ability states, as opposed to the interpersonal abilities. Future research would also benefit by incorporating qualitative inquiry to reflect not whether these abilities change, but why and how such development occurs. The third limitation of this study may be related with the period of mindfulness practice. Although the change of tolerance for ambiguity, resilience, and perceived stress during the mindfulness practice are not statistically significant, the directions of the changes of these variables were in accordance with our predictions. Eight weeks may be too short a period to change these qualities significantly. Therefore future research needs to extend the frequency of mindfulness practice to examine the effects on these variables. Finally, when advancing from a managerial to executive level of leadership, strategic thinking requires greater levels of creativity, strategic agility, and innovation management (DeMeuse *et al.*, 2011). As such, research should examine how mindfulness practice might influence a promotional regulatory focus during this specific period of leadership development.

Conclusion

Routine mindfulness practice supports a substantial increase in promotional regulatory focus, a desirable habit of mind marked by enhanced creativity and greater likelihood of taking chances. It also relates with a substantial reduction in anxiety, a key trait noted in the Big Five traits model. Mindfulness practice is also strongly related to stress reduction, an ability that can liberate a leader's mental resources to deal with unanticipated obstacles and setbacks.

Findings are also critical for leadership training and development outfits, as our study reflected no improvements in the aforementioned qualities through an experiential leadership course incorporating theory and practice. In contrast with these classic courses and workshops, mindfulness practice is a simple, inexpensive method that may be accomplished during one-lunch period per week.

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