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EXPLORING FACETS OF MINDFULNESS IN EXPERIENCED MEDITATORS

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ABSTRACT OF THESIS

EXPLORING FACETS OF MINDFULNESS IN EXPERIENCED MEDITATORS

Mindfulness is increasingly recognized as an important phenomenon in both clinical and empirical domains, though debate regarding the exact definition of mindfulness continues. Self-report mindfulness measures have begun to appear, which is important as each measure represents an independent attempt to conceptualize mindfulness. Baer, Smith, Hopkins, Krietemeyer, and Toney (2006) recently identified five facets of mindfulness (*observing, describing, acting with awareness, nonjudging, and nonreactivity*) and developed the Five Facet Mindfulness Questionnaire (FFMQ) to assess them. They also provided preliminary evidence that the five facets were aspects of an overall mindfulness construct, demonstrated support for the convergent and discriminant validity of total mindfulness and its facets, and provided evidence to support the utility of the facets in understanding the relationships of mindfulness with other constructs. Their research raised interesting questions, especially as findings for the *observe* facet were not entirely consistent with current conceptualizations of mindfulness. The current study attempted to build upon and clarify the results of Baer et al. (2006) by examining the factor structure of mindfulness and the patterns of relationships between total mindfulness and its facets with already examined and newly investigated (absorption, rumination, reflection, and psychological well-being) constructs in a sample of individuals with meditation experience. One hundred ninety-three individuals completed packets including multiple self-report measures. Results indicated that a model conceptualizing the five facets as aspects of an overall mindfulness construct had good fit to the data, that the *observe* facet was almost entirely consistent with the conceptualization of mindfulness, that total mindfulness and its facets were related to previously examined constructs in a manner overall consistent with Baer et al. (2006), though some important differences in the strength of facet relationships with other constructs emerged, that the facets related to newly investigated constructs in conceptually consistent ways, and that mindfulness and its facets are strongly related to psychological well-being. These results support the current conceptualization of mindfulness and the adaptive nature of mindfulness in individuals with meditation experience.

KEYWORDS: Mindfulness, meditation, psychometrics, questionnaires, self-report

Emily Lauren Brown Lykins

October 26, 2006

EXPLORING FACETS OF MINDFULNESS IN EXPERIENCED MEDITATORS

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October 26, 2006

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THESIS

Emily Lauren Brown Lykins

The Graduate School
University of Kentucky

2006

EXPLORING FACETS OF MINDFULNESS IN EXPERIENCED MEDITATORS

THESIS

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Science in the
College of Arts & Sciences at the University of Kentucky

By

Emily Lauren Brown Lykins

Lexington, Kentucky

Director: Dr. Ruth Baer, Professor of Psychology

Lexington, Kentucky

2006

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Chapter One

Introduction

Mindfulness is increasingly recognized as an important phenomenon in both the clinical and empirical domains. Though some debate over the exact definition of mindfulness continues, especially over whether mindfulness is a multi- or unidimensional construct, a generally accepted definition suggests that mindfulness involves intentionally bringing one's complete attention to the present moment's experiences in a nonjudgmental or accepting way (Brown & Ryan, 2003; Kabat-Zinn, 1990; Linehan, 1993a; Marlatt & Kristeller, 1999). Mindfulness has been contrasted with states of mind in which attention is focused elsewhere, such as preoccupation with things other than the present experiences (memories, plans, worries, etc.) or with behaving automatically and without awareness of one's own actions (Brown & Ryan, 2003). Mindfulness developed out of eastern spiritual traditions that suggested that mindfulness could be cultivated through regular meditation practice and that the development of mindfulness would likely result in increases in positive personal qualities, such as awareness, insight, wisdom, compassion, and equanimity (Goldstein, 2002; Kabat-Zinn, 2000). Recently, interventions incorporating mindfulness have been developed in which the religious aspects of traditional mindfulness meditation have been removed to allow for use in secular Western settings. These interventions share a conceptualization of mindfulness as a set of skills that can be learned and practiced in order to reduce psychological symptoms and increase health and well-being, though they vary in the extent to which formal meditation is incorporated (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). These interventions include dialectical behavior therapy (DBT; Linehan, 1993a,b), mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1982; 1990), mindfulness-based cognitive therapy (MBCT; Segal, Williams, and Teasdale, 2002), acceptance and commitment therapy (ACT; Hayes, Strosahl, & Wilson, 1999), and relapse prevention for substance abuse (Marlatt & Gordon, 1985; Parks, Anderson, & Marlatt, 2001), as well as variations on these approaches.

The efficacy of these mindfulness-based interventions has been supported empirically, with reductions in symptoms reported across a wide range of populations and disorders (Baer, 2003; Hayes, Masuda, Bissett, Luoma, & Guerrero, 2004; Robins & Chapman, 2004). However, the assessment of mindfulness has received much less attention. Dimidjian & Linehan (2003) note that in order to understand the nature of mindfulness and the mechanisms by which

beneficial outcomes are obtained, psychometrically sound mindfulness measures are required. Similarly, Brown & Ryan (2003) and Bishop, Lau, Shapiro, Carlson, Anderson, Carmody, et al. (2004) argue that operational definitions of mindfulness are essential for the development of valid instruments to be used for investigating the psychological processes involved in mindfulness training.

Due to their efficiency, the low cost of their use, and the conceptualization of constructs required in the development of their items (Clark & Watson, 1995), self-report measures are widely used for the assessment of many constructs and in empirical investigations of the relations between constructs. Self-report measures of mindfulness have begun to appear, which is an important step in the assessment of mindfulness. As each mindfulness questionnaire represents an operational definition of mindfulness, empirical examination of these questionnaires can provide information about how mindfulness should be defined and described. As mentioned earlier, there is still no consensus as to whether mindfulness is a multifaceted or unidimensional construct. For example, DBT (Dimidjian & Linehan, 2003) conceptualizes mindfulness as having six elements: three related to what one does when being mindful (observing, describing, and participating) and three related to how one does it (nonjudgmentally, one-mindfully, and effectively). The Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004) found evidence for four separate aspects of mindfulness, including observing, describing, acting with awareness, and accepting without judgment. Many other conceptualizations of mindfulness suggest several elements. However, Brown and Ryan (2004) argue that mindfulness is unidimensional and involves attention to and awareness of what is taking place in the moment, with acceptance subsumed within the capacity to pay full attention to the present moment.

Baer et al. (2006) recently conducted a series of studies to examine the factor structure of mindfulness as conceptualized in self-report questionnaires. Using two large samples of undergraduate students as participants, they administered five recently developed questionnaires assessing mindfulness as a trait-like general tendency to be mindful in daily life. These included the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), the Freiburg Mindfulness Inventory (FMI; Buchheld, Grossman, & Walach, 2001), the Cognitive and Affective Mindfulness Scale (CAMS; Feldman, Hayes, Kumar, & Greeson, in press; Hayes & Feldman, 2004), the Mindfulness Questionnaire (MQ; Chadwick, Hember, Mead, Lilley, &

Dagnan, 2005), and the Kentucky Inventory of Mindfulness Skills (KIMS; Baer et al., 2004). All of these scales, except for the KIMS, recommend interpretation of the questionnaire at the total score (or unidimensional) level, though they describe assessing different aspects of mindfulness, such as awareness of present-moment experience, nonjudgmentalness, and openness to negative experience.

In the first of their series of studies, Baer et al. (2006) found that these measures had good internal consistency and were significantly and positively correlated with one another. Preliminary evidence was found that mindfulness increases with meditation experience, as expected. In addition, convergent and discriminant validity of the mindfulness questionnaires were demonstrated by relations with other variables consistent with the definition of mindfulness. For example, convergent validity was supported by positive correlations with openness to experience, emotional intelligence, and self-compassion, as well as by negative correlations with neuroticism, psychological symptoms, thought suppression, difficulties in emotion regulation, alexithymia, dissociation, experiential avoidance, and absent-mindedness. Discriminant validity was supported with nonsignificant correlations between mindfulness and extraversion. Overall, these results supported the reliability and validity of self-report measures of mindfulness, as well as the notion that mindfulness increases with meditation experience. However, differential correlations between mindfulness measures and other variables were noted, suggesting that these measures may be operationally defining and assessing mindfulness in slightly, but meaningfully, different ways. For example, the KIMS was correlated with emotional intelligence at $r = .61$, whereas for the MAAS, the correlation was significantly lower ($r = .22$). Similarly, although the MAAS was highly correlated with absent-mindedness ($r = -.54$), the correlation for the FMI was significantly lower ($r = -.23$). This raised the possibility that the measures were assessing differing facets of mindfulness.

To examine this possibility, an exploratory factor analysis (EFA) was carried out on the combined item pool from all five of the mindfulness questionnaires. This EFA suggested a five-factor solution, which accounted for 33% of the variance after factor extraction. Four of these factors were virtually identical to those of the KIMS. These include observing or noticing internal and external experience, describing or labeling experiences with words, acting with awareness or avoiding automatic pilot, and nonjudging of experience. A fifth factor measuring a nonreactive stance toward internal experience also emerged.

Next, a facet scale for each of these five factors (*observing, describing, acting with awareness, nonjudging, and nonreactivity*) was created by selecting the seven or eight items with the highest loadings on their respective factors (and with low loadings on all other factors). These 39 items were combined to form the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006). The facet scales all showed adequate to good internal consistency, with alpha coefficients ranging from .75 to .91. Most of the correlations between these facet scales were modest but significant (except for *observe* with *nonjudge* which was nonsignificant), supporting an interpretation that these subscales are related but distinct. Also, a regression analysis was conducted for each facet in which all four of the remaining facets were entered as predictors. These analyses showed that most of the variance in each facet is distinct from the other four, again suggesting these scales measure constructs that are related but distinct (Baer et al., 2006).

These analyses did not establish whether the facets derived from the EFA were best understood as five separate constructs or as five elements of an overall mindfulness construct. To examine this question, hierarchical confirmatory factor analysis (CFA) was conducted in a new sample of undergraduate students who completed the FFMQ. A hierarchical model was tested in which the five factors were indicators of an overall mindfulness construct. This model fit reasonably well, except that the *observe* facet did not load significantly on an overall mindfulness factor. An alternative hierarchical model in which *observe* was omitted from the model showed that *describe, actaware, nonjudge, and nonreact* can all be considered facets of a broad mindfulness construct (Baer et al., 2006).

The failure of *observe* to fit the model was surprising, as observing is widely described as a central element of mindfulness. The authors suggest that this may be related to the lack of meditation experience in the sample. Results from the development of the KIMS (Baer et al., 2004) suggest that individuals with no meditation experience may tend to judge the experiences that they attend to. In contrast, individuals with meditation experience should operate from a more nonjudgmental stance, as meditation teaches participants to pay attention to experience in a nonjudgmental or accepting way. To examine this assertion, Baer et al. (2006) combined all of the participants from their two samples who had any meditation experience into a new sample. They found that, in this sample, all five of the examined facets loaded significantly onto the overall mindfulness construct, suggesting the plausibility of a conceptualization of mindfulness as having five facets, each of which is an aspect of the overall construct of mindfulness, in

individuals with meditation experience. However, Baer et al. (2006) stress that these results must be interpreted cautiously as this analysis includes participants from both the EFA and CFA groups. In addition, the range of meditation experience in an undergraduate sample is not very wide, and meditation experience was assessed with only a single Likert scale (ranging from “none” to “a lot”). Clearly, additional investigations of the factor structure of mindfulness in experienced meditators are necessary.

Baer et al. (2006) also examined the relationships between the mindfulness facets and other constructs, predicting that different facets of mindfulness would be related to other constructs in meaningfully different ways, based on the conceptualization of each facet. For example, emotional intelligence and alexithymia both involve the ability to recognize and label emotional states and, thus, were predicted to be most highly related to the *describe* facet (positively for emotional intelligence and negatively for alexithymia). They found that the facets were differentially related to the other constructs and that the facets most strongly related to the other constructs were consistent with their predictions. In addition, the fact that the most strongly related facet varied across the other constructs suggested that all of the facets are useful in understanding the relationships between mindfulness and other related variables. However, the *observe* facet did not fit entirely with predictions. As expected, *observe* was positively correlated with openness, emotional intelligence, and self-compassion. However, contrary to predictions, *observe* was also positively correlated with dissociation, absent-mindedness, psychological symptoms, and thought suppression. These results may again be due to the fact that this sample had very little meditation experience overall, and the results suggest that the *observe* facet’s relationships with other variables may change with meditation experience.

Finally, Baer et al. (2006) examined the facets’ relations with psychological symptoms. They found that the facets of *actaware*, *nonjudge*, and *nonreact* each accounted for a significant portion of the variance not accounted for by the other facets, suggesting these facets have incremental validity over the others in predicting symptom levels.

Overall, this research suggests several additional questions that require investigation. First, it seems prudent to examine whether the hierarchical, five-factor solution suggested by Baer et al. (2006) would replicate in a sample of individuals with a much wider range of meditation experience. Second, it seems important to examine whether the relations between the mindfulness facets and other variables replicate and remain consistent with the conceptualization

of mindfulness in an experienced meditator sample. Third, due to the inconsistent correlations of the *observe* facet with other variables, it is necessary to examine whether the *observe* facet's relations with other variables are more congruent with the current conceptualization of mindfulness in a sample with meditation experience. Fourth, it is important to examine how global mindfulness and the mindfulness facets relate to other constructs that have not yet been examined, such as absorption, rumination, and reflection. Finally, mindfulness practice is often described as a method for promoting general well-being. While mindfulness' relationship with psychological symptoms has been assessed, current thinking suggests that psychological health is broader than the absence of symptoms (Hayes, Strosahl, & Wilson, 1999). Thus, it seems important to assess how mindfulness may relate to the broader construct of psychological well-being (PWB), or psychological healthiness and perceived thriving in life's challenges. Based on a review of many theories of psychological health, Ryff (1989) conceptualizes PWB as having six elements including self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth. Relations between PWB and mindfulness have not yet been investigated.

The current study attempted to address these issues by examining a sample of individuals with a wider range of meditation experience than is available in a student sample. The following hypotheses were proposed. First, it was predicted that, in a sample composed of experienced meditators, the hierarchical, five-factor structure found in the previous study would replicate.

Second, it was predicted that convergent and discriminant correlations between mindfulness and other constructs would replicate in the experienced meditator sample, with the differential patterns of mindfulness facets with other constructs replicating as well. Thus, it was predicted that overall mindfulness (FFMQ total score) would be positively correlated with meditation experience, emotional intelligence, self-compassion, and openness to experience, would be negatively correlated with psychological symptoms, thought suppression, difficulties in emotion regulation, alexithymia, dissociation, experiential avoidance, absent-mindedness, and neuroticism, and would be nonsignificantly related to extraversion. It was also predicted that, among the five facets of mindfulness, *observe* would be the most strongly correlated with openness to experience, whereas *describe* would be most strongly correlated with emotional intelligence and alexithymia, while *act with awareness* would be most strongly correlated with absent-mindedness and dissociation. *Nonjudge* was predicted to be most strongly correlated with

psychological symptoms, neuroticism, thought suppression, and difficulties in emotion regulation. The *nonjudge* and *nonreact* facets were predicted to be similarly and most highly correlated with self-compassion and experiential avoidance.

Third, it was predicted that the *observe* facet would be positively correlated with the other four facets in this sample, and would show expected relations with other constructs (e.g., positive relations with emotional intelligence, self-compassion, and openness to experience, negative relations with psychological symptoms, thought suppression, difficulties in emotion regulation, alexithymia, dissociation, experiential avoidance, absent-mindedness, and neuroticism, and a nonsignificant relationship with extraversion).

Fourth, based on the results of Baer, Smith, and Allen (2004), it appeared important to examine how mindfulness and its facets relate to absorption. Baer, Smith, and Allen (2004) demonstrated that, in a student sample, the facets of mindfulness (as conceptualized in the KIMS) were nonsignificantly related to absorption, except for the *observe* facet, which was positively associated. These results suggest that observation of internal and external phenomena is related to becoming absorbed in those experiences (as demonstrated by the positive association between observing and absorption), but that being absorbed in experiences can suggest either a strong present-moment focus or acting on automatic pilot because attention is absorbed elsewhere (as evidenced by absorption's nonsignificant associations with the other KIMS mindfulness facets). Based on these findings, it was hypothesized that absorption would be nonsignificantly associated with the FFMQ mindfulness facets apart from the *observe* facet, which was predicted to be positively associated with absorption.

An additional two constructs not included in the previous paper, rumination and reflection, were measured, and their relationships with mindfulness were examined. Rumination, or neurotic self-attentiveness, is recurrent thinking about the self that is motivated by perceived threat, loss, or injustice. Reflection, or intellectual self-attentiveness, is recurrent thinking about the self that is motivated by curiosity. These constructs are believed to be meaningfully distinct, due to their differential motives for self-attentiveness (Trapnell & Campbell, 1999). In a study of relations between rumination and reflection and the domains of the five-factor model of personality, Trapnell and Campbell (1999) found that rumination was most strongly related to neuroticism, whereas reflection was most related to openness. Due to previous work demonstrating general tendencies for mindfulness to be negatively related to neuroticism and

positively related to openness (Baer et al., 2006), mindfulness was predicted to be negatively associated with rumination and positively associated with reflection.

Fifth, psychological well-being was measured using the scales developed by Ryff (1989), which provide a total PWB score as well as six subscale scores (self-acceptance, environmental mastery, positive relations with others, personal growth, purpose in life, and autonomy). Mindfulness in general was predicted to be positively associated with all PWB subscales. Differential relations between the facets of mindfulness and the PWB subscales were examined. It was predicted that the mindfulness facet of *nonjudging* would be most highly related to self-acceptance, based on being accepting of internal experience. It was predicted that the mindfulness facet of *acting with awareness* would be most strongly related to environmental mastery, personal growth, and purpose in life, as these all involve some component of acting with awareness.

In addition, while no specific predictions were made, the relative importance of several possible motivations for engaging in a regular meditation practice was examined.

Finally, as the sample included meditators from both mental health and non-mental health related fields, differences between mental health professionals and those from other fields were examined.

Chapter Two

Methodology

Participants

One hundred and ninety-three experienced meditators participated in this study. Of these, 132 were recruited from a list of individuals attending a recent international conference on mindfulness. The remaining participants were recruited through their affiliation with organizations involving or related to meditation or mindfulness, including several listservs and Internet-based groups focused on mindfulness and/or meditation, which have members throughout the United States and other countries, and mindfulness meditation classes or yoga centers in Lexington, KY and other cities in the Midwest. Approximately 10 participants were recruited using flyers posted in the Lexington community.

Of the 193 participants, 135 identified as current or past mental health professionals or as in training to become a mental health professional, while 57 identified as having no professional affiliation within mental health (1 did not answer). In regard to gender and ethnicity, 140 (72.54%) were females and 53 (27.46%) were males; 181 were Caucasian (93.78%), 7 (3.63%) were Asian, and 5 (2.59%) were Hispanic. The average age of the participants was 49.40 (11.39) years. The sample was highly educated, with 80 participants (41.5%) having a doctoral degree, 76 (39.4%) having a master's degree, and 17 (8.8%) having completed some graduate work. Of the remaining participants, 14 (7.3%) held Bachelor's degrees, 1 (0.5%) had an Associate's degree, and 5 (2.6%) had completed some college. The sample also had considerable meditation experience. Three participants (1.6%) had never meditated or had meditated once or occasionally, 12 (6.2%) had meditated regularly (at least once or twice per week) for less than one year, 51 (26.7%) for one to five years, 39 (20.4%) for six to ten years, and 86 (45.0%) for more than ten years (2 participants did not answer). Most of the participants (151 or 78.24%) reported living in the United States, whereas 13 (6.74%) lived in Canada and 29 (15.03%) lived in other countries, primarily the United Kingdom or Western Europe.

Materials

Each participant completed the FFMQ and several measures of other constructs.

Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006). This questionnaire was derived from a factor analysis of all available trait mindfulness questionnaires. It assesses five facets of mindfulness, including *observing, describing, nonjudging, nonreactivity, and acting*

with awareness. Each subscale has adequate to good internal consistency. Participants indicate the extent of their agreement with each item on a scale from 1 (never or very rarely true) to 5 (very often or always true). Items are arranged in an order that roughly alternates among the five facets (Appendix B).

Meditation History Questionnaire. This instrument was developed for use in this study. Participants were asked to describe their meditation experience in duration and frequency, including for how long they have practiced meditation (in months or years), duration (in minutes) of their typical meditation sessions, how many times per week they typically meditate, and number of days they have spent on meditation retreats (see Appendix C). Based on the results of Baer et al. (2006), it was predicted that mindfulness scores on the FFMQ would be positively correlated with meditation experience.

Meditation Motivation Questionnaire. This instrument also was developed for use in this study. Participants were asked to rate the personal importance of fourteen potential reasons for engaging in meditation practice, using a Likert scale ranging from 1 (not at all important) to 5 (extremely important). The reasons provided in the questionnaire included coping with distress, coping with medical issues, to feel better physically, to cultivate healthier behavior patterns, to increase insight about self, others, or life in general, to cultivate compassion for self or others, for spiritual development, because it is part of religious tradition, to function better in work, because respected others meditate, and out of curiosity (see Appendix). In addition, an opportunity was provided for respondents to describe how their meditation practice had affected them or changed their lives, including their thoughts, feelings, relationships with others, general outlook on life, or anything else they would like to mention (Appendix C).

Psychological Well Being scales (PWB; Ryff, 1989). The PWB scales were used to assess psychological well-being. The instrument includes 54 items, with 9 items measuring each of the six subscales (Self-Acceptance, Environmental Mastery, Positive Relations with Others, Personal Growth, Purpose in Life, and Autonomy). Participants indicated the extent of their agreement with each item on a scale from 1 (strongly disagree) to 6 (strongly agree). Negative items are reverse-coded, so that higher scores reflect greater well-being. The PWB scales have been shown to have acceptable psychometric properties. The internal consistency coefficients for the PWB scales range from .86 to .93, with test-retest reliabilities over a six week period ranging from .81 to .88. Validity of the PWB scales is evidenced by significant positive correlations with

prior measures of positive functioning (i.e. life satisfaction, self-esteem) and negative correlations with prior measures of negative functioning (i.e. depression) (Ryff, 1989). Mindfulness was predicted to be positively associated with total PWB and with each of the six PWB subscales.

Rumination-Reflection Questionnaire (RRQ; Trapnell & Campbell, 1999). The RRQ was used to assess the tendencies for rumination and reflection. The instrument includes 24 items, with 12 each measuring rumination and reflection. Participants indicated the extent of their agreement with each item on a scale from 1 (strongly disagree) to 5 (strongly agree). Negative items are reverse-coded, so that higher scores reflect higher levels of the applicable construct. The Rumination and Reflection subscales have internal consistencies of .90 and .91, respectively. Rumination has been found to be uniquely associated with Neuroticism, while reflection has been found to be uniquely associated with Openness. Due to the demonstrated relationships of mindfulness with Neuroticism and Openness (see Baer et al., 2006), mindfulness was predicted to be negatively associated with rumination and positively associated with reflection.

Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1993). The DASS was used to assess psychological symptoms. The DASS is composed of 42 items assessing negative emotional symptoms, and yields three subscale scores for depression, anxiety, and stress. The DASS has acceptable psychometric properties (coefficient alphas ranging from .81 to .91) and has demonstrated congruence with the constructs measured in the Beck Depression Inventory (BDI; Beck & Steer, 1987) and the Beck Anxiety Inventory (BAI, Beck & Steer, 1990). The DASS scales correlate with the BDI in a range from .58 to .74, and they correlate with the BAI in a range from .54 to .81 (Lovibond & Lovibond, 1995). Thus, the DASS appears to be acceptable for assessing psychological symptoms. Consistent with the results of Baer et al. (2006) and the research literature demonstrating that mindfulness practice is associated with reduced symptoms, negative correlations between all facets of mindfulness and the DASS scores were predicted.

Trait Meta-Mood Scale (TMMS; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995). The TMMS was used to assess emotional intelligence, including attention to, clarity of, and ability to regulate feelings. Salovey et al. (1995) have demonstrated adequate to good internal consistency for the TMMS. Because mindfulness includes observation and description of feelings, positive correlations between the facets of mindfulness and the TMMS score were predicted. It was also predicted that the *describe* facet would be the most highly correlated with

emotional intelligence (in a positive direction), since the ability to recognize and label emotions is a central element of both emotional intelligence and mindfulness.

White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994). The WBSI was used to assess thought suppression, or deliberate attempts to avoid or get rid of unwanted thoughts. Paradoxically, such attempts have been found to increase the frequency of these thoughts (Wenzlaff & Wegner, 2000). Consistent with the conceptualization of mindfulness as involving acceptance of all thoughts and allowing them to come and go, negative correlations between the facets of mindfulness and thought suppression were predicted. Since thought suppression includes judgmental or self-critical attitudes about thoughts, the mindfulness facet of *nonjudging* was predicted to be most strongly related to thought suppression (in a negative direction).

Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The DERS was used to assess multiple elements of emotion regulation, including awareness, understanding, and acceptance of emotion, access to emotion regulation strategies, and the ability to act in a desired manner regardless of emotional state. Higher scores on this scale indicate greater difficulties in emotion regulation. The DERS has good psychometric properties (alpha = .93, test-retest stability of .88 over a 4-8 week interval), a clear factor structure, and demonstrated convergent validity. Consistent with the conceptualization of mindfulness as involving the ability to observe, describe, and accept emotions, negative correlations between mindfulness and DERS scores were predicted. As difficulties in emotion regulation involve judgmental or self-critical thoughts about thoughts and/or feelings, difficulties in emotion regulation were predicted to be most strongly related to the mindfulness facet of *nonjudging*, in a negative direction.

Toronto Alexithymia Scale (TAS-20; Bagby, Taylor, & Parker, 1993). Alexithymia involves a lack of interest in internal experience and difficulty identifying and describing feelings. The TAS-20 has shown good psychometric properties in diverse samples. Because mindfulness includes observation and description of internal experience, a negative correlation between mindfulness and alexithymia was predicted. Since alexithymia involves difficulty describing feelings, it was predicted to be most strongly related to the mindfulness facet of *describe*, in a negative direction.

Scale of Dissociative Activities (SODAS; Mayer & Farmer, 2003). The SODAS was used to measure dissociative activities including acting without awareness, lack of perception of inner

experience, memory disruptions, and perceptions of unreality. The SODAS has good psychometric properties ($\alpha=.95$ and test-retest reliability $=.77$, over a 38-day interval) and demonstrated convergent validity. Because mindfulness includes observation and description of inner experience and acting with awareness, a negative correlation between mindfulness and the SODAS was predicted. Since dissociation involves acting without awareness, it was predicted to be most strongly related to the mindfulness facet of *act with awareness*, in a negative direction.

Acceptance and Action Questionnaire (AAQ; Hayes, Strosahl, Wilson, Bissett, Batten, Bergan, et al., in press). The AAQ was used to measure experiential avoidance, or the negative evaluation of and unwillingness to maintain contact with internal experiences, such as bodily sensations, cognitions, emotions, and urges, and efforts to avoid, escape, or terminate these experiences, even when doing so is harmful. Experiential avoidance is associated with increased levels of psychopathology and decreased quality of life (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). As mindfulness involves acceptance and nonreactivity to internal experience, a negative correlation between mindfulness and experiential avoidance was predicted. Based on the fact that experiential avoidance involves both judgment of and reactivity to internal experience, it was predicted to be most strongly related to both the *nonjudging* and *nonreactivity* facets of mindfulness, in a negative direction.

Cognitive Failures Questionnaire (CFQ; Broadbent, Cooper, Fitzgerald, & Parkes, 1982). The CFQ was used to assess absent-mindedness, or the tendency to make errors on simple tasks due to inattention. The measure has good internal consistency ($\alpha=.89$) and test-retest stability (.80-.82) and has some demonstrated convergent and discriminant validity. Because mindfulness includes attention to current experience, it should include the ability to avoid errors related to absent-mindedness. Therefore, a negative correlation between mindfulness and the CFQ was predicted. Since absent-mindedness involves acting without awareness, it was predicted to be most strongly related to the mindfulness facet of *act with awareness*, in a negative direction.

Self-Compassion Scale (SCS; Neff, 2003a). The SCS was used to assess self-compassion, which Neff (2003b) suggests is composed of several elements, including a kind and nonjudgmental attitude toward oneself when suffering, recognition that one's experiences are part of the larger, more universal human experience, and holding painful thoughts and feelings in balanced awareness, in which they are observed and accepted without judgment, rumination, or self-pity. Self-compassion is conceptualized to be distinct from self-esteem by being non-

evaluative (Neff, 2003a). The SCS has good psychometric properties ($\alpha=.92$, test-retest stability $=.93$ over a three-week interval) and demonstrated convergent validity. Based on the conceptualization of mindfulness as including acceptance of and nonreactivity toward internal experience, a positive correlation between mindfulness and self-compassion was predicted. Since self-compassion involves both nonjudgment and nonreactivity to internal experience, it was predicted to be most strongly related to both the *nonjudging* and *nonreactivity* facets of mindfulness, in a positive direction.

Tellegen Absorption Scale (TAS; Tellegen & Atkinson, 1974, see also Tellegen, 1992). The TAS was used to assess the tendency for one's entire attentional capacity to become absorbed, or completely involved, in experiencing a specific attentional object, which could be of many different forms (i.e. another person, a sound, a memory, etc.). As outlined by Baer et al. (2004), absorption has a complex relationship with mindfulness. Being absorbed with certain activities, such as listening to music with undivided attention, may describe a mindful state. However, acting without attention to the current activity, due to being completely absorbed with something else (such as thoughts, plans, or memories), appears to describe functioning on automatic pilot, which is inconsistent with a mindful state. Baer et al. (2004) found that absorption was significantly positively correlated with the *observe* facet of mindfulness, but it had nonsignificant relations with all of the other facets of the KIMS. Thus, absorption was predicted to correlate nonsignificantly with overall mindfulness and with the *describe*, *act with awareness*, *nonjudging*, and *nonreactivity* facets of mindfulness, but to correlate positively with the *observe* facet.

International Personality Item Pool (IPIP; Goldberg, 1999). The IPIP provides methods for measuring many personality traits and is available within the public domain. The IPIP has an available item pool of over 2000 items which can be combined to measure approximately 175 constructs assessed by many established personality inventories (Goldberg et al., in press). The five scales of the 50-item version of the IPIP, which measure the five broad NEO domains (neuroticism, extraversion, openness, agreeableness, and conscientiousness), have a mean coefficient alpha of .82 (ranging from .77 to .86) and mean correlations with the corresponding NEO scales of .90 (ranging from .85 to .92) (International Personality Item Pool, 2001). Because mindfulness includes an open stance and is associated with reduced negative affect, mindfulness was predicted to be positively correlated with openness to experience and negatively correlated

with neuroticism. In addition, based on previous results, mindfulness was predicted to be unrelated with extraversion. Since the *observe* facet involves attentiveness and receptivity to inner experience and observation of the environment, openness was predicted to be most strongly related to the *observe* facet in a positive direction. Additionally, as the *nonjudge* facet involves taking a nonjudgmental stance toward experience, it was predicted to be strongly related to neuroticism, in a negative direction.

Procedure

All 278 participants in a mindfulness conference held at the University of Massachusetts Medical School in April, 2005, were mailed a packet containing a cover letter, a demographic questionnaire, the FFMQ, and a subset of the measures just described. To limit the estimated time required to complete the packet to one hour, some questionnaires were not included in all packets. Packets also contained a stamped, return envelope and a teabag (included as a token of appreciation). Participants were asked to complete the packet at their convenience and return it by mail. Of the 278 mailed packets, two were returned as undeliverable (due to incorrect addresses) and 132 were completed and returned, for a response rate of 48%. The Meditation Motivation Questionnaire was not included in these packets as it had not been developed. However, after all data from this sample had been collected, the Meditation Motivation Questionnaire was sent by email to all conference attendees. It was completed and returned by 44 individuals.

For participants recruited from other groups or organizations, packets were sent only to individuals who indicated interest in participating by responding to a listserv announcement or flyer. Approximately 60% of individuals who indicated interest and were sent a packet completed the packet and returned it.

Chapter Three

Results

Hypothesis 1

To examine the first hypothesis, that the hierarchical, five-factor structure found in the previous study would replicate in a sample of experienced meditators, we conducted a confirmatory factor analysis (CFA) using participants' responses to the 39 items on the FFMQ. A small amount of data was missing from the participant responses. We imputed missing data using the expectation maximization method (Allison, 2003). In CFA, fit indices indicate the extent to which the covariances among the items are accounted for by the hypothesized factor model. We used four fit indices for these analyses: the comparative fit index (CFI; Bentler, 1990), the Tucker-Lewis Index (TLI, Tucker & Lewis, 1973), the root mean square error of approximation (RMSEA; Marsh, Balla, & Hau, 1996), and the maximum likelihood (ML)-based standardized root mean squared residual (SRMR, Hu & Bentler, 1999). By rule of thumb, CFI and TLI values greater than .90 are thought to indicate good fit between a model and the data; for the RMSEA, a value of .05 is thought to indicate close fit, .08 a fair fit, and .10 a marginal fit (Browne & Cudeck, 1993); for the SRMR, values less than .08 indicate good fit (Hu & Bentler, 1999).

For several reasons, we conducted these CFAs using item parcels (groups of items) rather than individual items. Little, Cunningham, Shahar, and Widaman (2002) and Rushton, Brainerd, and Pressley (1983) have described several advantages of item parceling. First, the reliability of a parcel of items is greater than that of a single item, so parcels can serve as more stable indicators of a latent construct. Second, as combinations of items, parcels provide more scale points, thereby more closely approximating continuous measurement of the latent construct. Third, risk of spurious correlations is reduced, both because fewer correlations are being estimated and because each estimate is based on more stable indicators. Fourth, parcels have been shown to provide more efficient estimates of latent parameters than do items. Fifth, the object of investigation is not the performance of specific items but rather the relations among the scales.

The hierarchical, five-factor structure, in which the five mindfulness facets loaded on an overarching mindfulness construct, was tested. This model had a CFI value of .95, a TLI value of .94, a RMSEA value of .06 (90% confidence interval from .04 to .08), and a SRMR value of .07 (see Table 1). Thus, the hypothesis that the hierarchical, five-factor model would be replicated in

the sample of experienced meditators was supported by the model's good fit to the data. Since the data supported the fit of this model, alternative models were not explored.

Hypothesis 2

The second hypothesis was that the convergent and discriminant correlations between mindfulness and other constructs, and the differential patterns of mindfulness facets with other constructs, would replicate in an experienced meditator sample. To examine this hypothesis, correlation coefficients were computed for total mindfulness and each facet of mindfulness with each of the other constructs. To examine whether mindfulness facets were differentially related to other constructs, tests of the significance of the differences between non-independent correlations were conducted. See Table 2 for the full results of these analyses.

The *observe* facet was predicted to be most strongly correlated with openness to experience and reflection. The *observe* facet was most highly correlated with openness to experience. However, in contrast to predictions, the *describe* facet was most strongly correlated with reflection, followed by the *observe* facet.

The *describe* facet was predicted to be most strongly correlated with emotional intelligence and alexithymia. These hypotheses were supported.

Act with awareness was predicted to be most strongly correlated with absent-mindedness and dissociation. However, the *nonreact* facet was most highly correlated with absent-mindedness (followed by the *act with awareness* facet), and the *nonjudge* facet was most highly correlated with dissociation (followed by the *act with awareness* and the *describe* facets).

Nonjudge was predicted to be most strongly correlated with psychological symptoms, neuroticism, thought suppression, experiential avoidance (with *nonreactivity*), difficulties in emotion regulation, and self-compassion (with *nonreactivity*). The *nonjudge* facet was tied with the *nonreact* facet in being most highly correlated with thought suppression. However, the *nonreact* facet was most highly correlated with neuroticism, experiential avoidance, and difficulties in emotion regulation, while the *observe* facet was most highly correlated with psychological symptoms.

Finally, *nonreactivity* was predicted to be most strongly correlated with self-compassion and experiential avoidance (both with *nonjudge*). These hypotheses were supported.

Hypothesis 3

The third hypothesis was that the *observe* facet would be positively correlated with the other four facets in this sample and would show expected relations with other constructs. That is, in contrast to the findings of Baer et al. (2006), *observe* would correlate with other variables in the same direction as the other mindfulness facets. To test this hypothesis, correlation coefficients were computed for the *observe* facet with each of the other mindfulness facets and the other constructs. See Table 3 for full results. The *observe* facet was found to fit entirely with predictions, except that it had nonsignificant correlations with dissociation and with absent-mindedness, instead of the predicted negative correlations.

Hypothesis 4

The fourth hypothesis was that mindfulness would be correlated with constructs not yet investigated in a manner consistent with the conceptualization of mindfulness. Thus, global mindfulness and the facets of mindfulness were predicted to have nonsignificant associations with absorption (except for the *observe* facet which was predicted to be positively associated), negative associations with rumination, and positive associations with reflection. To test these hypotheses, correlation coefficients for total mindfulness and each facet of mindfulness with absorption, rumination, and reflection were conducted. See Table 4 for results. For absorption, significant positive correlations were found with total mindfulness and the *nonreact* facet (contrary to predictions) and the *observe* facet (consistent with predictions), while nonsignificant associations were found with the *describe*, *actaware*, and *nonjudge* facets (consistent with predictions). In regard to rumination and reflection, all five of the FFMQ facets were significantly and negatively related to rumination, as expected. For reflection, four of the mindfulness facets were significantly positively correlated as expected. However, the correlation for *act with awareness* was non-significant.

Hypothesis 5

The hypothesis that mindfulness would be positively related to global PWB and the subscales of PWB was generally supported (see Table 5). Four of the mindfulness facets showed significant positive correlations with all PWB scales. However, the *act with awareness* facet was non-significantly correlated with several PWB scales. In addition, differential relationships between subscales of PWB and the facets of mindfulness were examined. It was predicted that the mindfulness facet of *nonjudging* would be most strongly related to self-acceptance, based on

being accepting of internal experience. This hypothesis was not supported, as the *nonreact* facet of mindfulness was most strongly related to self-acceptance. It was also predicted that the mindfulness facet of *acting with awareness* would be most strongly related to environmental mastery, personal growth, and purpose in life, as these all involve some component of acting with awareness. These hypotheses were not supported. The *nonreact* facet was most strongly related to environmental mastery and personal growth, while the *observe* facet was most strongly related to purpose in life.

Additional analyses

Motivation for meditation practice. Motivation for meditation practice was examined using the Meditation Motivation Questionnaire, which was completed by 105 individuals: 44 from the mindfulness conference contact list and 61 participants recruited from other sources. See Table 6 for the results of this exploratory analysis. Findings show that, on average, the most important reasons for meditating include increasing levels of self-understanding or self-awareness, cultivating wisdom and insight about life in general, for spiritual development, and cultivating compassion for self and others. The reasons for meditating given the lowest importance ratings were curiosity, because respected others meditate, and because it's part of a religious tradition.

In the open-ended descriptions of how meditation practice had affected them or changed their lives, 6 participants did not provide a response, 64 participants wrote between 1 sentence and half a page, and 35 participants wrote more than half a page. While no formal coding system was utilized, the most common general themes identified included less suffering or an increased ability to cope with suffering (64 participants), increased emotional stability or decreased reactivity (40), increased compassion for self and/or others (40), an increased ability to make decisions congruent with personal values or better decision making (35), increased ability to stay in the present moment or live more fully (33), healthier/improved relationships (32), a sense of connectedness/peace/wholeness (32), increased happiness/joy in life (31), increased insight or awareness into self and/or others (31), a more detached or otherwise changed perspective on life (29), an increased ability to understand or experience emotions (27), increased acceptance/openness and/or decreased judgmentality (26), increased insight into or perspective on life (18), increased ability to do good work (7), increased or otherwise changed spirituality (5), a decrease in connectedness to mainstream culture or a feeling of being set apart from others

(4), increased concentration (3), more energy (2), increased creativity (1), better sleep (1), having a need to meditate met (1), and a lower tolerance for violence/aggression.

Differences between mental health professionals and others. Differences between meditators who work in the mental health field and those who do not were examined. Variables on which the groups differed are presented in Table 7. Effect sizes (Cohen's d) were calculated to examine the magnitude of these differences. This effect size is calculated by dividing the difference between the two groups' means by the pooled standard deviation. Effect sizes of .2, .5, and .8 are considered to be small, medium, and large, respectively (Cohen, 1988). The groups were equivalent in regard to meditation experience. However, there were differences in some aspects of mindfulness, including total mindfulness, $t(181) = 2.12, p < .05$, the observe facet, $t(186) = 2.92, p < .01$, and the describe facet $t(185) = 2.05, p < .05$, with the mental health professionals scoring higher on each of these scales. In addition, there were 3 differences in motivations for meditation practice, with the mental health professional group scoring higher on each of the following items: "because people I respect meditate regularly," $t(58) = 2.01, p < .05$; "to feel better physically," $t(58) = 2.47, p < .05$; and "to function better in the work I do," $t(58) = 2.01, p < .05$. No differences between mental health professionals and non-mental health professionals were found on the other 11 motivations for meditation or on the FFMQ *actaware*, *nonjudge*, and *nonreact* facets. Similarly, no differences were found for emotional intelligence, self-compassion, openness to experience, psychological symptoms, thought suppression, alexithymia, dissociation, absent-mindedness, extraversion, absorption, rumination, reflection, and 5 of 6 PWB subscales (self-acceptance, positive relations with others, autonomy, environmental mastery, and personal growth). However, mental health professionals scored higher than non-mental health professionals on the PWB purpose in life subscale, $t(179) = 2.29, p < .05$. Non-mental health professionals scored higher on experiential avoidance, $t(169) = -3.00, p < .01$, difficulties in emotion regulation, $t(59) = -3.31, p < .01$, and neuroticism, $t(64) = -2.18, p < .05$.

TABLE 3.1**Summary of Results of CFA of Factor Structure of Mindfulness**

Model	Degrees of freedom	Chi square	CFI	TLI	RMSEA	SRMR
Five-factor, hierarchical model	85	140.31***	.95	.94	.06	.07

NOTE: *** $p < .001$; CFA = Confirmatory factor analysis, CFI = comparative fit index (Bentler, 1990); TLI = Tucker-Lewis Index (Tucker & Lewis, 1973); RMSEA = root mean square error of approximation (Marsh, Balla, & Hau, 1996); SRMR = maximum likelihood (ML)-based standardized root mean squared residual (Hu & Bentler, 1999).

TABLE 3.2

Correlations Between Total Mindfulness and Mindfulness Facets and Related Constructs

Construct	Total mindfulness	<i>Observe</i>	<i>Describe</i>	<i>Actaware</i>	<i>Nonjudge</i>	<i>Nonreact</i>
Predicted positive correlations						
Meditation experience	.27***	.29***	.12	.08	.18*	.38***
Emotional intelligence	.36**	.37**	.55***	-.08	.17	.36**
Self-compassion	.60***	.50***	.41***	.14	.48***	.59***
Openness to experience	.33**	.46***	.29*	.22	.13	.32*
Predicted negative correlations						
Psychological symptoms	-.40**	-.49***	-.28*	-.21	-.17	-.44**
Thought suppression	-.36**	-.32**	-.24	-.05	-.35**	-.35**
Difficulties in emotion regulation	-.61***	-.47***	-.45***	-.25	-.46***	-.61***
Alexithymia	-.37**	-.35**	-.47***	-.23	-.04	-.26*
Dissociation	-.32*	-.05	-.25	-.25	-.28*	-.07
Experiential avoidance	-.54***	-.39***	-.41***	-.21**	-.38***	-.57***
Absent-mindedness	-.36**	-.20	-.20	-.27*	-.14	-.36**
Neuroticism	-.42***	-.32**	-.18	-.13	-.33**	-.64***
Predicted nonsignificant correlations						
Extraversion	.27*	.18	.30*	.13	.19	.23

NOTE: *** $p < .001$, ** $p < .01$, * $p < .05$. In each row, the largest correlation is shown in bold, and correlations that differ significantly from the largest ($p < .05$) are shown in italics.

TABLE 3.3**Correlations Between the *Observe* Facet and Related Constructs**

Construct	Observe
Predicted positive correlations	
<i>Describe</i> facet	.46***
<i>Actaware</i> facet	.18*
<i>Nonjudge</i> facet	.33***
<i>Nonreact</i> facet	.55***
Meditation experience	.29***
Emotional intelligence	.37**
Self-compassion	.50***
Openness to experience	.46***
Predicted negative correlations	
Psychological symptoms	-.49***
Thought suppression	-.32**
Difficulties in emotion regulation	-.47***
Alexithymia	-.35**
Dissociation	-.05
Experiential avoidance	-.39***
Absent-mindedness	-.20
Neuroticism	-.32**
Predicted nonsignificant correlations	
Extraversion	.18

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

TABLE 3.4**Correlations Between Total Mindfulness and the Mindfulness Facets and Absorption, Rumination, and Reflection**

Construct	Total Mindfulness		<i>Observe</i>	<i>Describe</i>	<i>Actaware</i>	<i>Nonjudge</i>	<i>Nonreact</i>
Absorption	.19*		.42***	.07	.08	.05	.22**
Rumination	-.48***		-.34***	-.28***	-.22**	-.40***	-.51***
Reflection	.29***		.26***	.44***	.03	.15*	.15*

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

TABLE 3.5**Correlations Between the Mindfulness Facets and the Psychological Well Being Subscales**

PWB Subscale	Total Mindfulness		<i>Observe</i>	<i>Describe</i>	<i>Actaware</i>	<i>Nonjudge</i>	<i>Nonreact</i>
Global PWB	.47***		.47***	.37***	.17*	.29***	.48***
Autonomy	.45***		.33***	.29***	.15*	.38***	.46***
Environmental mastery	.32***		.30**	.26***	.06	.19*	.41***
Personal growth	.35***		.29***	.28***	.13	.25**	.30***
Positive relations with others	.30***		.37***	.23**	.13	.15*	.27***
Purpose in life	.36***		.38***	.28***	.16*	.19*	.33***
Self-acceptance	.45***		.34***	.24**	.08	.20**	.39***

NOTE: In each row, the largest correlation is shown in bold, and correlations that differ significantly from the largest ($p < .05$) are shown in italics. *** $p < .001$, ** $p < .01$, * $p < .05$.

TABLE 3.6**Rank Order of Reasons for Engaging in Meditation Practice**

Meditation Motivation	Mean (SD)
1. As a way to increase my level of self-understanding, self-awareness, or insight	4.44 (0.81)
2. For spiritual development	4.36 (1.08)
3. To increase my level of understanding, insight, or wisdom about life in general	4.17 (0.98)
4. To cultivate compassion for myself	4.12 (1.00)
5. To cultivate compassion for others	3.92 (1.06)
6. As a way of cultivating healthier or more adaptive behavior patterns	3.88 (1.02)
7. Because it helps me function better in the work I do	3.55 (1.12)
8. To increase my understanding, insight, or wisdom about other people	3.40 (1.22)
9. As a way of coping with distress (anxiety, depression, unhappiness, etc.)	3.34 (1.18)
10. As a way to feel better physically (healthier, more energetic)	2.89 (1.35)
11. Out of curiosity to see what will come of it	2.15 (1.17)
12. Because people I respect meditate regularly	2.02 (1.15)
13. As a way of coping with physical pain, disease, or another medical condition	2.01 (1.24)
14. Because it's part of my religious tradition	1.83 (1.44)

TABLE 3.7

Constructs/Items on which mental health professionals and non-mental health professionals differed, with Cohen's d of the difference and interpretation

Construct/Item	Mental health professional mean (SD)	Non-mental health professional mean (SD)	Cohen's d
Motivation item 6: "Because people I respect meditate regularly"	2.30 (1.24)	1.71 (1.03)	0.53 (Medium)
Motivation item 8: "As a way to feel better physically"	3.33 (1.19)	2.52 (1.37)	0.63 (Large)
Motivation item 12: "Because it helps me function better in the work I do"	3.61 (1.06)	3.04 (1.13)	0.52 (Medium)
FFMQ Total score	131.06 (20.55)	123.91 (21.16)	0.34 (Medium)
FFMQ <i>observe</i> facet	32.67 (3.65)	30.73 (5.18)	0.43 (Medium)
FFMQ <i>describe</i> facet	28.80 (6.43)	26.69 (6.42)	0.33 (Medium)
Experiential avoidance	121.21 (25.87)	134.65 (27.97)	0.50 (Medium)
Difficulties in emotion regulation	50.70 (7.30)	59.35 (12.88)	0.83 (Large)
Neuroticism	23.00 (6.69)	26.95 (7.24)	0.57 (Large)
PWB: purpose in life	44.92 (5.04)	43.02 (5.30)	0.37 (Medium)

NOTE: Cohen's d was computed using the pooled standard deviation, which is commonly used (Rosnow & Rosenthal, 1996).

Chapter Four

Discussion

The present study had several purposes. It examined whether a hierarchical, five-factor model of mindfulness previously explored in a student sample was supported in a sample of experienced meditators and whether previously demonstrated relationships between mindfulness and other constructs would replicate in this sample. It also examined whether the *observe* facet fit better with current conceptualizations of mindfulness in an experienced meditator sample than in a student sample, how total mindfulness and its facets relate to three constructs not previously examined (absorption, rumination, and reflection), and whether mindfulness is related to aspects of psychological well-being other than level of symptoms.

Support was found for the hierarchical, five-factor model in the experienced meditator sample, which provides support for the idea that mindfulness is best understood as a multifaceted construct. In contrast to the full student sample results of Baer et al. (2006), but consistent with their analysis examining only those with some meditation experience, the CFA suggested that all five of the facets were elements of the overarching mindfulness construct. Thus, multiple studies based on the FFMQ, which was derived from all available mindfulness questionnaires, have demonstrated that mindfulness is best conceptualized as an overarching construct with either four (non-meditators) or five (meditators) facets. These results suggest that the relationships between the facets change with meditation experience, in that all five facets hold together only in individuals with meditation experience.

The change in facet relationships occurs primarily because of changes in the *observe* facet. In this study, the *observe* facet fit almost entirely with predictions, which stands in contrast to results of the Baer et al. (2006) study which used a primarily non-meditating sample. In the current study, the *observe* facet was positively correlated with all other facets of mindfulness, was clearly a facet of mindfulness (according to the CFA), and had predicted relationships with all other constructs (except for two that were predicted to be negative but were nonsignificant). Higher *observe* scores were overwhelmingly related to positive functioning (i.e. positive relations with emotional intelligence, self-compassion, openness to experience, and reflection and negative relations with psychological symptoms, difficulties in emotion regulation, experiential avoidance, alexithymia, rumination, thought suppression, and neuroticism). This suggests that there is a change in the function or the effects of observing with changes in

meditation experience, such that observing has both positive and negative effects in individuals without meditation experience but has positive effects in experienced meditators.

The idea that observing one's internal experiences (cognitions, emotions) can be either adaptive or maladaptive, depending on how it is done, has been supported empirically. A recent meta-analysis by Mor and Winquist (2002) found that the general relationship between self-focused attention and negative affect (depression and anxiety) was positive and moderate in strength, with increases in the magnitude of the relationship found in clinical and female-dominated populations. Thus, it appears that focusing on oneself is associated with depression and anxiety for most individuals. Most participants in this review were likely nonmeditators, so the fact that the *observe* facet was found to have positive functioning correlates in an experienced meditator sample, then, is a very noteworthy finding, suggesting that approaching one's internal and external experiences in a mindful way (i.e., openly, nonjudgmentally, and nonreactively) makes self-focused attention adaptive, while the more typical form of self-attention (self-judging, reactive) is less adaptive or even maladaptive.

While the overall pattern of relationships between total mindfulness, the facets of mindfulness, and other constructs was replicated, some notable differences between the current study and that of Baer et al. (2006) were found. Of special interest, the *nonreact* facet had the highest correlations with nine of the 18 other constructs measured in the current study, more than the other four facets. In the Baer et al. (2006) study, *nonreact* was most highly correlated with only one of 11 other constructs, whereas the *nonjudge* facet was the most highly related to five of 11. This suggests that nonreactivity plays the biggest role in the beneficial outcomes of mindfulness in individuals with meditation experience, while nonjudging of experiences plays the biggest role in beneficial outcomes associated with mindfulness in those without meditation experience. This suggests that the different facets may serve different functions based on experience with meditation. One potential explanation for this finding may be that as meditation experience increases, nonreactivity develops and becomes more important than nonjudgmentality as a central way of approaching experiences. Future research on changes that occur in the mindfulness facets as individuals begin and continue meditation practice may help clarify this issue.

Examination of relationships between mindfulness and absorption showed that three mindfulness facets (*describe*, *actaware*, and *nonjudge*) had nonsignificant relationships and one

facet (*observe*) had a positive relationship with absorption, as expected, while one facet (*nonreact*) had a positive relationship that was unexpected. This suggests that, for individuals with meditation experience, observing one's experiences and not reacting to them is associated with becoming absorbed in those experiences. The *observe* facet relation is consistent with the results of Baer et al. (2006), while the *nonreact* facet relation is a novel finding. Conceptual sense can be made of these findings. Absorption is defined as the tendency for one's entire attentional capacity to become completely involved in experiencing a specific attentional object. Increased nonreactivity may enhance the potential for absorption by preventing reactions such as aversion or avoidance from disrupting the focus of attention.

Total mindfulness and the facets of mindfulness were found to have positive relationships with reflection (except for *act with awareness*, which was nonsignificant) and negative relationships with rumination. This suggests that mindfulness is positively associated with recurrent thinking about the self motivated by curiosity but negatively associated with recurrent thinking about the self that is motivated by perceived threat, loss, or injustice. These results further our understanding of the nomological net surrounding the construct of mindfulness.

Mindfulness and its facets were found to have positive relations with all subscales of PWB, except for *act with awareness*, which was only significantly related to autonomy and purpose in life. This suggests that mindfulness is associated with more than the absence of psychological symptoms and is associated with psychological well-being across a variety of domains, supporting existing evidence of the adaptive nature of mindfulness and meditation. In contrast to predictions, the *observe* and *nonreact* facets were most highly correlated with the differing subscales of PWB (*observe* with positive relations with others and purpose in life and *nonreact* with autonomy, environmental mastery, personal growth, and self-acceptance). This suggests either that greater skills in observing and nonreacting lead to greater PWB or that individuals with greater PWB can more easily observe and be nonreactive to experiences. Future research addressing this question would be beneficial in understanding more precisely the outcomes associated with greater mindfulness and/or meditation experience, as well as illuminating whether mindfulness meditation is more effective in inducing positive outcomes for individuals with particular pre-existing characteristics. Either way, these results further support the key role of the *nonreact* facet in mindfulness' positive relations with well-being.

The most important self-reported reasons for engaging in meditation practice appear to be compassion, insight, spiritual development, and increased functioning/coping. Correlates, motivations, or outcomes of practice frequently mentioned by participants in free-response included less suffering/increased ability to cope with suffering, increased emotional stability, increased compassion, decisions more in line with values, present moment focus, increased sense of connectedness/unity, healthier/improved relationships, increased happiness, increased insight into self/others/life in general, a more detached or otherwise changed perspective on life, increased ability to understand/experience emotions, and increased acceptance/decreased judgmentality. As outcomes of practice can become motivations for future practice, research into both the motivations for and outcomes of meditation practice are important for understanding why people maintain their practice. This is an important research target, as extent of practice has been demonstrated to be associated with positive outcomes. Since these motivations/outcomes appear to be related to the outcome of continuing practice, further research examining and clarifying the relationships would be an important research goal (i.e. what type of spirituality increases with increased mindfulness). In addition, additional work on how these beneficial outcomes are obtained is important for understanding the processes underlying mindfulness.

While the mental health professionals and non-mental health professionals were very similar on most variables, some potentially important differences between the two groups, most of moderate magnitude, were noted. Overall, these differences in the motivations for meditation practice, FFMQ scores, and related constructs (experiential avoidance, difficulties in emotion regulation, neuroticism, and purpose in life) may make sense in the context of professional differences. For example, the experience of being a mental health professional may have influenced the initiation of meditation practice due to increased desire to reflect on personal behavior patterns, to develop empathy or compassion for or insight into individuals they work with, or because respected others in the field introduced them to meditation. They may have developed increased observation and description skills, increased purpose in life, and emotion regulation skills, and decreased their reliance upon experiential avoidance through their research and/or clinical work, especially if this work focused on mindfulness and/or meditation. Alternately, pre-existing differences may have informed job choice, such that individuals with good observation and description skills, who were able to regulate their emotions without avoiding their experiences, and who felt purpose in their life may have been more likely to

pursue a career in a mental health related field, while being more aware of alternate reasons for meditation practice. As mindfulness varies in the population and can be developed through various experiences, as can the related constructs, it is not surprising that meditators working in the mental health field were found to have some differences, especially those that can be understood conceptually, from those who do not work in the field. Of course, these differences must be interpreted in the context of the many similarities between the two groups.

Thus, the current study has outlined for the first time reasons why meditators continue their meditation practice. It demonstrated that mindfulness is currently best conceptualized as an overall construct made up of multiple facets (observing, describing, acting with awareness, nonjudging, and nonreactivity) in a sample of experienced meditators and showed that total mindfulness and the mindfulness facets relate to other constructs in a manner overwhelmingly consistent with the current conceptualization of mindfulness. It also extended our understanding of mindfulness by clarifying the relationship between mindfulness and absorption, demonstrating mindfulness' positive relations with reflection and negative relations with rumination, and establishing that mindfulness is associated with PWB. Where differences were found between the current study and those of Baer et al. (2006), such as in the different correlational patterns of the *observe* facet or in the apparent differential significance of the *nonreact* and *nonjudge* facets, potential hypotheses regarding the differences were posited. Finally, differences between meditators who do or do not work in the mental health field were examined, and potential explanations for these differences were examined.

There are some limitations to the current study. For example, individuals with less than one year of meditation experience were not well represented within the current sample. Thus, differences between individuals just beginning their meditation practice and those who have been practicing for many years could not be examined but may be very important conceptually. For example, the function of the *observe* facet and the development or function of the *nonreact* facet are very different in individuals with no meditation experience and in the current, highly experienced, sample, suggesting that these functional changes may occur in the early stages of practice and continue to develop with experience. In addition, the sample was composed of individuals who accepted an invitation or volunteered to participate, which may introduce selection bias. The sample also did not include any individuals who had previously but no longer practiced mindfulness meditation. Thus, the sample is likely composed only of those individuals

who continued to practice due to internal motivation or perceived benefits, which may inflate the relationship between mindfulness and positive functioning correlates. The effects of mindfulness meditation in those who have initiated but not maintained an ongoing practice are currently unknown. Future research examining whether mindfulness is associated with positive functioning in individuals who have previously meditated but have discontinued their practice would help illuminate how and why mindfulness/meditation are related to these correlates. Another limitation is that the current study relied solely upon participant self-report methods. Replication of the current results or investigation into similar issues using methods other than self-report questionnaires is a necessary step in building confidence in the current findings. Finally, this research cannot determine whether the five current mindfulness facets represent aspects of mindfulness or outcomes of mindfulness practice, as the data were collected in a cross-sectional manner. Future research on the processes and mechanisms underlying meditation practice and the development of mindfulness are needed to help conclusively answer this important question. However, the strong fit of the hierarchical, five-factor CFA suggests that the current conceptualization has merit.

In summary, the current findings provide empirical evidence supporting the current conceptualization of mindfulness as a multifaceted construct that is associated with meditation experience and positive functioning.

Appendix A

Demographic Questionnaire (Baer et al., 2006)

1. **Your age in years** _____

2. **Your gender** _____ male _____ female

3. **Your race or ethnicity**

_____ Caucasian or White _____ Hispanic or Latino _____ Other

_____ African American or Black _____ Asian

4. **Your level of education**

_____ less than high school _____ Bachelor's or 4-year degree

_____ high school _____ some graduate work

_____ some college/undergraduate work _____ Masters degree

_____ 2-year or Associate's degree _____ doctoral degree or MD

5. **Where do you reside?**

_____ US _____ Canada _____ United Kingdom, Europe, or other

6. **Is English your first language?** _____ yes _____ no

Appendix B

Five Facet Mindfulness Questionnaire (FFMQ; Baer et al, 2006)

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

1	2	3	4	5
Never or very rarely true	Rarely true	Sometimes true	Often true	Very often or always true

- ___ 1. When I'm walking, I deliberately notice the sensations of my body moving.
- ___ 2. I'm good at finding words to describe my feelings
- ___ 3. I criticize myself for having irrational or inappropriate emotions.
- ___ 4. I perceive my feelings and emotions without having to react to them.
- ___ 5. When I do things, my mind wanders off and I'm easily distracted.
- ___ 6. When I take a shower or bath, I stay alert to the sensations of water on my body.
- ___ 7. I can easily put my beliefs, opinions, and expectations into words.
- ___ 8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.
- ___ 9. I watch my feelings without getting lost in them.
- ___ 10. I tell myself I shouldn't be feeling the way I'm feeling.
- ___ 11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.
- ___ 12. It's hard for me to find the words to describe what I'm thinking.
- ___ 13. I am easily distracted.
- ___ 14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.
- ___ 15. I pay attention to sensations, such as the wind in my hair or sun on my face.
- ___ 16. I have trouble thinking of the right words to express how I feel about things.
- ___ 17. I make judgments about whether my thoughts are good or bad.
- ___ 18. I find it difficult to stay focused on what's happening in the present.
- ___ 19. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.
- ___ 20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.
- ___ 21. In difficult situations, I can pause without immediately reacting.

- ___ 22. When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.
- ___ 23. It seems I am "running on automatic" without much awareness of what I'm doing.
- ___ 24. When I have distressing thoughts or images, I feel calm soon after.
- ___ 25. I tell myself that I shouldn't be thinking the way I am thinking.
- ___ 26. I notice the smells and aromas of things.
- ___ 27. Even when I'm feeling terribly upset, I can find a way to put it into words.
- ___ 28. I rush through activities without being really attentive to them.
- ___ 29. When I have distressing thoughts or images, I am able to just notice them without reacting.
- ___ 30. I think some of my emotions are bad or inappropriate, and I shouldn't feel them.
- ___ 31. My natural tendency is to put my experiences into words.
- ___ 32. When I have distressing thoughts or images, I just notice them and let them go.
- ___ 33. I do jobs or tasks automatically without being aware of what I'm doing.
- ___ 34. When I have distressing thoughts or images, I judge myself as good or bad, depending on what the thought/image is about.
- ___ 35. I pay attention to how my emotions affect my thoughts and behavior.
- ___ 36. I can usually describe how I feel at the moment in considerable detail.
- ___ 37. I find myself doing things without paying attention.
- ___ 38. I disapprove of myself when I have irrational ideas.
- ___ 39. I notice visual elements in art or nature, such as colors, shapes, textures, and patterns of light and shadow.

Appendix C
Meditation History Questionnaire (Baer et al, 2006)

This form asks about your experience with meditation, including transcendental, insight, mindfulness, Vipassana, or Zen mediation. Please do not include prayer, yoga, tai chi, chi gong, or other similar practices when responding to this form.

1. Please check one statement that best describes your meditation experience. Please include both past and current experience. If you've had periods when you meditated and periods when you didn't, choose the statement that best reflects your TOTAL experience with meditation.

Note: "regularly" means 3 or more times per week
"semi-regularly" means once or twice per week

- I have never meditated.
- I've meditated once or occasionally, never regularly or semi-regularly.
- I've meditated regularly or semi-regularly for less than 1 month.
- I've meditated regularly or semi-regularly for 1 to 6 months.
- I've meditated regularly or semi-regularly for 7 to 11 months.
- I've meditated regularly or semi-regularly for 1 to 5 years.
- I've meditated regularly or semi-regularly for 6 to 10 years.
- I've meditated regularly or semi-regularly for more than 10 years.

If you choose the first or second option for this question, please stop here for this questionnaire and continue to the next section.

Otherwise, please continue with this form.

2. Are you **currently** engaged in a regular or semi-regular meditation practice?
- no, I used to meditate regularly or semi-regularly, but I've stopped
 - yes, I meditate regularly or semi-regularly

3. Considering your total meditation experience, how many times per week have you meditated, on average? (don't include retreats)

- once or twice per week
- 3-4 times per week
- 5-6 times per week
- 7 or more times per week

4. Considering your total meditation experience, how long have your meditation sessions been, on average? (don't include retreats)

- less than 10 minutes each time
- 10-20 minutes each time
- 21-30 minutes each time
- 31-45 minutes each time
- 46-60 minutes each time
- longer than 60 minutes each time

5. Have you completed any meditation retreats? If yes, please indicate the total number of days you have been on retreat, **adding all your retreats together if you've done more than one**. For example, a 7-day retreat plus a 9-day retreat plus a weekend retreat equals 18 days.

- no, I've never done a retreat
- yes, totaling 1 to 4 days
- yes, totaling 5 to 10 days
- yes, totaling 11 to 30 days
- yes, totaling 1 to 3 months
- yes, totaling 3 months or more

6. Please describe why you maintain a meditation practice. Rate the importance of each of the following possible reasons by writing the appropriate number in the blank.

1 = not at all important

2 = a little important

3 = moderately important

4 = very important

5 = extremely important

I meditate:

- _____ 1. as a way of coping with distress (anxiety, depression, unhappiness, etc.)
- _____ 2. as a way to increase my level of self-understanding, self-awareness, or insight
- _____ 3. to increase my understanding, insight, or wisdom about other people
- _____ 4. to increase my level of understanding, insight, or wisdom about life in general
- _____ 5. out of curiosity to see what will come of it
- _____ 6. because people I respect meditate regularly
- _____ 7. as a way of coping with physical pain, disease, or another medical condition
- _____ 8. as a way to feel better physically (healthier, more energetic)
- _____ 9. as a way of cultivating healthier or more adaptive behavior patterns
- _____ 10. for spiritual development
- _____ 11. because it's part of my religious tradition
- _____ 12. because it helps me function better in the work that I do
- _____ 13. to cultivate compassion for others
- _____ 14. to cultivate compassion for myself
- _____ 15. other – please describe here in your own words:

7. Please describe how your meditation practice has affected or changed you or your life, possibly including your thoughts, feelings, relationships with others, general outlook on life, or anything else you'd like to mention.

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