

# The Effectiveness of a Meditation Course on Mindfulness and Meaning in Life

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This study examined the effectiveness of a meditation intervention on increasing mindfulness and meaning in life within a population of college students. Participants ( $N = 205$ ) took part in a semester-long lecture/lab-style course titled Buddhist Meditation and Modernity. The course (a) taught secular contemplative practices, (b) provided a scientific background on the impact and mechanisms of meditation, and (c) reviewed the historical roots of meditative practice. All 5 facets of mindfulness assessed, except for observing and nonjudging, correlated with each other. Additionally, all 5 facets showed positive correlations with the presence of meaning in life, and there was a significant negative correlation between the nonjudging facet of mindfulness and search for meaning in life. Participants, who were measured pre-, post-, and midsemester, reported positive changes over time on all 5 facets of mindfulness and presence of meaning in life. This study provides additional evidence for the connection between meditation, mindfulness, and meaning in life. We conclude by discussing limitations and areas for future research.

*Keywords:* meditation, mindfulness, meaning in life, college students

The emerging adulthood stage is a particularly fertile time for significant exploration and change involved in identity development (Arnett, 2000). The development of one's personal

identity and interpersonal connections are foundational to establishing a sense of meaning in life (Steger, Beeby, Garrett, & Kashdan, 2013); however, failure to develop a strong personal identity frustrates the establishment of meaning in life, which is associated with mental health problems and decreased levels of overall well-being (Bonebright, Clay, & Ankenmann, 2000; Debats, van der Lubbe, & Wezeman, 1993; Mascaro & Rosen, 2005; Volkert, Schulz, Brütt, & Andreas, 2014). Low meaning in life may also lead to maladaptive coping strategies. For example, one study found a significant inverse relationship between meaning in life and alcohol use in college students (Schnitzer, Schulenberg, & Buchanan, 2013), suggesting that alcohol may be a coping mechanism for dealing with a lack of meaning in life. Other research has indicated that there has been a major shift in values for emerging adults over the past few decades. In the early 1970s, developing a mean-

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ingful philosophy of life was the top endorsed value. Over time this value has received less endorsement and has been replaced by financial success (Astin, 2004). Thus, it is important to investigate strategies that may help emerging adults develop a coherent sense of identity and meaning in life. In the present study, we examined the effectiveness of a classroom-based mindfulness intervention on levels of mindfulness and meaning in life in emerging adults.

### Definitions

*Mindfulness* has been defined as “non-elaborative, non-judgmental, present-centered awareness in which each thought, feeling or sensation that arises in the attentional field is acknowledged and accepted as it is” (Bishop et al., 2004, p. 232). Western psychology has adapted and integrated the concept of mindfulness, which has its origins in Buddhist contemplative practices, into an array of therapies, such as mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1990), mindfulness-based cognitive therapy (Segal, Williams, & Teasdale, 2002), acceptance and commitment therapy (Hayes, Strosahl, & Wilson, 1999), and dialectical behavior therapy (Linehan, 1993a, 1993b).

Although *mindfulness* has also been defined and measured as a state or practice, the present article examined mindfulness as a trait, as measured by the Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). The conceptualization underlying this measure includes five facets of mindfulness: (a) *nonreactivity to inner experience*, which is the tendency to allow thoughts and feelings to come and go, without getting caught up in or carried away by them; (b) *observing*, which includes noticing or attending to internal and external experiences, such as sensations, cognitions, emotions, sights, sounds, and smells; (c) *acting with awareness*, which includes attending to one’s activities of the moment and can be contrasted with behaving mechanically while attention is focused elsewhere (often called automatic pilot); (d) *describing*, which involves labeling internal experiences with words; and (e) *nonjudging of experience*, which involves taking a nonevaluative stance toward thoughts and feelings (Baer et al., 2008).

Mindfulness practices and inductions have been found to result in a number of positive

changes, including reductions in physical pain, stress, anxiety, depressive symptoms, unpleasant affect, and disordered eating (for a review see Baer, 2003). Mindfulness has also been associated with higher pleasant affect, positive affectivity, vitality, life satisfaction, self-esteem, optimism, self-actualization, and emotion regulation (Brown & Ryan, 2003). There are varying theoretical accounts describing the mechanisms by which mindfulness meditation leads to beneficial outcomes (Baer, 2003; Baer et al., 2006; Brown, Ryan, & Creswell, 2007; Shapiro, Carlson, Astin, & Freedman, 2006; Hölzel et al., 2011).

*Meaning in life* is defined as “the extent to which people comprehend, make sense of, or see significance in their lives, accompanied by the degree to which they perceive themselves to have a purpose, mission, or overarching aim in life” (Steger, 2009, p. 682). Typically, researchers have examined the degree to which people report that their life has meaning, called the *presence of meaning*, and the degree to which people seek out meaning, called the *search for meaning* (Steger, Beeby, et al., 2013; Steger, Frazier, Oishi, & Kaler, 2006). Presence of meaning in life has two primary elements: (a) comprehension and (b) purpose (Steger, Beeby, et al., 2013; Steger, Sheline, Merriman, & Kashdan, 2013).

*Comprehension* can be defined as “people’s higher-order mental models of life,” whereas *purpose* can be defined as “those aspirations people seek to achieve across their lifetimes” (Steger, Beeby, et al., 2013, p. 943). These higher order models or schemas include an individual’s interpretation of the nature of the world, as well as information about the self, important others, and what the individual would like to do in relation to others and the world (Steger, Beeby, et al., 2013). Purpose has been characterized as a dominant theme in a person’s identity that leads to recurring behavior patterns in the individual’s day-to-day life (Kashdan & McKnight, 2009). Purpose generates continual targets to reach; yet purpose itself cannot be achieved (Kashdan & McKnight, 2009).

It appears that decreased presence of meaning leads to increased search for meaning, although the search for meaning does not necessarily lead to its presence (Steger, Kashdan, Sullivan, & Lorentz, 2008). Some research has found evidence for the inverse relationship between the

presence of and search for meaning (see Van Tongeren & Green, 2010). Generally speaking, higher presence of meaning in life is associated with positive outcomes, whereas lower presence of meaning in life and/or higher search for meaning in life is associated with negative outcomes. For example, higher presence of meaning in life is associated with higher quality of life (Krause, 2007), higher levels of happiness (Debats et al., 1993), greater social closeness (Ryff, 1989), better self-reported health (Krause, 2009; Steger, Mann, Michels, & Cooper, 2009), and better occupational adjustment (Littman-Ovadia & Steger, 2010). Lower presence of meaning is associated with general psychological distress (Debats et al., 1993; Mascaro & Rosen, 2005) and appears to be more prevalent in individuals with mental health disorders, especially individuals with depression (Volkert et al., 2014). Higher search for meaning appears related to less psychological well-being (Steger et al., 2008) and greater anxiety (Steger et al., 2006). Adding nuance to prior findings, Steger, Oishi, and Kesebir (2011) found the relationship between presence of meaning in life and life satisfaction to be moderated by search for meaning. There appears to be a strong association between presence of meaning in life and life satisfaction when individuals are actively searching for meaning, but there is not a strong relationship between presence of meaning in life and life satisfaction among individuals who are not actively searching for meaning (Steger et al., 2011).

### Mindfulness and Meaning in Life

Several studies have demonstrated a positive correlation between mindfulness and presence of meaning in life (Allan, Bott, & Suh, 2015; Baer et al., 2008; Jacobs et al., 2011), yet a comprehensive theoretical model has not been developed to explain how mindfulness and meaning in life are related. We propose that mindfulness helps individuals develop four important sources of meaning in life: (a) high-quality interpersonal relationships, (b) personal growth and actualization, (c) health and well-being, and (d) existential or religious beliefs (Battista & Almond, 1973; Debats, 2000; Devogler & Ebersole, 1980; O'Connor & Chamberlain, 1996; Prager, Savaya, & Bar-Tur, 2000). We briefly review research linking mind-

fulness with each of these four sources of meaning in life.

First, mindfulness-based interventions (MBIs) are associated with increased interpersonal well-being (Cohen & Miller, 2009) and enhanced relationship satisfaction, relatedness, closeness, and acceptance of others (Carson, Carson, Gil, & Baucom, 2004). Higher levels of trait mindfulness are also associated with greater relationship satisfaction and the ability to respond constructively to relationship stress (Barnes, Brown, Krusemark, Campbell, & Rogge, 2007). The theoretical basis for using mindfulness to enhance relationships revolves around four processes activated by mindfulness-based interventions: (a) generating a process of insight, (b) accepting experiences as they are, (c) promoting the relaxation response, and (d) expanding the self in terms of feeling increased connectedness with others (Carson, Carson, Gil, & Baucom, 2006). A basic intrapersonal skill of maintaining intimate relationships involves the ability to regulate attachment feelings (i.e., self-soothe when distressed) such as anxiety or loneliness, and mindfulness is a potentially potent habit to help people learn to tolerate these feelings.

Second, mindfulness has been positively correlated with self-actualization (Beitel et al., 2014; Brown & Ryan, 2003). Deci, Ryan, Schutz, and Niemiec (2015) posited that the states of awareness cultivated by mindfulness lead individuals to pursue intrinsic aspirations such as personal growth, intimate relationships, and contributing to community rather than extrinsic goals such as gaining wealth and fame.

Third, several studies have supported the link between mindfulness and health and well-being. Evidence has suggested that mindfulness has a positive effect on physical and mental well-being and is associated with lower mood disturbance and stress (Carlson & Brown, 2005; Didonna, 2009). Klein and colleagues (2015) reported a reduction in health-related symptomatology over the course of a 10-week mindfulness intervention, and a meta-analysis examining the impact of mindfulness interventions on psychological and physical health and well-being concluded that MBIs may enhance general coping features for dealing with distress in everyday life, as well as serious disorders and stress (Grossman, Niemann, Schmidt, & Walach, 2004). One theoretical explanation of the link

between mindfulness and health and well-being, the mindfulness stress-buffering hypothesis, posits that mindfulness reduces stress and in turn has positive impacts on physical and mental health (Creswell & Lindsay, 2014).

Fourth, MBIs have been associated with significant increases in religious and spiritual beliefs (Carmody, Reed, Kristeller, & Merriam, 2008; Labelle, Lawlor-Savage, Campbell, Faris, & Carlson, 2015). A qualitative study of the impact of a mindfulness intervention on spiritual well-being reported that increased intrapersonal, interpersonal, and transpersonal connectedness link mindfulness to enhanced spirituality (Marquès-Brocksopp, 2014). In addition, previous research has demonstrated that mindfulness provides a sense of existential security (Niemiec et al., 2010).

### Using Meditation to Promote Meaning in Life

Although there is initial theorizing and empirical evidence that links mindfulness to meaning in life, only three studies have empirically examined the connection between meditation, mindfulness, and meaning in life. Baer and colleagues (2008) examined correlations between mindfulness as measured by the FFMQ and meaning in life (taken as part of an overall measure of psychological well-being [PWB]) in (a) meditators, (b) highly educated nonmeditators, and (c) student nonmeditators. Meditators in this study were limited to those with ongoing meditation practices of at least once per week, although they were not limited by the styles they practiced. Significant positive correlations were found between the describing, acting with awareness, nonjudging, and nonreactivity facets of mindfulness and PWB in all samples, whereas the observing facet had a significant positive correlation with PWB among only the meditators. Given that meaning in life is a part of PWB, this finding warrants more focused study of the mindfulness–meaning in life relationship.

Jacobs et al. (2011) extended these findings by studying the effect of a 3-month meditation retreat on individuals' levels of mindfulness as measured by the FFMQ (using the mean of all five facets) and purpose in life (as measured by the purpose in life subscale of Ryff's Well-Being Scale; Ryff, 1989). Meditation styles

used during the retreat included mindfulness, compassion, loving-kindness, and equanimity practices. Individuals who participated in the meditation retreat showed significant increases in mindfulness and purpose in life compared with the control group.

A final study (Cohen & Miller, 2009) examined the impact of a 6-week interpersonal mindfulness training intervention on meaning in life, as measured by the Mindful Attention Awareness Scale (Brown & Ryan, 2003) and the Meaning in Life Questionnaire (MLQ; Steger et al., 2006). The meditation training was based on MBSR but differed in its incorporation of exercises that placed an increased emphasis on “awareness of the self in relation to others” (Cohen & Miller, 2009, p. 2764). The intervention demonstrated a downward nonsignificant trend in search for meaning in life but did not result in a significant change for presence of meaning in life.

Overall, research support regarding the effectiveness of meditation in promoting meaning of life has been sparse and somewhat mixed. Baer and colleagues (2008) reported similar patterns of findings regarding the relationship between mindfulness and meaning in life between meditators and nonmeditators. Of the two studies that explored the effectiveness of meditation on meaning in life, Jacobs et al. (2011) found that meditation increased purpose in life, whereas Cohen and Miller (2009) found that meditation resulted in a trend toward decreased search for meaning (but not an increase in presence of meaning). More research on the effectiveness of meditation on mindfulness and meaning in life is needed.

### Overview and Hypotheses

The purpose of the present study was to examine the impact of a classroom-based meditation intervention on mindfulness and meaning in life. Specifically, we were interested in examining correlations between the five facets of mindfulness and two dimensions of meaning in life (presence and search) at the beginning of the semester, as well as how the variables changed over the semester-long lecture-style meditation course. Our first hypothesis was that all five facets would correlate positively with each other and that the five facets of mindfulness would correlate positively with presence of

meaning in life and negatively with search for meaning in life. Our second hypothesis was that students in the meditation course would report (a) increased mindfulness, (b) increased presence of meaning in life, and (c) decreased search for meaning in life over the course of the semester. To our knowledge, this study is novel in its delivery format and focus. A university lecture-style delivery format offers an efficient method to disseminate mindfulness skills to a large at-need population of emerging adults.

## Method

### Participants

Participants were 205 undergraduate college students (31.9% male) from a large public university in the South Atlantic United States. They ranged in age from 18 to 36 years ( $M = 20.69$ ,  $SD = 1.61$ ) and had completed an average of 2.21 years of college ( $SD = 1.37$ ). Regarding missing data, 188 participants completed the FFMQ at Time 1, whereas 142 participants completed the MLQ; 190 participants completed the FFMQ at Time 2, whereas 183 participants completed the MLQ; and 176 participants completed the FFMQ at Time 3, whereas 175 completed the MLQ.

### Measures

**Meaning in life.** Participants completed the Meaning in Life Questionnaire (MLQ; Steger et al., 2006). The MLQ consists of 10 items divided into two subscales that measure dimensions of meaning in life: Presence of Meaning (MLQ-P; five items; e.g., “I understand my life’s meaning”), which assesses how much respondents feel their lives are full of meaning, and Search for Meaning (MLQ-S; five items; e.g., “I am always looking to find my life’s purpose”), which assesses how engaged and motivated respondents are in efforts to find meaning or deepen their understanding of meaning in their lives. Participants rate each item on a 7-point scale ranging from 1 (*absolutely untrue*) to 7 (*absolutely true*). Steger et al. (2006) provided evidence for the internal consistency, temporal stability, factor structure, and construct validity of the MLQ. For the current sample, the Cronbach’s alphas for the Search subscale were .89 for Time 1, .89 for Time 2,

and .91 for Time 3. For the Presence subscale, Cronbach’s alphas were .90 for Time 1, .86 for Time 2, and .87 for Time 3.

**Mindfulness.** Participants completed the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006). The FFMQ consists of 39 items assessing the following facets of mindfulness: (1) observing (eight items; e.g., “When I’m walking, I deliberately notice the sensations of my body moving”), (2) describing (eight items; e.g., “I’m good at finding words to describe my feelings”), (3) acting with awareness (eight reverse-coded items; e.g., “When I do things, my mind wanders off and I’m easily distracted”), (4) nonjudging of inner experience (eight reverse-coded items; e.g., “I criticize myself for having irrational or inappropriate emotions”), and (5) nonreactivity to inner experience (seven items; e.g., “I perceive my feelings and emotions without having to react to them”). Participants rate each item on a 5-point scale ranging from 1 (*never or very rarely true*) to 5 (*very often or always true*). There is evidence for internal consistency and construct validity of the FFMQ (Baer et al., 2006, 2008) For the current study, the Cronbach’s alphas at Times 1, 2, and 3, respectively, were as follows: observing: .72, .76, .80; describing: .94, .94, .94; acting with awareness: .84, .88, .88; nonjudging of inner experience: .92, .92, .91; and nonreactivity to inner experience: .81, .77, .76.

### Procedure

Participants were recruited from a course titled Buddhist Meditation and Modernity. Involvement in the study was on a volunteer basis and was approved by the university’s institutional review board. For the didactic portion of the course, all students attended together twice weekly in a lecture hall, whereas for the experiential training, groups of 20 met once a week in labs for 50 min. Each week, one lecture focused on traditional Buddhist practices and the other focused on contemporary adaptations and modern research. The course covered (a) the history of traditional Buddhist meditation practices, including how they fit into the context of various types of religious communities and philosophies; (b) modern research on these practices from neurological, biological, and psychological perspectives; (c) contemporary secular adaptations of these practices into a

variety of fields; and (d) contemplative practices taught to students experientially. In the lab, contemplative assistants (graduate students specializing in Buddhist studies) with extensive training in each of the various practices taught sitting meditation, walking meditation, light yoga/pranayama breathing exercise, body scan, choiceless awareness, and other contemplative practices.

The professors and the contemplative assistants all made it clear that the contemplative practices being taught to the students were entirely secular in nature, without religious content. However, because students were simultaneously studying traditional Buddhist practices through the classical academic means of lectures, readings, and written assignments, the question of the relationship between Buddhist practices and contemporary secularized practices was raised repeatedly as a challenge to be explored by each student. Students were asked to write creative essays in which they themselves were asked to design a secularized version of a Buddhist practice they were learning about. Thus, they were asked to reflect intellectually on the very process of the secularization of practices drawn from a religious tradition, even as they were exploring the contemplative exercises taught experientially during the labs.

For example, during the same weeks in which students were reading classical Buddhist literature (in English translation) on the practice of *ānāpānasati* (mindfulness of breathing), they were being taught a meditation in which they focused on the sensations of breath at the nostrils, as well as throughout their whole body. While reading and hearing lectures about the four practices of *satipaṭṭhāna* (mindfulness of body, feelings, thoughts, and religious teachings), they were taught meditation practices in which they were asked to become aware of physical sensations, emotions, and spontaneous thought processes. They were also asked to explore, in a personal way, and with no need whatsoever to accept or reject the Buddhist ideas they were studying, the notions of impermanence, setting a motivation in advance of one's activities, and directing the intention of a practice toward some future goal or aspiration. Students were asked to reflect on the differences between "bare attention," in which the mind is permitted to attend to whatever arises, and more specifically directed practices of single-pointed

concentration on a chosen object, known in Buddhist texts as *samatha*/*śamatha*. While learning about the complex interactions and historically contested relationships between practices of concentration and insight (*samathavipassana*, or *śamatha-vipaśyanā*), they were asked to explore, without preconceptions, what it might mean to inquire analytically into the nature of one's personal experience, while still resting in a state of relaxed concentration. Students were also taught practices for cultivating loving-kindness and compassion toward oneself, toward friends and family, and toward those for whom one usually has feelings of animosity. Students were asked to be aware of the emotions and philosophical questions that would come up in the course of these meditations and to reflect upon these through journal entries and formal essay assignments.

Participants were evaluated at three time points: (a) at the beginning of the semester, (b) halfway through the semester (i.e., 8 weeks later), and (c) at the end of the semester (i.e., 16 weeks later). Students completed a series of questionnaires that were sent to them as individual e-mail surveys and they were asked to keep a record of their practice time outside of class, including personal commentary on the experience. At the beginning of the study, there was an expectation for participants to practice 10 min daily; this was later changed to 15 min daily. Students uploaded their meditation records during the second and third rounds of measure distribution. Student Health Services staff who were familiar with contemplative practices were introduced to participants and made available in the event they experienced emotional discomfort.

### Data Analysis

The primary aims of this research study were to (a) evaluate how the five facets of mindfulness were related with meaning in life and (b) evaluate the extent to which participants reported changes over time in the facets of mindfulness and meaning in life. For analyzing the longitudinal data, the data are grouped as repeated measures nested within individuals. Multilevel modeling is a statistical method that is appropriate for such data, because it allows for the examination of individual growth trajectories by analyzing the information contained in

the repeated measures (Raudenbush & Bryk, 2002). A two-level multilevel model that consisted of repeated measures (Level 1) nested within individuals (Level 2) was used for the present analyses. The basic multilevel model took the following form:

Level 1 (repeated measures):

$$Y_{it} = \pi_{0i} + \pi_{1i}(\text{Time})_{it} + r_{it}$$

Level 2 (individuals):

$$\pi_{0i} = \beta_{00} + u_{0i}$$

$$\pi_{1i} = \beta_{10} + u_{1i}$$

where *t* indexes time and *i* indexes individuals. For these analyses, we included a random intercept and random slope for time at the individual level, which allows individual-specific intercepts and slopes. Multilevel models assume normality and homoscedasticity of all error terms and conditional independence of the outcome, given the random effects.

### Results

We checked the data for outliers and normality. MLQ-P had two low outliers, which we recoded to 3 standard deviations below the mean. The observing facet of the FFMQ had 13 outliers, all exceptionally low scores, which we recoded 3 standard deviations below the mean. There were no problems with normality. Means, standard deviations, and intercorrelations for all variables at Time 1 are shown in Table 1.

Means and standard deviations for all variables at all time points are shown in Table 2.

### Time 1 Analyses

At Time 1, all mindfulness variables except for the observing and nonjudging facets were positively correlated with each other. Our first hypothesis was that mindfulness would be positively correlated with the presence of meaning and negatively correlated with the search for meaning. This hypothesis was partially supported. As predicted, presence of meaning was positively correlated with all five factors of mindfulness. The relationship between search for meaning and mindfulness was more nuanced. Search for meaning was negatively related to the nonjudging subscale and unrelated to the other facets of mindfulness.

### Longitudinal Analyses

Our second hypothesis was that participants would report significant increases in the five facets of mindfulness and presence of meaning in life over time, as well as significant decreases in search for meaning in life over time. This hypothesis was partially supported. Across all three time points, there was a significant increase in all five facets of mindfulness, as well as presence of meaning in life. There was also a trend toward decreases in search for meaning in life over time, although this reduction was only marginally significant. Effect sizes for changes in all variables were generally small.

**Mindfulness.** Participants reported increased levels of the observing facet of mind-

Table 1  
Descriptive Statistics and Intercorrelations Between FFMQ and MLQ Variables at Time 1

Measure	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
Five Facet Mindfulness Questionnaire <sup>a</sup>								
1. Observing	3.39	.54	—					
2. Describing	3.27	.75	.23**	—				
3. Acting with awareness	2.92	.59	.23**	.25**	—			
4. Nonjudging of inner experience	3.09	.82	.11	.18*	.34**	—		
5. Nonreactivity to inner experience	2.90	.55	.33**	.28**	.40**	.44**	—	
Meaning in Life Questionnaire <sup>b</sup>								
6. Search for Meaning	5.02	1.25	.13	.05	.04	-.25**	-.16	—
7. Presence of Meaning	4.42	1.29	.17*	.32**	.26**	.26**	.19*	.09

Note. FFMQ = Five Facet Mindfulness Questionnaire; MLQ = Meaning in Life Questionnaire.

<sup>a</sup> Scale range = 1–5. <sup>b</sup> Scale range = 1–7.

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

Table 2  
*Descriptive Statistics of FFMQ and MLQ Variables Across All Three Time Points*

Measure and time point	<i>N</i>	<i>M</i>	<i>SD</i>	<i>p</i> (change over time)
Five Facet Mindfulness Questionnaire				
Observing				
Presemester	189	3.39	.54	<.001
Midsemester	190	3.43	.54	
Postsemester	176	3.53	.58	
Describing				
Presemester	189	3.27	.75	.008
Midsemester	190	3.26	.72	
Postsemester	176	3.36	.72	
Acting with awareness				
Presemester	188	2.92	.59	.003
Midsemester	190	2.94	.64	
Postsemester	176	3.04	.62	
Nonjudging of inner experience				
Presemester	189	3.09	.82	.005
Midsemester	190	3.15	.80	
Postsemester	176	3.23	.75	
Nonreactivity to inner experience				
Presemester	189	2.90	.55	<.001
Midsemester	190	2.99	.53	
Postsemester	176	3.12	.51	
Meaning in Life Questionnaire				
Search for Meaning				
Presemester	142	5.02	1.25	.086
Midsemester	183	5.04	1.19	
Postsemester	175	4.92	1.27	
Presence of Meaning				
Presemester	142	4.42	1.29	.034
Midsemester	183	4.50	1.17	
Postsemester	175	4.59	1.18	

*Note.* FFMQ = Five Facet Mindfulness Questionnaire; MLQ = Meaning in Life Questionnaire.

fulness over time ( $b = .08, SE = .02, p < .001$ ). Overall, participants increased about .14 points over the course of the study. Given the standard deviation of this measure, this represents a Cohen's  $d$  of approximately .25 (a small effect size).

Participants reported increased levels of the describing facet of mindfulness over time ( $b = .06, SE = .02, p = .008$ ). Overall, participants increased about .09 points over the course of the study. Given the standard deviation of this measure, this represents a Cohen's  $d$  of approximately .12 (a small effect size).

Participants reported increased levels of the acting with awareness facet of mindfulness over time ( $b = .07, SE = .02, p = .003$ ). Overall, participants increased about .12 points over the course of the study. Given the standard deviation of this measure, this represents a Cohen's  $d$  of approximately .20 (a small effect size).

Participants reported increased levels of the nonjudging facet of mindfulness over time ( $b = .07, SE = .03, p = .005$ ). Overall, participants increased about .14 points over the course of the study. Given the standard deviation of this measure, this represents a Cohen's  $d$  of approximately .18 (a small effect size).

Participants reported increased levels of the nonreactivity facet of mindfulness over time ( $b = .12, SE = .02, p < .001$ ). Overall, participants increased about .22 points over the course of the study. Given the standard deviation of this measure, this represents a Cohen's  $d$  of approximately .41 (a medium effect size).

**Meaning in life.** Participants reported increased levels of the presence of meaning factor over time ( $b = .10, SE = .05, p = .034$ ). Overall, participants increased about .17 points over the course of the study. Given the standard deviation of this measure, this represents a Co-



hen's  $d$  of approximately .14 (a small effect size).

Participants reported decreased levels of the search for meaning factor over time ( $b = -.08$ ,  $SE = .05$ ,  $p = .086$ ), although this reduction was only marginally significant. Overall, participants decreased about .10 points over the course of the study. Given the standard deviation of this measure, this represents a Cohen's  $d$  of approximately .08 (a small effect size).

### Discussion

Overall, prior work has examined separately the positive outcomes associated with meditative or mindfulness practice (Baer, 2003; Brown & Ryan, 2003) and meaning in life (i.e., Debats et al., 1993; Krause, 2007; Ryff, 1989). There has been limited work examining how meditation impacts mindfulness and meaning in life. The present study sought to illuminate this relationship, which could be of particular benefit to young adults dealing with the developmental transition stage of young adulthood, when there is enormous growth potential. Effectively navigating this key developmental stage may play a role in developing personal identity, forging interpersonal bonds, and establishing meaning in life. To our knowledge, this is the first study focusing on the relationship between these variables within the context of a semester-long lecture-style meditation course provided to college students.

Overall, our hypotheses were partially supported. Of the five facets of mindfulness, all except observing and nonjudging had significant positive correlations with each other; these two had a nonsignificant positive correlation. This finding is in line with results of prior research showing that these facets may negatively correlate for individuals without meditation experience (Baer, Smith, & Allen, 2004), while correlating positively for experienced meditators (Baer et al., 2006). This may be due to nonmeditators' being prone to associate attending to experience with judging it. Given the mixed meditation experience of the participants in the study, this nonsignificant finding is unsurprising. All five facets of mindfulness positively correlated with presence of meaning in life, extending previous findings to demonstrate that the five facets correlate with not only the purpose element of the MLQ-P but also com-

prehension. Therefore, it seems that mindfulness is related to both pursuing lifelong aspirations and making sense of life holistically. Furthermore, this finding is consistent with theory purporting that higher mindfulness enhances individuals' ability to establish meaning in life (Steger, Beeby, et al., 2013) and with prior findings linking sources of meaning in life to mindfulness. We also found that the nonjudging facet negatively correlated with search for meaning in life, whereas the other four facets did not correlate with search element of the MLQ-S. Perhaps nonjudgment is antithetical to the existential anxiety that leads individuals to search for meaning (cf. Niemiec et al., 2010). Whereas searching for meaning requires a critical view of one's environment to identify and pursue sources of meaning, a nonjudging orientation may not only preclude the search for meaning but also quell the impetus to do so.

During the course of the study, all five facets of mindfulness increased significantly. This provides initial evidence that delivery of mindfulness training through semester-long lecture and lab courses, typical in the university setting, may be an effective and efficient way of disseminating mindfulness skills to college students. Over the course of the intervention, presence of meaning in life increased significantly, extending prior findings linking mindfulness to enhanced meaning in life (Baer et al., 2008; Jacobs et al., 2011). As anticipated, the increase in mindfulness was accompanied by an increase in presence of meaning in life. Although search for meaning in life showed a trend toward decreasing across the study, this decrease was not significant. This is consistent with the prior finding of Cohen and Miller (2009) and begs the question of whether mindfulness practice over a greater time period would lead to a significant decrease in search for meaning.

Due to meaning in life's positive relationship to well-being, interventions that increase meaning in life would be a boon to the field. Individuals suffering from a lack of meaning in life, chronically searching for meaning, or seeking therapy to increase overall well-being may be aided by meditation that aims to increase mindfulness.

## Limitations and Suggestions for Future Research

There are several limitations to the present study. First, the study focused on college students, so findings may not generalize outside this demographic. Second, there was no control group. Although participants reported positive changes in mindfulness and meaning in life over the course of the study, it is possible that changes in the variables over time may actually be related to unstudied factors, such as increased education or personal growth over the course of an academic term that was unrelated to the meditation course. Third, all measures used were self-report, so findings are reliant on participants' self-insight. Fourth, participants were drawn on a voluntary basis from a class titled Buddhist Meditation and Modernity. Because the course was voluntary, selection bias may have resulted in a group of participants who were especially interested or motivated to participate in meditation. Participants may also have been more prone to reporting enhanced mindfulness and meaning in life due to their own desire to see outcomes in these areas.

Future studies may address these limitations by studying the relationship between meditation interventions and meaning in life in other populations. A replication of this study with a control group would provide evidence that the changes over the course of the intervention were due to contemplative practice and not some other factor. Follow-up studies with longer longitudinal components or that compare long-term meditators with nonmeditators may also shed light on whether meditation may have a significant impact on search for meaning in life. Use of non-self-report measures of mindfulness and meaning in life could supplement self-report measures, as has been suggested for other constructs within positive psychology (e.g., Dorn, Hook, Davis, Van Tongeren, & Worthington, 2014). Future studies might also examine whether various sources of meaning in life—such as high-quality interpersonal relationships, personal growth and actualization, health and well-being, and existential or religious beliefs—serve as mediators in the mindfulness–meaning in life relationship.

## Conclusion

In sum, the present study showed that participation in a meditation course resulted in improvements in mindfulness and presence of meaning in life among college students. We encourage researchers to continue exploring the relationship between mindfulness and meaning in life. This is an area of research that is still growing and may provide significant benefits to individual well-being and development. Moreover, this adds to the growing list of salutary effects of meditation by including meaning.

## References

- Allan, B., Bott, E., & Suh, H. (2015). Connecting mindfulness and meaning in life: Exploring the role of authenticity. *Mindfulness, 6*, 996. <http://dx.doi.org/10.1007/s12671-014-0341-z>
- Arnett, J. J. (2000). Emerging adulthood. A theory of development from the late teens through the twenties. *American Psychologist, 55*, 469–480. <http://dx.doi.org/10.1037/0003-066X.55.5.469>
- Astin, A. (2004). Why spirituality deserves a central place in liberal education. *Liberal Education, 90*, 34–41.
- Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice, 10*, 125–143. <http://dx.doi.org/10.1093/clipsy.bpg015>
- Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report: The Kentucky Inventory of Mindfulness skills. *Assessment, 11*, 191–206. <http://dx.doi.org/10.1177/1073191104268029>
- Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*, 27–45. <http://dx.doi.org/10.1177/1073191105283504>
- Baer, R. A., Smith, G. T., Lykins, E., Button, D., Krietemeyer, J., Sauer, S., . . . Williams, J. M. G. (2008). Construct validity of the Five Facet Mindfulness Questionnaire in meditating and nonmeditating samples. *Assessment, 15*, 329–342. <http://dx.doi.org/10.1177/1073191107313003>
- Barnes, S., Brown, K., Krusemark, E., Campbell, W., & Rogge, R. (2007). The role of mindfulness in romantic relationship satisfaction and responses to relationship stress. *Journal of Marital and Family Therapy, 33*, 482–500.
- Battista, J., & Almond, R. (1973). The development of meaning in life. *Psychiatry: Interpersonal and Biological Processes, 36*, 409–427. <http://dx.doi.org/10.1080/00332747.1973.11023774>

- Beitel, M., Bogus, S., Hutz, A., Green, D., Cecero, J., & Barry, D. (2014). Stillness and motion: An empirical investigation of mindfulness and self-actualization. *Person-Centered and Experiential Psychotherapies, 13*, 187–202. <http://dx.doi.org/10.1080/14779757.2013.855131>
- Bishop, S., Lau, M., Shapiro, S., Carlson, L., Anderson, N., Carmody, J., . . . Devins, G. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice, 11*, 230–241. <http://dx.doi.org/10.1093/clipsy.bph077>
- Bonebright, C. A., Clay, D. L., & Ankenmann, R. D. (2000). The relationship of workaholism with work-life conflict, life satisfaction, and purpose in life. *Journal of Counseling Psychology, 47*, 469–477. <http://dx.doi.org/10.1037/0022-0167.47.4.469>
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*, 822–848. <http://dx.doi.org/10.1037/0022-3514.84.4.822>
- Brown, K., Ryan, R., & Creswell, J. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry, 18*, 211–237. <http://dx.doi.org/10.1080/1047840701598298>
- Carlson, L. E., & Brown, K. W. (2005). Validation of the Mindful Attention Awareness Scale in a cancer population. *Journal of Psychosomatic Research, 58*, 29–33. <http://dx.doi.org/10.1016/j.jpsychores.2004.04.366>
- Carmody, J., Reed, G., Kristeller, J., & Merriam, P. (2008). Mindfulness, spirituality, and health-related symptoms. *Journal of Psychosomatic Research, 64*, 393–403. <http://dx.doi.org/10.1016/j.jpsychores.2007.06.015>
- Carson, J. W., Carson, K. M., Gil, K. M., & Baucom, D. H. (2004). Mindfulness-based relationship enhancement. *Behavior Therapy, 35*, 471–494. [http://dx.doi.org/10.1016/S0005-7894\(04\)80028-5](http://dx.doi.org/10.1016/S0005-7894(04)80028-5)
- Carson, J., Carson, K., Gil, K., & Baucom, D. (2006). Mindfulness-based relationship enhancement (MBRE) in couples. In R. A. Baer (Ed.), *Mindfulness-based treatment approaches: Clinician's guide to evidence based and applications* (pp. 309–331). <http://dx.doi.org/10.1016/B978-012088519-0/50015-0>
- Cohen, J. S., & Miller, L. J. (2009). Interpersonal mindfulness training for well-being: A pilot study with psychology graduate students. *Teachers College Record, 111*, 2760–2774.
- Creswell, J., & Lindsay, E. (2014). How does mindfulness training affect health? A mindfulness stress buffering account. *Current Directions in Psychological Science, 23*, 401–407. <http://dx.doi.org/10.1177/0963721414547415>
- Debats, D. L. (2000). An inquiry into existential meaning: Theoretical, clinical, and phenomenal perspectives. In G. T. Reker & K. Chamberlain (Eds.), *Exploring existential meaning: Optimizing human development across the lifespan* (pp. 93–106). <http://dx.doi.org/10.4135/9781452233703.n7>
- Debats, D. L., van der Lubbe, P. M., & Wezeman, F. R. A. (1993). On the psychometric properties of the life regard index (LRI): A measure of meaningful life. *Personality and Individual Differences, 14*, 337–345. [http://dx.doi.org/10.1016/0191-8869\(93\)90132-M](http://dx.doi.org/10.1016/0191-8869(93)90132-M)
- Deci, E., Ryan, R., Schutz, P., & Niemiec, C. (2015). Being aware and functioning fully: Mindfulness and interest taking within self-determination theory. In K. W. Brown, J. D. Creswell, & R. M. Ryan (Eds.), *Handbook of mindfulness* (pp. 112–129). New York, NY: Guilford Press.
- Devogler, K. L., & Ebersole, P. (1980). Categorization of college students' meaning in life. *Psychological Reports, 46*, 387–390. <http://dx.doi.org/10.2466/pr0.1980.46.2.387>
- Didonna, F. (Ed.), (2009). *Clinical handbook of mindfulness*. <http://dx.doi.org/10.1007/978-0-387-09593-6>
- Dorn, K., Hook, J. N., Davis, D. E., Van Tongeren, D. R., & Worthington, E. L., Jr. (2014). Behavioral methods of assessing forgiveness. *Journal of Positive Psychology, 9*, 75–80. <http://dx.doi.org/10.1080/17439760.2013.844267>
- Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits. A meta-analysis. *Journal of Psychosomatic Research, 57*, 35–43. [http://dx.doi.org/10.1016/S0022-3999\(03\)00573-7](http://dx.doi.org/10.1016/S0022-3999(03)00573-7)
- Hayes, S. C., Strosahl, K., & Wilson, K. G. (1999). *Acceptance and commitment therapy*. New York, NY: Guilford Press.
- Hölzel, B. K., Lazar, S. W., Gard, T., Schuman-Olivier, Z., Vago, D. R., & Ott, U. (2011). How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective. *Perspectives on Psychological Science, 6*, 537–559. <http://dx.doi.org/10.1177/1745691611419671>
- Jacobs, T. L., Epel, E. S., Lin, J., Blackburn, E. H., Wolkowitz, O. M., Bridwell, D. A., . . . Saron, C. D. (2011). Intensive meditation training, immune cell telomerase activity, and psychological mediators. *Psychoneuroendocrinology, 36*, 664–681. <http://dx.doi.org/10.1016/j.psyneuen.2010.09.010>
- Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. New York, NY: Delacorte.
- Kashdan, T. B., & McKnight, P. E. (2009). Origins of purpose in life: Refining our understanding of a

- life well lived. *Psychological Topics/Psihologijske Teme*, 18, 303–316.
- Klein, R., Dubois, S., Gibbons, C., Ozen, L., Marshall, S., Cullen, N., & Bédard, M. (2015). The Toronto and Philadelphia Mindfulness Scales: Associations with satisfaction with life and health-related symptoms. *International Journal of Psychology & Psychological Therapy*, 15, 133–142.
- Krause, N. (2007). Longitudinal study of social support and meaning in life. *Psychology and Aging*, 22, 456–469. <http://dx.doi.org/10.1037/0882-7974.22.3.456>
- Krause, N. (2009). Meaning in life and mortality. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 64B, 517–527. <http://dx.doi.org/10.1093/geronb/gbp047>
- Labelle, L., Lawlor-Savage, L., Campbell, T., Faris, P., & Carlson, L. (2015). Does self-report mindfulness mediate the effect of mindfulness-based stress reduction (MBSR) on spirituality and post-traumatic growth in cancer patients? *Journal of Positive Psychology*, 10, 153–166. <http://dx.doi.org/10.1080/17439760.2014.927902>
- Linehan, M. M. (1993a). *Cognitive-behavioral treatment of borderline personality disorder*. New York, NY: Guilford Press.
- Linehan, M. M. (1993b). *Skills training manual for treating borderline personality disorder*. New York, NY: Guilford Press.
- Littman-Ovadia, H., & Steger, M. (2010). Character strengths and well-being among volunteers and employees: Toward an integrative model. *Journal of Positive Psychology*, 5, 419–430. <http://dx.doi.org/10.1080/17439760.2010.516765>
- Marquès-Brocksopp, L. (2014). Mindfulness, spiritual well-being, and visual impairment: An exploratory study. *British Journal of Visual Impairment*, 32, 108–123. <http://dx.doi.org/10.1177/0264619614528343>
- Mascaro, N., & Rosen, D. H. (2005). Existential meaning's role in the enhancement of hope and prevention of depressive symptoms. *Journal of Personality*, 73, 985–1013. <http://dx.doi.org/10.1111/j.1467-6494.2005.00336.x>
- Niemiec, C. P., Brown, K. W., Kashdan, T. B., Cozolino, P. J., Breen, W. E., Levesque-Bristol, C., & Ryan, R. M. (2010). Being present in the face of existential threat: The role of trait mindfulness in reducing defensive responses to mortality salience. *Journal of Personality and Social Psychology*, 99, 344–365. <http://dx.doi.org/10.1037/a0019388>
- O'Connor, K., & Chamberlain, K. (1996). Dimensions of life meaning: A qualitative investigation at mid-life. *British Journal of Psychology*, 87, 461–477. <http://dx.doi.org/10.1111/j.2044-8295.1996.tb02602.x>
- Prager, E., Savaya, R., & Bar-Tur, L. (2000). The development of a culturally sensitive measure of sources of life meaning. In G. T. Reker & K. Chamberlain (Eds.), *Exploring existential meaning: Optimizing human development across the lifespan* (pp. 123–138). <http://dx.doi.org/10.4135/9781452233703.n9>
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models* (2nd ed.). Thousand Oaks, CA: Sage.
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57, 1069–1081. <http://dx.doi.org/10.1037/0022-3514.57.6.1069>
- Schnitzer, L., Schulenberg, S., & Buchanan, E. (2013). Differential associations among alcohol use, depression and perceived life meaning in male and female college students. *Journal of Substance Use*, 18, 311–319. <http://dx.doi.org/10.3109/14659891.2012.661026>
- Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York, NY: Guilford Press.
- Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2006). Mechanisms of mindfulness. *Journal of Clinical Psychology*, 62, 373–386. <http://dx.doi.org/10.1002/jclp.20237>
- Steger, M. F. (2009). Meaning in life. In S. J. Lopez & C. R. Snyder (Eds.), *Oxford handbook of positive psychology* (pp. 679–687). New York, NY: Oxford University Press.
- Steger, M. F., Beeby, A., Garrett, S., & Kashdan, T. B. (2013). Creating a stable architectural framework of existence: Proposing a model of lifelong meaning. In S. David, I. Boniwell, & A. Conley Ayers (Eds.), *The Oxford handbook of happiness* (pp. 941–956). <http://dx.doi.org/10.1093/oxfordhb/9780199557257.013.0070>
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53, 80–93. <http://dx.doi.org/10.1037/0022-0167.53.1.80>
- Steger, M. F., Kashdan, T. B., Sullivan, B. A., & Lorentz, D. (2008). Understanding the search for meaning in life: Personality, cognitive style, and the dynamic between seeking and experiencing meaning. *Journal of Personality*, 76, 199–228. <http://dx.doi.org/10.1111/j.1467-6494.2007.00484.x>
- Steger, M. F., Mann, J. R., Michels, P., & Cooper, T. C. (2009). Meaning in life, anxiety, depression, and general health among smoking cessation patients. *Journal of Psychosomatic Research*, 67, 353–358. <http://dx.doi.org/10.1016/j.jpsychores.2009.02.006>
- Steger, M. F., Oishi, S., & Kesebir, S. (2011). Is a life without meaning satisfying? The moderating role

- of the search for meaning in satisfaction with life judgments. *Journal of Positive Psychology*, *6*, 173–180. <http://dx.doi.org/10.1080/17439760.2011.569171>
- Steger, M., Sheline, K., Merriman, L., & Kashdan, T. (2013). Using the science of meaning to invigorate values-congruent, purpose-driven action. In T. B. Kashdan & J. Ciarrochi (Eds.), *Mindfulness, acceptance, and positive psychology: The seven foundations of well-being* (pp. 240–266). Oakland, CA: Context Press.
- Van Tongeren, D. R., & Green, J. D. (2010). Combating meaninglessness: On the automatic defense of meaning. *Personality and Social Psychology Bulletin*, *36*, 1372–1384. <http://dx.doi.org/10.1177/0146167210383043>
- Volkert, J., Schulz, H., Brütt, A., & Andreas, S. (2014). Meaning in life: Relationship to clinical diagnosis and psychotherapy outcome. *Journal of Clinical Psychology*, *70*, 528–535. <http://dx.doi.org/10.1002/jclp.22053>

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