

Defining Mindfulness: An Empirical Investigation of its Component Facets and Traits

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Author Note

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### Abstract

Previous research on mindfulness showed a lack of consensus among researchers regarding an operational definition and possible predictors. The Five Facet Mindfulness Questionnaire (FFMQ, Baer et al., 2008) suggested five facets to define and predict mindfulness. Contrarily, Tran, Gluck and Nader (2013) offered a two-trait higher order definition to explain and predict mindfulness. Using a convenience sample of undergraduate psychology students, this study tested the hypothesis that personality traits such as Extroversion and Openness, in addition to higher cognitive functions such as Need for Cognition and Metacognition, would play a significant part in predicting and defining the construct of Mindfulness. Factor analyses, multiple stepwise regression equations, and independent samples t-tests were performed to analyze data. Results showed that there are two components that encompass the construct of mindfulness, which we interpreted as Open Awareness and Emotional Engagement.

*Keywords:* mindfulness, FFMQ, operational definition, traits, meditation

### Defining Mindfulness: An Empirical Investigation of its Component Facets and Traits

Mindfulness and its benefits have become of growing and distinct interest, not only to the scientific community but in mainstream media as well. The use of it has shown success in numerous interventions used by clinicians to aid with medical and psychological conditions (Grossman, Niemann, Schmidt & Walach, 2004; Hofmann, Sawyer, Witt & Oh, 2010). Within this increased research, evidence of the cognitive benefits of mindfulness, such as reducing rumination, reducing stress, promoting metacognitive awareness, and enhancing working memory, has been found. These cognitive gains, consequently, contributed to effective emotion regulation strategies (Baer et al., 2004, 2006; Brown & Ryan, 2003; Corcoran, Farb, Anderson, & Segal, 2010; Farb et al., 2010; Siegel, 2007b; Leary & Tate, 2007). Additional benefits included increased positive affect with decreased anxiety and negative affect, decreases in reactivity, increased empathy and compassion, and improved interpersonal relationships (Barnes, Brown, Krusemark, Campbell, & Rogge, 2007; Brown, Ryan, & Creswell, 2007; Davis & Hayes, 2011; Davidson et al., 2003; Kabat-Zinn, 2003; Schutte, Malouff, & Bobik, 2001; Shaver, Lavy, & Saron, 2007; Wachs & Cordova, 2007; Welwood, 1996). Furthermore, neuroscience is showing increases in brain activity in areas associated with positive emotion when practicing mindfulness (Cahn & Polich, 2006; Davidson et al., 2003; Siegel, 2007b).

However, the features of mindfulness that potentially cause these benefits are still unknown (Leary & Tate, 2007). There is also some concern about the absence of rigorous evaluation of the subject (Bishop et al., 2004), small effect sizes and lack of proper control groups (Brown et al., 2007). Despite these concerns, ample evidence exists that mindfulness is

beneficial to our wellbeing; therefore, it would be advantageous to have a clear definition of the concept before continuing research.

### *What is Mindfulness?*

The word 'mindfulness' originated from the Pali word *sati*, which translates to having awareness, attention, and remembering (Bodhi, 2000). Researchers have attempted to define mindfulness; nevertheless, they have not been able to agree on an operational definition. Some researchers focused on the attentional aspect, for example, mindfulness has been described as, "a receptive attention to awareness of present events and experience" (Brown & Ryan, 2003, p. 212), "moment-by-moment awareness" (Germer et al., 2005, p. 6), " a moment-to-moment awareness of one's experience without judgment" (Davis & Hayes, 2011, p. 198), and "being aware of the present moment without grasping onto judgments" (Siegel, 2007b, p. 259). Others have focused on cognitive aspects, defining mindfulness as a mode of processing information (Kostanski & Hased, 2008), a metacognitive skill (Brown et al., 2004) or a, "self-regulation of attention, attention switching, and the inhibition of elaborative processing" (Bishop et al., 2004, p. 233). Still, others focused more on the experiential aspect: mindfulness is "a state of psychological freedom that occurs when attention remains quiet and limber, without attachment to any particular point of view" (Martin, 1997, p. 291) and, "bringing one's attention to present moment experiences in an open, curious and accepting manner, without judging or reacting upon them" (Kabat-Zinn, 2009, p. 232). Due to the many different definitions, it is clear that the operational definition for the construct of mindfulness lacks a consensus by researchers. This causes confusion concerning emphasized concepts used in popular inventories and clinical evaluations. Therefore, the purpose of this project is to develop a comprehensive

operational definition, which is crucial for the validation of the construct and for future research on the subject.

One attempt to create support for a united definition of mindfulness resulted in the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2008). It was developed by combining five other mindfulness questionnaires, providing an empirical integration of these independent endeavors to operationalize mindfulness. The Cognitive and Affective Mindfulness Scale (CAMS; Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007) consisted of 12 items that was designed to capture a broad conceptualization of mindfulness using language that was not specific to any particular meditation style. However, there were concerns about its validity. Like the CAMS, the Freiburg Mindfulness Inventory (FMI; Buchheld, Grossman, & Walach, 2001) and the Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004) were designed to assess a broad conceptualization of mindfulness. However, FMI was limited because it was intended for use only with individuals who already had some knowledge of the principles of mindfulness. The Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) suggested that mindfulness consists of a single factor, which the authors described as awareness of, and attention to, present events and experiences, and yields a single score, whereas the Kentucky Inventory of Mindfulness Skills (KIMS; Baer et al., 2004) contradicts the MAAS by suggesting multiple scores for mindfulness consisting of four skills (Observing, Describing, Acting with awareness, and Accepting). The Mindfulness Questionnaire (MQ; Chadwick, Hember, Mead, Lilley & Dagnan, 2005) was also included in the FFMQ, even though little research existed regarding this questionnaire. The Five Facet Mindfulness Questionnaire resulted from factor

analyses on these separate existing surveys (CAMS, FMI, MAAS, KIMS, and MQ), revealing five, explainable facets of mindfulness.

First we have Observing, which is paying attention to both external and internal stimuli that are occurring in the present moment. Next is Describing, which is the ability to verbalize the sensations of the senses as they are experienced. Then, Acting with awareness, which is the ability to function while being aware of the present moment. Nonjudging is the ability to have thoughts and feelings without judging them good or bad. Finally, Nonreact is the ability to have emotions without getting carried away by them. All of these factors were found to positively correlate with the amount of meditation experience, except for Acting with awareness (FFMQ; Baer et al., 2008; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006).

Despite the fact that Baer et al., (2008) concluded that mindfulness can be explained by five facets, not everyone agreed with this conclusion. Tran, Gluck and Nadar (2013) wanted to address the factorial validity and item fitting of the FFMQ. In the process, they derived an alternative two-factor higher order structure for the FFMQ, depicting attentional and experiential aspects of mindfulness. They performed their study in an Austrian community and included the following measures: Neuroticism and Openness from the Big Five Inventory (BFI-K), ratings of alexithymia (TAS-20; German version), the Emotion Regulation Questionnaire (ERQ: German version), the Brief Symptom Inventory (BSI; German version), and of course the Five Facet Mindfulness Questionnaire (FFMQ).

Their findings suggested a good fit of two higher order factors. Four of the five FFMQ facets loaded into one component, namely Non-React, Act Aware, Describe, and Nonjudge. Following Bishop et al. (2004) and Shapiro, Carlson, Astin and Freedman (2006) this component

was labeled Self-regulated Attention. Even though the facets Act Aware, NonJudge, Describe, and Observe scored high as indicators, the Nonreact facet only scored moderately as an indicator. Therefore, the facet Nonreact may need to be revised. Given that the remaining FFMQ facet Observe has a high factor loading, it was considered a second component to mindfulness and was labeled Orientation to Experience. While the role of Nonreact may need to be re-evaluated, all other facets appear to be mindfulness indicators and show a good fit for the two higher order analyses (Tran, Gluck, & Nader, 2013). While Baer et al. (2008) found a five-factor definition of mindfulness; Tran, Gluck and Nader found a two-factor solution. One goal of this project is to replicate their studies and determine which solution can be replicated.

In addition to defining mindfulness, it is also important to determine individual differences in mindfulness and relevant factors that might contribute to those differences. There seems to be some overlap between mindfulness and other constructs, namely certain personality traits, Need for Cognition, and Metacognition. Maybe some of the confusion about mindfulness is due to this overlap and to help make it clear, it is important to identify unique contributions, overlap, and independence of possible traits related to mindfulness.

Personality traits have been useful to researchers when describing individual differences in the way people think, feel, and behave (DeYoung & Quilty, 2007). For example, according to some authors (Kabat-Zinn, 2009; Martin, 1997) mindfulness is an open state of mind and is said to facilitate a scientific attitude of Openness. In addition, personality traits have frequently been used in previous mindfulness inventories as possible predictors. Tran, Gluck and Nader (2013) used the personality traits Neuroticism and Openness as part of their study, while Baer, Smith and Allen (2004) reported that mindfulness skills are differentially related to traits of

personality. Additionally, authors have described mindfulness as directing attention to external stimuli, while others suggest mindfulness is directing attention to internal sensations, such as, memories, thoughts, and feelings (Leary & Tate, 2007). Given this, both Extroversion and Introversion could potentially be related to mindfulness. Thus, personality traits warrant further review as to their possible unique contribution to mindfulness.

Need for Cognition refers to an individual's tendency to engage in and enjoy effortful cognitive endeavors (Cacioppo et al., 1996). Individuals who score high on Need for Cognition are likely to have more positive attitudes towards stimuli that require reasoning or problem solving (Fleischhauer, Strobel, & Strobel, 2013). According to Cacioppo et al. (1996), individuals with a high need for cognition are likely to "seek, acquire, think about, and reflect back on information to make sense of stimuli, relationships and events" (p.198), in other words being mindful while taking in stimuli. On the contrary, those who are low on the need for cognition are likely to "rely on others (e.g., celebrities and experts), cognitive heuristics, or social comparison processes to provide this structure" (p. 198), they are not mindful but simply agreeable.

Finally, Metacognition has been described as the ability to reflect upon, understand, and control one's learning. Metacognitive awareness allows individuals to initiate, arrange, control, and regulate their learning and thoughts (Schraw & Dennison, 1994). Researchers have attributed success in mindfulness interventions, among other things, to metacognitive awareness and self-control (Brown et al., 2011). It has also been suggested that Metacognition could be used to live in the present moment by fighting off intrusive and unwanted thoughts (Masicampo & Baumeister, 2007). Additionally, there is evidence that mindful meditation



stimulates the middle prefrontal cortex associated with both self-observation and metacognition (Cahn & Polich, 2006; Siegel, 2007b). Furthermore, it has been proposed that mindfulness, as a metacognitive skill, was a necessary component of psychotherapy training (Bruce, Manber, Shapiro, & Constantino, 2010; Fauth, Gates, Vinca, Boles, & Hayes, 2007).

With a lack of a clear definition, questions are raised regarding which components of mindfulness are responsible for which of its observed effects, and whether or not a particular component is essential. Baer et al., (2008) attempted to address this problem by breaking mindfulness into five facets to clarify the variables and their relationship to mindfulness. Then, Tran, Gluck, and Nader (2013) suggested an alternative two-factor higher order structure for the Five Factor Mindfulness Questionnaire (FFMQ). While both the five-factor and two-factor definitions of mindfulness are supported by evidence, it is still not clear which definition is most useful. Therefore, in this study we will investigate which definition garners the most support. Additionally, this project will investigate the relationship between mindfulness and relevant traits (Extroversion, Openness, Need for Cognition, and Metacognition), as well as looking at the relationship between mindfulness scores and mindfulness activities.

## **Method**

### **Participants**

Participants consisted of a convenience sample of 135 people randomly selected from the population of psychology students who attended California State University, as well as a number of Butte County community members. Of the 135 participants who completed the survey, 95 were females and 40 were males ranging in age from 18 to 72 years. In the sample, 72% of the participants were 25 or under, 18.5% were 26 to 40, 3.7% were 41 to 55, and 8%

were 56 years or older. This sample ranged in education from high school diploma to Master degrees, although 70% of participants reported some college. Of the sample 78% were resided in the Chico, CA area and 14% reported other as their residence, however, only one reported residing outside of the state of California

They were recruited by offering extra credit points for classes and community members volunteered to participate out of interest in the topic of mindfulness. Community members were contacted by word of mouth expressing that participants were needed for a mindfulness study and were given a phone number to contact, if interested. The sample spanned all levels of education ranging from high school diploma all the way to Masters degrees; however, the majority of the sample consisted of undergraduate students.

### **Measures**

The traits of interest for the current study were as follows: Mindfulness (Baer et al., 2008), Extroversion/Introversion & Openness (DeYoung, Quilty, & Peterson, 2007), Need for Cognition (Cacioppo, Petty, & Kao, 1984), and Metacognition (Schraw & Dennison, 1994).

To measure mindfulness, the Five Facet Mindfulness Questionnaire (FFMQ, Baer et al., 2008) was used. Table 1 shows the five facets of the Five Facet Mindfulness Questionnaire. With each statement, participants are asked to rate how true it is for them personally using a five point Likert Scale with one being never or very rarely true and five being very often or always true.

Table 1

<b>The Five Facet Mindfulness Questionnaire Sample Questions</b>	
<b>Five Facets</b>	<b>Sample Questions</b>
Observing	I notice the smells and aromas of things.
Describing	I am good at finding words to describe my feelings.
Acting Aware	I find myself paying attention to the things I am doing at the moment.
Nonjudging	I think some of my emotions are bad or inappropriate and I should not feel them. (Reverse scored)
Nonreactivity	I perceive my feelings and emotions without having to react to them.

To measure Extroversion and Openness, we used the Big Five Aspect Scale (BFAS; DeYoung, Quilty, & Peterson, 2007): The Big Five Aspect Scale was designed based on research done by DeYoung and his colleagues. This scale was modeled after the Big Five personality theory which is the most widely used classification system for personality traits (Costa & McCrae, 1992a; Digman, 1990; Goldberg, 1993; John & Srivastava, 1999). Of the five broad domains of personality, there are two domains that reflect commonality to mindfulness and have been selected for use in this study: Extroversion/Introversion and Openness. The Big Five Aspect Scale breaks down each personality domain even further into two subdomains, providing a more detailed look into each personality trait. Extroversion is broken down into subdomains titled enthusiasm and assertiveness, while Openness is broken down into openness and intellect. Those who score low on the Extroversion scales will be considered Introverts. The

other three domains in this scale were used to establish discriminant validity; they are Neuroticism, Agreeableness, & Conscientiousness.

The Need for Cognition scale (NFC; Cacioppo, Petty, & Kao, 1984) contains 18 items, asking about the participants' tendency to engage in effortful cognitive activities. For example, participants answer on a 5-point Likert scale the degree to which they agreed with statements such as "I would prefer complex to simple problems", or "I really enjoy a task that involves coming up with new solutions to problems".

Finally, Metacognition was measured with the Metacognition Awareness Inventory (MAI; Schraw & Dennison, 1994). This inventory classifies items into two broad categories, knowledge of cognition and regulation of cognition. According to Schraw & Dennison (1994) metacognition refers to the ability to reflect upon, understand, and control one's learning. Those who score high on the Metacognition Awareness Inventory are thought to be aware learners, are more strategic and perform better than unaware individuals.

### **Procedure**

Research participation sign-up sheets were posted in the Psychology Department at California State University, Chico. Participants met at the designated room at predetermined times and took any open seats. When the time came to start, the facilitator asked participants to put away all electronics, at which time she read through the informed consent aloud, and then read the instructions aloud. Participants were then asked to sign the consent form if they were still willing to participate. At that time they were asked to separate the consent form from the survey to ensure confidentiality. The facilitator collected the consent forms and students were allowed to begin the survey. Participants were then asked to complete the surveys, and to

complete a demographics questionnaire. All items from all four measures were randomized in one survey (see Appendix A) and participants were asked to indicate to what degree they believed the statements described their own thoughts and behaviors. A five-point Likert Scale was used with “1” being strongly disagree and “5” being strongly agree. A debriefing was attached to the end of the survey and participants were encouraged to read and take those with them for more information regarding mindfulness studies.

### Results

The primary goal of this study was to define mindfulness, and specifically investigating whether it consists of five or two facets. To answer this question, principal components analysis was performed. The KMO sampling adequacy indicator was .69, above the commonly recommended value of .60, and the Bartlett’s test of Sphericity was significant,  $X^2(10) = 87.35, p < .001$ . A two factor solution was indicated by eigenvalues  $> 1$ , the Scree test, and a total of 62.4% of the variance accounted for. Table 2 shows the orthogonally rotated solution, with the factors identified with the names “Open Awareness” and “Emotional Engagement.” Factor scores for Open Awareness and Emotional Engagement were computed using the standard regression weighting method.

To further understand what these two components represent, and to look for other constructs that may be related to mindfulness, a series of stepwise multiple regression analyses were performed to predict each component from seven predictor variables: BFAS-Agreeableness, BFAS-Conscientiousness, BFAS-Extraversion/Introversion, BFAS-Neuroticism, BFAS-Openness, Need for Cognition (NFC), Metacognition (MCAI).

Table 2

**Rotated (Varimax) Factor loadings of all five facets in the FFMQ**

	Component	
	1	2
	Open Awareness	Emotional Engagement
FFMQ Nonreact	.587	.237
FFMQ Observe	-.006	.925
FFMQ Act Aware	.796	.024
FFMQ Describe	.613	.436
FFMQ Nonjudge	.792	-.192

For Open Awareness the final model had four predictors and a significant multiple correlation of  $R = .767$ ,  $F(4, 130) = 46.40$ ,  $p < .001$ , accounting for 58.8% of the variance this component. The four significant multiple predictors were: BFAS-Neuroticism ( $\beta = -.716$ ,  $p < .001$ ), BFAS-Conscientiousness ( $\beta = .183$ ,  $p = .003$ ), BFAS-Openness ( $\beta = .137$ ,  $p = .025$ ), and Metacognition ( $\beta = -.257$ ,  $p = .004$ ). Open Awareness therefore seems to be positively related with the personality traits Conscientiousness and Openness, and inversely with the personality traits Neuroticism and Metacognition.

The same analysis was done for Emotional Engagement, where the final model had four predictors and a significant multiple correlation of  $R = .648$ ,  $F(4, 130) = 23.49$ ,  $p < .001$ , accounting for 42% of variance in Emotional Engagement. The four significant multiple predictors were: BFAS-Openness ( $\beta = .591$ ,  $p < .001$ ), Metacognition ( $\beta = .181$ ,  $p = .043$ ), Need

for Cognition ( $\beta = -.248, p = .010$ ), and BFAS-Conscientiousness ( $\beta = -.165, p = .042$ ). Emotional Engagement therefore seems to be positively related to Openness and Metacognition while it is weakly and inversely related to Need for Cognition and BFAS-Conscientiousness.

To take a closer look at the relationship between mindfulness and the other traits of interest in this study, each facet of the Five Facet Mindfulness Questionnaire (FFMQ) was analyzed individually with seven possible predictor variables. In these analyses the predictors were: BFAS-Agreeableness, BFAS-Conscientiousness, BFAS-Extraversion/Introversion, BFAS-Neuroticism, BFAS-Openness, Need for Cognition (NFC), and Metacognition (MCAI).

Next, the same seven predictor variables were used in stepwise regression analyses to separately predict each facet in the FFMQ (see Table 3). For Nonreact, the final model had three predictors and a significant multiple correlation of  $R = .643, F(3, 131) = 30.818, p < .001$ , accounting for 41.4% of the variance. The three significant predictors were: BFAS-Neuroticism ( $\beta = -.605, p < .001$ ), MCAI ( $\beta = .160, p = .030$ ), and BFAS-Extroversion/Introversion ( $\beta = -.196, p = .018$ ).

The final model for Observe also had three predictors and a significant multiple correlation of  $R = .636, F(3, 131) = 29.65, p < .001$ , accounting for 40.4% of the variance in the facet labeled Observe. The three significant predictors were: BFAS-Openness ( $\beta = .598, p < .001$ ), BFAS-Agreeableness ( $\beta = .157, p = .024$ ), and NFC ( $\beta = -.202, p = .029$ ).

The final model for Act Aware had four predictors and a significant multiple correlation of  $R = .647, F(4, 130) = 23.37, p < .001$ , accounting for 41.8% of the variance. The four significant predictors were: BFAS-Neuroticism ( $\beta = -.522, p < .001$ ), BFAS-Conscientiousness ( $\beta = .255, p = .001$ ), BFAS-Openness ( $\beta = .162, p = .028$ ), and MCAI ( $\beta = -.386, p < .001$ ).

Describe was analyzed and the final model had three predictors and a significant multiple correlation of  $R = .610$ ,  $F(3, 131) = 25.87$ ,  $p < .001$ , accounting for 37.2% of the variance in the facet labeled Describe. The three significant predictors were: BFAS-Extroversion/Introversion ( $\beta = .524$ ,  $p < .001$ ), BFAS-Neuroticism ( $\beta = -.257$ ,  $p = .001$ ), and BFAS-Openness ( $\beta = .228$ ,  $p = .004$ ).

Finally, Nonjudge was analyzed and the final model had one predictor and a significant multiple correlation of  $R = .512$ ,  $F(1, 133) = 47.35$ ,  $p < .001$ , accounting for 26.3% of the variance in the facet labeled Nonjudge. The significant predictor was: BFAS-Neuroticism ( $\beta = -.512$ ,  $p < .001$ ).

Table 3

**Standardized regression coefficients ( $\beta$ ) for significant predictors of FFMQ facets**

	Observe	Describe	Act Aware	Nonjudge	Nonreact
Agreeableness	.157				
Conscientiousness			.255		
Extroversion		.524			-.196
Neuroticism		-.257	-.522	-.512	-.605
Openness	.598	.228	.162		
Need for Cognition	-.202				
Metacognition			-.386		.160

Finally experience with mindfulness activities was used to compare scores on Open Awareness and Emotional Engagement using independent samples t-tests. The groups were comparable in size; 80 participants indicated yes (they had mindfulness experience) and 55



indicated no or unsure. There was no significant difference between the two groups on either component. However, the difference for Emotional Engagement was close to significant ( $p = .068$ ) and those having mindfulness experience had higher scores.

### **Discussion**

Research has provided ample evidence regarding mindfulness and its benefits, so much so that mindfulness is mentioned frequently in main stream media. However, differences in content and structures of the many different definitions suggested a lack of consensus among researchers on an operational definition. Baer et al. (2008) attempted to address this problem by separating mindfulness into five facets to clarify the variables and their relationship to mindfulness. However, Tran, Gluck, and Nader (2013) suggested an alternative two-factor higher order structure for the Five Factor Mindfulness Questionnaire (FFMQ).

Furthermore, certain traits resembled mindfulness and were considered as potential predictors. Relevant traits were chosen to determine overlap or independence of five possibly related concepts: Mindfulness (Baer et al., 2008), Extroversion and Openness (Deyoung, Quilty, & Peterson, 2007), Need for Cognition (Cacioppo, Petty, & Kao, 1984), and Metacognition (Schraw & Dennison, 1994).

In this study we wanted to find evidence either for or against Tran, Gluck, and Nader's (2013) two-factor definition of mindfulness, while looking at possible related constructs. It was hypothesized that personality traits such as Extroversion and Openness, in addition to higher cognitive functions such as the Need for Cognition and Metacognition, would play a significant part in predicting and defining the construct of mindfulness.

Our results replicated the two-factor higher order structure presented by Tran, Gluck, & Nader (2013). This indicates that Mindfulness is comprised of two traits, Open Awareness and Emotional Engagement. Given that the FFMQ facets Describe, Act with Awareness, Nonjudging, and Nonreacting were all related, it suggests that the trait Open Awareness expresses Openness and Metacognitive awareness without judgement or reactivity. A small amount of Conscientiousness was also present suggesting that those who score high on Open Awareness are also more orderly or industrious. In addition, Neuroticism had a strong negative relationship with Open Awareness, suggesting those high on Neuroticism are the opposite of mindful and do not practice Open Awareness. Surprisingly, no relationship was found between Need for Cognition and Open Awareness. Open Awareness therefore appears to describe mindfulness as the tendency to be aware of one's environment, thoughts, and feelings, without effortful cognitive activity (hence the "Awareness" in the name of this component) and without judging or getting carried away by the environment, thoughts or feelings (hence the "Open" in this component's name).

Emotional Engagement, on the other hand, consisted of the FFMQ Observe facet with an inverse relationship with the facet Nonjudge. The inverse effect of Nonjudge suggests that emotions are being felt by people who score high on Emotional Engagement. Need for Cognition showed a small inverse relationship to Emotional Engagement, suggesting that cognitive processing is not occurring during Emotional Engagement. This fits in well with LeDoux's (1998) theory, which describes two pathways of emotion. One is called the quick pathway, going through the thalamus straight to the amygdala, bypassing the cortical region, and resulting in reactive responses to emotions. The other is the slow pathway, passing through

the thalamus and cortical region, and which is therefore less judgmental and reactive. Given the positive input of Observe and the negative input of NonJudge and Need for Cognition, using LeDoux's theory, we could describe those who score high on Emotional Engagement as having the tendency to rely more on the low road as part of their emotional processing.

Conscientiousness also had a small inverse relationship to this trait, suggesting that those who are high on Emotional Engagement lack in orderliness or industriousness. Emotional Engagement, then, appears to describe mindfulness very differently from Open Awareness. Emotional Engagement describes mindfulness as the tendency to notice stimuli in the environment (hence the "Engagement" in the name of this component) and articulate these senses as they are occurring (the "Emotional" part of this component's name).

It is not surprising that we were unable to replicate the five facets that Baer et al., (2008) found because we only factor analyzed five items. However, what is interesting is that the factor analyses did replicate Tran, Gluck, & Nader's (2013) study exactly. Not only did we get the two factor higher order, but the exact same facets loaded on the same components. In addition, we also got the moderate result for the facet Nonreact. This result suggests that there is something interesting about this two factor higher order.

These results also support previous authors who focused on the attentional aspects of mindfulness. The following definitions echo our Open Awareness component: "a receptive attention to awareness of present events and experience" (Brown & Ryan, 2003, p. 212), "moment-by-moment awareness" (Germer et al., 2005, p. 6), " a moment-to-moment awareness of one's experience without judgment" (Davis & Hayes, 2011, p. 198), and "being aware of the present moment without grasping onto judgments" (Siegel, 2007b, p. 259).

Additionally, those who focused on the experiential aspect of mindfulness have also found some support. For example, definitions such as “a state of psychological freedom that occurs when attention remains quiet and limber, without attachment to any particular point of view” (Martin, 1997, p. 291) and, “bringing one’s attention to present moment experiences in an open, curious and accepting manner, without judging or reacting upon them” (Kabat-Zinn, 2009, p. 232) have some similarity to our Emotional Engagement component, although these definitions assert a lack of judgment, whereas our results suggest a stronger involvement of emotional evaluation of experiences. Interestingly, those who focused on the cognitive aspect of mindfulness have not been supported. Definitions of mindfulness as a mode of processing information (Kostanski & Hassed, 2008), a metacognitive skill (Brown et al., 2004) or a “self-regulation of attention, attention switching, and the inhibition of elaborative processing” (Bishop et al., 2004, p. 233) are not supported by our findings. In fact, Metacognition was not related to Open Awareness and had a weak relationship with Emotional Engagement while Need for Cognition was also not related to Open Awareness and showed a negative relationship with Emotional Engagement. More research is needed to address these cognitive aspects of mindfulness.

We included some constructs in this study for their purported relationship with mindfulness that did not show the expected results. Notably, Extroversion, Need for Cognition, and Metacognition did not relate to mindfulness as predicted. First, Extroversion and Introversion were predicted to play a role in mindfulness, where, those who scored high on Extroversion were considered extroverts and those who score low on Extroversion were considered introverts. It was hypothesized that those who score high on Extroversion would

also score high on Emotional Engagement, and those who score low on Extroversion would score high on Open Awareness. Results indicated that this personality trait was not a significant predictor on the two main components of mindfulness. However, when analyzed with the individual FFMQ facets, extroversion had a small positive relationship with the facet Describe and an even smaller negative relationship with the facet Nonreact. The fact that Extroversion/Introversion played such a negligible role can be explained in two ways. First, the BFAS defines Extroversion as a combination of Assertiveness and Enthusiasm. However, this is not the only way in which Extroversion has been characterized. Eysenck (1985) suggests that physiological variables underlie the introversion-extroversion continuum. Specifically, higher levels of activity in the corticoreticular loop are associated with introversion, and lower levels with extroversion. Under this theory, the higher levels of activity would be hypothesized to be correlated with higher levels of mindfulness and vice versa for extroverts. It would therefore be interesting to examine this operationalization of the introversion-extroversion dimension in the context of mindfulness. A second explanation for the absence of an effect of Extroversion is that Extroversion and Introversion were measured as endpoints of a single dimension using the BFAS, but a measure that represented them as independent traits could indicate a relationship with mindfulness. More research is necessary to support this.

Interestingly, Openness showed a strong positive relationship with Emotional Engagement. This is surprising, given that we have defined Emotional Engagement as a tendency to respond to stimuli with emotional involvement and judgment whereas Openness is typically seen as a curiosity and interest in a variety of experiences. To explain this discrepancy it is useful to keep in mind that Openness has two subdomains, openness and intellect. It is

possible that Emotional Engagement represents the openness subdomain, which leans towards emotional responses to things such as nature, art, and music. Interestingly, when analyzed with the individual FFMQ facets, Openness was positively related, not only with the Observe facet but also with Act Aware and Describe (facets that are linked to Open Awareness), albeit slightly weaker. The fact that the “openness” subdomain of the BFAS Openness trait relates to Emotional Engagement, while the “intellect” subdomain relates to major components of Open Awareness explains why there was a strong relationship with Emotional Engagement and a slightly weaker relationship between Openness and Open Awareness.

Another construct of interest was Metacognition, which was positively related to Emotional Engagement. This could be because Metacognition is the cognitive process used to silence intrusive thoughts (Masicampo & Baumeister, 2007). While Metacognition may be slightly related to this trait, there was also an inverse significant relationship to Open Awareness. Looking at the individual FFMQ facets, Metacognition showed a positive relationship with Nonreact and an inverse relationship with Act Aware, both of which are related to Open Awareness. This appears contradictory as Open Awareness is a tendency to be aware of stimuli without getting caught up in thoughts about them, suggesting that it should have a strong relationship with Metacognition. Perhaps this is because the inventory used in this study focused more on metacognitive knowledge, whereas mindfulness is possibly more related to metacognitive awareness. More research is needed to understand the relationship between Metacognition and Mindfulness.

A final aim of this study was to look at the relationship between experience with mindfulness activities and scores on different aspects of mindfulness. Research has suggested

that states experienced during mindfulness meditation can eventually become effortless over time (Farb et al., 2007; Siegel, 2007a). Thus, the more practice of mindfulness based activities, the easier it is to be mindful and reap its benefits. This was not supported in the independent samples t-test, however, it was marginally significant which could suggest an interesting relationship between practicing Mindfulness activities and the amount of Emotional Engagement displayed. Because we don't know cause and effect, it might be that those who attend to mindfulness practices are more Emotionally Engaged because of the practice.

Simultaneously, it is possible that the more Emotionally Engaged a person is, the more they seek out and attend mindful practices, possibly because they appreciate the reduction in emotional assessment that these practices instill. Furthermore, mindfulness practices did not have an effect on Open Awareness. Perhaps this is because Open Awareness requires no practice; it is just what it says it is, being open, aware, and accepting in the present moment.

Some limitations of this study include using a convenience sample that is not fully representative of the general population. Females outnumbered males in this study by more than half and, although sample size was sufficient for the stepwise analyses, a larger sample would have added to the validity of the factor analysis. Another limitation is the validity of the self-report method. It is possible that those who are more mindful are likely to score lower on self-report measures because they are aware of the degree to which they are at times mindless. Conversely, those who are less mindful may not be aware of it and possibly rate themselves higher on measures. The validity of self-report measures in mindfulness would be improved if they converged with fMRI imaging that show activation in the brain regions thought to be associated with mindfulness.

Future research should aim towards the revision of the facet Nonreact to better understand its contribution to mindfulness, or lack thereof. In addition, Extraversion and Introversion should be revisited as potential mindfulness predictors and measured as individual traits. Furthermore, the lack of relationship between Open Awareness and the Need for Cognition warrants further review to confirm these results. Also, Metacognition has properties that seem to contribute to mindfulness, however, results suggested otherwise. More research regarding metacognitive knowledge versus metacognitive awareness and a possible relationship to Mindfulness could potentially explain this result. While we did incorporate mindfulness activities and their effects, more research is necessary to understand which activities possibly work better and how long these activities must be practiced before experiencing the benefits.

Altogether, this study has shown that mindfulness consists of two traits, Open Awareness and Emotional Engagement. Open Awareness is the ability to sustain attention on the present moment, possessing the ability to verbalize sensations that are occurring, while not judging or reacting to feelings. Furthermore, Emotional Engagement is the ability to take in both external and internal stimuli while feeling emotions. This study consisted mostly of undergraduate psychology students attending California State University, Chico. It did however, replicate Tran, Gluck, & Nader's (2013) findings and therefore shows converging evidence that mindfulness consists of two traits. Interestingly, Tran, Gluck, and Nader's (2013) first trait, Self-Regulated Attention, which is represented as our Open Awareness, suggests cognitive processing, however, we found no evidence to support that. Mindfulness, based on results in this study, is essentially open and accepting awareness to external and internal emotions and stimuli sustained in the present moment.



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## Appendix A

### Informed Consent Agreement

Page 1 of 1

**Project Title:** An Investigation of Mindfulness Predictors.

**Please read this consent agreement carefully before you decide to participate in the study.**

**Purpose of the research study:** The purpose of the study is to explore possible predictors of mindfulness.

**What you will do in the study:** You will be asked to complete four different surveys, each measuring a characteristic that may be related to mindfulness.

**Time required:** You will spend about 1 hour in the session.

**Risks:** There are no anticipated risks.

**Benefits:** There are no direct benefits to you for participating in this research study.

**Confidentiality:** In this study you will not be asked to provide any identifying information. The surveys will be stored in a locked drawer in a locked office and will be destroyed upon completion of the project. Data will be summarized and individual responses will be aggregated.

**Voluntary participation:** Your participation in the study is completely voluntary. Note that you need to be 18 years or older to participate in this study.

**Right to withdraw from the study:** You have the right to withdraw from the study at any time without penalty. You will still receive full credit for the study.

**How to withdraw from the study:** If you want to withdraw from the study, tell the experimenter and quietly leave the room. There is no penalty for withdrawing. You will still receive full credit for the experiment.

**Extra credit:** You will receive evidence for participating in one-hour of research, which may be used in some classes that offer credit for research participation.

**Who to contact if you have questions about the study:** Dr. Martin van den Berg, Psychology Department, California State University, Chico, Modoc Hall Room 210, Chico, CA 95929-0234. Telephone: (530) 898-3472.

**Who to contact about your rights in the study:** John Mahoney, Chair, Institutional Review Board, California State University, Chico, CA, 95929. Telephone: (530) 898-6410

**Agreement:**

Your signature below will indicate that (1) you have decided to volunteer as a research subject, (2) that you have read and understood the information provided above, and (3) that all your questions about your participation were answered to your satisfaction.

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**You may request a copy of this form for your records.**



**Complete Instructions:**

Using the five-point scale provided, please indicate to what degree you believe the statements describe your own thoughts and behaviors. Please circle the number that best indicates the extent to which you agree or disagree with each statement listed below. Be as honest as possible, but rely on your initial feeling and do not think too much about each item. Your responses are scored anonymously, so please answer as truthfully as you can.

Use the following scale:

1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5  
Strongly Disagree Neither Agree Agree Strongly  
Disagree Nor Disagree Agree

1	I reveal little about myself.	1	2	3	4	5
2	I prefer to think about small, daily projects to long-term ones.	1	2	3	4	5
3	I like to have the responsibility of handling a situation that requires a lot of thinking.	1	2	3	4	5
4	I tell myself that I shouldn't be feeling the way I'm feeling.	1	2	3	4	5
5	I am easily distracted.	1	2	3	4	5
6	I notice the smells and aromas of things.	1	2	3	4	5
7	I am quick to understand things.	1	2	3	4	5
8	I avoid difficult reading material.	1	2	3	4	5
9	I don't have a soft side.	1	2	3	4	5
10	I find it difficult to get down to work.	1	2	3	4	5
11	I avoid philosophical discussions.	1	2	3	4	5
12	I learn more when I am interested in the topic.	1	2	3	4	5
13	I find it difficult to stay focused on what's happening in the present moment.	1	2	3	4	5
14	I show my feelings when I'm happy.	1	2	3	4	5
15	I tell myself I shouldn't be thinking the way I'm thinking.	1	2	3	4	5
16	I can handle a lot of information.	1	2	3	4	5
17	I learn things slowly.	1	2	3	4	5
18	I carry out my plans.	1	2	3	4	5
19	I am easily discouraged.	1	2	3	4	5
20	When I feel something in my body, it's hard for me to find the right words to describe it.	1	2	3	4	5
21	I learn best when I know something about the topic.	1	2	3	4	5
22	I usually end up deliberating about issues even when they do not affect me personally.	1	2	3	4	5
23	It seems I am running on automatic without much awareness of what I'm doing.	1	2	3	4	5
24	I am indifferent to the feelings of others.	1	2	3	4	5
25	I disapprove of myself when I have illogical ideas.	1	2	3	4	5
26	I have specific purpose for each strategy I use.	1	2	3	4	5
27	I am not a very enthusiastic person.	1	2	3	4	5
28	When I have distressing thoughts or images, I don't let myself be carried away by them.	1	2	3	4	5

29	I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.	1	2	3	4	5
30	I like order.	1	2	3	4	5
31	I get deeply immersed in music.	1	2	3	4	5
32	I always know what I am doing.	1	2	3	4	5
33	I wait for others to lead the way.	1	2	3	4	5
34	I rarely lose my composure.	1	2	3	4	5
35	I am not easily annoyed.	1	2	3	4	5
36	I only think as hard as I have to.	1	2	3	4	5
37	I know what kind of information is most important to learn.	1	2	3	4	5
38	I draw pictures or diagrams to help me understand while learning.	1	2	3	4	5
39	I am filled with doubts about things.	1	2	3	4	5
40	I think of several ways to solve a problem and choose the best one.	1	2	3	4	5
41	I need a creative outlet.	1	2	3	4	5
42	I want every detail taken care of.	1	2	3	4	5
43	I can't be bothered with other's needs.	1	2	3	4	5
44	I finish what I start.	1	2	3	4	5
45	I leave my belongings around.	1	2	3	4	5
46	I find myself analyzing the usefulness of strategies while I study.	1	2	3	4	5
47	I rush through activities without being really attentive to them.	1	2	3	4	5
48	I am a person whose moods go up and down easily.	1	2	3	4	5
49	I know what the teacher expects me to learn.	1	2	3	4	5
50	I love to reflect on things.	1	2	3	4	5
51	I see myself as a good leader.	1	2	3	4	5
52	I keep my emotions under control.	1	2	3	4	5
53	Thinking is not my idea of fun	1	2	3	4	5
54	I am not bothered by messy people.	1	2	3	4	5
55	I stop and reread when I get confused.	1	2	3	4	5
56	I get upset easily.	1	2	3	4	5
57	I rarely feel depressed.	1	2	3	4	5

58	I have control over how well I learn.	1	2	3	4	5
59	I enjoy the beauty of nature.	1	2	3	4	5
60	I know how well I did once I finish a test.	1	2	3	4	5
61	I can be stirred up easily.	1	2	3	4	5
62	I create my own examples to make information more meaningful.	1	2	3	4	5
63	I ask myself if what I'm reading is related to what I already know.	1	2	3	4	5
64	I ask others for help when I don't understand something.	1	2	3	4	5
65	I seldom daydream.	1	2	3	4	5
66	I ask myself if there was an easier way to do things after I finish a task.	1	2	3	4	5
67	I respect authority.	1	2	3	4	5
68	I rarely put people under pressure.	1	2	3	4	5
69	I take advantage of others.	1	2	3	4	5
70	I follow a schedule.	1	2	3	4	5
71	I waste my time.	1	2	3	4	5
72	I organize my time to best accomplish my goals.	1	2	3	4	5
73	I focus on the meaning and significance of new information.	1	2	3	4	5
74	I change strategies when I fail to understand.	1	2	3	4	5
75	I take charge.	1	2	3	4	5
76	I find myself pausing regularly to check my comprehension.	1	2	3	4	5
77	I can talk others into doing things.	1	2	3	4	5
78	I'm good at finding the words to describe my feelings.	1	2	3	4	5
79	It's enough for me that something gets the job done; I don't care how or why it works.	1	2	3	4	5
80	I love a good fight.	1	2	3	4	5
81	I feel comfortable with myself.	1	2	3	4	5
82	I inquire about others' well-being.	1	2	3	4	5
83	I am the first to act.	1	2	3	4	5
84	I have difficulty understanding abstract ideas.	1	2	3	4	5
85	I am out for my own personal gain.	1	2	3	4	5
86	I want everything to be "just right."	1	2	3	4	5

87	I am not interested in other people's problems.	1	2	3	4	5
88	I sympathize with others' feelings.	1	2	3	4	5
89	I hold back my opinions.	1	2	3	4	5
90	I do not like poetry.	1	2	3	4	5
91	When I have distressing thoughts or images, I feel calm soon after.	1	2	3	4	5
92	I hate to seem pushy.	1	2	3	4	5
93	I get easily agitated.	1	2	3	4	5
94	I change my mood a lot.	1	2	3	4	5
95	I ask myself how well I accomplished my goals once I'm finished.	1	2	3	4	5
96	I lack the talent for influencing people.	1	2	3	4	5
97	I keep others at a distance.	1	2	3	4	5
98	I seldom get lost in thought.	1	2	3	4	5
99	I watch my feelings without getting carried away by them.	1	2	3	4	5
100	I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.	1	2	3	4	5
101	I use different learning strategies depending on the situation.	1	2	3	4	5
102	The idea of relying on thought to make my way to the top appeals to me.	1	2	3	4	5
103	I worry about things.	1	2	3	4	5
104	I take an interest in other people's lives.	1	2	3	4	5
105	I consciously focus my attention on important information.	1	2	3	4	5
106	I believe in the importance of art.	1	2	3	4	5
107	I have a lot of fun.	1	2	3	4	5
108	I am afraid of many things.	1	2	3	4	5
109	I understand my intellectual strengths and weaknesses.	1	2	3	4	5
110	I laugh a lot.	1	2	3	4	5
111	I become overwhelmed by events.	1	2	3	4	5
112	The notion of thinking abstractly is appealing to me.	1	2	3	4	5
113	I stop and go back over new information that is not clear.	1	2	3	4	5
114	I am a good judge of how well I understand something.	1	2	3	4	5

115	I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.	1	2	3	4	5
116	I take no time for others.	1	2	3	4	5
117	I like to solve complex problems.	1	2	3	4	5
118	I find satisfaction in deliberating hard and for long hours.	1	2	3	4	5
119	I use the organizational structure of the test to help me learn.	1	2	3	4	5
120	I seldom feel blue.	1	2	3	4	5
121	I am not bothered by disorder.	1	2	3	4	5
122	I ask myself if I learned as much as I could have once I finish a task.	1	2	3	4	5
123	I periodically review to help me understand important relationships.	1	2	3	4	5
124	I warm up quickly to others.	1	2	3	4	5
125	I make friends easily.	1	2	3	4	5
126	I consider several alternatives to a problem before I answer.	1	2	3	4	5
127	It's hard for me to find the words to describe what I'm thinking.	1	2	3	4	5
128	I really enjoy a task that involves coming up with new solutions to problems.	1	2	3	4	5
129	I avoid imposing my will on others.	1	2	3	4	5
130	I get angry easily.	1	2	3	4	5
131	I like to do things for others.	1	2	3	4	5
132	I am good at organizing information.	1	2	3	4	5
133	I am good at remembering information.	1	2	3	4	5
134	I seek conflict.	1	2	3	4	5
135	I insult people.	1	2	3	4	5
136	I ask myself if I have considered all options when solving a problem.	1	2	3	4	5
137	I focus on overall meaning rather than specifics.	1	2	3	4	5
138	I see beauty in things that others might not notice.	1	2	3	4	5
139	I don't put my mind on the task at hand.	1	2	3	4	5
140	I set specific goals before I begin a task.	1	2	3	4	5
141	I believe that I am better than others.	1	2	3	4	5
142	I postpone decisions.	1	2	3	4	5

143	I can easily put my beliefs, opinions, and expectations into words.	1	2	3	4	5
144	I pay attention to physical experiences, such as the wind in my hair or sun on my face.	1	2	3	4	5
145	I can motivate myself to learn when I need to.	1	2	3	4	5
146	I ask myself questions about the material before I begin.	1	2	3	4	5
147	I ask myself questions about how well I am doing while I am learning something new.	1	2	3	4	5
148	I like tasks that require little thought once I've learned them.	1	2	3	4	5
149	I am hard to get to know.	1	2	3	4	5
150	I know when each strategy I use will be most effective.	1	2	3	4	5
151	I try to anticipate and avoid situations where there is likely a chance I will have to think in depth about something.	1	2	3	4	5
152	Usually when I have distressing thoughts or images I can just notice them without reacting.	1	2	3	4	5
153	I do not have an assertive personality.	1	2	3	4	5
154	I think quickly.	1	2	3	4	5
155	I am not embarrassed easily.	1	2	3	4	5
156	I formulate ideas clearly.	1	2	3	4	5
157	I slow down when I encounter important information.	1	2	3	4	5
158	I think about what I really need to learn before I begin a task.	1	2	3	4	5
159	I see that rules are observed.	1	2	3	4	5
160	When I have distressing thoughts or images, I just notice them and let them go.	1	2	3	4	5
161	Learning new ways to think doesn't excite me very much.	1	2	3	4	5
162	I find myself using helpful learning strategies automatically.	1	2	3	4	5
163	I make judgments about whether my thoughts are good or bad.	1	2	3	4	5
164	Even when I'm feeling terribly upset, I can find a way to put it into words.	1	2	3	4	5
165	I rarely get irritated.	1	2	3	4	5
166	I get things done quickly.	1	2	3	4	5
167	I summarize what I've learned after I finish.	1	2	3	4	5
168	I feel threatened easily.	1	2	3	4	5
169	I pace myself while learning in order to have enough time.	1	2	3	4	5
170	Generally, I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.	1	2	3	4	5

171	I keep things tidy.	1	2	3	4	5
172	I prefer my life to be filled with puzzles that I must solve.	1	2	3	4	5
173	I reevaluate my assumptions when I get confused.	1	2	3	4	5
174	I think some of my emotions are bad or inappropriate and I shouldn't feel them.	1	2	3	4	5
175	I rarely get caught up in the excitement.	1	2	3	4	5
176	I seldom notice the emotional aspects of paintings and pictures.	1	2	3	4	5
177	I feel others' emotions.	1	2	3	4	5
178	I am aware of what strategies I use when I study.	1	2	3	4	5
179	I feel relief rather than satisfaction after completing a task that required a lot of mental effort.	1	2	3	4	5
180	I ask myself if I have considered all options after I solve a problem.	1	2	3	4	5
181	I try to use strategies that have worked in the past.	1	2	3	4	5
182	I do jobs or tasks automatically without being aware of what I'm doing.	1	2	3	4	5
183	I ask myself periodically if I am meeting my goals.	1	2	3	4	5
184	I would prefer complex to simple problems.	1	2	3	4	5
185	I use my intellectual strengths to compensate for my weakness.	1	2	3	4	5
186	I mess things up.	1	2	3	4	5
187	I find myself doing things without paying attention.	1	2	3	4	5
188	I have a rich vocabulary.	1	2	3	4	5
189	I try to break studying down into smaller steps.	1	2	3	4	5
190	I try to translate new information into my own words.	1	2	3	4	5
191	I dislike routine.	1	2	3	4	5
192	I know how to captivate people.	1	2	3	4	5
193	I read instructions carefully before I begin a task.	1	2	3	4	5
194	I have a strong personality.	1	2	3	4	5



### Demographic Questionnaire

All information is completely confidential. Please indicate, by circling the appropriate letter, the response that most closely matches your current situation in life.

1. What is your current age?
  - a. 25 or under
  - b. 26-40
  - c. 41-55
  - d. 56 or older
  
2. What is your sex?
  - a. Male
  - b. Female
  
3. What is the highest level of education you have completed?
  - a. Grammar school
  - b. High school or equivalent
  - c. Vocational/technical school (2 year)
  - d. Some college
  - e. Bachelor's degree
  - f. Master's Degree
  - g. Doctoral Degree
  - h. Professional degree (MD, JD, etc.)
  - i. Other \_\_\_\_\_
  
4. Where do you currently reside?
  - a. Chico area
  - b. Paradise area
  - c. Redding area
  - d. Red bluff area
  - e. Other \_\_\_\_\_
  
5. What is your current household income?
  - a. Under \$10,000
  - b. \$10,000 - \$19,999
  - c. \$20,000 - \$29,999
  - d. \$30,000 - \$39,999
  - e. \$40,000 - \$49,999
  - f. \$50,000 - \$74,999
  - g. \$75,000 - \$99,999
  - h. \$100,000 - \$150,000
  - i. Over \$150,000
  
6. Which of the following categories best describes your primary area of employment?
  - a. Homemaker
  - b. Retired
  - c. Student
  - d. Unemployed
  - e. Agriculture, forestry, fishing, or hunting
  - f. Arts, entertainment, or recreation
  - g. Broadcasting

- h. Education – college, university, or adult
  - i. Education – primary/secondary (K-12)
  - j. Education – other
  - k. Construction
  - l. Finance and insurance
  - m. Government and public administration
  - n. Health care and social assistance
  - o. Hotel and food services
  - p. Information - services and data
  - q. Information – other
  - r. Legal services
  - s. Manufacturing – computer and electronics
  - t. Manufacturing – other
  - u. Military
  - v. Publishing
  - w. Real estate, rental, or leasing
  - x. Retail
  - y. Scientific or technical services
  - z. Other \_\_\_\_\_
7. Which of the following best describes your role in industry or place of employment?
- a. Upper management
  - b. Middle management
  - c. Junior management
  - d. Administrative staff
  - e. Support staff
  - f. Student
  - g. Trained professional
  - h. Skilled laborer
  - i. Consultant
  - j. Temporary employee
  - k. Researcher
  - l. Self – employed
  - m. Other \_\_\_\_\_
8. Are you aware of the concept of mindfulness?
- a. Yes
  - b. No
  - c. Unsure
9. Have you had any experience with mindfulness based activities?
- a. Yes
  - b. No
  - c. Unsure
10. If you have had experience with mindfulness activities, please circle ALL that apply:
- a. Personal meditation
  - b. Group meditation
  - c. Mindfulness therapy programs
  - d. Yoga
  - e. T'ai chi ch'uan
  - f. Mindfulness retreats

- g. Other \_\_\_\_\_
- h. Does not apply

11. If you have had experience with mindfulness activities, please indicate the amount of time you have participated in these activities:

- a. Once or twice
- b. More than two times
- c. I have practiced for less than a month
- d. I have practiced for less than four months
- e. I have practiced between four and six months
- f. I have practiced between six months and one year
- g. I have practiced for more than one year
- h. I have practiced for two to four years
- i. Other \_\_\_\_\_

## Predictors of Mindfulness Study

### Debriefing Form: **An Investigation of Mindfulness Predictors**

Thank you for agreeing to participate in this research! The general purpose of this study is to examine various individual attributes that may contribute to the prediction of trait mindfulness.

We invited people from Chico communities to participate. In this study, you were asked to complete a battery of inventories in an effort to assess your individual characteristics related to: mindfulness, need for cognition, metacognition, and the personality traits of openness and extraversion. The results from this study will allow us to better understand the factors involved with mindfulness and potential predictors of this concept.

As a reminder, all data collected in this study is anonymous and confidential. While this study is not believed to have negative outcomes, every person's experience is unique. If you feel concerned about any aspect of your participation or if you are interested to hear more about this area of research, please feel free to contact Martin van den Berg at [mvandenber@csuchico.edu](mailto:mvandenber@csuchico.edu) or 530-898-3472 about options for additional debriefing, counseling, or information.

Again, thank you for your participation in this study. If you have further questions about the study, please contact Martin van den Berg at 530-898-2472. In addition, if you have any concerns about your rights in this study, you may contact John Mahoney, Chair, Institutional Review Board, [jmahoney@csuchico.edu](mailto:jmahoney@csuchico.edu) or 530-898-6410

### Additional Reading:

Tran, U. S., Glück, T. M., & Nader, I. W. (2013). Investigating the Five Facet Mindfulness Questionnaire (FFMQ): Construction of a short form and evidence of a two-factor higher order structure of mindfulness. *Journal Of Clinical Psychology, 69*(9), 951-965. doi:10.1002/jclp.21996

Baer, R., Smith, G., Lykins, E., Button, D., Krietemeyer, J., Sauer, S., & ... Williams, J. (2008). Construct validity of the Five Facet Mindfulness Questionnaire in meditating and nonmeditating samples. *Assessment, 15*(3), 329-342