REPLY

Addressing Fundamental Questions About Mindfulness

Kirk Warren Brown
Virginia Commonwealth University

Richard M. Ryan
University of Rochester

J. David Creswell
University of California, Los Angeles

Every moment a beginning, every moment an end.

-Salzman (2000)

Mindfulness is essentially about waking up to what the present moment offers. It sounds easy, but as most of us know, waking up can be hard to do. It is also challenging to discuss the concept of mindfulness; research on the topic is comparatively new to the field of behavioral science but more deeply, mindfulness concerns consciousness, which remains a demanding area of study (Chalmers, 1995). But it is for such reasons that we welcomed the opportunity in our target article to describe some of the nuances of mindfulness, the manifold benefits associated with it, and the current state of interventions designed to foster it. The challenges of the topic also makes scholarly discussion all the more important to facilitate clarity about mindfulness, deepen our understanding of its operation, and extend the boundaries of what we know about its effects. We are therefore gratified to respond to the thoughtful questions, uncertainties, and challenges to our thesis provided by a number of astute commentators, who collectively represent a broad range of expertise in several major sub-disciplines of psychology. The issues they have raised concerning mindfulness are fundamental. In what follows, we attempt to address the major themes of the commentaries, particularly the following:

1. Is mindfulness a unique phenomenon?
2. Is the study of mindfulness an appropriate level of analysis?
3. What social influences, both developmental and situational, account for the normative variance in adult mindfulness?

4. What are the implications of mindfulness theory for our understanding of the meaning of mindfulness and for what well-being and optimal functioning really is?

Is Mindfulness a Unique Phenomenon?

Several commentators argued that mindfulness shares considerable variance with other phenomena, including self-awareness (Leary and Tate) and self-focused attention (Baer). Masicampo and Baumeister go further, arguing that mindfulness and interventions designed to enhance it can be better understood within a self-control framework. In our target article and elsewhere (e.g., Brown & Ryan, 2003), we have argued that mindfulness is a unique quality of consciousness, and we welcome this opportunity to discuss how it is distinct from self-referential phenomena, including those identified by Leary and Tate, Baer, and Masicampo and Baumeister.

Is mindfulness the same as self-awareness and self-focused attention?

The concept of self-awareness, as Leary describes it, is derived from Objective Self-Awareness Theory (Duval & Wicklund, 1972), Self-Consciousness Theory (Buss, 1980), and Control Theory (Carver & Scheier, 1981). Self-awareness has also been termed self-focused attention (Ingram, 1990). Some of the confusion between mindfulness and both self-awareness and self-focused attention is likely due to the fact that the latter concepts are broadly defined as attentiveness to the self (e.g., Davis & Franzoi, 1999). Yet upon closer inspection, these concepts concern reflexive consciousness, in which attention is in the service of self-relevant

thought (e.g., Davis & Franzoi, 1999; Leary, Adams, & Tate, 2006). As we describe in our target article, self-awareness involves,

> "... a tight loop between consciousness and self-relevant cognition, such that attention to stimuli continually feeds cognitive operations that associate those stimuli, directly or indirectly through related stimuli, to the self, and more specifically, to thought-generated accounts about the self—self-representations, the self-concept, or more simply, 'Me' (Mead, 1934, p. 216)."

As we outline in our target article, mindfulness and self-awareness can converge in the key role of heightened attention to subjective experiences. Where these two experiences differ is in the role of cognition in the operation of conscious awareness. As we note, mindfulness concerns,

> "... an observant stance on our experience—a self-as-knower, not as an agent of reflexive cognition, in which attention simply informs thought about the self, as in "self-awareness" (e.g., Duval & Wickland, 1972), but rather as an inner witness, in which the contents of consciousness—including self-relevant thoughts, images, and identities—and one's overt behavior are on display."

Empirical research also supports a distinction between the two constructs, evidenced by the low positive and inverse correlations between dispositional mindfulness and predominant operationalizations of dispositional self-awareness, namely private self-consciousness and public self-consciousness (Beitel, Ferrer, & Cecero, 2005; Brown & Ryan, 2003). For example, in multiple samples Brown and Ryan (2003) found correlations of mindfulness with private self-consciousness to be essentially null (range .03 to −.05). Correlations with public self-consciousness, which essentially involves awareness of self through the eyes of others, were null to negative (range −.02 to −.18). Moreover, whereas mindfulness has been associated with salutary outcomes, private self-consciousness, particularly the self-reflective aspect of this construct (Trapnell & Campbell, 1999), has been linked with a variety of negative mental health and other outcomes (e.g., Anderson, Bohon, & Berrigan, 1996). There is also recent evidence that dispositional mindfulness offers an advantage over private self-consciousness in the adaptive regulation of emotion (Creswell, Way, Eisenberger, & Lieberman, 2007) and behavior (Levesque & Brown, 2007).

Self-focused attention, another term for self-awareness, has also been associated with poor mental health and it features in a variety of forms of psychopathology (Ingram, 1990). In her commentary on our target article, Baer posits that mindfulness concerns self-focused attention, and suggests that this is why the *observing* facet of the Five Factor Mindfulness Questionnaire (FFMQ; Baer et al., 2006) has been associated with indicators of poorer psychological well-being in student samples (but not among meditation practitioners). However, as summarized here, evidence indicates that mindfulness and self-focused attention are different concepts with divergent psychological and behavioral implications. Thus, the unusual findings that Baer reports, in which a facet of the FFMQ was related to poorer mental health, may be a function of the measurement instrument rather than the operation of mindfulness itself.

In sum, self-awareness and self-focused attention concern the application of attention to thinking about aspects of the self, and tend to be subject to the concerns and biases of self-centered thought; each has been associated with poorer psychological well-being. In contrast, mindfulness represents an open, unbiased awareness of and attention to inner experience and manifest action; rather than generating mental accounts about the self, it simply "offer[s] a bare display of what is taking place" (Shear & Jevning, 1999, p. 204). With this observant stance comes the possibility for unbiased information processing and consequently greater opportunities for adaptive self-regulation and well-being.

Is mindfulness better understood within the context of self-control theory?

In their provocative commentary, Masicampo and Baumeister propose two potential close associations between mindfulness, mindfulness interventions, and a primary form of self-regulation, namely self-control. First, they suggest that mindfulness may be as much a product of successful self-regulation as a predictor of it. Second, they raise the possibility that mindfulness interventions may represent instances of self-control exercise, and it is the resulting enhancement in self-control that may help to explain the positive effects of the interventions. In sum, can mindfulness, and the interventions designed to enhance it, be more appropriately understood within a self-control framework?

To address the issues raised by Masicampo and Baumeister, we believe it important to first establish the distinction between the operation of mindfulness and self-control on theoretical grounds, and we provide supportive research evidence for this distinction and for the self-regulatory consequences of this operational difference. With this as background, we then address the specific possibilities that Masicampo and Baumeister raise, first arguing that under most circumstances, mindfulness is more likely to foster successful self-regulation than to result from it; and then considering whether mindfulness interventions are effective in part because they enhance self-control. Finally, we will argue that while mindfulness and self-control are quite different, they are not necessarily antithetical, and we

illustrate how these two phenomena may work together to enhance self-regulation.

A discussion of self-regulation from the perspective of mindfulness and self-control must begin with a clear specification of the notion of self that each is relevant to, as this is central to the distinction between these constructs. As we and others have discussed elsewhere (e.g., Brown, Ryan, Creswell, & Niemiec, in press; Gallagher, 2000; McAdams, 1990), there are two major contemporary views of the self: The *I self*, whose operation has been studied extensively within developmental and organismic theories (e.g., Deci & Ryan, 1991; Loevinger, 1976); and the *Me self* that has been central to social constructionist views of self.

The I self (also called the *self-as-process*) represents the integrative core of the person, and entails ongoing activities of openly assimilating and bringing coherence to life experiences. We have proposed that mindfulness—in its capacity to more clearly and fully inform on what is taking place—may act as an integrative agent by enhancing capacities to act congruently with one's perceptions, reflectively considered goals, and self-endorsed values (Ryan & Brown, 2003; c.f., Hodgins & Knee, 2002). In contrast, the Me self (also called the *self-as-object*), is a concept derived from the Mead/Cooley tradition (Ryan, 1993) and concerns the creation of personal identity. This Me self involves an identification with particular attributes, roles, belief systems, and goals, the effect of which is to narrow down competing possibilities for thought and action to those that preserve, protect, and enhance Me, the personal identity. Recent research suggests that these two modes of self processing are associated with distinct neural substrates (Farb et al., in press).

As this discussion of self suggests, there are fundamentally different modes of self-regulation, one that serves attention to momentary experience and integration of it and another that serves adherence to socially and culturally derived self-images. Mindfulness and self-control represent capacities that serve these distinct forms of self-regulation. Here's how: As we discuss in our target article, consciousness appears to serve the somewhat independent functions of monitoring and control. Mindfulness appears to be an operational manifestation or enhancement of the former, monitoring or "observer" function, offering a bare display of what is taking place at any given moment. Self-control appears to primarily involve the latter, control function as a goal-directed agent of change. Frequently in daily life, the two functions are intertwined, and despite its goal-directed nature, self-control efforts demand the monitoring of, or attention to, internal and external realities before and during control efforts in accord with the "Test, Operate, Test, Exit" or TOTE model specified by self-awareness theories and cybernetic theory more generally (Baumeister, Schmeichel, & Vohs, 2007). But as we note above in our discus-sion of mindfulness versus self-awareness, and further detail in our target article, these two functions of consciousness can be disentangled, with the implication that there are important theoretical and empirical distinctions between a control- or goal-oriented use of attention and the stable, non-conceptual attention of mindfulness.

Recent studies have shown that dispositional mindfulness, as measured by the MAAS, and dispositional self-control, assessed with the Self-Control Scale (Tangney, Baumeister, & Boone, 2004) are modestly to moderately related (Barnes, Brown, Krusemark, Campbell, & Rogge, in press; Lakey, Campbell, Brown, & Goodie, 2007). The overlap in variance may be attributable to the key role of internal state awareness in both mindfulness and self-controlled behavior, or it may reflect the possibility that behavior that is guided by mindfulness and by self-control tends to look quite adaptive, manifest in healthy habits, lower impulsiveness, and so on. This may help to explain why mindfulness is related to "self-controlled" behavior, as described in the present target article. However, there are important differences in how behavior is regulated from these two modes of functioning that have consequences for subjective experience and well-being.

In a mindful or experiential mode of conscious processing, as evidence suggests, behaviors tend to be regulated autonomously, and in accord with chosen interests and values rather than in accord with personally or socially derived forces or pressures (e.g., Brown & Ryan, 2003; Levesque & Brown, 2007). In the conceptual mode of processing that appears to describe self-control efforts, activities tend to be those that manipulate (change, override, restrain, interrupt, restructure) behavior to meet ego-involved ends. A simple illustration of how these regulatory processes differ is the following: A student with a large pimple on her nose comes into a professor's office, and his attention is likely to be drawn to her prominent blemish. In a self-controlled mode of regulating his attention, thoughts, emotions, and verbal behavior, he will invoke one or more preconceived, socially-prescribed standards of conduct that may dictate avoidance of this sight so that he can properly focus on the conversation. He may redirect his attention, perhaps to the student's eyes, or even to a spot on the wall above her head, with this goal in mind, and will periodically self-assess to see how well he is meeting his standard(s) of behavior. If these efforts are successful, he will have controlled his behavior and in so doing, helped to create a pleasant interaction.

In contrast, in a mindful mode of self-regulation, the professor can attend to this individual openly and without judgment or failing that, attend to his appraisals of her appearance in an open, non-evaluative manner, a stance that has been termed *unconditional*

presence and *unconditional openness* (Chödrön, 2002; Welwood, 2006). This open stance creates two regulatory potentials: First, with no cognitive constraints on his attention or other behavior, the mindful professor is more available to this interaction than if his attention were devoted both to the individual before him and to checking adherence to a standard of conduct. Second, without the distraction of appraisal-related thought and emotion, he can choose how to behave in this interaction rather than feel compelled by what he should do.

The objective outcome of these regulatory processes—a successful interaction, in the example above—may be similar, but evidence suggests that the subjective consequences differ. In particular, mindful regulation of behavior appears to be vitalizing and energizing (Brown & Ryan, 2003), while self-controlled regulation is energy depleting (e.g., Baumeister, Bratslavsky, Muraven, & Tice, 1998). More generally, the autonomously regulated behavior that mindfulness appears to foster has been associated with a host of positive behavioral outcomes, both objective and subjective, including higher persistence and performance, and greater interest and enjoyment; in contrast, behavior regulated by internal or external controls has been linked with a similarly wide range of poor outcomes (e.g., Ryan & Deci, 2000).

With this distinction between mindfulness, self-control, and their regulatory differences as background, we turn to Masicampo and Baumeister's specific claim that self-controlled regulation, and goal management more generally, may foster mindfulness through goal fulfillment. With goal attainment, the commentary authors suggest, intrusive thoughts fade, self-control capacity increases, and presumably, a state of calm, ease, and present-centeredness results.

As we have discussed already in this section, mindfulness appears to foster successful self-regulation, and we argue that this direction of effect is more likely than the reverse. Two points in response to Masicampo and Baumeister's claim are noteworthy here. First, the authors' suggestion that goal fulfillment results in mental presence and unwanted worries appears to be based on a limited view of goal pursuit, namely that individuals pursue goals, attain them, and then rest in the moment. But this view ignores the perpetual nature of goal management. Generally, people pursue multiple goals at once, each of which may be at different stages of attainment, and when one or more goals is achieved, others are turned to or taken on to replace them. Thus, whatever rest or abiding in the moment that people may give themselves in the gaps between goal pursuit efforts are likely to be brief at best. Simple observation bears this out for most of us: We may sink into a chair at the end of the day to rest after a long day of goal pursuit and attainment, but before an hour, or even a few minutes has passed, the mind has turned to the next concern or To-do list item. As Konner (1991, p.

119) has noted in characterizing the perpetually dissatisfied state of the human mind, ". . . the organism's chronic internal state [is] a vague mixture of anxiety and desire—best described perhaps by the phrase 'I want,' spoken with or without an object for the verb." Thus, we argue, a disposition of mindfulness is unlikely to take root in a perpetually busy mental environment of goal management.

Yet, as we note above and in our target article, mindfulness is not antithetical to the pursuit of goals, but the nature of that pursuit is more likely to be selective— that is, in greater accord with self-endorsed, intrinsic goals and values—and is less likely to be ego-invested and thereby carry the baggage of intrusive thought and worry, than may otherwise be the case. Concordant with this notion of selective goal pursuit, there is evidence that mindfulness is associated with a disengagement from wants and desires that can keep the thinking mind very active with goal management. In a series of studies on financial goals and the perceived gaps between actual and ideal financial states, Brown, Kasser, Linley, and Ryan (2007) found that both dispositional mindfulness and training in mindfulness was associated with a stronger perception of having "enough." Further, this relative disengagement from wealth aspirations was not conditional on objective financial circumstances.

It is this capacity to disengage from thoughts, emotions, and the desires that often drive them that leads us to our second comment on Masicampo and Baumeister's claim that goal management may foster mindfulness. Those authors suggest that the capacity of mindfulness to hinder the intrusive thoughts and worries that compromise self-regulation and well-being is limited at best, and goal fulfillment is more likely to be successful in this regard. However, as we have noted already, mindfulness is not a controlled state of mind that manipulates thoughts and other mental contents, by pushing them to the fringes of consciousness, for example. Rather, mindfulness is, at its core, simply abiding awareness of what is taking place, whether that be intrusive thought, worry, or whatever else may be occurring each moment. Indeed, the very notion of "intrusive" thought implies an egoic self that seeks to control what is occurring in the court of consciousness. In the mindfully observant state, however, the ego is in abeyance so there is no one to intrude upon; thought is just thought, and its demands for desire satisfaction and goal fulfillment need not be reacted to in knee-jerk fashion as a servant to royalty. When mindful awareness begins to predominate, ego-driven thought begins to lose its kingly power to dominate the conscious mind.

What then of mindfulness interventions? Are they, as Masicampo and Baumeister suggest, forms of self-control exercise that are effective in part because they build the muscle of self-control? On this matter, we

agree in part with the authors. Some forms of mindfulness intervention, including Mindfulness-based Stress Reduction and Mindfulness-based Cognitive Therapy, use meditative exercises in which particular physical postures are taken (e.g., sitting), physical movement is kept to a minimum, and in the initial stages when individuals are first learning the forms, the attention is kept focused on a kinesthetic object, most commonly the breath. All such directives involve will or intention—that is, self-control. However, the purpose of such discipline is somewhat different from that typically used in self-control efforts. Rather than seeking conformity to ego-based demands and goal states, the discipline or structure of meditative activity is to provide space for awareness to open (c.f., Leary et al., 2006). It is, as Chödrön notes, to "allow us to be right here and connect with the richness of the moment" (2002, p. 133). In so doing, self-control is used to foster an unconditional observance of and insight into the self and its habitual activity, creating opportunities for more informed, volitional action that is grounded in awareness. Here then, self-control is used, especially when individuals are learning meditative practice, to bootstrap out of the need to control the self as a means to function effectively, and into action that is adaptive because is more clearly informed about the activities of the mind and the positive and negative subjective, interpersonal, and other behavioral potentialities that can follow from such mental activities. Yet we agree with Masicampo and Baumeister that such metacognitive processes hypothesized to help explain the effects of mindfulness interventions deserve more empirical attention.

In closing this section, we believe it is important to distinguish self-control from mindfulness in terms of their ultimate ends. Self-controlled regulation is pervasive in modern Westernized cultures, marked as it is by ongoing, effortful regulation of goals and a focus upon achievement in both professional and personal life domains. Unlike self-control, mindfulness is not primarily a tool to keep the self moving in a preordained direction. It is rather the capacity to, first and foremost, be aware of the ongoing parade put on by the self, including one's attempts to exert self control. Indeed, mindfulness may even permit better choices about whether and when to control the self in the service of chosen ends, and when it might be better to step out of the parade.

Is the Study of Mindfulness an Appropriate Level of Analysis?

Both Leary and Tate (this issue) and Rosch (this issue) argue that the construct of mindfulness cannot be separated from larger training contexts. Conversely, Hayes argues that mindfulness is too broad a concept that would be best studied at a more molecular level. Is the current study of mindfulness being conducted at an appropriate level of analysis? We discuss this question by treating each of the level-of-analysis concerns separately.

The question of whether mindfulness is inseparable from larger tradition or training experiences, as Leary and Tate and Rosch suggest, reflects important concerns within contemporary mindfulness research. The mindfulness construct is new to behavioral science and its meaning is still unclear, though considerable effort is being expended to better grasp that meaning. Also, the vast majority of research in this area has focused on mindfulness training, and efforts to show that mindfulness carries predictive weight—as a quality of consciousness in itself—are quite recent.

Yet it is important to distinguish the quality of mindfulness from the training that supports it for two reasons: First, there are a variety of traditions and types of mindfulness training wherein didactic and experiential practices may look quite different, even though all of the training approaches seek to cultivate mindfulness. For example, Dialectical Behavior Therapy looks considerably different from Mindfulness-based Stress Reduction, even though training in mindfulness is core to both. Within the global Tibetan, Theradavin-Vipassana, and Zen Buddhist training traditions, there are marked cultural differences in teaching and training emphasis. Thus, confusion about the meaning or manifestation of mindfulness can arise when it is viewed only through the lens of traditions and training programs that, when all is said and done, point people to the experience of mindful presence that is an inherent capacity of human consciousness.

It is the inherent nature of mindfulness (e.g., Kabat-Zinn, 2003) that leads to a second reason to disentangle mindfulness from its training. The disposition to be mindful, and the positive effects of that disposition, can occur independent of formal mindfulness training, as the young, growing body of research with mindfulness instruments indicates (see target article). Training in mindfulness can enhance the disposition (e.g., Shapiro et al., 2007) and such training appears to lead to a variety of positive outcomes, but as psychometric and induction-based research reviewed in the target article suggests, the quality of mindfulness itself appears to have "juice." Thus, contrary to Rosch, we argue that efforts to isolate mindfulness and its effects from its training context do not represent attempts to discover life through dissection, but rather represent attempts to investigate specific, dynamic psychological capacities that can have significant value for adaptation and well being.

Unquestionably, mindfulness training deserves the considerable study it is receiving, and important empirical questions concerning the training packages as a whole are being asked. Examination of mindfulness

as an experiential quality in itself is a complementary and indeed, we believe, mutually fecund pursuit, for several reasons: It permits the study of a potentially key active ingredient in the training; it informs about the operation of mindfulness in day-to-day life among those without exposure to such training; and finally, it opens avenues to the investigation of other means by which mindful capacities may develop—in caregiver-child and other interpersonal contexts, for example, a topic we address in the next section.

In their commentaries, both Leary and Tate and Rosch propose a number of features that they argue should be considered under the umbrella of mindfulness (Leary and Tate) and its training (Rosch). In response to Rosch, we have argued that questions about mindfulness training intersect with questions about mindfulness as a quality of consciousness in itself, the two domains of inquiry are distinguishable and can be fruitfully pursued separately. From our perspective on the study of mindfulness outlined above, Leary and Tate's multi-faceted approach to mindfulness also raises concerns. Those authors propose five features of mindfulness, namely, mindful attention, diminished self-talk, nonjudgment, nondoing, and a belief system to support mindful living. There are two major issues with this approach, and indeed with other recent attempts to establish multi-faceted typologies of mindfulness (e.g., Baer, this issue).

First, it is not clear whether one or more of these features should properly be considered attitudinal supports for mindful presence, as both we and Rosch (both in this issue) suggest in the case of nonjudgment/acceptance, or as mediators of the effects of mindfulness (as Leary and Tate themselves suggest for self-talk), or as outcomes in themselves. This ties into a concern raised in the target article that care is needed to avoid conflating the measurement of mindfulness with the skills that may foster or follow from mindfulness. A danger in equating mindfulness itself with "mindfulness skills" is that skills-based measures may actually reflect all-round psychological adjustment, as Rosch (this issue) remarks in describing Baer et al's (2006) FFMQ facets. In this vein, recent factor analytic work the FFMQ suggested that it taps three distinct, positive qualities—present-centered attention/awareness, acceptance, and emotion regulation (Coffey & Hartman, 2007).

The self-esteem construct provides a useful analogy for this issue. The most commonly used measures of self-esteem assess the phenomenon directly in terms of positive feelings of self-worth. It would not make sense that such measures include all of the skills, behaviors, and schemas that can engender self-esteem, including positive affirmations, secure attachment styles, and so on. Clearly, it is not the case that attachment style, for example, is a facet of self-esteem, just like the ability to

label emotions, for example, is not a facet of mindfulness *per se*. Such an approach undermines the construct validity of the phenomenon. With this being said, we believe that identifying mindfulness skills is important, particularly for identifying antecedents, mediators, and outcomes of mindfulness in treatment and other training settings. In fact, our recent laboratory work has sought to identify how dispositional mindfulness predicts such skills, and Creswell et al. (2007) showed that greater dispositional mindfulness (as measured by the MAAS) is associated with enhancements in labeling negative emotional states.

A second issue with the multi-faceted approach of Leary and Tate, and others, is that features proposed to describe mindfulness appear to be more descriptive of the processes or outcomes of training. In the Leary and Tate typology, this is particularly evident in the place given to belief systems. Leary and Tate argue that without a set of ethical beliefs that support care for oneself and others, mindful attention, which they term the central component of mindfulness, could be used to harmful ends. They further argue that it is difficult to disentangle the role of such beliefs from the other four features they propose to describe mindfulness. However, the extant evidence does not support either contention. Research that we detail in the target article, as well as that of Heppner and Kernis (this issue) demonstrating that dispositional and experimentally induced mindful awareness show positive effects on personal and interpersonal well being among those without training or intervention experience suggests that this quality of consciousness is, in itself, beneficial. Other evidence comes from research showing that increases in mindful attention and awareness are specifically related to enhanced well-being over the course of and following mindfulness training (e.g., Shapiro et al., 2007), even after accounting for the effects of previous training (Orzech, 2007). This work does not address whether the cultivation of ethical beliefs has benefits; this is a question concerning the incremental value of thought content versus consciousness change in training programs that must await further research. Yet, in accord with our approach to mindfulness research outlined above, we also believe that questions concerning education and the shifts in thought content that result from it are, important as they may be, separate from questions about the context in which those mental events occur—that is, consciousness itself—which we believe is the realm in which mindfulness operates (see also Hayes and Plumb, this issue).

We honor the efforts of Baer, Leary and Tate, and Rosch to accurately describe mindfulness, particularly given the novelty of the phenomenon as a topic of scientific study. Yet we are reminded of the saying that 'more is not always better' and that what often appears to be complex phenomena turn out to be, with deeper investigation, quite simple. Of course,

the reverse flow of understanding also occurs, but we suggest that diligent investigation of the relative certainties about the mindfulness construct may be an easier, less confusing path of knowledge than beginning with complex theoretical and operational structures that may not bear the weight of rigorous empirical testing.

In this respect, we find ourselves in general alignment with Hayes and Plumb's (this issue) inductive or bottom-up approach to the study of mindfulness. Indeed their Relational Frame Theory (RFT) approach is consistent with our call for further research, outlined in the target article, to examine mindfulness through a lens of attentional and other fundamental cognitive processes. RFT is accumulating a rich store of knowledge about cognitive processes that underlie normative human suffering and that can both hinder and facilitate therapeutic change. We wish to voice only two notes of caution regarding the RFT approach to mindfulness study. The focus of RFT is upon internal, cognitive experience, and concepts key to mindfulness in this approach, including cognitive defusion and present moment contact are referenced only to such private events. Yet there is general agreement that mindfulness concerns an unbiased, open observation of all of one's experience, mental, somatic, and sensorial. While a privileged focus on cognitive experience is undoubtedly key to therapeutic change, we suggest that mindfulness is pertinent to all aspects of experience, and may have important consequences that extend beyond mindful attention to thought.

Our other note of caution concerning Hayes and Plumb's levels-of analysis theme is their suggestion that the study of mindfulness is too diffuse, and indeed "a fool's errand" because the term is pre-scientifically, loosely defined. Descriptions of mindfulness are centuries-old, communicated first and foremost by scholars and teachers with extensive practical experience in the study of consciousness. While scholarly descriptions of the term vary to some degree, this may reflect both cultural and linguist differences and the difficulties inherent in describing states of consciousness in verbal form. The challenge here, we believe, is to distill the meaning of mindfulness to its essence by putting aside the training-specific and other accoutrement that have been associated with the term. In this sense, we agree with the reductionist approach to conscious experience that Hayes and Plumb describe because it seeks to build empirically supported knowledge from solid foundations and in stepwise fashion. Our difference in perspective lies in whether mindfulness is a clear enough term to operationalize. Our own approach has been to define and operationalize it in a way that has demonstrated validity with a variety of outcomes and populations. In doing so, we argue that the study of mindfulness as a construct in itself

has value because it has been shown to explain variance in new ways. This approach does not contradict the approach that Hayes and Plumb present; indeed, we believe, this multiple levels-of-analysis approach can help in informing about both specific and more holistic predictors of relevant outcomes, and point to the study of active ingredients in mindfulness and the dynamically interactive operation of those ingredients.

The Social Embeddedness of Mindfulness

In Shaver et al.'s interesting commentary, the authors explore several ways through which a bidirectional influence between social interactions, particularly with attachment figures, and the development and expression of mindfulness may occur. In our target article, and in a recent commentary on Mikulincer and Shaver's work (Ryan, Brown, & Creswell, 2007), we explored similar questions concerning the interpersonal facilitation of mindfulness and we welcome Shaver et al.'s commentary as an opportunity to continue this dialogue on the social embeddedness of mindfulness.

Theoretical work in developmental, social-personality, and clinical psychology, including that discussed by Shaver et al. (this issue), leaves us little doubt on the question of whether mindfulness is facilitated by supportive individuals and social contexts; rather, the question is how. This topic packs a host of empirical questions for future research, but we propose several possibilities for such study, taking our cue from Shaver et al.'s discussion of both caregiver-child and adult social relationships. Regarding the former, Ryan et al. (2007)'s recent commentary on attachment theory and research in this journal proposed that,

> "The development of reflective, self-observing capacities are facilitated by providers who can be attuned to, mirror, and resonate with the infant's experience. This in turn fosters the infant's developing capacities for awareness. Increasingly, studies are documenting that children with more attentive, sensitive, accepting caregivers develop greater reflective and regulative skills, including those associated with mindfulness (Fonagy & Target, 1997; Ryan, 2005). In contrast, those who grow up in threatening and unsupportive environments are compromised in these capacities, such that early insults may have cascading effects on subsequent development." (p. 180)

In other words, controlling and non-empathic caregiving sensitizes children to external contingencies and threat, and in formative years, can even compromise the brain-mediated functions upon which integrative awareness and the functions of reflectiveness and emotional regulation depend (Bradley, 2000; Bronson, 2000). These same conditions of caregiving are also

associated with insecure attachments. In contrast, within the context of normal development, validation and acceptance of experience facilitates the growth of capacities for awareness of inner and outer events in less distorted ways. Empathy and autonomy support may therefore contribute not only to secure attachments (e.g., La Guardia, Ryan, Couchman, & Deci, 2000) but also to the foundational capacities for mindfulness.

One of the most common intrapsychic dynamics that opposes mindfulness is *ego-involvement* (Niemiec, Ryan & Brown, in press ; Ryan, 1982). Ego-involvement concerns an internal state in which a person's self-esteem is contingent on particular outcomes—for example, achieving a certain status, acquiring a certain object, or being positively evaluated in a certain way. Ego-involvement is associated with a sense of pressure, tension, and instability. It leads individuals to be "attached" to or fixate on events in a way that precludes the open, bare attention that is at the heart of mindfulness.

Although ego-involvement is an intrapsychic state, it is developmentally and often situationally precipitated by specific type's interpersonal relationships. When others conditionally value one because of what one achieves, what one has, how one looks, and so on, then the contingency of self-worth is easily set in motion. In other words, conditional positive regard from others, including parents and teachers, fosters ego-involvement, as recent empirical evidence supports (Assor, Roth & Deci, 2004; Roth, in press). Conversely, when others are unconditionally regarding, this conduces to openness, receptivity, and greater self-acceptance, all attributes associated with mindfulness.

We therefore agree with Shaver et al. that the facilitative effects of caregiver supportiveness on both felt security and mindfulness may extend beyond early development to adult relationships, including therapist-client, and teacher-student relationships. Therapists, teachers and, if one is lucky, friends and romantic partners have several commonalities of relevance here: Their attunement to the relationship partner, in terms described above in reference to caregivers, may discourage threat vigilance, encourage relaxation into present-moment experience, and provide a model for attunement. Further, therapists and mindfulness teachers in particular provide opportunity for the "self-attunement" that mindfulness involves, and this may lead to greater capacities for attunement to others and more positive, secure relationships (Siegel, 2007). In this way, the relation between self-attunement and other-attunement may not only be bidirectional but also dynamically transactional.

Research exploring the links between mindfulness and healthy relationships is still nascent but promising. Even newer is research examining the relation between mindfulness and attachment styles. Several groups, in-cluding Shaver et al. (this issue), have reported correlations between secure attachment and mindfulness but the explanation for this relation is unclear. Shaver et al.'s findings indicate that attachment style is most strongly related to the FFMQ facet tapping emotion regulation, an unsurprising finding in light of what is known about the affect regulatory capacities that accrue with a secure attachment style. Yet this relation shows as much variance overlap as does attachment style with the total FFMQ score, raising the possibility that the relation between attachment style and mindfulness may be more a function of affect regulation than mindfulness per se. Clearly more work in this new domain of inquiry is needed.

Further Study of the Meaning and Implications of Mindfulness

Rosch's detailed commentary on the evolution of the meaning of mindfulness from one scholarly tradition to another serves well to remind us that the current scientific understanding of mindfulness has considerable room to evolve as this field of study matures. Indeed, this theme has run through a number of the commentaries. Rosch's discussion also highlights the fact that the manifestation of mindfulness may differ with level of experience in mindfulness practice, just as the experience of love changes with depth of relationship, or the understanding of wisdom changes with age and life experience. This leads to an important message in Rosch's commentary that further work on the consequences of mindfulness will be valuable in exploring what full or optimal human functioning really is.

We agree with Rosch (this issue) and others (e.g., Baumeister, 1991; Crocker & Park, 2004; Ryan & Deci, 2000; Leary, 2004) that ego-based functioning has adaptive and experiential costs (and benefits), and that the study of mindfulness, awareness, and so on allows us to explore on a scientific basis what benefits may accrue to human experience and functioning when consciousness is more firmly grounded in awareness than in egoic states of mind. We have attempted to provide some orientation to this question in a recent review of research on mindful responses to social threat (Brown et al., in press; see also Heppner and Kernis, this issue). In line with scholars before us, we suggested that bringing open awareness to subjective experience may foster a clearer recognition of the constructed nature of personal identity, or the Me self. Thoughts, desires, memories, and emotions all help to form, maintain, and extend the narrative that constitutes personal identity (e.g., Gallagher, 2000). Yet with the clear awareness that mental content continually arises, changes, and dissipates, the insubstantiality of the egoic self can be seen, permitting some degree of

disidentification from it. When the functioning of the Me self can be observed, then one is clearly not that Me. With this recognition, along with a recognition of the costs associated with egoic functioning, theorists argue and recent research suggests (see Brown et al., in press) that the possibility arises for encountering life with an immediacy of contact that is less restricted by self-centered tendencies, lending a clarity and freshness to conscious experience that in turn permits more flexible and objectively informed responses. The possibilities for human functioning that may come from this have only begun to receive research attention, and Heppner and Kernis (this issue) outline intriguing paradigms for such research. We also welcome Rosch's challenge to explore such possibilities more extensively.

The Road Is Long But the Company Is Excellent

With the proliferation of research on mindfulness and mindfulness training over the past 25 years, we have begun to establish a knowledge base about the phenomenon and its consequences. Of course, being in the early stages of this work means that there are still many more questions than answers. We appreciate the commentators' critiques that point to important areas for further theoretical and empirical development. These include a more rigorous examination of mindfulness as a quality of consciousness, and this will necessitate more refined measurement, including experimental and other laboratory-based paradigms to permit closer study under controlled conditions. Investigation of the supportive social and other conditions for the development of mindfulness as both a naturally occurring and cultivated quality is needed. Finally, while considerable attention has been devoted to examining the effects or outcomes of mindfulness and its training, this area of research is still very ripe for further study, and even more so is the study of why those effects occur. Daunting as the number of questions are, the behavioral science field is increasingly well-positioned to address them, as the topic draws increasing interest from researchers bringing a varied and complementary set of methodological tools to the table, including psychometrics, experimental designs, and sophisticated approaches to study conscious states, their biological correlates, and their neural substrates. Such tools, along with the creativity and scientific rigor to use them well, will be important to addressing fundamental questions about the development, assessment, operation, and outcomes of mindfulness. Given the demonstrations of potential for enhancing personal and social well-being revealed by the work conducted to date, we believe the challenges still ahead make the journey all the more worthwhile.

Note

Address correspondence to Kirk Warren Brown, Department of Psychology, Virginia Commonwealth University, 806 West Franklin St., Richmond, VA 23284-2018. E-mail: kwbrown@vcu.edu

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