

# Body Maps of Attention: Phenomenal Markers for Two Varieties of Mindfulness

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**Abstract** Mindfulness suffers from a lack of a satisfying consensus definition. This definitional challenge may be simplified by recognizing that there are at least two types of mindfulness: neo-traditional mindfulness, exemplified by Kabat-Zinn's mindfulness-based stress reduction, consists of a shifted state of consciousness inherently carrying qualities associated with mindfulness; cognitive-behavioral mindfulness, exemplified by acceptance and commitment therapy and dialectical behavioral therapy, is achieved more through a shift toward cognitive processes that reflect similar qualities. Other varieties of mindfulness exist within both Buddhist and cognitive-behavioral traditions, but these two may provide a starting point and a method for further articulation. The distinction between these two varieties of mindfulness is proposed based on analysis using somatic phenomenology, a state-specific approach to the study of body-located phenomenal markers of attention. In this context attention is described in terms of where it comes from, relative to the body, rather than in terms of where it is directed, and state of consciousness is defined as a change in how attention is located within the body. In cognitive-behavioral mindfulness, attention is seated in the head and is directed outward from that location; in neo-traditional mindfulness, attention is seated in the belly and is directed outward from there. These two types of mindfulness represent similar qualities taking place in two different states of consciousness, reflected by these two discrepant attentional postures.

**Keywords** Attentional posture · Cognitive-behavioral mindfulness · Mindfulness · Neo-traditional mindfulness · Phenomenal markers · Somatic markers · Somatic phenomenology

## Introduction

Defining mindfulness in a precise and consistent way has proven to be a challenging task (Chiesa 2013). A possible contributing factor to this difficulty is the fact that various forms of praxis that have been called mindfulness may not be identical (Dorjee 2010). Observation of state-specific phenomenal markers of the somatic experience of attention suggests that variations in these markers may provide a basis for offering an initial distinction between the Western neo-traditional Buddhist meditation practice of *vipassana* and the more cognitively and behaviorally defined processes associated with acceptance and commitment therapy (ACT; Hayes et al. 2006, 2012). Such a distinction may make it easier to define mindfulness by removing the assumption that all forms of mindfulness refer to the same phenomenon, and offering a way to describe some of their differences in terms of a specific somatic-phenomenological variable (cf. Hartelius 2007).

This approach is based in the controversial assumption that, in certain states, it may be possible to identify phenomenal markers for some aspects of mental process within subjective lived experience; while this notion derives more from a somatic-phenomenological stance than a conventional cognitive approach, it appears amenable to empirical investigation. It should be noted that past studies have cast serious doubt on the validity of assumed introspective access to cognitive processes (Nisbett and Wilson 1977) as well as on the accuracy of other types of subjective attribution (e.g., Karniol and Ross 1996; Russell 2003). However, such studies have typically

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been conducted without controlling for state of consciousness and, thus, presumably were conducted within conventional states of mind. Without additional evidence, it should not be assumed that these findings are equally applicable within substantively different states of mind, such as mindfulness or related states that may be more conducive to yielding consistencies in phenomenological observation (cf. Varela 1996). This is particularly true in light of suggestions that mindfulness may provide unique access to internal state awareness and regulation (Brown et al. 2007) and that, in mindfulness, the relationship between attention and its objects may undergo considerable change (Shapiro et al. 2006).

Furthermore, contemporary attitudes toward the empirical study of subjective experience may still reflect historical responses to the failed systematic introspection movement of the early twentieth century, inaccurately represented by Titchener as being associated with the much more conservative and careful work of Wundt (Danziger 1980). This already questionable approach was further caricatured by early behaviorists such as Watson (1913), leading to a far stronger turn against the study of internal perception in America than was the case among European psychologists (Danziger 1980). Contemporary reappraisals of approaches to the inclusion of more rigorous introspective methods (e.g., Bitbol 2012, 2013; Lutz and Thompson 2003) deserve to be examined critically, but in an atmosphere unsullied by politically tinged conflicts of a century ago.

The somatic and phenomenological approach offered here is considered complementary to cognitive approaches, potentially describing variables about the state or states of mindfulness from a more emic rather than etic stance. That is, just as the discipline of cognitive psychology is typically situated within the language and assumptions of the particular cognitive state associated with intellectual thought, somatic and phenomenological approaches also bring insights from more embodied states (Hartelius 2007) that may enable additional dimensions of mindfulness to be described and measured from a philosophical and theoretical location that may be closer to the phenomenon of mindfulness, and thus possibly capable of additional discernments. The result could be a more complete and satisfying description of mindfulness.

A variety of definitions of mindfulness exist both within psychological approaches to Buddhist practices (Dorjee 2010; Mikulas 2010; Rappay and Bystrisky 2009) and cognitive-behavioral traditions (e.g., Langer 1992), but a focus on two specific exemplars may provide a starting point and a method for further articulation of what is likely a spectrum of phenomena. Adding this somatic dimension to definitions of mindfulness may enable greater precision in mindfulness research. Proposing conceptual differences between varieties of mindfulness in this way should not be taken to imply the superiority of one form over another, as it is better left to empirical testing, enhanced by more precise definitions, to discover their relative merits.

*Neo-traditional mindfulness* (NT mindfulness) is exemplified by Kabat-Zinn's (Kabat-Zinn 2003a, b) mindfulness-based stress reduction (MBSR) and employed in mindfulness based cognitive therapy (MBCT; Segal et al. 2013); it is referred to as neo-traditional because it relies on traditional instructions applied outside of the culturally and historically customary monastic context. While Buddhism has informed the development of NT mindfulness, the term mindfulness here refers to a state of consciousness that can be described and used with or without relationship to the tradition (cf. Hayes and Shenk 2004; Mikulas 2010), despite objections from some (Brito 2013; Rappay and Bystrisky 2009). Examples of *cognitive-behavioral mindfulness* (CB mindfulness) include ACT (Hayes et al. 2006, 2012), dialectical-behavioral therapy (DBT; Linehan 1993), and related approaches (e.g., Langer and Moldoveanu 2000), though this discussion will focus primarily on ACT as representative of this type. Both versions of mindfulness appear to involve similar qualities and produce comparable benefits, yet there seems to be a difference in the state of consciousness within which each of these processes is cultivated. In the NT mindfulness of Kabat-Zinn (1990), meditation is described as a process or a state of non-doing in which one observes "the flow of the breath and activity of ... mind and body without getting caught up in that activity" (p. 70). ACT, from a cognitive-behavioral perspective, defines mindfulness in terms of processes such as deliberate acceptance and committed action (Hayes et al. 2006, 2012; Hayes and Shenk 2004) rather than as a changed state of consciousness that shifts the very context of experience. While there are noteworthy points of resonance between these forms of practice, they do not simply represent different approaches to the same practice. Rather, they seem to reflect similar processes cultivated within two rather different states of consciousness.

A review of several examples of subtle differences between cognitive processes involved in NT and CB mindfulness, respectively, will be followed by preliminary neurobiological evidence to support differentiation between these two versions. Somatic phenomenology will be presented as a way to distinguish more precisely between these varieties of mindfulness as two distinct states of consciousness. Each type of mindfulness will be defined in terms of somatic phenomenology as an *attentional posture*, or in terms of where the felt experience of the subject, the "I," sits in the body—with the caveat that, when this "I" shifts down out of the head and into the body, it is no longer the stable and historical "I" of ordinary mindstates. NT mindfulness can be described as an attentional posture in which this modified "I" experience is located in the belly, whereas in CB mindfulness utilizes similar cognitive processes within a more conventional head-located attention posture.

Conceptualization of the qualities of the mindful state offered by Shapiro et al. (2006; empirically tested by Carmody et al.

2009) articulates what has come to be understood as a basic process in mindfulness. These authors suggested that mindfulness consists of three components: a clear *intention* for the practice, non-elaborative *attention* to present-moment experience, and an *attitude* of openness, curiosity, and acceptance. Cultivated together, these lead to a shift referred to as *reperceiving*: a fundamental change in one's relationship to experience so that thoughts and feelings are observed as temporary mental events rather than as something that is true of oneself. Other related concepts in the mindfulness literature related to this sort of *disidentification* from mental contents include *decentering* (e.g., Fresco et al. 2007), *defusion* (e.g., Fletcher and Hayes 2005), *deautomatization* (e.g., Epel et al. 2009), *detached observation* (e.g., Kabat-Zinn 1982), *attentional detachment* (e.g., Wells 2005), *nonattachment* (e.g., Brown et al. 2007), *metacognitive awareness* (e.g., Teasdale et al. 2002), *cognitive distancing* (e.g., Blackledge 2007), *exposure* (e.g., Baer 2003), *non-appraisal* (e.g., Zeidan et al. 2012), *extinction* (e.g., Hölzel et al. 2011), and, from a more traditional Buddhist perspective, *insight* (e.g., Grabovac et al. 2011).

The descriptions of these variously named processes are substantively congruent with each other, even though they come from both neo-traditional and cognitive-behavioral perspectives. However, based on many years of clinical observation as a somatic educator—that is, one-on-one coaching and classroom instruction in how to navigate within embodied felt sense experience—it is possible to suggest that this disidentification occurs in distinctly different ways within CB and NT forms of mindfulness. CB mindfulness is characterized by strategies based on language, thought, and perspective taking. For example, Hayes et al. (2006) have suggested strategies for promoting cognitive defusion—their term for disidentification—that include interacting with thoughts by observing them as if from outside, repeating them out loud until they lose cognitive meaning, or examining “the historical thoughts, feelings, and memories that occur while they experience that thought” (p. 9). These strategies interact with thoughts from proximity with them—that is, in a state of mind closely related to language and thought. In NT mindfulness, on the other hand, the mind is stilled because the state of consciousness has shifted. Thoughts have a sensate presence of their own rather than being gateways to conceptual elaboration that must be deactivated (Grabovac et al. 2011). The observer of thoughts, emotions, and sensations is not the familiar ego but a moment-to-moment awareness focused on the experience that is present to the senses (cf. Kabat-Zinn 1990) rather than the conventional narrative of a historical self. In this state, insight arises not from cognitive reflection but from non-conceptual noticing (Dorjee 2010).

A similar distinction can be drawn with respect to acceptance. With CB mindfulness, acceptance is “an alternative to experiential avoidance. Acceptance involves the active and aware embrace of those private events occasioned by one's

history without unnecessary attempts to change their frequency or form” (Hayes et al. 2006, p. 7). From a neo-traditional perspective, mindfulness is not a particular form of cognitive activity, or *doing*, but a mindful *non-doing* (Mikulas 2010); awareness that observes without rejecting is sometimes called acceptance (e.g., Grabovac et al. 2011), but this should not be equated with acceptance as an active cognitive process (Rapgay and Bystrisky 2009).

In addition to these distinctions, the somatic phenomenological approach taken here can suggest that there is a change not only in the way that attention relates to its objects but also in the manner in which attention attends to itself—closely related to the cognitively-defined process of self-referencing. Where CB mindfulness is nearer to a conceptual self-referencing, NT mindfulness is a self-referencing in which attention is reflexively aware of the sensations of its own presence within the body.

There is preliminary neurobiological evidence to support this latter proposed distinction between a cognitive process characteristic of mindfulness but situated in a state closely associated with language and thought, and a qualitatively similar process cultivated in a shifted state induced by NT mindfulness practice. A functional magnetic resonance imaging (fMRI) study has demonstrated significant differences in neural modes of self-reference between mindfulness novices and those having taken an 8-week MBSR training (Farb et al. 2007). In this study, all participants—20 in an experimental group and 16 in a waitlist control group—were trained in two modes of self-reference: narrative focus involving deliberate cognitive elaboration, and experiential focus directed toward the totality of present-moment thoughts, feelings, and sensations. Participants were then asked to perform both types of self-reference while their brain activity was being recorded with fMRI. While there were minor between-task differences in novices, brain activation occurred mainly in the cortical midline network and left-brain networks associated with language. In other words, these participants were able to shift to a mode of self-reference that has been proposed as characteristic of psychological or CB mindfulness (Watkins and Teasdale 2001) *without much shift in brain state*. By contrast, those with NT mindfulness training (MBSR) demonstrated a pronounced shift away from cortical midline structures and toward right-brain structures associated with the processing of sensory experience. The sample size was small, and as the researchers acknowledged, the design was comparison of novices with meditators rather than a pre-/post-intervention. In addition, this research did not examine changes that might result from the practice of CB mindfulness. However, the study does suggest a neural basis for two different forms of self-reference representing two distinct brain states: one quite similar to a conventional thinking state, and a more somatically oriented state in which attention is shifted away from thinking and onto sensate experience.

The proposed difference between the states used by CB and NT forms of mindfulness is here characterized as a change in state of consciousness, and both are described as discrete attentional postures based on anecdotal analysis utilizing somatic phenomenology—pending empirical testing. The following discussion will introduce somatic phenomenology as the study of the structure and dynamics of *phenomenal markers* of mental process. This approach will be situated relative to aspects of the larger tradition of phenomenology. From there, phenomenal markers will be contrasted with Damasio's (1994) *somatic markers*, and the pattern in which phenomenal markers of attention are deployed will then be defined as an attentional posture. Preliminary evidence will be presented for the existence of phenomenal markers of attention.

### Somatic Phenomenology

Somatic phenomenology is a state-specific approach to the study of body-located sensate markers of psychological events within the lived experience of the body as first proposed by Hartelius (2007)—that is, generally within what Gendlin (e.g., 1999) has called the *felt sense*, the body's sense of itself and its surroundings, and more specifically within what Bermúdez (2005) has termed “body-relative space” (p. 301) in his related proposal for a phenomenology of bodily awareness. Recently published research on the somatic phenomenology of common emotional states—called body sensation maps or somatotopic maps by the researchers—suggests that patterns of bodily sensation were both specific to particular emotions and consistent across Western European and East Asian samples (Nummenmaa et al. 2013). Participants were presented with stimuli designed to induce a particular emotional state, and then marked the areas on a front view of the body to indicate where they felt increases or decreases in sensation.

While applications for the somatic phenomenology of emotions have not yet been formulated, similar mapping of other phenomenal markers may be of more immediate value. Based on the author's work in clinical and instructional contexts, it appears that certain phenomenal markers correlate with discrete mental processes such as the deployment of attention in ways that may allow for more precise research as well as enhanced self-regulation of those processes. This self-regulation of mental process may be similar to the control of muscle movement by means of proprioception. Proprioceptive sensation, even if peripheral, is essential for efficient muscle movement—graphically demonstrated by the fact that deafferented individuals who have lost proprioceptive sensation face significant challenges in relearning how to move in coordinated ways (Cole 2008). Somatic phenomenology, then, inquires into the phenomenal structure and dynamics associated with certain mental processes such as attention or emotion, based on observation of associated phenomenal markers. As such, somatic

phenomenology holds a specific and limited scope of investigation within the larger domain of phenomenology.

### Phenomenology, Neurophenomenology, and Somatic Phenomenology

Although there may be as many styles of phenomenology as there are phenomenologists (Spiegelberg 1982), phenomenology as a philosophy and method was developed as an alternative to an Enlightenment science that believed that reliable knowledge could be obtained simply by applying the rational mind to the objects of the world. This slightly naive notion was famously challenged by Kant (1781/2007), who observed that what the mind experiences is inner reconstructions of the world built up from sense data (phenomena), rather than the world as it is in itself (noumena). Given that this placed rational science on a less sure footing, Husserl (e.g., 1913/1983; 1917) set out to develop a new sort of science—one based not in the inaccessible noumena of the external world, but on the mental phenomena that are directly accessible within the mind—phenomenology. Husserl, especially in his earlier writings, worked generally within the Kantian assumption that regarded mental phenomena as substantively distinct from the noumena they represent, but later thinkers such as Heidegger (1927/1962), Merleau-Ponty (1945/2005), and Levinas (1974/1998) argued that mind and world are more intimately linked, so that phenomena cannot be radically separated from noumena (on Kantian dualism and its limitations, see Ferrer and Sherman 2008).

Paralleling this shift, but from a complementary direction, postmodern critiques of modernism (e.g., Berger and Luckmann 1966; Code 1991) have engendered a shift toward a post-positivism, which recognizes that perceived objects of the world are not entirely separable from the process of mental representation (e.g., Archer et al. 1998). While critiques of a naive scientific realism have minimal impact on areas of science such as geology and astrophysics, they appear to be of considerable import in human sciences such as psychology (Wertz 2005), where the subjectivity that is under study may be differently structured due to factors such as culture, belief, values, personal and social history, temperament, and health. For example, the fact that knowledge appears to be socially constructed (Berger and Luckmann 1966) has somewhat less impact on spectral analysis of light from a distant star than it does on psychological constructs of happiness.

This variability of human situatedness is likely a factor in the numerous varieties of phenomenology that now exist. Neurophenomenology is an approach that proposes to limit this variability by examining experience from within a particular shifted state of consciousness, and then comparing the result with neurological data (Varela 1996; Laughlin and Rock 2013). It has been suggested that Husserl's phenomenological reduction—offered as a step in his method—actually referred

to a shift in state of consciousness and that inductions into states such as mindfulness meditation may replicate the state to which Husserl was referring (Depraz 1999; Varela 1996). Such an approach attempts to put into practice something along the lines of what Tart (1972) envisioned as a state-specific science. In this way, traditional scientific method might be used with observations and experiences available within non-ordinary states of consciousness, potentially opening new insights or even new domains of knowledge not available within ordinary states of mind (Hartelius 2007).

Neurophenomenology's discourse about an appropriate target state to employ in the observation of experience has centered around induction scripts adapted from traditional monastic contexts for the practice of mindfulness (e.g., Depraz 1999). While this approach may be promising, it is questionable whether such scripts—typically derived from communities of practice where verbal cues are but a small portion of the educational immersion in a context where scientific measurement is not a goal—are sufficiently precise to reliably induce a state that will serve as a baseline in scientific research (Hartelius 2007). Traditional instruction offers simple actions—for example, focusing attention on the breath—and phenomenal cues that may be in part metaphorical, as in the suggestion to imagine thoughts passing by as if they were clouds in the sky (e.g., Germer 2005). While this language is close to experience, it is not appreciably closer to a satisfying description of mechanism than conceptually abstract psychological definitions. Without some jointly theoretical and experiential grasp of how mindfulness is achieved, it is difficult to calibrate the degree to which the target state has been attained at any given point in time and therefore whether any results are in fact specific to that state.

To be sure, researchers working from a neurophenomenology perspective have proposed that the entering of the state presumably associated with Husserl's epochè consists of three stages: suspension, redirection of attention, and letting go (Depraz et al. 2003). There are also claims of unpublished preliminary qualitative evidence to support this model (Mathison and Tosey 2009). However, even if good empirical data are eventually published to show that this model retrospectively fits the lived experience of such a process, there are possible problems. First, such qualitative research would presumably be reports about an induction process that is itself based on this model, thus raising questions about whether the process might suggest the expected results. Second, the presence of a retrospective fit would not in itself be evidence that these steps contain the necessary specificity to either reliably induce or assess the target state (cf. Hartelius 2007). In fact, empirical research conducted from a neurophenomenology perspective (e.g., Lutz 2002; Petitmengin et al. 2006, 2007), while representing an important step, bears out the concerns that there is

great variability in neurological activity associated with carrying out what are ostensibly the same instructions.

Even in a recently developed self-report measure designed to monitor quality of mindfulness practice over a duration of time (Del Re et al. 2013), scale items ask for reflection on the constancy of adherence to trait-like behaviors during a (presumably) recent practice session, and do not purport to assess the depth of mindfulness experience in real time—something that seems a necessary prerequisite for a consistent and reliable state-specific process of observation.

Somatic phenomenology attempts, among other things, to do a more effective job of defining and describing different states of consciousness so that they can be monitored experientially in real time. In order to achieve this, it attends to variables such as phenomenal markers that, though often outside of awareness in a conventional rational state of mind, can be brought to awareness through practices such as deep relaxation and/or meditation. In this way, it may be possible to make more useful distinctions—or at least potentially novel ones.

#### Phenomenal Markers vs. Somatic Markers

Phenomenal markers are distinct from the *somatic markers* described by Damasio (1994; Damasio et al. 1991; Bechara and Damasio 2005). The term somatic marker is roughly equivalent to *emotional signal*, whether or not that signal is consciously detected. That is, decisions are influenced not just by brain states but also by body states—marker signals that arise in bio-regulatory systems. These signals, originating as neuroanatomical processes, may rise to expression in the form of feelings or emotions or may remain outside of conscious experience. Damasio's somatic marker hypothesis grew from the observation that certain individuals were impaired in both the speed and quality of their decision-making processes when they had “a defect in an emotional mechanism that rapidly signals the prospective consequences of an action, and accordingly assists in the selection of an advantageous response option” (Bechara and Damasio 2005, p. 339).

The novelty of the somatic marker hypothesis is that it suggests that somatic responses are not merely reactive to stimuli or receptive to brain signals, but perhaps part of the organism's intelligent response to perception. If this were so, then intelligence might be distributed not only throughout regions of the brain but also other areas of the body. There is initial research suggesting that the brain is part of a body-wide psychosomatic network of neuropeptides and receptors that encompasses not only the brain and autonomic nervous system but also the immune, endocrine, digestive, and cardiovascular systems (Pert et al. 1998). The somatic marker hypothesis (Damasio 1994) adds the tangible prospect that useful informational processing affecting conscious behavior may

also be distributed through this network rather than being confined only to the brain.

Phenomenal markers begin not from the side of neural structure, but from lived experience; there may or may not be correlation between phenomenal markers and somatic markers.

#### Phenomenal Markers of Attention as Attentional Posture

Of particular interest here are phenomenal markers associated with attention. In conventional terms, attention is the ability to notice aspects of the environment, often selectively focusing on some features over others. In much of psychology, the location of attention is defined in terms of what attention takes as its object (e.g., Lutz et al. 2008). Even sophisticated phenomenological descriptions frame attention in terms of its objects—that is, where the attention is directed (e.g., Arvidson 1996, 2003). However, attention can be described not only in terms of its object but also in terms of whence it arises or originates within the lived experience of the body. In the context of this discussion of phenomenal markers of attention and attention posture, the location of attention is defined only in terms of where it feels itself to originate from within the body, and not in terms of the location of any other sensation that may be the object of attention, such as sensations of the breath. This description, being phenomenal in nature, does not purport to identify the anatomical location of biological processes correlated with the production of attention, but merely the location of where attention comes from, relative to the felt experience of the body.

Attention, defined in this way, is equivalent in ordinary states of mind to the felt sense of “I” (Hartelius 2007), what might be termed a phenomenal homunculus (Strawson 1997). Understood this way, attention is less a tool of agency than a process of awareness (cf. Rappagay and Bystrisky 2009). While many Buddhist traditions consider belief in a stable and permanent “I” to be a delusion, the phenomenal “I” is already a step removed from the conventional narrative ego, and the Buddhist doctrine of no-self does not negate the experience of located awareness as an ego function (Epstein 1988). Attention is experienced as the receiver of sense information—the location where sense data arrive. Here, this phenomenon will be termed the somatic ego, or central attention. Central attention includes alerting, orienting, and executive attention (cf. Posner and Rothbart 2007). While there is now considerable literature addressing the phenomenology of agency and self (e.g., Bayne 2008; Gallagher 2012; Zahavi 2003), the majority of this discussion sits within a frame of reference that is only tangentially relevant here.

Where central attention appears to sit, relative to the physical body, can be described as an attentional posture. In mainstream Western culture, the phenomenal experience of self (somatic ego or central attention) has been described as sitting near the

center of the head, behind the eyes (Strawson 1999; Washburn 1995)—which may account for the experience that there is something like a small person inside one’s head who receives information from the senses (Strawson 1997). There is some preliminary empirical support for this description in the form of phenomenological research that led participants through various processes discerning the location of their observing “I” relative to objects and different parts of their body (see a derivative process below). In this research, Bertossa et al. (2008) found that, in a sample of 59 participants aged 18–66 that included eight blind persons and five non-Westerners, 83 % of participants—including seven of the blind subjects and four of the non-Westerners—indicated that the “I” from which their observing activity originated was located at a precise point inside their heads. A limitation of this study is that, if the location of the phenomenal “I” is variable, the activity of visually observing an object may induce a particular “I” location. However, given that visual observation of objects seems quite compatible with Western culture and reality assumptions (Levin 1993), this induction may simply bring awareness to what is already a fairly common experience.

Additional evidence for a conventional head-located attention posture comes from a study following the somatic phenomenology method of analysis proposed by Hartelius (2007) that examined the attention posture of flow-like states (Marolt-Sender 2014). Twenty-four athletes who reported having experienced flow-like states during high-exertion exercise were asked in the pretest condition to identify where their “I” experience was located after reading a short news story. They drew their responses on outlines of a body, which was then analyzed through use of a grid overlay. Boxes located in the area of the brain accounted for nearly 65 % of the hits; had the assessment taken into account all boxes above the neckline, the percentage of head-located hits would have been somewhat higher. These findings, while preliminary, offer some evidence for the suggestion that there may be reliable phenomenal markers of certain types of mental process such as attention.

This same study also demonstrated that attention posture can be centered in locations other than the head in non-cognitive states (Marolt-Sender 2014). While in flow-like states, a majority of participants located their central attention primarily in the trunk of the body rather than in the head. Significantly, the attention posture(s) of flow-like states implied by this study differed from that proposed here for either form of mindfulness. This provides preliminary evidence that central attention has a considerable range of variation in terms of its somatic location and suggests that *attention posture may be specific to particular states of consciousness*.

In line with this observation, attentional posture is not merely a sensation that occurs at a particular place in the body—it appears to be an emotional and psychological *location*, an attitude that carries its own values, preferences,

and particular abilities. For example, it seems that, when the somatic ego or central attention is located in the head, cognitive abilities are enhanced; when it also sits in the trunk and limbs, physical skills are supported. Acting instructor Michael Chekhov (1953/2002) referred to something very much like central attention as an imaginary center “from which flows the actual impulses for all your movements” (p. 7). He described the changes that take place when this center is moved from one bodily location to another:

as soon as you try to shift the center to some other place within or outside your body, you will feel that your whole psychological and physical attitude will change...If, to illustrate the point, you were to move the center from your chest to your head, you would become aware that the thought element has begun to play a characteristic part in your performance. From its place in your head the imaginary center will suddenly or gradually co-ordinate all your movements, influence the entire bodily attitude, motivate your behavior, action and speech, and tune your psychology in such a way that you will quite naturally experience the sensation that the thought element is germane and important to your performance. (pp. 80–81)

Attentional posture, then, seems to be a stance that prioritizes mental capacities and resources in a particular way—that is, it shifts the context of cognitive process. Having a head-located attentional posture, for example, is a certain way of being in the world, and the preliminary research by Bertossa et al. (2008) and Marolt-Sender (2014) supports the suggestion that this posture may be typical of conventional states of consciousness, at least in mainstream Western culture.

A rudimentary way to notice where one’s central attention or somatic ego sits is to inquire, internally and answer the following questions (adapted from Bertossa et al. 2008), Can you perceive a word on this page? Who is perceiving? Can you bring the word on this page nearer to or farther from your “I”? What is closer to your “I,” your knee or your throat? Is your throat over or under with respect to your “I”? Are your eyes in front of or behind your “I”? Is your “I” on the left, in the center, or on the right side of your body? Use your finger to point to a place in your body that is the location of your “I.” Typically, it becomes evident that the “I” who is reading is, in phenomenal terms, “here,” in or near the head. Once this attentional posture is felt and recognized phenomenally, it becomes possible to represent it graphically in terms of where central attention is experienced relative to the lived dimensions of the body.

Attentional posture appears to provide a somatic process axis of description that is orthogonal and complementary to the language of cognitive process. With this background, it becomes possible to approach the definition of mindfulness in a way that includes attentional posture as a variable.

## Defining Mindfulness

Kabat-Zinn (2003a) has defined mindfulness as “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment.” Bishop et al. (2004), in proposing an operational definition of mindfulness, discriminated between two different aspects of mindfulness: the self-regulation of attention in order to maintain a focus on present-moment experience, and an accompanying stance of curiosity, openness, and acceptance toward that experience. In this definition, mindfulness can be understood as a particular state of consciousness as well as a set of associated traits or qualities. Among other definitions, some place greater emphasis on the traits associated with mindfulness (e.g., Langer and Moldoveanu 2000), while others give considerable weight to mindfulness as a particular state (e.g., Brown and Ryan 2003; Brown et al. 2007).

From the perspective of somatic phenomenological analysis, NT mindfulness is primarily a shifted state of consciousness that mediates certain qualities of cognitive process; CB mindfulness is primarily a shift in cognitive process with relatively minor changes in state of consciousness.

*The Attention Posture of Neo-Traditional Mindfulness* In NT mindfulness associated with vipassana as taught in the West through modalities such as MBSR, attention is seated in the belly (cf. *hara*, Dürckheim 1962/2004) rather than the head. This does not mean that attention is on the belly, but that sensory information is experienced as being noticed from the belly—it is the awareness in the belly that feels itself, rather than some awareness located elsewhere that feels the belly. Another way to describe this is to say that the experience of executive or supervisory attention (e.g., Fernandez-Duque et al. 2000), which directs and monitors attentional processes, shifts out of its location in the head and becomes seated in the belly. If executive attention remains in the head and merely focuses on body sensations, or constructs an image of moving itself down into the belly, rather than sensately experiencing itself as being in the belly, then the full shift in state of consciousness has not taken place. Practices such as focusing on body sensation may and often do, over time, bring attention fully down to the belly, but descriptions or studies using such processes typically do not specifically distinguish between the state in which such a practice is originated and the state to which it may lead, nor provide markers by which achievement of the state may be confirmed (e.g., Kabat-Zinn 1990; Kerr et al. 2013).

When attention is fully seated in the belly, it feels as if the fact of belly-seated attention is being noticed *from* the belly. It also feels as if sensory information is received at the belly: Sounds arrive at the belly rather than the ears, sensations and images—even scents and tastes—are received by awareness

in the belly rather than awareness in the head, and the one noticing that this is the case (somatic ego) is likewise located in the belly. Yet, attention does not remain only in the belly. It radiates from there, though less densely, filling the space of the body and extending out several feet around the body in a distinctive attentional posture—though it should be reiterated that this description refers to phenomenal experience, not biological process. A key quality of both central attention and this more diffuse peripheral attention is that, in this state, *attention feels itself*. That is, attention becomes reflexive. This is necessary for tracking and changing attention posture—that is, *self-regulation of attention requires that attentional processes achieve and maintain awareness and agentic control of themselves*.

In my own experience, when the shift into NT-like mindfulness takes place, attention is felt as a gentle, slightly warm field of presence that envelops the body, with a soft nucleus in the belly. This change in attentional posture effects a state of mind, or *attentional state*, in which thought is greatly diminished. Rather than attending to inner dialogue and mental images, experience is engaged with sensate experience of the body and its surroundings. Attention is more or less evenly distributed, so that the felt space at one's side or behind one's back is as present in awareness as objects in the visual field. Attention is aware of the sensation of its own presence, and this provides a wide and neutral field for the observation of whatever may arise within it. This movement of attention away from mental symbols and into body-based sensation creates a sense of felt immediacy, as if one is more directly in contact with the objects of experience. The disengagement from reaction to emotional events comes not from added distance but from increased intimacy with the dynamics of the process—much as being on set and watching the mechanics of shooting a scene in a horror movie removes any possibility of terror. This shift in relationship to experience is distinctly different from metacognitive awareness within a more conventional head-based attentional state: Here, in contrast to metacognitive states, attention can feel itself as a sort of warm presence—a bit like fingers of the same hand that feel themselves feeling each other. It is this reflexive awareness that impacts the experience of self, which is no longer the conventional subject of a familiar narrative, but a quiet, receptive awareness that can watch the impulse to act, or even the sensation of its own presence, as simply another event arising within the field of experience. It is the softening of the conventional self in this way that paradoxically allows sense information—whether inner or outer—to be both more intimately felt and more dispassionately observed.

In summary, neo-traditional mindfulness, defined as an attention posture, consists of the phenomenal markers of attention seated in the belly and radiating out into the body and the space several feet or more around the body. As a cognitive process, attention maintains a sensate awareness of itself as it

receives sense information, thereby creating a continuous experience of present-moment awareness that is disidentified from the normal egoic sense of self; from this place of reflexive awareness, attention does not accept or reject, initiate or refrain from initiation, but intimately observes these impulses as features of the ongoing movement of experience.

*The Attention Posture of Cognitive–Behavioral Mindfulness* In CB mindfulness typified by ACT (Hayes et al. 2006, 2012) and DBT (Linehan 1993), attention is apparently seated in the head rather than the belly. This is the attention posture of conventional states of consciousness, but with an important variation: Rather than being enmeshed in the objects of attention, the attention is differentiated from its objects and sits quietly in the head. Subtle sensate experience is generally less acute in a head-located posture, so while the attention may not directly feel itself, it has an awareness of its own presence as something apart from sense objects. As sounds, images, emotions, and sensations arrive in the head, the attention is aware of itself as the receiver of these phenomena. Indeed, it is indirectly, through this contrast with sensory information, that attention maintains awareness of itself. Through maintenance of this indirect awareness of itself, thoughts can be slowed or stopped (cf. thought-stopping; e.g., Hannan and Tolin 2005), resistance to experience can be noticed and intentionally released, experiences and reactions to those experiences can be observed as they arise, and there is room to choose responses and actions. Attention sits as quiet awareness in the head, aware of its quietness, able to focus, yet responsive to stimuli other than those that are the object of focus.

In summary, cognitive–behavioral mindfulness, defined as an attention posture, consists of the phenomenal markers of attention seated in the head and aware of its own presence as something distinct from the sensory information that it receives. As a cognitive process, attention maintains an indirect awareness of itself through differentiation from the sense information it receives, thereby creating a continuous experience of present-moment awareness that is disidentified from the normal egoic sense of self; from this place of self-awareness it actively accepts both pleasant and uncomfortable experience, and initiates effective action aligned with chosen values.

*Comparing Neo-traditional and Cognitive–Behavioral Mindfulness* When these descriptions of NT and CB mindfulness are compared, three differences appear: The attention posture of NT is one of being seated in the belly and filling the body as well as the space a few feet out from the body, whereas CB mindfulness is seated primarily in the head. Perhaps in part because of this difference, the attentional self-awareness necessary for attention to regulate itself is slightly different: In NT mindfulness, attention directly feels itself; in

CB mindfulness, attention senses itself in distinction to sense information. Finally, in CB mindfulness, there is a shifted sense of self, but this self is still active in adopting attitudes and initiating actions, whereas the awareness in NT mindfulness has disidentified even from acceptance or the initiation of action.

When described as cognitive processes, both versions of mindfulness are sufficiently resonant so as to make it seem that these might be different words for the same phenomenon; however, the states of consciousness reflected as attentional postures are radically different. This does not make one form superior to another; it does suggest that NT mindfulness represents a greater shift away from ordinary states of consciousness than CB mindfulness. The ways in which each form of mindfulness might have unique benefits is worthy of further study.

### Future Research

Research should be conducted to determine whether there are correlations between attentional postures and specific, self-identified states of consciousness, as well as with neurological measurement such as EEG and fMRI. If attentional postures can be correlated with particular states of consciousness, on the one hand, and specific brain states, on the other, this may help to provide simpler ways to describe, teach, induce, monitor, and control for state of consciousness in research and other settings. If such correlations can be established, then it may be possible to test the effect of various postures—conventional and mindful—on attention regulation, one of the purported benefits of mindfulness. Testing of the same individuals in different attentional postures might be conducted using a measure such as the Test of Variables of Attention Continuous Performance (TOVA-A; Greenberg et al. 2007; audio version to minimize impact of visual attending on attention posture), the Attention Network Test (Fan et al. 2002), and/or the Stroop task (Stroop 1935), to determine whether there are measurable changes in effective deployment of attention in any particular attentional posture.

One challenging aspect for research involving attentional posture is ensuring that participants are indeed in the requisite attention posture for each experimental condition. To conduct such research accurately may require some training of the researcher(s) and will certainly require training of participants. It is noteworthy that somatic phenomenology and the concept of attentional posture are themselves informed by the domain of NT mindfulness, since these rely on phenomenal markers that become more apparent as the capacity for subtle sensation is cultivated through the practice of NT mindfulness or related states. Once attention learns to feel itself, it may also be able to feel itself when it is located in the head.

With research into subtle and dynamic phenomena such as attentional states, controlling for experimenter effects (Kintz et al. 1965) may become essential. Initial research by

Wiseman and Schlitz (2001) showed that, in tests of staring detection (noticing that someone is staring at you from behind), Schlitz, who believed such detection was possible, obtained positive experimental results, while Wiseman, a skeptic, obtained negative results. Furthermore, when the two researchers performed experiments together, no significant results were found. If staring detection is enhanced by a particular state of consciousness, and if the state of the researcher impacts the state of the participant, then the presence of a researcher who has such experiences may promote such experiences in participants, whereas the presence of a skeptic who does not have such experiences may inhibit them. For this reason, it should be born in mind that researchers who are not able to experience both CB and NT forms of mindfulness may negatively impact research outcomes.

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