Religions **2014**, *5*, 1062–1086; doi:10.3390/rel5041062

OPEN ACCESS

religions

ISSN 2077-1444

www.mdpi.com/journal/religions

Article

From Retreat Center to Clinic to Boardroom? Perils and Promises of the Modern Mindfulness Movement

Norman A. S. Farb

Department of Psychology, University of Toronto Mississauga, 3359 Mississauga Road, Mississauga, ON L5L 1C6, Canada; E-Mail: norman.farb@utoronto.ca; Tel.: +1-905-828-3959; Fax: +1-905-569-4326

External Editor: Geoffrey Samuel

Received: 24 July 2014; in revised form: 28 September 2014 / Accepted: 23 October 2014 / Published: 6 November 2014

Abstract: From its venerable Buddhist roots, mindfulness training (MT) has spread rapidly across the globe in the past few decades due to its strong salutary claim, *i.e.*, the notion that meditation practice is an efficacious means for self-improvement. However, concerns have arisen that the appropriation of MT techniques from classical Buddhist tradition into modern secular practice has diluted the benefits of these practices. The "great danger" to the movement is that inadequately adapted MT techniques, combined with unreasonable inflation of expectations regarding MT's benefits, may undermine MT's true potential to effect positive change in the world. And yet, these concerns can be mitigated by consideration of the salutary claim as a persistent "quality check" on MT efficacy. It is argued that scientific investigation can take an important role in delineating the necessary characteristics for fulfilling mindfulness' salutary claim, as well as identifying contraindicated techniques and risk factors for training. By accepting that we cannot control the spread of MT into commercial domains, researchers may still work to distinguish "right" from "wrong" mindfulness through empirical study. In this way, modern science may help to realize the salutary claim and even contribute to classical Buddhist conceptions of mindfulness, advancing our understanding of how best to promote well-being.

Keywords: mindfulness; Buddhism; science; salutary claim; well-being; western; eastern; training; efficacy; appropriation

---

1. Introduction

The ancient Buddhist practice of mindfulness has become a global phenomenon. Buoyed by unprecedented growth in mindfulness research over the past decade [1], mindfulness' benefits have been touted in the popular media as the next great trend in self-help technology. Mindfulness training (MT) programs have entered secular institutions, beginning with hospitals, and continuing now into schools, prisons, government and corporations. The coming decade promises the rise of mindfulness mobile apps and assistive technologies, and with it, MT's increasing commercialization. Amidst all of this fervor, it can be difficult to recognize mindfulness' origins as an ancient Buddhist tradition, referred to in this paper as "classical mindfulness" [2]. What is left of this venerable lineage in secular adaptations of MT? Does, as skeptics suggest [3], the secularization of mindfulness represent a Faustian bargain that may encourage rather than subvert the basest aspects of our nature? Or is it possible that we are witnessing a rare and beneficial synthesis between science and Buddhism?

This paper presents the more optimistic view, suggesting that modern secular mindfulness training (MSMT) will advance Buddhist ideals despite its increasingly commercialized nature. This is not to say that MSMT will provide a complete transmission of classical mindfulness teachings, but rather that it will help to realize early steps on this path, bringing Western culture more in line with Buddhist ideals. Indeed, the rise of mindfulness may represent the synthesis of very distinct discourses in the construction of a novel understanding of well-being. Confidence in MSMT's promise is founded on the observation that its popularization is inherently predicated on a *salutary claim*, *i.e.*, MSMT's purported ability reduce stress and promote resilience in its practitioners. So long as this claim is central to MSMT, and scientific research supports this claim by delineating the criteria for effective training, there will continue to be substantive progress in the understanding and proliferation of MSMT. By contrast, asserting that MSMT must retain a complete set of classical Buddhist principles may prove impractical and ultimately unnecessary. While we are far from agreement on best practices for MSMT, secular principles dictate reliance in science over religious authority to establish mindfulness' global presence.

Organizationally, this paper presents an analysis of MSMT's rise to fame, with particular attention to how mindfulness-related salutary claims have been redefined as the construct has been appropriated from one cultural context to the next. In particular, two appropriations will be discussed. The first appropriation takes classical meditation practices out of their religious and cultural milieu and places them into Western scientific and clinical contexts. The second appropriation takes clinical practices out of their evidence-based milieu to render them acceptable for "popular science", *i.e.*, unregulated public use. From analysis of these two steps, both successes and challenges in preserving meditation practices' purported benefits are apparent. Writing as a scientist who stands at the nexus of these appropriations, I hope this discussion will distinguish sensational from substantive issues in the effort to realize mindfulness' potential in the West, so that efforts within this movement may be more fruitfully applied.

While this paper uses the term *appropriation* to describe the transfer of knowledge from Buddhists to clinician/scientists to popular secular culture, it is not meant in a derogatory light. Rather, each stage of appropriation represents an important synthesis of perspectives, one that may ultimately benefit both scientific and Buddhist traditions. While this synthetic project may raise controversy by challenging

tenets of each tradition's long-held psychological theories, it may also enrich our ability to promote human flourishing by moving us beyond the limits inherent to each of these perspectives.

1.1. The Promise of Buddhist Psychology

In this age of unheralded global secularism, many appeals to religious authority have been supplanted by appeals to evidence and reason [4,5]. Consequently, the rejection of religious authority may necessitate cultural invention to restore our sense of value and purpose in the world [6]. Given this need, it is fair to question why secular modernists would turn towards established religion for answers. In particular, what makes Buddhism an attractive ground for cross-cultural exploration and integration?

It has been argued that Buddhism represents a special case of religion, in that the core tenets of Buddhism do not require belief in a deity or authority, but instead emphasize a pragmatic approach to understanding reality that relies on personal experience and reason [7]. While many cultures have incorporated Buddhist tenets into traditions that involve appeals to religious authority and ordained religious observance, the classical teachings themselves do not require such elements, and may instead be viewed as a psychological model for the promotion of mental well-being [8]. It may therefore be reasonable to expect classical teachings to retain their benefits even in the absence of their traditional cultural contexts.

Put simply, the classical Buddhist psychological model has four axioms: (1) suffering is a ubiquitous state of affairs; (2) conditioned attachment is the root of suffering; (3) it is possible to escape from this cycle of attachment and suffering; and (4) proper mindfulness, in conjunction with other practices, are both necessary and sufficient for the alleviation of this suffering [9]. These practices, known as the eightfold path, include having the right understanding of the noble truths, right intention and effort to pursue the path, wholesome intentions, thoughts, speech, action, and vocation, and of mindfulness practice itself. However, devotion or fealty to the Buddha is not a requisite part of this path, although most Buddhist religious practices do involve devotional practices [10]. MSMT represents an attempt to strip away both devotional practices as well as the most prescriptive aspects moral elements of the eightfold path, perhaps to avoid ostracizing individuals who do not prescribe to classical Buddhist edicts surrounding what one eats, says, or does for a living. However, it is yet unknown how integral devotional and ethical practices are to achieving Buddhist ideals, particularly given the Buddha's advice that one's primary task is to learn about the path that leads to the cessation of suffering above all else, and in particular sources of attachment that are associated with the pursuit of wealth and hedonic pleasure (Samuta Nikaya, 56.31) [11]. So the intent behind this paper is not to defend the position that all the religious trappings of Buddhism will be preserved in MSMT. Instead, we are presented with the promise of a new adaptation of classical teachings tailored for Western secular culture. Whether MSMT has and will continue to promote the spirit of these classical teachings is the central topic under consideration.

Admittedly, preserving Buddhism's spirit is unlikely to occur by providence alone. Instead some moderating principle is likely required to adjudicate between myriad variants of MSMT, to promote those most consistent with the central teaching of the Buddha and his followers, and potentially to derogate those which lose the essence of this path. I would suggest that such a principle already exists; that despite the scientific and cultural value of mindfulness interventions, MSMT's proliferation is

driven by the same therapeutic motivations driving the Buddha's teaching: the desire to relieve human suffering, combined with the salutary claim that mindfulness is a means to achieve this goal.

1.2. The Salutary Claim

The salutary claim is arguably the central motivation for the popularization of MSMT. Simply put, the salutary claim is that being mindful is a wholesome, state, and that MSMT allows for the cultivation of this wholesome state. In Buddhism, wholesomeness amounts to liberation from the attachments and confusions that lead to suffering [12]. In secular society, the purported benefit is more personal, in that MSMT is supposed to help a person maximize happiness and freedom from suffering [13]. The salutary claim is made with varying degrees of heavy-handedness to each person who signs up for mindfulness training programs, and is a driving force behind the use of mindfulness in educational and corporate cultures. MSMT exercises are often marketed as "brain training" to promote mental health [14], analogous to cardiovascular exercise for physical health.

Of course, many practices make salutary claims, from commercially-motivated miracle diets to authentically-motivated religious proselytization. What makes MSMT unique is that its claims are based upon two distinct forms of evidence. First, MSMT relies on the modern secular appropriation of classical Buddhist contemplative practices. In doing so, it may offer a treatment that is consistent with Buddhist ideals, introducing secular practitioners to the tenets of the eightfold path. This derivation from Buddhism empowers the salutary claim by tapping into the Western mystification of Eastern practices, such as the trope of the wise and tranquil meditation master [15]. Second, MSMT taps into a growing wellspring of clinical research on the efficacy of MSMT interventions in the treatment of mood- and pain-related disorders. Western fascination with ancient Eastern practices, combined with the perception that scientific authority supports MSMT's therapeutic efficacy, together lend plausibility to the mindfulness movement's salutary claims.

Despite these claims to uniqueness, it should be noted that MSMT is not the first attempt to appropriate classical meditation techniques for modern secular use. Buoyed by the Maharishi's rise to Western fame in the late 1960's, the transcendental meditation (TM) movement predates the mindfulness movement by several decades, and appears to promote a range of health benefits ranging from lowering blood pressure to improving cognitive flexibility [16]. TM is perhaps best known in the research literature for its ability to promote relaxation and reverse physiological markers of chronic stress [17], outperforming related practices in promoting relaxation [18]. MSMT differs from TM by de-emphasizing relaxed, focus attention as a proximal goal, emphasizing instead the cultivation of awareness leading to insight into the nature of reality and one's conditioning within it [19]. However, it is not known whether these different foci of attention amount to a true difference in underlying mechanisms of action. Furthermore, there are myriad other meditation techniques that may possess their own benefits. It is not my intention to contrast or advocate for one these techniques; rather, given the recent surge in MSMT popularity [20], I shall focus on mindfulness interventions in particular, cognizant that many of the issues discussed herein may generalize to other contemplative practices.

1.3. The "Great Danger"

This paper is motivated by concerns that cultural appropriation is jeopardizing mindfulness' potential in the West. Mindfulness is currently cited as a potential cure for a panoply of ailments. Yet when any practice is endorsed as a panacea, such claims bring significant risk of disappointment and disillusionment. Buddhists and cognitive scientists alike might applaud a return to a more measured dissemination of mindfulness practices. Indeed, Buddhism has been historically guarded against sensationalism in meditative practice, with a rich history of distinguishing between "right" and "wrong" mindfulness that dates back to the Buddha's teachings [21]. At first blush, it may seem that "right" mindfulness can be easily translated as mindfulness that is efficacious at reducing symptoms of suffering or improving the ability to appreciate positive experiences. However, "right" mindfulness in the Buddhist sense means more than a quality of attention that improves one's mood; it also contains deep ethical constraints such as putting aside greed and self-concern [22].

Given the distinction between salutary and moral criteria for the "rightness" of mindfulness practice, the rapid appropriation and popularization of MSMT raises understandable concerns around instruction quality. For example, a mindfulness technique that appears to promote relaxation or relief of immediate symptoms may be "right" from a salutary perspective, and yet if this technique does not reduce attachment in the form of craving and aversion, its benefits may be short-lived and ultimately illusory, constituting "wrong mindfulness" from a more classical perspective. The great danger lies in this idea that with enough "wrong mindfulness", the integrity of the movement as a whole becomes suspect, and its benefits unsustainable. Furthermore, there are increasing fears within the mindfulness community about a backlash against the mindfulness movement, as evidenced by a recent New York Times Op-Ed piece criticizing references to mindfulness as a cure-all [23]. There is a danger that the real benefits of MT may be obscured and the movement's popularization hindered in the seemingly inevitable shift from hype to frustration, disappointment, and abandonment of the mindful path.

Fuelling such concerns is anxiety that MSMT's current popularity is based on inflated reports of benefits that are only loosely related to MT's classically intended mechanisms of action, such as insight into one's conditioned habits, liberation from attachment, and the attainment of equanimity [9]. For example, MSMT, even if it is poorly done, probably engenders a placebo effect because of how it has been marketed as a stress reduction tool. Substantial research supports the notion that any expectation of positive effects is likely to be accompanied by a perception of such positive effects [24]. In analgesia, the treatment of pain, the expectation of pain relief activates the same opioid regions of the brain that respond to conventional pharmaceutical analgesics [25]. Once concern surrounding MSMT's salutary claim is that it amounts to little more than the cultivation of such expectations. Over time, the initial hype driving expectations and through it the placebo effect will fade, causing many MSMT techniques to lose apparent efficacy.

Of course, if a particular MSMT practice does not amount to more than the cultivation of a placebo effect, then rejection of the practice is warranted. However, a deeper concern is apparent, one that is significantly more distressing to MSMT proponents, which I refer to in this article as the *Great Danger*. The danger is as follows: it could be the case that MT, when properly applied, has many of the rich, salutary effects to which it is ascribed by both classical and scientific texts. However, if the promulgation of MSMT leads to imprecise or improper forms of training, *i.e.*, "wrong mindfulness",

the public perception of mindfulness training may be variable and highly dependent upon the teacher or teaching vehicle. If the levels of improper MT grow sufficiently relative to "right" MT, the salutary claim will appear to fail because of the inclusion of these incorrect forms in MSMT. In such situations, the backlash against mindfulness in general may result in the failure of the movement, proverbially throwing out the mindfulness baby with the bathwater. Perhaps worse, the movement may appear to succeed, but the term mindfulness may be used to justify practices that are antithetical to Buddhist ideals, perverting millennia old teachings.

Assuming that classical MT techniques do possess some measure of true salutary power, exceeding that of the placebo effect, there are two major transitions that the techniques must overcome in benefitting modern secular cultures. Two appropriations, the first clinical and the second popular, appear to be the primary tributaries of mindfulness to the secular public. Yet do these appropriations necessarily represent degradation of classic MT techniques? The following sections present a more detailed account of MSMT through both appropriation stages, evaluating in particular the plausibility of the "Great Danger" in the face such transformations.

2. The First Appropriation: From the Retreat Center to the Clinic

The first appropriation deals with the translation of classical meditation techniques into secular clinical practice. From the outset, it should be said that this translation appears to have been successful in the treatment of chronic pain and affective disorders, as attested to by recent meta-analyses on such interventions [26–29]. This is not to say that the translation was perfectly *faithful*; indeed, a single veridical translation may not even be possible given the large variation in Buddhist traditions. Buddhism is a sprawling, heterogeneous tradition, and the term "mindfulness" within Buddhism means many different things depending upon what point in history and lineage one investigates [30]. These traditions provide varied metaphysical claims about the nature of consciousness, and offer different mechanistic theories about how to live a fulfilled and healthy life, including different practice instructions for MT. Innovators of MSMT have had to select particular practices and instructions from the diversity of Buddhist traditions, and to omit some fairly universal Buddhist traditions that would preclude MT's adoption by secular audiences.

2.1. A Brief History of Secular MSMT Interventions

Given the variety of Buddhist traditions, secular MSMT began with what was necessarily an idiosyncratic selection of Buddhist practices, informed by the most available forms of MT. The first documented use of MSMT for clinical purposes was in reducing the suffering of patients with chronic pain [31]. The meditative exercises in the program were based upon creator Jon Kabat-Zinn's personal experience with *vipassana* (insight) meditation, a practice which originates in the millennia-old Theravada Buddhist tradition. It should be noted that Vipassana training itself had already been standardized and somewhat secularized in meditation centers worldwide by the recently departed S. N. Goenka [32]. In some ways the development of the standardized Vipassana retreat, in which guided meditation instructions are delivered through recordings of Goenka himself, constitute an even earlier appropriation of Buddhist meditation training that gave rise to Western movements. However, because the Vipassana retreats still make explicit reference to taking refuge in Buddha, contain Buddhist

theological lectures delivered by Goenka, and maintain the traditional requirements of monastic life, including complete abstention from intoxicants or sexual activity, this appropriation seems less extreme than those currently sweeping the West in the form of secular MSMT programs. Although we should be aware that the Vipassana tradition itself represents an appropriation from more contextualized Buddhist practice [33], in the present inquiry I will focus on the most proximal stages of appropriation by which MT has sparked scientific investigation leading to its popularization in the West.

Rather than employing the intensive 10-day silent retreats found in Vipassana centers, Kabat-Zinn employed a gentler, weekly group-meeting format, and Mindfulness-Based Stress Reduction (MBSR) was born. The original and most popular of the MSMT interventions, MBSR combines practices found across a variety of contemplative contexts, including classical Vipassana, more secular Western insight forms of Vipassana, Japanese Zen, Hatha yoga, as well as didactic exercises born from Western psychosocial models of stress [34]. MBSR thus constitutes an appeal to universal meditation principles rather than an attempt to literally translate mindfulness as described by any one particular tradition. In its delivery, MBSR features weekly group meeting with an experienced meditation teacher. In these meetings, students learn to practice different meditation techniques, discuss their meditation experiences, and receive education about the connection between the subjective experience of stress and its manifestation in the body. Participants are asked to practice formal meditation for about 40 minutes to an hour a day, and to practice informal mindfulness of activities in order to integrate the effects of practice into daily life.

The first published report on MBSR described reduced pain and negative mood symptoms in a group of 51 chronic pain patients [31]. Since that time, MBSR has been standardized into a clinical program, with demonstrated efficacy in reducing stress in both chronic pain [35], affective disorders, and related medical conditions [36]. Specialized variants of MBSR have also emerged, focusing on the treatment of depression vulnerability [37], chronic pain [38], and substance use disorders [39]. In each of these programs, the central goal has been to develop participant ability to stay connected to immediate experience rather than entrenched, habitual, and dysphoric elaboration on that experience. Accordingly, mindfulness has been described as "the awareness that arises from paying attention on purpose, in the present moment and non-judgmentally to things as they are" [40].

The popularization of MBSR and related programs are due in part to their ability to operate within Western institutions, beginning with hospitals and related health care clinics. Using a secular approach, and eschewing any appeals to the Buddha or other spiritual claims to authority, these programs have been sufficiently sanitized to be offered by publically-funded clinical institutions. In addition to MBSR, specialized variants of the 8 week program have been created to deal with issues such as vulnerability to depression [41], recovery from addiction [42,43], and chronic pain [44], among others. While this paper will focus primarily on MBSR as a clinical prototype for MSMT, similar issues are apparent in these other training programs. However, these programs are not identical, and even within a given standardized intervention, heterogeneity in the content being taught and the expectations made of mindfulness facilitators are certain to exist between training centers and instructors. In general, each of these programs constitutes a form of clinical appropriation with little explicit reference to Buddhism; the types of people who are attracted to both teach and train in such programs may however be different, and it may be the case that each derivation of one program to another, such as the adaptation

from MBSR to some of these other programs, constitutes its own form of appropriation with translational difficulties inherent therein.

2.2. Mindfulness Training without Buddhism?

While many classical Buddhist teachers claim that their teachings are universal and nonsectarian, these interventions, including the relatively secularized Vipassana retreat format, begin by asking participants to "take refuge in Buddha". For the atheist or person committed to atheism or a non-Buddhist religion, mention of the Buddha as an authority, savior or even explanatory construct presents a stumbling block for participants who are averse to taking on such spiritual allegiance. In this way, MSMT may reach a greater audience than classical Buddhism could alone. However, secularization of religious traditions also entails the possibility that substantive aspects of MT have been lost.

First and foremost, the severance of meditation practice from devotion to the Buddha is not a trivial omission. Central to Buddhist tradition are the three jewels of Buddhism, foundations for classical MT known as *Buddha*, *Dharma*, and *Sangha* [45]. *Buddha* refers to the historical figure, *Dharma* to classical teachings, and *Sangha* to the community and environmental context that supports mindfulness practice. Together, these three jewels are intended to support progression through the eightfold path to enlightenment, of which mindfulness is but a single aspect [46]. Specifically, taking refuge in the Buddha and learning the Dharma of reincarnation and karma support holding the proper metaphysical *view* on the world, having wholesome *intentions* and making an honest *effort* to practice and implement the other aspects of the path. Mindfulness then allows for monitoring of one's fulfillment of these intentions, a process also supported via the meditation-cultivated capacity for *concentration* on appropriate thoughts, speech, and action. The consequence of mindfulness and concentration together are wholesome outcomes, such as proper *action*, *speech* and choice of *livelihood*, which are all formalized in the description of Sangha. In MSMT, a focus on meditation but not prior intentions or consequential effects seems to be an incomplete system. In MSMT courses, I would argue that Buddha, Dharma and Sangha are not wholly lost, but are instead implicitly taught in a muted form.

In forsaking a literal appeal to the Buddha, the appropriation of MSMT to clinical settings loses the chief exemplar of the mindful individual as an aspirational end-point to meditative practice. However, the mindful exemplar is retained in the less venerated form of the mindfulness teacher. It is universally recommended that mindfulness teachers have their own longstanding meditation practice, attend annual retreats and have undergone some form of teacher training, so that they may embody mindful qualities that may then be implicitly modeled by participants [47]. Ideally, such practices allow instructors to effectively embody the requisite virtues for effective MT, although it is unknown whether secular personal practice allows for the same level of "spiritual transmission" as would be gained from a teacher better versed in the complete Buddhist dharma. While, formal instructor evaluation is inherently subjective, progress has been made in the development of Mindfulness-Based Intervention Teaching Assessment Criteria, which shows good reliability in assessing instructors in domains such as relational skills, embodiment of mindfulness, guidance through mindfulness practices, conveying course themes, and supporting group learning [48]. However, given the novelty of such assessment, the effects of teacher expertise in each of these domains has not been well-addressed by the research literature. Further, regardless of a teacher's ability to exemplify mindfulness, the loss of

the Buddha as an idealized exemplar may have important repercussions for the motivation and pervasiveness with which participants view their MSMT experiences. How much does lasting transformation through MT require a progression of spiritual meanings rather than a change in cognitive capacities? How much more effective is MT with refuge in the Buddha than a secular program that does not require such fealty? Whether a spiritual "hero" is required in MSMT is an issue which would benefit from empirical investigation.

While the concept of taking refuge in the Buddha may have been unacceptable to secular Western institutions, similar omission was not as necessary for the "jewels" of Dharma and Sangha. Indeed, Dharma teachings and a wholesome environment are structurally enshrined in MSMT group courses. In the case of Dharma, the instructions for guided meditation in MSMT are highly congruent with the instructions for formal meditation in classic Buddhist texts such as *Viuddhimagga*, the "great treatise" on Therevada Buddhist meditation practice [49]. MSMT participants are asked to spend a great deal of time focusing on sensations of the breath and body before expanding awareness to include thoughts, feelings, and other sensory experiences. Participants are also asked by teachers to notice the transitory and depersonalized nature of their experiences form a mindful perspective, serving as a Socratic form of Dharma teaching. Finally, participants are asked to begin to integrate the qualities of mindful awareness into their daily experience, which requires more than just concentration or open-monitoring of experience, but also a commitment to integrating sustained attention, equanimity, curiosity, and kindness into daily life [34]. As such, there is a culture of improvement and commitment to breaking the cycle of suffering that is preserved in MBSR in particular, and in MSMTs in general. However, the broader metaphysics of reincarnation and karma are excluded from the teachings, as are appeals to the lessons of historical sages or enlightened beings. It is uncertain whether belief in the complete Buddhist metaphysical system is required to realize the full benefits of meditative practice. If mindfulness is, as some teachers argue, a way of life rather than ancillary practice [50], guided meditation and inquiry may not be sufficient to improve practitioner's lives if it is not matched with a broader discussion of the transformative path.

Like Dharma, Sangha is integrated into group MSMT interventions, at least for the duration of the course. In my experience as an MBSR facilitator, participants often remark on the relative ease with which they meditate in a group compared to doing homework meditations on their own, and many participants emphasize the feeling of community that is formed at the end of MSMT programs. It is a funny kind of Sangha that dissolves at the end of eight week courses, and does not prescribe personal conduct outside of the classroom. On the other hand, this is not so different from attending a traditional Buddhist retreat in which practitioners return to their own communities with heterogeneous commitments to meditation and Buddhist faith. More concerning is whether the application of MSMT in private treatment settings can create the same atmosphere of Sangha. An argument can be made that only a single teacher and student are needed to begin the construction of community. Psychological research would however strongly support the notion that groups of at least 3 participants carry a much greater impact and pressure to conform to practice guidelines that may bolster efficacy [51]. Again, the question of whether mindfulness needs to be embedded in a broader set of reinforced values is pertinent in determining best practices for MSMT, and as of yet uninvestigated in the academic research literature.

Other aspects of Dharma and Sangha are notably absent from clinical MSMT interventions. Courses often emphasize teaching the realization of wellness and wholesomeness, but such terms are often operationalized in terms of "feeling well" rather than classical MT's definition of Sangha in terms of objective behaviors such as abstention from hedonistic activities or unethical behavior. Still, given the massively expanded personal freedoms found in Western culture surrounding one's right to pursue happiness, such prescriptions would perhaps pose as too great a violation of personal freedom to be accepted by secular participants. However, the fact that wholesomeness is not universally defined does not obviate the need for it to be defined individually, which MSMT courses do not seem to do to any formal extent. At a minimum, participants are urged to consider the wholesomeness of their actions in terms of feedback from their bodies. It is hoped that through the recognition of stress response, participants will be alerted to potentially unwholesome activities or events, and may then reflect on whether a change in behavior is warranted. How frequently such reflections occur, and whether they promote more wholesome behavior, is yet another under-investigated research area. We can infer from MSMT's clinical efficacy that some benefit must be being realized, but whether it is the product of reflection-driven insight is very much an empirical question.

2.3. Criticisms of Clinical MSMT Research and Practice

In recent years, Buddhist scholars have begun to comment on how the current conceptualization of mindfulness in the West may be inconsistent with Buddhist philosophy [33]. As discussed earlier, a focus on mindfulness meditation without the surrounding eightfold path may lead to mindful monitoring of goals and values that are antithetical to Buddhist values, such as attachment, striving, and self-affirmation. Importantly, such inconsistencies may result in imperfect models of MSMT that undermine the salutary claim. These critiques of secular MSMT take place at three major levels:

First, exception has been taken regarding the common Western definition of mindfulness "nonjudgmental, present-centered awareness". To many contemplative scholars, defining mindfulness as only a nonjudgmental attentional state conflates the procedural directives given during mindfulness training with a model of mindfulness as more complete transformative project [52]. Mindfulness in Buddhism, it is argued, was never supposed to refer to the complete absence of judgment; rather, the use of mindfulness is intended to provide a form of lucid awareness in which clear discernment of right and wrong are made available, which is then used to guide adaptive behavior.

Second, it is argued that even mindful attention that includes discernmenet should not be completely nonjudgmental. Instead, the classical term *sati*, the Pali term for mindfulness, has connotations of recollecting one's intentions, a mnemonic function that serves to constrain attention and action [53]. This criticism is concordant with the notion that more attention ought to be paid to the broader intentions held by participants in MSMT groups, above and beyond their ability to follow attention instructions for a particular meditative practice.

Third, and perhaps most importantly, mindfulness as bare, nonjudgmental attention is not traditionally described as being sufficient for the realization of positive personal change. Much of Buddhist theory on mindfulness is contained in a discourse known as the *Maha Sattpatthana Sutta*, which translates to "the Great Discourse on the Foundations on Mindfulness" [54]. Within this history of the Buddha's teachings, mindfulness is seen to rest upon four contemplative foundations, which

represent necessary targets for attentional focus. These foundations are: (i) the body; (ii) feelings; (iii) the mind or consciousness; and (iv) the *Dhammas*, or mental qualities. The first 3 foci explicitly exclude conceptual elaboration or judgment, acting as "bare attention" to physical sensations, emotional responses, and thoughts. However, the fourth category, the *Dhammas*, describes the optimal attitudes and common pitfalls surrounding mindful attention to objects in these first three categories. In effect, this fourth category serves as a set of top down regulatory goals for effectively deploying attention in mindful emotion regulation. It is asserted that it is only through the correct practice of attention deployment that the pinnacle of emotion regulation may be achieved: the complete extinction of suffering.

Thus, instead of "bare attention", it is argued that mindfulness must be coupled with wholesome characteristics, such as benevolence, engagement, confidence, and balance [55]. In other words, mindfulness must be accompanied by an intention towards virtue. Even though conceptual definitions of mindfulness often include salutary intentions, mindful attention, and the cultivation of wholesome attitudes [56], the empirical research literature is dominated by investigations of attention alone. While attention maps neatly onto a pre-established domain of psychological research, from a Buddhist perspective attention is only a precondition for meaningful change, *i.e.*, liberation from selfish attachment.

We should distinguish however, between omissions made in mindfulness research and in mindfulness teaching. The pre-occupation with mindfulness as "bare attention" devoid of judgment fortunately seems to be more a characteristic of mindfulness researchers than teachers. This pre-occupation is still serious however, as new teachers or practitioners who do not benefit from tutelage at the feet of more experienced teachers are likely influenced by written descriptions of mindfulness, and therefore exposed to the same "bare attention" biases that dominate the research literature. Furthermore, if Western science is to have a chance at effectively identifying the critical components of MSMT, it should, as I have argued elsewhere [57], begin to take intentional and attitudinal factors much more seriously.

Perhaps one reason that MSMT interventions still hold intention as being important was because of how MBSR was initially framed. In Kabat-Zinn's initial writings on the MBSR program, he argues that among the foundations for the program's success are an "Expectation of relief" and a perspective that one is taking "a first step towards optimizing [one's] health" [31]. In other words, the MBSR program explicitly rests upon a salutary claim that moves beyond bare attention. In my experience co-facilitating MBSR programs, participants who are referred to the program without an internalized need for positive change tend to be the ones who drop out. So, if MSMT is to avoid the "great danger" of mindfulness being perceived increasingly as an empty term, participant motivation cannot be assumed, particularly given the absence of a soteriological cultural context that could support such motivation. This concern is particularly salient for commercial applications of mindfulness, in which participants may not be thinking in terms of embarking on a trajectory of self-improvement, looking instead for a quick fix similar to taking an aspirin. Even in clinical contexts, patient motivation is not routinely assessed—more research is needed to determine whether a person who attends MSMT grudgingly following a phsyician's orders really has the same opportunity for benefit as someone who is more intrinsically motivated.

A deeper issue arises when considering participant motivation surrounding whether even the expectation of a long term program of self-improvement and suffering relief is a reasonable and sufficient

expectation for MSMT. Even if participants are highly motivated, can conveniently-packaged, 8-week programs, divorced from a broader cultural support system, really effect long-term salutary change? If people are meditating with the expectation of immediate relief, are such hedonic goals really compatible with the goals of enduring societal well-being that is generally the promised fruit of meditative practice? From a Buddhist perspective, the cultivation of lasting well-being has little to do with the avoidance of immediate discomfort. Indeed, reactivity to momentary discomfort is counterproductive, perpetuating attachment to pleasure and avoidance of pain, and reinforcing the causal mechanisms of suffering. In monastic settings, such motivation would likely not be considered "right effort" for contemplative practice. However, the assumption of uniform, enlightenment-seeking motivations may actually limit our ability to understand how meditation works. The fact that secular participants' motivations are varied and often selfish allows us to ask a question that would not normally be addressable in a monastic context: do participant motivations need to be "noble" for meditation to work?

We may find that meditation practices promote deep metaphysical insight on a path to enlightenment, even if initially fuelled by hedonistic short-term goals. On the other hand, and this may be contentious to followers of the 8-fold path, it may be the case that the benefits of meditation have little to do with cultural values. Instead, meditation may cultivate particular regulatory capacities that promote well-being across a variety of cultural contexts, regardless of broader soteriological commitments. My intention here is not to attack the principles of Buddhist psychological theory, but to point out that the heterogeneity of the Western cultural context allows us to avoid being dogmatic about the eightfold path as the most efficacious way to relieve suffering. Following investigation, it may still turn out that selfless goals are integral for long-term practice benefits, but this can be an empirical question rather than a priori assertion.

As it stands, it would be inaccurate to conclude that MSMT represents an even-handed popularization of Buddhist ideals, in that it does not formally promote aspiration towards awakening, liberation, and enlightenment in the classical sense. However, in its current form, MSMT still promotes the earliest steps on the path towards these goals. In this sense, MSMT in insufficient for the achievement of Buddhist ideals, but it does contribute towards their realization, providing some of the necessary early skills advocated for in classical Buddhist texts. The fact that MSMT is not a complete adaptation of Buddhism may not therefore be catastrophic- what is important however is better understanding how existing MSMT interventions can be compatible with, and putatively beneficial for, the reduction of human suffering. Central to this investigation is whether existing MSMT techniques are sufficient to even meet their most basic salutary claims, or whether a more complete classical transformative framework is needed. Until such comparative research is performed, this remains an empirical, albeit highly polarizing, question.

2.4. How Science Can Address the "Great Danger"

The salutary claim underlying secular MSMT is predicated on the notion that wholesome meditation practice does not require a Buddhist cultural context for the realization of benefits. The initial evidence for this idea lies in the increasingly well-established efficacy of these programs: trainees who see meditation as a form of clinical intervention, akin to therapy or medication, still

benefit from it, challenging the notion that goals of liberation and enlightenment are necessary precursors for positive change [36]. In my own experience leading MBSR courses, participants who espouse the "relaxation" benefits of meditation but possess no sense of personal insight still demonstrate reductions in depression scores that are comparable to those who report changes to the nature of self-representation or similar "deep" insights. While internalization of Buddhist constructs such as impermanence or selflessness may be needed for deeper levels of contemplative progress, such insights may not be necessary for the meditation's initial salutary effects.

The idea that there may be multiple, possibly contradictory, but equally efficacious motivations for meditation reveals a substantive question about the nature of meditation-related change. Two distinct accounts can be distinguished: the first perspective, which I will call the *meaning*-based perspective, situates change at the level of personal values and self-perception- it is an account more faithful to Buddhist psychology, in which the purpose of meditation is to cultivate insight that leads one to live selflessly in the service of humanity. Meditation from this perspective is perhaps akin to diarizing, one of Foucault's "Technologies of Self" [58], in which intentional introspection generates insights that promote personal growth. The second perspective posits training effects in terms of specific changes in *capacity*, *i.e.*, the capacity to perform a task or to sustain a mental process. The capacity perspective is perhaps more readily compatible with a tradition of scientific inquiry, as it operationalizes objectively measured capabilities that move beyond reliance on qualitative self-report. Through evaluation of objective capacity changes, it is possible to investigate the necessity and sufficiency of particular training-related changes for broader practice benefits.

Both the meaning-based and capacity-based perspectives are part of classical Buddhist psychological theory, and both may be valid effects of MSMT. These traditions however have distinct strengths that may be fruitfully combined. For example, the Western scientific method seems better suited for interrogating capacity-based changes in ways that are replicable and communicable across the culture. Conversely, a wise and experienced meditation teacher may be better at skillfully monitoring and shaping an individual's trajectory of insight, *i.e.*, the development of deep meaning about the nature of self, suffering and reality. Appealing to Western science to test changes in capacity may therefore be one way that secular appropriation can actually aid in our understanding and refinement of meditation techniques. Indeed, many Western science's successful efforts to understand mindfulness have investigated capacity-based accounts rather than exploring qualitative reports surrounding meditation-related change [59,60], but see [61] for a more an example of a more qualitative approach. The research questions in such studies have undoubtedly been guided by Buddhist psychological theory, but the results of the studies also extend beyond the most obvious claims of the Buddhist canon, informing our understanding of meditation in ways that would not easily be gleaned from the study of classical texts.

For example, in early meditation, a hierarchy of improved perceptual capacities are described in central texts such as the *Viuddhimagga*, a pali term meaning "the path of purification" [62]. One commentary on the Viuddhimagga by meditation master Mahasi Sayadaw describes how improved capacity for breath awareness leads to improved capacity for more general mental labeling of all sensory events [49]. Such labeling capacity then increases meta-awareness of the arising and passing of all sensory and mental events ([49], p. 16). From the knowledge of this arising and passing, there is an enhanced capacity for insight and enlightenment, and so on in increasing cycles of insight and

behavioral impact. How exactly one monitors the development of such capacity, or distinguishes true capacity improvement from delusion, is not clearly specified from such texts. It is in this situation that Western research on mechanisms of action has great potential.

The idea that formal training exercises can alter mental capacity has strong support in Western scientific discourse. At the level of perception, there is longstanding evidence for such changes. In 1859, it was reported by A. W. Volkmann that the minimum distance on the skin for two-point discrimination could be halved after approximately 100 trials of practice [63]. Since that time, an entire sub-discipline of perceptual learning research has emerged, with increased training-related behavioral sensitivity and commensurate changes to neural representations associated with all 5 of the external senses [64–68]. While there is no repeated testing of tactile discrimination in a standard MSMT or *vipassana* meditation course, the body scan, a primary practice within such traditions, closely mirrors such discriminative attention. The repeated sensory attention practices found in MSMT may therefore yield similar observable changes to perceptual capacity. Higher order cognitive functions also appear to be amenable to training, such as memory [69] and problem solving [70], although some core capacities like working memory or intelligence appear to be harder to improve. Higher order benefits of meditation practice such as metaphysical insight and improved emotion regulation may also follow an improved capacity model, although measuring such change may be more difficult than measuring changes to perceptual access.

If care is taken to closely relate scientific assessment of capacity changes to documented stages of meditation practice, there is no need to assume that scientific models of meditation need oppose classical Buddhist mechanisms. Instead, secular and Buddhist psychological theories may work synergistically: experimental paradigms can target specific stages of the meditative process, providing objective measures of meditative progress. Importantly, the validation of objective measurements of particular capacities then allows us to examine whether earlier, lower-level capacities such as body awareness are necessary precursors of higher order insights such decentering from selfish thinking. Such findings may help to corroborate or challenge Buddhist doctrine, but should lead to a better understanding of the meditative path over time. For example, Buddhist doctrine suggests that meditation enhances interoceptive capacity, the ability to notice subtle changes in body sensation as a function of practiced attention towards such sensations [49]. One test of interoception involves probing insight into the somatotopic map, the well-established finding that proportionately greater brain area is devoted to representing the hands or face relative to the back or legs [71]. Recent research suggests that meditators show greater awareness of this biased mapping than a control group [72]. Analogously, my research group has demonstrated that 8 week MBSR programs appear to strengthen the connections in brain regions associated with breath awareness [73]. On the other hand, awareness of the somatotopic map does not necessarily translate into universal body awareness. Despite higher confidence in their ability to detect their own heartbeat, experienced meditators fared no than age-matched controls [74]. So MSMT appears to increase interoception in some domains but not others, and predictably, the domains it influences seem to be related to the foci of attention during meditation practice, *i.e.*, body and breath sensation. Despite evidence for limited transfer, 3 months of intensive MSMT has been related to improved visual perceptual capacity [75], serving as proof-of-concept that transfer of training-related benefits across perceptual modalities is at least possible with more intensive training.

Given emerging evidence that MSMT promotes sensory capacity change, it is still a major empirical question whether building such capacity promotes salutary insights without the fuller interpretive context afforded by the traditional Buddhist framework. As a researcher of such capacity-based changes, it seems to me that such capacities are only useful if they are used as part of a broader project of self-improvement. Indeed, in some of my unpublished qualitative research, participants who report that MSMT provided them with tools for stress regulation tend to improve more than those who discuss the feelings of pleasure that come from meditation practice itself. The identification of reliable capacity changes does however begin to present candidate markers of early meditation practice that may then be examined for their relationship to deeper insights about the self, the world, and the cultivation of wholesome attitudes and behaviors.

A second example of progress in the scientific examination of MSMT lies in the determination of the minimal dose required for meditation to be useful. Intensive MT in a 3-month retreat setting appeared to improve the ability to sustain attention to even monotonous and difficult tasks, a capacity which was related to improvements in subjective well-being [76]. On the other hand, when compared to an active-control health education condition, the standard 8-week MBSR program provided few unique benefits to sustained attention [77]. This does not devalue the MBSR program, but suggests that if participants wish to reap the benefits of calm and sustained attention, greater intensity of practice may be needed. Such comparisons are however confounded by the fact that a 3-month intensive retreat supplies many of the traditional elements of Sangha and Dharma that are lacking in an 8-week program. Despite such concerns, the benefits of the popular 8-week format do not seem to be driven by improvements in sustained attention, pointing to the importance of other capacities or meaningful insights. Through such scientific investigation, we can learn how to more finely appreciate how the existing appropriated meditation traditions operation, and in doing so perhaps refine and improve the structure of such courses. We may also eventually be able to quantify the impact of contextual influences such as Sangha and Dharma relative to meditation practice itself, which will help drive the development of MSMT practices. Despite the current popularity of the capacity-change approach, the salutary claim driving empirical investigation reminds us that the broader goal is to characterize a set of practices that promote well-being and relief from suffering. This claim pushes research on standardized MSMT interventions to justify the importance of capacity-based changes, and in doing so, reduces the possibility that vacuous or even harmful practices will continue to be enshrined in future incarnations of MSMT.

A criticism of this somewhat optimistic take on the role of scientific investigation in refining mindfulness practices is that science will not take seriously less quantifiable, "meaning-based" sources of evidence. And it is true that the Western cultural appropriation of Buddhist meditation techniques makes for a biased relationship. Western clinical science will not change purely on the basis of its alignment with Buddhist principles, whereas Buddhism-derived mindfulness teachings will likely be adapted in response to clinical research findings. And yet, such bias may be a necessary protection in considering changes Western values and beliefs about well-being, allaying fears of "sneaking religion in the back door" through MSMT by providing a sense of consistent criteria for acceptance of novel ideas. This need to protect the "gatekeeper" from the influx of new ideas is not unique to Western science: my fellow meeting-attendee Dr. Hogendoorn makes a compelling case that Buddhism similarly protects itself when appropriating scientific findings into its monastic training curriculum by

giving religious authority the final say [78]. If, for example, Westerners appear to be measurably happier when mindfulness training includes affirmation of attachment to one's family and loved ones, one could imagine MSMT including such affirmations in its future iterations, despite the warnings against attachment found in Buddhist texts. Still, such acceptance has its limits: the emphasis of liberation and enlightenment goals that are central to Buddhist MT are not likely to be accepted into standard MSMT, as Western clinical science is defined by more pragmatic and less metaphysical improvements. These special states, including the attainment of enlightenment, will need to be translated into understandable and observable psychological constructs to have a chance of making it into Western popular culture. At the very least, the possibility for such translation exists, providing that we progress far enough in our understanding of MT to reliably introduce and measure such states. In the absence of such expertise, rarefied meditation states will remain the stuff of Eastern mysticism, implicitly fueling curiosity in the West, but hardly acting as a yardstick for measuring MSMT efficacy.

Despite the disparity in authority, it is still possible that in this integrative effort, scientific theory can and will be challenged. One example is the Buddhist idea that one's most basic sense of self as distinct from the world is illusory. This idea contradicts several decades of Western psychological research suggesting that the self-referential thinking is a special, unique, and privileged form of cognition that indicates a real self that organizes human behavior [79–81]. Several years ago, my research team compared Buddhist and Western theories of selfhood by looking at brain activity using fMRI [82]. The goal was to determine whether such a self-as-object, narrating system was only a habitual rather than intrinsic part of human cognition. If such as self-reference system were, as Buddhist theory suggests, only a habitual process, then it should be malleable by deconditioning self-referential cognitive habits through MSMT. Indeed, while untrained participants activated a stable and traditional "self-reference area" of the brain, participants with 8 weeks of MSMT could complement activation in this area with areas for momentary body representation, suggesting an expanded context for self-reference. In other words, the neural substrates of identity appear to be malleable through MT, implicating multiple types of self-reference and challenging the monolithic concepts of identity that dominate Western discourse. In this way both Buddhist and Western theories of mindfulness are at least both subject to investigation by the scientific method, even if our initial assumptions about MT are colored by our cultural assumptions. The "great danger" that MSMT will be proliferated by Western Science without still being held accountable to the standards of Western Science seems, at least for now, to be a challenge enthusiastically met by the scientific community.

3. The Second Appropriation: From the Clinic to the Living Room

Even as scientific research seeks to refine MSMT through comparison of Western and Buddhist models, a second challenge has presented itself in the commercialization of mindfulness practice. Mindfulness has ceased to be a clinically-directed enterprise, and is now becoming the focus of commercial enterprise. Numerous mindfulness apps are entering the digital marketplace, ranging from simple meditation timers to more comprehensive courses that include progressive guided meditations. With respect to corporate adaptation of MSMT in particular, this transition has been met with skepticism and some derision, with meditation teachers referring to such corporate applications as "McMindfulness" [3]. The McMindfulness arguments amount to a concern that attention training

practices will be marketed as mindfulness, while bearing only a pale resemblance to more established MSMT programs. Even if these courses and applications borrow from established MSMT structures, the implicit teaching and modeling may be lost, and with it much of the eightfold path that could be integral components to mindfulness' salutary claims. More menacingly, the nominally helpful characteristics of acceptance and stress tolerance that MT engenders may be leveraged to increase employee tolerance to unfair working conditions rather than empowering positive change.

3.1. Is "McMindfulness" a Real Cause for Concern?

Should we be concerned about this second appropriation? If the scientific and clinical communities are responsible in their examination of MT, can irresponsible commercial MT undermine the whole effort and expose the movement once again to the "Great Danger"? Might employees undergoing corporate MT become more cattle-like and subservient rather than empowered and liberated? As this paper is written, there is no published research on these commercial MT applications. As such, this section remains admittedly speculative. However, there are several reasons to suspect that the second appropriation is not as dire as one might imagine, namely: (1) even short, modular meditations appear to have a salutary effect; and (2) the salutary claim is still fundamentally a part of commercial mindfulness, and the market will evaluate new products and training techniques on the basis of this claim.

Research evidence on brief MSMT interventions is the first reason for believing that the second appropriation will not undermine the mindfulness movement. One study suggests that a single, 15 min mindfulness induction that focused attention on the breath reduced the sunk cost bias, the tendency to stay invested in a bad decision because of prior investment [83]. There is no mention of personal values or moral decisions here, but it is hard to argue that the release from automatic, biased thinking is a negative consequence of training. Yes, this freedom from bias could be used to promote commercial ends, like selecting the best stock or making more accurate mortgage approval decisions, but this is hardly a sinister application. If corporations are motivated to improve the clarity of their employees' business decisions, at worst it would seem that such training would be limited to more efficient business decisions, but it seems equally plausible that increased clarity in decision-making might benefit employees in other domains as well, such as identifying whether they are indeed working on a wholesome and sustainable working environment. Rather than disempowering employees, mindfulness training may act as a "Trojan horse" for employee empowerment masquerading as a productivity tool. While the idea of mindfulness as a beneficent Trojan horse may appear far-fetched, it seems equally plausible as accounts where mindfulness leads employees to spiral into complacency and subjugation.

Furthermore, brief MT interventions also appear to have protective effects against stress. In another study, concentration on the breath was compared to a control condition of focusing on "whatever came to mind". This study found that 25 min per day for only 3 days reduced the neuroendocrine response to social stress [84]. Again, it is hard to see the downside to increasing employee stress resilience. Yes, there is the possibility that workers will be asked to take on more hardship as their ability to endure such hardship increases. But it is also plausible that employers would be highly motivated to use mindfulness interventions if they can be shown to increase productivity and reduce absenteeism at existing workload levels. In other words, no sinister "ratcheting up" of workload will necessarily

follow corporate MT. Furthermore, there is the possibility that executives themselves will begin to engage in meditation practice, making better decisions and seeing more clearly what benefits their company, employees, and stockholders. This is by no means guaranteed, but there is nothing inherently sinister to promoting worker well-being.

A deeper reason to be optimistic about corporate and commercial MSMT is that such training is still packaged using the salutary claim. If a company or individual tries a commercial MT technique and gets no tangible benefit, they will likely seek an alternative solution. Just as the scientific community can act to maintain and strengthen standards for clinical delivery of mindfulness, market economics can and will adjudicate between different commercial MT applications. Furthermore, many of these commercial partnerships involve explicit consultation with MSMT researchers, clinicians, and teachers, who may help to engender more of salutary context that is arguably necessary for MT practices to have a salutary effect.

Despite my optimism and a few promising initial studies, I do not mean to argue that "McMindfulness" will be as effective as more classical or intensive MT traditions, particularly in the progression towards deeper meanings and insights. One of the most important steps on the path to liberation is the realization that:

> "…we who look at the whole and not just the part, know that we too are systems of interdependence, of feelings, perceptions, thoughts, and consciousness all interconnected. Investigating in this way, we come to realize that there is no me or mine in any one part, just as a sound does not belong to any one part of the lute."
>
> *Samyutta Nikaya* [85].

Can radical reframing of one's interdependence in the world and the accompanying reduction in reliance on self-concepts really come from simple MT exercises alone? It is an open question as to whether continued attention towards the breath or body, without superposition of an ethical or interpretive framework, can truly afford a feeling of interdependence within the universe and with other living beings.

3.2. Negative Consequences of Mindfulness Practice

A second potential cause for concern within this second commercial appropriation is the issue of negative side effects to mindfulness practice. Even with experienced teachers and a more classical Buddhist framework, mindfulness training has been associated with emergence and exacerbation of psychiatric disorders such as dissociative episodes and depression [86]. The related discipline of transcendental meditation has a longer research tradition, and with it has a corpus of negative effects, including depersonalization, psychosis, and dysphoria [87]. It has been argued that mindfulness teachers require training in understanding personal trauma, and how they can alter conventional training instructions to avoid triggering traumatic memories that the participant is unable to effectively regulate [88]. For example, participants living with Post-Traumatic Stress Disorder may benefit more from attention to a less triggering stimulus such as sound or vision before slowly "titrating up" their level of somatic awareness. In other words, a one-size-fits-all approach to mindfulness training may

have greater risks than disillusionment with the mindfulness movement—there is also the potential for serious psychological harm.

While the hidden risks of mindfulness practice are present at each stage of appropriation, at least at the level of secular clinical intervention there is already a framework in place for managing unexpected harm and maintaining a standard of care for intervention participants. In the commercial sector, there is no such assurance, short of legal remedies following proof of meditation-related psychological damage. As in many of the aforementioned issues, it is unclear how dependent the rates of negative effects are to the quality of meditation instruction; presumably negative consequences of meditation have existed for a long time, but we know so little about the dangers inherent to particular concentrative or open-monitoring practices. As in all health-promotion interventions, there is an element of risk; researchers may help to at least popularize the notion that mindfulness is not without potential side effects, so that companies seeking to profit on the further dissemination of MSMT go into the enterprise with awareness and culpability for the risks that they introduce to their clients. As frustrating as it may seem, such risk is not sufficient grounds for curtailing the spread of such techniques, given the apparently low base rates of negative outcomes. However, it does seem prudent for MSMT participants to be aware of these potential risks, small as they may be, before proceeding with meditation training. With the popularization of empirical data on mindfulness' negative effects, private firms and public institutions alike can be better held accountable for monitoring the health of their clients, and providing support plans in the rare but eventual emergence of negative outcomes from mindfulness training.

4. Conclusions

MSMT is founded upon traditional Buddhist practices, and seems to promote well-being and stress resilience in its practitioners. However, such efficacy does not imply a perfect intervention, and we cannot assume that Western theories of mental health serve to optimally realize meditation's chief mechanisms of action. On the other hand, it would be premature to criticize MSMT for simply departing from classical MT ideals such as liberation and enlightenment, as we also do not know whether such aspects of classical MT are integral to these practices long-documented benefits. Instead, there is a possibility that meditation represents a technology for mental health that is not fully understood in either classical or scientific traditions, and therefore constitutes an open knowledge area that may be enriched by contributions from both traditions.

Today's popular media feature many stories extolling the benefits of MSMT. However, there is also a growing wariness around the benefits and utility of secular mindfulness practice, stripped of its religious and ethical prescriptions. Given these arguments, it would seem that scientific efforts are best served in generating empirically-supported distinctions between "right" and "wrong" mindfulness, while avoiding criticism of MSMT techniques for which there is no empirically-derived contraindication. For it would seem that in being concerned with the "Great Danger" of mindfulness failing due to misappropriation, researchers, clinicians and teachers may be losing focus on the promotion of right mindfulness, a positive rather than negative campaign. By contrast, high quality research that delineates the conditions for effective mindfulness practice may help to resolve disagreements among contemplative scholars and Western scientists alike. Further, the use of such research to develop

successful clinical and commercial MT interventions can help to validate the salutary claim and sidestep the "Great Danger" inherent to the mindfulness movement. In this way, MT research and teaching may contribute to Western science Buddhist theories of mindfulness alike, potentially generating a deeper understanding of well-being promotion. To romanticize the project somewhat, through these efforts we may witness the rise of a novel culture within secular society, one fuelled by a unique blend of faith, skepticism, and willingness to experiment with one's own human experience.

Abbreviations

MT: Mindfulness Training;
MSMT: Modern Secular Mindfulness Training.

Conflicts of Interest

The author declares no conflict of interest.

References

1. Black, David S. "Mindfulness-based interventions: An antidote to suffering in the context of substance use, misuse, and addiction." *Substance Use & Misuse* 49 (2014): 487–91.
2. Rapgay, Lobsang, and Alexander Bystrisky. "Classical mindfulness." *Annals of the New York Academy of Sciences* 1172 (2009): 148–62.
3. Purser, Ron, and David Loy. *Beyond McMindfulness*. New York: Huffington Post, 2013.
4. James Hitchcock. *What is Secular Humanism?: Why Humanism Became Secular and How It is Changing Our World*. Ann Arbor: Servant Books, 1982, pp. 33–48.
5. John Ralston Saul. *Voltaire's Bastards: The Dictatorship of Reason in the West.* New York: Simon and Schuster, 2013.
6. Litfin, Karen. "Towards an integral perspective on world politics: Secularism, sovereignty and the challenge of global ecology." *Millennium—Journal of International Studies* 32 (2003): 29–56.
7. Kwee, Maurits G. "The social construction of a New Buddhist Psychology." In *New Horizons in Buddhist Psychology: Relational Buddhism for Collaborative Practitioners*. Taos: The Taos Institute Publications, 2010, pp. 29–49.
8. McWilliams, Spencer A. "Foundations of Mindfulness and Contemplation: Traditional and Contemporary Perspectives." *International Journal of Mental Health and Addiction* 12 (2014): 116–28.
9. Bhikkhu Bodhi. *The Noble Eightfold Path: Way to the End of Suffering*. Onalaska: Pariyatti, 2011.
10. Harvey, Peter. *An Introduction to Buddhism: Teachings, History and Practices*. Cambridge, UK: Cambridge University Press, 2012.
11. Bikkhu Bodhi. *The Connected Discourses of the Buddha: A New Translation of the Samyutta Nikaya.* Somerville: Wisdom Publications Inc., 2000.
12. Shulman, Eviatar. "Mindful Wisdom: The Sati-paṭṭhana-sutta on Mindfulness, Memory, and Liberation." *History of Religions* 49 (2010): 393–420.

13. Brown, Kirk W., and Richard M. Ryan. "The benefits of being present: Mindfulness and its role in psychological well-being." *Journal of Personality and Social Psychology* 84 (2003): 822–48.
14. Neurotech Coaching. "Mindfulness Exercise." Available online: http://yourbraintraining.com/mindfulness-exercises.html (accessed on 24 July 2014).
15. Mitchell, Scott A. "The Tranquil Meditator: Representing Buddhism and Buddhists in US Popular Media." *Religion Compass* 8 (2014): 81–89.
16. Alexander, Charles N., Ellen J. Langer, Ronnie I. Newman, Howard M. Chandler, and John L. Davies. "Transcendental meditation, mindfulness, and longevity: An experimental study with the elderly." *Journal of Personality and Social Psychology* 57 (1989): 950–64.
17. Anderson, James W., Chunxu Liu, and Richard J. Kryscio. "Blood pressure response to transcendental meditation: A meta-analysis." *American Journal of Hypertension* 21 (2008): 310–16.
18. Rainforth, Maxwell V., Robert H. Schneider, Sanford I. Nidich, Carolyn Gaylord-King, John W. Salerno, and James W. Anderson. "Stress reduction programs in patients with elevated blood pressure: A systematic review and meta-analysis." *Current Hypertension Reports* 9 (2007): 520–28.
19. Walsh, Roger, and Shauna L. Shapiro. "The meeting of meditative disciplines and Western psychology: A mutually enriching dialogue." *American Psychologist* 61 (2006): 227–39.
20. Pickert, Kate. "The Mindful Revolution." *New York Times*, 23 January 2014, pp. 40–49.
21. Gunaratana, Bhante H. *Eight Mindful Steps to Happiness: Walking the Buddha's Path*. Somerville: Wisdom Publications Inc., 2001.
22. Soma Thera. *The Way of Mindfulness: The Satipatthana Sutta and Its Commentary*. Kandy: Buddhist Publication Society, 1998.
23. North, Anna. "The Mindfulness Backlash." 30 June 2014. Available Online: http://op-talk.blogs.nytimes.com/2014/06/30/the-mindfulness-backlash/ (accessed on 7 July 2014).
24. Enserink, Martin. "Can the placebo be the cure?" *Science* 284 (1999): 238–40.
25. Petrovic, Predrag, Eija Kalso, Karl Magnus Petersson, and Martin Ingvar. "Placebo and opioid analgesia—Imaging a shared neuronal network." *Science* 295 (2002): 1737–40.
26. Goyal, Madhav, Sonal Singh, Erica M. S. Sibinga, Neda F. Gould, Anastasia Rowland-Seymour, Ritu Sharma, Zackary Berger, Dana Sleicher, David D. Maron, Hasan M. Shihab, *et al*. "Meditation Programs for Psychological Stress and Well-Being. " *Jama Internal Medicine* 174 (2014): 357–68.
27. Hofmann, Stefan G., Alice T. Sawyer, Ashley A. Witt, and Dianah Oh. "The effect of mindfulness-based therapy on anxiety and depression: A meta-analytic review." *Journal of Consulting and Clinical Psychology* 78 (2010): 169–83.
28. Chiesa, Alberto, and Alessandro Serretti. "Mindfulness-based stress reduction for stress management in healthy people: A review and meta-analysis." *The Journal of Alternative and Complementary Medicine* 15 (2009): 593–600.
29. Chiesa, Alberto, and Alessandro Serretti. "Mindfulness based cognitive therapy for psychiatric disorders: A systematic review and meta-analysis." *Psychiatry Research* 187 (2011): 441–53.
30. Dunne, John. "Toward an understanding of non-dual mindfulness." *Contemporary Buddhism* 12 (2011): 71–88.

31. Kabat-Zinn, Jon. "An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results." *General Hospital Psychiatry* 4 (1982): 33–47.
32. Michaelson, *Jay. S. N. Goenka: The Man Who Taught the World to Meditate.* New York: Huffington Post, 2013.
33. Titmuss, Christopher. "Has Vipassana reached the end of the road? A Personal Reflection after 30 years." Available online: http://www.dharmaenquiry.org/index.php/welcome/eng/vipassana (accessed on 14 September 2014).
34. Kabat-Zinn, Jon. *Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain and Illness.* New York: Delacorte, 1990.
35. Chiesa, Alberto, and Alessandro Serretti. "Mindfulness-based interventions for chronic pain: A systematic review of the evidence." *Journal of Alternative and Complementary Medicine* 17 (2011): 83–93.
36. Chuen Yee Lo, Barbara, Shun Lau, Sing-Hang Cheung, and Nicholas B. Allen."The impact of rumination on internal attention switching." *Cognition Emotion* 26 (2012): 209–23.
37. Segal, Zindel V., J. Mark G. Williams, and John D. Teasdale. *Mindfulness-Based Cognitive Therapy for Depression: A New Approach to Preventing Relapse*. New York: Guilford Press, 2002.
38. Gardner-Nix, Jackie. "Mindfulness-Based Stress Reduction for Chronic Pain Management." In *Clinical Handbook of Mindfulness*. Berlin/Heidelberg: Springer, 2009, pp. 369–81.
39. Zgierska, Aleksandra, David Robago, Neharika Chawla, Kenneth Kushner, Robert Koehler, and Alan Marlatt. "Mindfulness meditation for substance use disorders: A systematic review." *Substance Abuse* 30 (2009): 266–94.
40. Williams, J. Mark, John Teasdale, Zindel Segal, and Jon Kabat-Zinn. *The Mindful Way through Depression: Freeing Yourself from Chronic Unhappiness*. New York: The Guilford Press, 2007.
41. Teasdale, John D., Zindel V. Segal, J. Mark G. Williams, Valerie A. Ridgeway, Judith M. Soulsby, and Mark A. Lau. "Prevention of relapse/recurrence in major depession through mindfulness-based cognitive therapy." *Journal of Consulting and Clinical Psychology* 68 (2000): 615–23.
42. Garland, Eric L. *Mindfulness-Oriented Recovery Enhancement for Addiction, Stress, and Pain.* Washington, D.C.: NASW Press, 2013.
43. Witkiewitz, Katie G., Alan Marlatt, and Denise Walker. "Mindfulness-based relapse prevention for alcohol and substance use disorders." *Journal of Cognitive Psychotherapy* 19 (2005): 211–28.
44. Gardner-Nix, Jackie, Stephanie Beckman, Juliana Barbati, and Jessica Grummitt. "Evaluating distance education of a mindfulness-based meditation programme for chronic pain management." *Journal of Telemedicine and Telecare* 14 (2008): 88–92.
45. Brody, Arthur L., Sanjaya Saxena, Paula Stoessel, Laurie A. Gillies, Lynn A. Fairbanks, Shervin Alborzian, Michael E. Phelps, Sung-Cheng Huang, Hsiao-Ming Wu, Matthew L. Ho, *et al*. "Regional brain metabolic changes in patients with major depression treated with either paroxetine or interpersonal therapy: Preliminary findings." *Archives of General Psychiatry* 58 (2001): 631–40.

46. Leppanen, Jukka M., Maarten Milders, Stephen Bell, Emma Terriere, and Jari K. Hietanen. "Depression biases the recognition of emotionally neutral faces." *Psychiatry Research* 128 (2004): 123–33.
47. Kabat-Zinn, Jon, Saki F. Santorelli, Melissa Blacker, Jeffrey Brantley, Florence Meleo-Meyer, Paul Grossman, Ulrike Kesper-Grossman, Diane Reibel, and Robert Stahl. "Training Teachers to Deliver Mindfulness-Based Street Reduction: Principles and Standards." 2014. Available online: http://www.umassmed.edu/cfm/Training/Principles--Standards/ (accessed on 17 September 2014).
48. Crane, Rebecca S., Catrin Eames, Willem Kuyken, Richard P. Hastings, J. Mark G. Williams, Trish Bartley, Alison Evans, Sara Silverton, Judith G. Soulsby, and Christina Surawy. "Development and validation of the mindfulness-based interventions—Teaching assessment criteria (MBI: TAC)." *Assessment* 20 (2013): 681–88.
49. Sayadaw, Mahasi. *Practical Insight Meditation: Basic and Progressive Stages*. Kandy: Buddhist Publication Society, 2006.
50. Thich Nhat Hanh. *Peace is Every Step: The Path of Mindfulness in Everyday Life.* New York: Random House, 1995.
51. Gerard, Harold B., Roland A. Wilhelmy, and Edward S. Conolley. "Conformity and group size." *Journal of Personality and Social Psychology* 8 (1968): 79–82.
52. Bodhi, Bikkhu. "What does mindfulness really mean? A canonical perspective." *Contemporary Buddhism* 12 (2011): 19–39.
53. Dreyfus, Georges. "Is mindfulness present-centred and non-judgmental? A discussion of the cognitive dimensions of mindfulness." *Contemporary Buddhism* 12 (2011): 41–54.
54. Silananda, Sayadaw U. *The Four Foundations of Mindfulness*. Edited by Ruth-Inge Heinze. Boston: Wisdom Publications, 2002, vol. viii, p. 247.
55. Olendzki, Andrew. "The construction of mindfulness." *Contemporary Buddhism* 12 (2011): 55–70.
56. Kennedy, Sidney H., Kenneth R. Evans, Stephanie Kruger, Helen S. Mayberg, Jeffrey H. Meyer, Sonia McCann, Andrew I. Arifuzzman, Sylvain Houle, and Franco J. Vaccarino. "Changes in regional brain glucose metabolism measured with positron emission tomography after paroxetine treatment of major depression." *American Journal of Psychiatry* 158 (2001): 899–905.
57. Farb, Norman A. S. "Mind Your Expectations: Exploring the Roles of Suggestions and Intention in Mindfulness Training." *Journal of Mind-Body Regulation* 2 (2012): 27–42.
58. Foucault, Michel. *Technologies of the Self: A Seminar with Michel Foucault*. Edited by Luther H. Martin, Huck Gutman and Patrick H. Hutton. Amherst: University of Massachusetts Press, 1988, p. 166.
59. Chiesa, Alberto, and Alessandro Serretti. "A systematic review of neurobiological and clinical features of mindfulness meditations." *Psychological Medicine* 40 (2010): 1239–52.
60. Hölzel, Britta K., Sara W. Lazar, Tim Gard, Zev Schuman-Olivier, David R. Vago, and Ulrich Ott. "How Does Mindfulness Meditation Work? Proposing Mechanisms of Action from a Conceptual and Neutral Perspective." *Perspectives on Psychological Science* 6 (2011): 537–59.
61. Kerr, Catherine E., Krishnapriya Josyula, and Ronnie Littenberg. "Developing an observing attitude: An analysis of meditation diaries in an MBSR clinical trial." *Clinical Psychology & Psychotherapy* 18 (2011): 80–93.

62. Nanamoli, Bhikku. *The Path of Purification: Visuddhimagga*. Kandy: Buddhist Publication Society, 1991.
63. Volkman, Alfred W. "Über den Einfluss der Uebung auf das Erkennen raumlicher Distanzen." *Sächsische Akademie der Wissenschaften zu Leipzig* 10 (1859): 38–69.
64. Zelano, Christina, Moustafa Bensafi, Jess Porter, Joel Mainland, Brad Johnson, Elizabeth Bremner, Christina Telles, Rehan Khan, and Noam Sobel. "Attentional modulation in human primary olfactory cortex." *Nature Neuroscience* 8 (2005): 114–20.
65. Veldhuizen, Maria G., Genevieve Bender, R. Todd Constable, and Dana M. Small. "Trying to detect taste in a tasteless solution: Modulation of early gustatory cortex by attention to taste." *Chemical Senses* 32 (2007): 569–81.
66. Bauer, Markus, Robert Oostenveld, Maarten Peeters, and Pascal Fries."Tactile spatial attention enhances gamma-band activity in somatosensory cortex and reduces low-frequency activity in parieto-occipital areas." *Journal of Neuroscience* 26 (2006): 490–501.
67. Hall, Deborah A., Mark P. Haggard, Michael A. Akeroyd, A. Quentin Summerfield, Alan R. Palmer, Michael R. Elliot, and Richard W. Bowtell. "Modulation and task effects in auditory processing measured using fMRI." *Human Brain Mapping* 10 (2000): 107–19.
68. Brefczynski, Julie A., and Edgar A. DeYoe. "A physiological correlate of the 'spotlight' of visual attention." *Nature Neuroscience* 2 (1999): 370–74.
69. Verhaeghen, Paul, Alfons Marcoen, and Luc Goossens. "Improving memory performance in the aged through mnemonic training: A meta-analytic study." *Psychology Aging* 7 (1992): 242–51.
70. Bielaczyc, Katerine, Peter L. Pirolli, and Ann L. Brown. "Training in Self-Explanation and Self-Regulation Strategies: Investigating the Effects of Knowledge Acquisition Activities on Problem Solving." *Cognition and Instruction* 13 (1995): 221–52.
71. Penfield, Wilder, and Edwin Boldrey. "Somatic motor and sensory representation in the cerebral cortex of man as studied by electrical stimulation." *Brain* 60 (1937): 389–443.
72. Fox, Kieran C., Pierre Zakarauskas, Matt Dixon, Melissa Ellamil, Evan Thompson, and Kalina Christoff. "Meditation experience predicts introspective accuracy." *PLoS One* 7 (2012): e45370.
73. Farb, Norman A., Zindel V. Segal, and Adam K. Anderson. "Mindfulness meditation training alters cortical representations of interoceptive attention." *Social Cognitive and Affective Neuroscience* 8 (2013): 15–26.
74. Khalsa, Sahib S., David Rudrauf, Antonio R. Damasio, Richard J. Davidson, Antoine Lutz, and Daniel Tranel. "Interoceptive awareness in experienced meditators." *Psychophysiology* 45 (2008): 671–77.
75. Slagter, Heleen A., Antoine Lutz, Lawrence L. Greischar, Andrew D. Francis, Sander Nieuwenhuis, James M. Davis, and Richard J. Davidson. "Mental training affects distribution of limited brain resources." *PLoS Biology* 5 (2007): 1228–35.
76. MacLean, Katherine A., Emilio Ferrer, Stephen R. Aichele, David A. Bridwell, Anthony P. Zanesco, Tonya L. Jacobs, Brandon G. King, Erika L. Rosenberg, Baljinder K. Sahdra, Phillip R. Shaver, *et al*. "Intensive meditation training improves perceptual discrimination and sustained attention." *Psychological Science* 21 (2010): 829–39.

77. Liotti, Mario, Helen S. Mayberg, Scott McGinnis, Stephen L. Brannan, and Paul Jerabek. "Unmasking disease-specific cerebral blood flow abnormalities: Mood challenge in patients with remitted unipolar depression." *American Journal of Psychiatry* 159 (2002): 1830–40.
78. Hogendoorn, Rob. "Caveat Emptor: The Dalai Lama's Proviso and the Burden of (Scientific) Proof." *Religions* 5 (2014): 522–59.
79. Galatzer-Levy, Robert M., and Bertram J. Cohler. *The Essential Other: A Developmental Psychology of the Self*. New York: Basic Books, 1993.
80. Kanagawa, Chie, Susan E. Cross, and Hazel R. Markus. "'Who am I?' The cultural psychology of the conceptual self." *Personality and Social Psychology Bulletin* 27 (2001): 90–103.
81. Gillihan, Seth J., and Martha J. Farah. "Is self special? A critical review of evidence from experimental psychology and cognitive neuroscience." *Psychological Bulletin* 131 (2005): 76–97.
82. Farb, Norman A. S., Zindel V. Segal, Helen Mayberg, Jim Bean, Deborah McKeon, Zainab Fatima, and Adam K. Anderson. "Attending to the present: Mindfulness meditation reveals distinct neural modes of self-reference." *Social Cognitive and Affective Neuroscience* 2 (2007): 313–22.
83. Hafenbrack, Andrew C., Zoe Kinias, and Sigal G. Barsade. "Debiasing the Mind through Meditation Mindfulness and the Sunk-Cost Bias." *Psychological Science* 25 (2014): 369–76.
84. Creswell, J. David, Laura E. Pacilio, Emily K. Lindsay, and Kirk Warren Brown. "Brief mindfulness meditation training alters psychological and neuroendocrine responses to social evaluative stress." *Psychoneuroendocrinology* 44 (2014): 1–12.
85. Bancroft, Anne. *The Buddha Speaks*. Boston: Shambhala Publications, 2000.
86. Rocha, Tomas. "The Dark Knight of the Soul." *The Atlantic*, 25 June 2014. Available online: http://www.theatlantic.com/health/archive/2014/06/the-dark-knight-of-the-souls/372766/ (accessed on 24 September 2014).
87. Allen, Nicholas B., Richard Chambers, Wendy Knight, Grant Blashki, Lisa Ciechomski, Craig Hassed, Eleonora Gullone, Catherine McNab, and Graham Meadows. "Mindfulness-based psychotherapies: A review of conceptual foundations, empirical evidence and practical considerations." *Australian and New Zealand Journal of Psychiatry* 40 (2006): 285–94.
88. Treleaven, David. "Meditation, Trauma, and Contemplative Dissociation." *Somatics* 16 (2009): 20–22.