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Berkeley Undergraduate Journal

Title
Beyond Mindfulness: Meditation for Mystical Experience and Persisting Benefit

Permalink
https://escholarship.org/uc/item/0961m6g7

Journal
Berkeley Undergraduate Journal, 34(2)

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Publication Date
2020

DOI
10.5070/B3342049983

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BEYOND MINDFULNESS:

Meditation, Mystical Experience, and Persisting Benefit

By Harrison Rappaport

Modern psychological research on meditation has demonstrated its extensive psychological and physical benefits. Much of this modern research relies on 'mindfulness' training protocols, such as the popular MBSR program (from the 1970s) and similar offshoots. Though certainly useful, these mindfulness interventions are limited in scope. Their contents do not reflect voluminous recent research into related practices, nor the immense breadth of the traditions from which they come. Such mindfulness interventions derive generally from Buddhist teachings, but include only a fraction of the traditional meditative path – and omit profound, essential elements.

I created a novel curriculum to expand on existing mindfulness protocols, better represent the complete traditions that have been their source, and improve their efficacy by encouraging self-transcendent and mystical-type experiences. This program was offered as a semester-long Berkeley undergraduate course. Self-report assessments revealed myriad benefits: increased psychological well-being, resilience to stress, confidence, purpose; improvement of depression, anxiety, PTSD, and insomnia symptoms; and bolstered compassion, patience, focus, and empathy. 70% of students responded that in terms of overall life value, the meditation course was equal to or greater in significance than anything they had ever experienced.

Students reported surprising levels of mystical experience as a result of the class. Intriguingly, out of all dimensions assessed, only mystical experience possessed a truly significant relationship with total reported participant benefit (Pearson coefficient=0.72). These findings demonstrate the efficacy of this novel meditation protocol, the accessibility of mystical experience with proper instruction, and the central importance of such experience for maximum participant benefit.

Theoretical Background / Literature Review

Modern Meditation Research: Mindfulness & Beyond

Decades of modern scientific research have demonstrated that meditation can improve symptoms of depression,[1,2,3,4] anxiety,[5,6] and insomnia.[7,8]

Meditation can also strengthen attentional ability,[9] working memory, and test performance;[10] it may increase kindness and helping behaviors.[11,12] Additional documented effects of meditation practice include alleviating the distress associated with terminal illness[13] and chronic pain,[14] improving symptoms of alcoholism and addiction,[15,16] and bolstering the immune system.[17] Much of this research has focused on ameliorating psychological distress and physical ailment — without question, an important aim.

For example, an eminently popular program used in meditation research for the past several decades has been Mindfulness-Based Stress Reduction (MBSR), an 8-week meditation course developed by Dr. Kabat-Zinn at the University of Massachusetts Medical Center in the late 1970s. MBSR has inarguably made tremendously valuable contributions to meditation research and to the lives of many. It has also led to various related 'mindfulness-based' protocols such as Mindfulness-Based Cognitive Therapy (MBCT).

Research using MBSR and its offshoots has largely focused on the reduction of negative symptoms (pain, depression, anxiety, eating disorders, insomnia, etc.). The main techniques used in such programs are mindfulness, especially of one's breath; a "body scan," which involves moving one's attention progressively through the sensations of the body; and simple yoga exercises or stretching.

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[1] John D. Teasdale et al., "Prevention of Relapse/Recurrence in Major Depression by Mindfulness-Based Cognitive Therapy," Journal of Consulting and Clinical Psychology 68, no. 4 (2000): 615–23.

[2] Alberto Chiesa and Alessandro Serretti, "Mindfulness Based Cognitive Therapy for Psychiatric Disorders: A Systematic Review and Meta-Analysis," Psychiatry Research 187, no. 3 (2011): 441–53.

[3] Jacob Piet and Esben Hougaard, "The Effect of Mindfulness-Based Cognitive Therapy for Prevention of Relapse in Recurrent Major Depressive Disorder: A Systematic Review and Meta-Analysis," Clinical Psychology Review 31, no. 6 (2011): 1032–40.

[4] Richard J. Davidson, "Mindfulness-Based Cognitive Therapy and the Prevention of Depressive Relapse: Measures, Mechanisms, and Mediators," JAMA Psychiatry 73, no. 6 (2016): 547.

[5] Jon Kabat-Zinn et al., "Effectiveness of a Meditation-Based Stress Reduction Program in the Treatment of Anxiety Disorders, American Journal of Psychiatry 149, no. 7 (1992): 936-43.

[6] Elizabeth Hoge et al., "Randomized Controlled Trial of Mindfulness Meditation for Generalized Anxiety Disorder: Effects on Anxiety and Stress Reactivity," The Journal of Clinical Psychiatry 74, no. 8 (2013): 786–92.

[7] Jason C. Ong et al., "A Randomized Controlled Trial of Mindfulness Meditation for Chronic Insomnia," Sleep 37, no. 9 (2014): 1553–63.

[8] Sheila N. Garland et al., "The Quest for Mindful Sleep: A Critical Synthesis of the Impact of Mindfulness-Based Interventions for Insomnia," Current Sleep Medicine Reports 2, no. 3 (2016): 142–51.

[9] Yi-Yuan Tang et al., "Short-Term Meditation Training Improves Attention and Self-Regulation," Proceedings of the National Academy of Sciences 104, no. 43 (2007): 17152–56.

[10] Michael D. Mrazek et al., "Mindfulness Training Improves Working Memory Capacity and GRE Performance While Reducing Mind Wandering," Psychological Science 24, no. 5 (2013): 776–81.

[11] Daniel Lim, Paul Condon, and David DeSteno, "Mindfulness and Compassion: An Examination of Mechanism and Scalability," PLOS ONE 10, no. 2 (2015): e0118221.

[12] Paul Condon et al., "Meditation Increases Compassionate Responses to Suffering," Psychological Science 24, no. 10 (2013): 2125-2127.

[13] Michael Speca et al., "A Randomized, Wait-List Controlled Clinical Trial: The Effect of a Mindfulness Meditation-Based Stress Reduction Program on Mood and Symptoms of Stress in Cancer Outpatients," Psychosomatic Medicine 62, no. 5 (2000): 613–22.

[14] Jon Kabat-Zinn et al., "Four-Year Follow-Up of a Meditation-Based Program for the Self-Regulation of Chronic Pain: Treatment Outcomes and Compliance," The Clinical Journal of Pain 2, no. 3 (1986): 159–774.

[15] Sarah Bowen et al., "Relative Efficacy of Mindfulness-Based Relapse Prevention, Standard Relapse Prevention, and Treatment as Usual for Substance Use Disorders: A Randomized Clinical Trial," JAMA Psychiatry 71, no. 5 (2014): 547.

[16] Eric L. Garland et al., "Mindfulness Training Modifies Cognitive, Affective, and Physiological Mechanisms Implicated in Alcohol Dependence: Results of a Randomized Controlled Pilot Trial," Journal of Psychoactive Drugs 42, no. 2 (2010): 177–92.

[17] Richard J. Davidson et al., "Alterations in Brain and Immune Function Produced by Mindfulness Meditation," Psychosomatic Medicine 65, no. 4 (2003): 564–70.

These programs have shown good efficacy in a variety of applications, and have many merits. Yet, since the 1970s, an immense number of studies have been published showing the benefits of other practices that could be easily integrated into a meditation-based course. In the course that I created for this study, many of those additional practices have been included. Let us review a few, beginning with the development of loving-kindness and compassion.

Traditionally, the elements of compassion and loving-kindness were considered essential components of the meditation path — not to be discarded. Modern studies, too, repeatedly find these elements to be beneficial. For example, one study found that loving-kindness meditation practiced by working adults led to increases in daily positive emotions; strengthened inner resources such as mindfulness and purpose; decreased illness; and ultimately "increased life satisfaction and reduced depressive symptoms." [18] A literature review of studies on loving-kindness meditation and compassion meditation found them both to be associated with increased positive affect. These meditation methods produced increased activation of brain areas involved in emotional processing and empathy, such as the insula (involved in emotional detection) and the right temporal parietal juncture (related to empathy, attention, understanding the emotions of others).

The same review reported that compassion meditation "may reduce stress-induced subjective distress and immune response." [19] Even a single loving-kindness meditation of just a few minutes has been shown to produce greater feelings of social connection and positivity towards strangers.[20] Based on extensive recent research and traditional frameworks, the expanded protocol developed for this study includes several elements designed to increase empathy, prosociality, and well-being: compassion & loving-kindness meditations, related reflective writing assignments, and applied prosocial practices.

Two other types of meditation practice which have seen modern evidence of efficacy are concentration meditation[21,22] and 'open-monitoring' meditation.[23] Both styles are represented within the protocol at hand. Recent research also supports the efficacy of gratitude practices, which have been shown to produce elevated well-being and positive affect.[24] A review of related literature found that gratitude predicts significantly lower risk for depression, anxiety, phobias, and dependence on alcohol or drugs; it encourages recovery from PTSD; and it is linked to overall well-being. Gratitude has been demonstrated to be correlated with close social relationships, meaning and purpose in life, and prosocial behavior.[25] This type of practice was also utilized in the curriculum for this study.

Next, the course included outdoor meditation and time spent sitting and walking in pleasant natural settings (in this case, around the UC Berkeley campus). We asked participants to enjoy places of natural beauty outside of class and practice meditation there as well. Viewing and being in nature can reduce stress, boost positive mood and empathy, and lead to better physical health.[26] It has been shown to aid students in more rapid and significant recovery from stressful events.[27,28] Being in a forest setting — as compared to urban environments — led in one study to lower cortisol levels, lower pulse rate and blood pressure, increased parasympathetic activity, and decreased sympathetic activity after only a short time.[29] Finally, participants exposed to more beautiful images of nature tended to be more generous and trusting.[30] In this course, teaching and meditating together in a natural setting was quite effective: after a silent hour-long meditation under the stars at night, several students wondrously and joyously reported feeling more peaceful and at ease than ever before in their lives.

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[18] Barbara L. Fredrickson et al., "Open Hearts Build Lives: Positive Emotions, Induced through Loving-Kindness Meditation, Build Consequential Personal Resources," Journal of Personality and Social Psychology 95, no. 5 (2008): 1045–62.

[19] Stefan G. Hofmann, Paul Grossman, and Devon E. Hinton, "Loving-Kindness and Compassion Meditation: Potential for Psychological Interventions," Clinical Psychology Review 31, no. 7 (2011): 1126–32.

[20] Cendri A. Hutcherson, Emma M. Seppala, and James J. Gross, "Loving-Kindness Meditation Increases Social Connectedness," Emotion 8, no. 5 (2008): 720–24.

[21] Christopher J. May et al., "Tracking Longitudinal Changes in Affect and Mindfulness Caused by Concentration and Loving-Kindness Meditation with Hierarchical Linear Modeling," Mindfulness 5, no. 3 (2012): 249–58.

[22] Matthijs Kox et al., "The Influence of Concentration/Meditation on Autonomic Nervous System Activity and the Innate Immune Response: A Case Study," Psychosomatic Medicine 74, no. 5 (2012): 489–94.

[23] Antoine Lutz et al., "Attention Regulation and Monitoring in Meditation," Trends in Cognitive Sciences 12, no. 4 (2008): 163–69.

[24] Robert A. Emmons and Michael E. McCullough, "Counting Blessings versus Burdens: An Experimental Investigation of Gratitude and Subjective Well-Being in Daily Life," Journal of Personality and Social Psychology 84, no. 2 (2003): 377–89.

[25] Alex M. Wood, Jeffrey J. Froh, and Adam W.A. Geraghty, "Gratitude and Well-Being: A Review and Theoretical Integration," Clinical Psychology Review 30, no. 7 (2010): 890–905.

[26] Gregory N. Bratman, J. Paul Hamilton, and Gretchen C. Daily, "The Impacts of Nature Experience on Human Cognitive Function and Mental Health," Annals of the New York Academy of Sciences 1249, no. 1 (2012): 118–36.

Despite the wealth of new evidence which would support the incorporation of additional methods into meditation training protocols for research, great numbers of meditation studies have been executed and published in recent decades using essentially the same MBSR protocol — without major revision to the methods used. Meditation and yoga are no longer foreign to popular awareness; they possess extensive scientific proof of efficacy and have seen widespread popular acceptance, so researchers today can benefit from reaching a little further in the scope of meditation programs used in studies.

Thus, the inspiration for the project at hand. Herein is an attempt at the continued development of mindfulness-type programs for research; an attempt to broaden the scope of the progression of the meditation techniques involved and to include additional methods. This multifaceted approach aims to find greater accordance with the more ancient and complete traditions of meditation from which these modern protocols draw, and to honor the wealth of recent research on a variety of complementary methods.

Traditional Perspectives

Many existing modern meditation protocols used in recent research, including MBSR, have been rooted in Buddhist meditation techniques. Understandably, since Buddhist traditions are complex and varied, much simplification has been involved in adapting those teachings to the modern secular setting -- and in making them more suitable to a short course of instruction. In particular, the methods of mindfulness of the breath and of somatic sensations have been emphasized in existing protocols.

Yet, in traditional Buddhist views, all parts of the path of meditation and virtue are important. Mindfulness is considered to be essential, certainly, but so are the development of concentrative power, the progressive investigation of self and reality, training in loving-kindness, and teachings on the nature of the mind.[31,32] In the view of Vajrayāna Buddhism in particular, the direct instructions on the nature of one's mind are considered absolutely central to proper meditative development; such teachings are generally absent from mindfulness-only approaches.

To support this idea, it may be useful to offer some examples. I will attempt to briefly sketch the scope of these traditions for the sake of illustrating the breadth of the teachings as they exist in their fuller forms.

Theravāda: Foundations & the Pali Canon

In order to illustrate the scope of Buddhist meditation traditions, let us look first to their beginnings and then move forward in time. Theravāda (Pali, "school of the Elders") is the oldest tradition of Buddhism, and is based on teachings now preserved in texts called sūtta (Pali) or sūtra (Sanskrit). These texts are said to contain the

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[27] Roger S. Ulrich, "Visual Landscapes and Psychological Well-being," Landscape Research 4, no. 1 (1979): 17–23.

[28] Roger S. Ulrich et al., "Stress Recovery during Exposure to Natural and Urban Environments," Journal of Environmental Psychology 11, no. 3 (1991): 201–30.

[29] Bum Jin Park et al., "The Physiological Effects of Shinrin-Yoku (Taking in the Forest Atmosphere or Forest Bathing): Evidence from Field Experiments in 24 Forests across Japan," Environmental Health and Preventive Medicine 15, no. 1 (2010): 18–26.

[30] Jia Wei Zhang et al., "An Occasion for Unselfing: Beautiful Nature Leads to Prosociality," Journal of Environmental Psychology 37, (2014): 61–72.

[31] Gampopa, The Jewel Ornament of Liberation: The Wish-Fulfilling Gem of the Noble Teachings, trans. Khenpo Konchog Gyaltsen, ed. Ani K. Trinlay Chodron (Ithaca, NY: Snow Lion Publications, 1998).

[32] Dakpo Tashi Namgyal, Moonbeams of Mahāmudrā, trans. Elizabeth M. Callahan (Boulder, Colorado: Snow Lion, 2019).

words of the historical Shakyamuni Buddha and his close students; a few in particular merit discussion here. The Satipaṭṭhāna Sūtta and the later Mahāsatipaṭṭhāna Sūtta are two highly regarded texts from the Pali canon of Theravāda Buddhism. Satipaṭṭhāna (Pali) translates roughly to the 'foundation or presence of mindfulness.' These texts describe four foundations of mindfulness:[33] mindfulness of kāyā (body), of vedanā (sensation, feeling, perception), of cittā (mind or consciousness), and of dhamma (aspects of reality pointed to in Buddhist teachings). The category of dhamma here includes hindrances to meditation, the "five aggregates" of form and consciousness, the "six spheres" of sense experience, the "seven enlightenment factors" (such as joy, concentration, and tranquility), and finally the "four noble truths." In this classic structuring of the development of mindfulness, we see clearly that the progression of meditation practice extends far beyond mindfulness of the breath and of sensation.

Another important text to consider here from the Pali canon is the Ānāpānasati Sūtta, the discourse on the mindfulness of the breath.[34] This sūtta outlines the same basic progression of mindfulness: it too begins with the breath as the focal point for attention, develops through the four foundations of mindfulness (including the seven enlightenment factors), and arrives at clear understanding of one's mind and reality.

The above three sūtta taken together contribute significantly to the traditional textual basis for several modern meditation protocols used widely in research, including MBSR and its adaptations. Yet, many of these existing programs only teach mindfulness of the breath and of sensation, representing only the very beginning stages of the path of meditational development outlined in traditional texts.

Mahāyāna: Innate Wisdom & the Greater Good

In the roughly 2,500 years since the time of Shakyamuni Buddha, Buddhist teachings have spread geographically and evolved to include later developments of philosophy and yogic methods. With the arising of Mahāyāna traditions, a mass of new philosophical and contemplative writings emerged. Core ideas from previous Buddhist teachings were expanded and developed in various ways.

Mahāyāna traditions aim for a vast goal, namely the freedom and well-being of all other beings in addition to oneself. This ideal is expressed in the concept of the bodhisattva: a being on the path to enlightenment who lives selflessly for the benefit of all. Teachings categorized as Mahāyāna include further elaborations of progressive systems of mind-training, beginning with mindfulness and concentration and developing towards insight into the nature of oneself and reality.[35]

A central concept which saw extensive exposition over time, for example, is śūnyatā (Skt.). Often translated (somewhat problematically) as "emptiness," śūnyatā can also be rendered as "openness" or "voidness." Here the emptiness or voidness referred to is the absence of intrinsic, discrete, and unchanging identity in all things. Rather than being separate and unchanging, phenomena are continuously morphing and completely interconnected. All phenomena are pratītyasamutpāda: co-arising with, and dependent on, all other things.[36]

Later developments of śūnyatā philosophy such as shentong (Tib. gzhan stong) express this 'emptiness' as a positive linguistic construction, stating that though phenomena and self are empty of separate identity, the innermost nature of each living being is the "luminous, self-aware, nonconceptual mind that is the Wisdom Mind." [37] From this perspective, each being possesses the innate potential for wisdom and goodness. Furthermore, the fundamental essence of each being is this luminous, aware, openness of mind.

This innate essence of awareness and openness, full of the potential for manifesting wisdom and kindness, is called the tathagātagarbha (Skt.). Though each of us possesses the tathagātagarbha, our essence is temporarily obscured by our confusion, misperceptions, social conditioning, and mental habits. The point of meditation then is to purify confused and harmful habits of mind, and to reveal one's innate wisdom and compassion. The Tathāgātagarbha Sūtra famously expresses this perspective: "Hidden within the kleshas [mind poisons]… of raga (greed), lobha (confusion), dvesha (hatred) and moha (obscuration) there is seated augustly and unmovingly the Tathagāta… All sentient beings have the Tathagāta-garbha." [38] In that sūtra, the Buddha metaphorically describes the enlightened mind of each being -- obscured by ignorance and confused mental patterns -- as being similar to honey in a cave guarded by bees, precious treasures hidden in trash, or the seed of a future majestic tree.

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[33] Analayo. Satipatthana: The Direct Path to Realization. Selangor, Malaysia: Buddhist Wisdom Centre, 2006.

[34] Anapanasati Sutta: Mindfulness of Breathing (MN 118), trans. Thanissaro Bhikkhu, Access to Insight, 2006, http://www.accesstoinsight.org/tipitaka/ mn/mn.118.than.html.

[35] Encyclopedia of Buddhism, ed. Robert E. Buswell (New York: Macmillan Reference, 2004).

[36] Paticca-samuppada-vibhanga Sutta: Analysis of Dependent Co-arising (SN 12.2), trans. Thanissaro Bhikkhu, Access to Insight, 1997, http://www.accesstoinsight.org/tipitaka/ sn/sn12/sn12.002.than.html.

[37] Khenpo Tsultrim Gyamtsho and Lama Shenpen Hookham, Progressive Stages of Meditation on Emptiness, (Oxford: Longchen Foundation, 1986).

From the perspective of Mahāyāna, the path of meditation is to purify one's confused habits, perceive the truth of śūnyatā, and reveal the tathagātagarbha, one's innate wisdom-potential. This results in the cessation of unnecessary personal suffering and self-obsession. Then, one is empowered with the ability to better help others along the same path.

Vajrayāna: Tantra, Familiarization with Innate Wisdom

Later still historically, Vajrayāna or Tantric Buddhist traditions developed, which also emphasize the importance of beneficial activity for the common good. Vajrayāna traditions are distinguished by their use of additional textual sources called tantra along with esoteric meditation practices that include visualization, mantra (sacred sounds), complex rituals, and physical yogic methods. The meditation training protocol that I created for this study is particularly inspired by the Vajrayāna style of teaching.

Vajrayāna lineages trace back to wandering or wilderness-dwelling yogis called mahāsiddha who lived outside of monastic settings and employed radically nontraditional methods towards meditative accomplishment.[39] The teachings of these mahāsiddha make use of a wide variety of yogic and meditational practices for the development of practitioners. Their varied approach is reflected in the protocol at hand.

Vajrayāna traditions generally begin with preliminary practices, such as contemplation of the "four thoughts:" the impermanence of all things, the precious opportunity that is human life, the infallibility of karma (i.e., that one's actions have momentum and consequences), and the truth of the existence of suffering for sentient beings. Such approaches unfold through various methods of meditation and physical yogic practices, developing qualities of śamatha (stillness of mind) and vipassanā, or insight.[40]

At the pinnacle of Vajrayāna are teachings such as Dzogchen ("Great Perfection," Tib. rdzogs chen) and mahāmudrā ("the Great Seal," Skt.), which use the direct experience of intrinsic wisdom-mind in oneself as the core of the meditational path. This fundamental, innate wisdom — the open awareness which is considered the basic state of consciousness -- is called the "nature of mind." Practitioners of dzogchen or mahāmudrā learn to recognize this "nature of mind" in themselves, and to differentiate it experientially from patterns of confused thought. Traditionally this is called separating sems (ordinary mind) from rigpa (knowledge of the nature of mind, Tib.). Again and again, the practitioner turns their attention from habitual thought patterns to the mind of open awareness, and rests easefully in that way.

One cultivates such recognition until it becomes increasingly continuous and natural, and comes to intimately know the inherent sacredness of oneself and others. Over time, habitual poisons of mind and harmful tendencies of speech and activity are purified, and one's potential for good becomes fully manifest. In these approaches, the nature of one's own mind is commonly described as luminous, open, and timeless. It is said to possess the qualities of compassion, loving-kindness, equanimity, and joy.

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[38] William H. Grosnick, "The Tathāgatagarbha Sūtra," in Buddhism in Practice, ed. Donald S. Lopez Jr., (Princeton: Princeton University Press, 1995).

[39] Buswell, Encyclopedia of Buddhism.

[40] Gampopa, The Jewel Ornament of Liberation.

Mystical experience: In Psychology and Research; the Common Core

Mystical experience (ME) has fascinated humans throughout our existence. Though previously attended to more closely within the context of religious or spiritual traditions, it has more recently come under the attention of modern scholarly and scientific investigation. A widely agreed-upon defining factor of ME in scholarly treatments has been the experience of 'unity:' feeling undivided within oneself and completely continuous with the rest of the universe. Other commonly described features of mystical experiences include joy, bliss, ineffability, peace, and noetic meaningfulness.[41,42]

In the psychological pioneer William James's text, the "Varieties of Religious Experience," James compared numerous instances of religious or mystical experiences to reveal shared core threads. He proposed that while religions differ enormously in their beliefs and structures, common ground exists in the direct mystical experience that often inspires the genesis of religions. James emphasized the 'unity' aspect of the experience as well, writing: "This overcoming of all the usual barriers between the individual and the Absolute is the great mystic achievement. In mystic states we both become one with the Absolute and we become aware of our oneness… In Hinduism, in Neo-Platonism, in Sufism, in Christian Mysticism, in Whitmanism, we find the same recurring note, so that there is about mystical utterances an eternal unanimity." [43]

On this central theme of experiential unity, the Christian mystic Meister Eckhart expressed: "All that a (wo)man has here externally in multiplicity is intrinsically One. Here all blades of grass, wood, and stone, all things are One. This is the deepest depth." [44] And the transcendentalist author Ralph Waldo Emerson wrote in his essay on "Nature" the following:

> "My head bathed by the blithe air and uplifted into infinite space, — all mean egotism vanishes. I become a transparent eyeball; I am nothing; I see all; the currents of the Universal Being circulate through me; I am part or parcel of God… I am the lover of uncontained and immortal beauty..." [45]

Later, Walter Stace's "Philosophy and Mysticism" carried on a similar exploration and outlined core features of mystical experience. Stace's framework has been essential to the conceptual foundations of existing psychological assessments for ME. The concept of a phenomenological common ground for mystical experiences – as distinct from the conceptual systems that tend to subsequently arise around those experiences – has been called the "common core" of mysticism.[46]

Ralph Hood has written at length about the mystical common core, and has built a widely-used measurement for mystical experience from Stace's conceptual foundations called the Mysticism Scale or M-Scale.[47] Further work towards a scale for mystical experience led to the 30-item Revised Mystical Experience Questionnaire (RMEQ30) used in this study.[48]

To date, the most effective means of assessing mystical experience is by self-report. Some neuroimaging work has been attempted, but as of yet the methods are too crude, and the neural correlates of ME too poorly established, to usefully measure ME. Utilizing fMRI would certainly be interesting, but the technology is currently incapable of directly assessing the nuanced, felt experiences of participants. Thus, self-report measures are centrally useful and relevant for an investigation into subjective experience.

Interestingly, the domain of modern research which likely most clearly illustrates the relationship

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[41] Walter T. Stace, Mysticism and Philosophy (Philadelphia: Lippincott, 1960).

[42] Ralph W. Hood, "The Construction and Preliminary Validation of a Measure of Reported Mystical Experience," Journal for the Scientific Study of Religion 14, no. 1 (1975): 29.

[43] William James, The Varieties of Religious Experience (New York, London: Longmans, Green, and Co., 1902).

[44] Rudolf Otto, Mysticism East and West (New York, NY: The Macmillan Company, 1932).

[45] Ralph Waldo Emerson, Essays and Lectures (New York: Library of America, 1983).

[46] Zhuo Chen et al., "Common Core Thesis and Qualitative and Quantitative Analysis of Mysticism in Chinese Buddhist Monks and Nuns," Journal for the Scientific Study of Religion 50, no. 4 (2011): 654–70.

[47] Hood, "Measure of Reported Mystical Experience."

[48] Frederick S. Barrett, Matthew W. Johnson, and Roland R. Griffiths, "Validation of the Revised Mystical Experience Questionnaire in Experimental Sessions with Psilocybin," Journal of Psychopharmacology 29, no. 11 (2015): 1182–90.

between mystical-type experience and enduring psychological benefit is that of therapeutic psychedelic science. In studies of participants given classical psychedelic compounds such as psilocybin, profound mystical experiences can reliably be occasioned, and the extent of these experiences tends to correlate significantly with the degree of benefits reported.

For example, the follow-up to a double-blind, placebo-controlled study at Johns Hopkins wherein participants were given a high dose of psilocybin (a psychedelic compound, the main active component in 'magic' mushrooms) found "a central role of the mystical experience assessed on the session day in the high ratings of personal meaning and spiritual significance at follow-up." [49]

In Meditation and Buddhism

In the experiment at hand, I attempted to measure the degree of mystical experience in participants via their scores on the RMEQ30. Again, the four main features of ME assessed by the RMEQ30 are unity, positive mood, transcendence of time and space, and ineffability. These qualities bear a striking resemblance to the features of one's own inherent wisdom-mind as expressed by Buddhist meditation traditions, or of one's intrinsic Godliness or sacredness as described by theistic traditions.

As an example of this parallel in Buddhism, let us turn briefly to the writings of the great Tibetan scholar and meditator Longchen Rabjam (called Longchenpa for short, c. 1308-1364). For simplicity's sake, we may look to a particularly famous text of his called "The Precious Treasury of the Way of Abiding." Since my teaching has been inspired by Longchenpa's tradition, and because his writings are widely held to be an outstanding model of dzogchen exposition, it should suffice here to use his work as a brief illustration of the parallel I intend to show. The text I will quote from also contains many references to the sūtra and tantra texts at the root of the tradition, plus the words of other great masters throughout time. The similarities between the features of mystical experience as constructed in modern scholarship and Longchenpa's traditional descriptions of the wisdom-potential at the core of each being will hopefully become apparent.

(Table 1: Four Factors of the RMEQ30 and Longchen Rabjam's "Way of Abiding")

In such traditions, rather than mystical experience being seen as a transient and unusual occurrence with external origins, it is understood as a moment of insight into an eternal and inherent truth beyond the scope of ordinary thought. The qualities of mystical experience are thus expressed as qualities of one's own essential nature.

Experimental Study

Study Goals

1) The main goal of this study was to create and teach a meditation-based course for the university setting, with a focus on applied practice and reflection, that could produce enduring beneficial psychological and physical changes for students while also delivering educational content from modern neuroscience and ancient meditation traditions. The emphasis was on direct benefit for participants, and on addressing the student population's needs -- managing stress, building resilience and inner resources, and encouraging prosocial tendencies and empathy.
2) Secondly, I sought to evaluate the efficacy of the course with self-report measures across several dimensions: changes in behavior, attitudes, and feelings.
3) Finally, I aimed to investigate the degree of mystical-type experience reported by participants, and the possibility of a relationship between mystical experience and persisting positive effects.

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[49] Roland R. Griffiths et al., "Mystical-Type Experiences Occasioned by Psilocybin Mediate the Attribution of Personal Meaning and Spiritual Significance 14 Months Later," Journal of Psychopharmacology 22, no. 6 (2008): 621–32.

Method:

Participants

I taught this meditation course as a semester-long class for undergraduate students at the University of California, Berkeley. IRB approval was obtained for human subjects research, and students were enrolled randomly in a first-come-first-served application process. An initial intake form from each student revealed basic information about their prior experience with meditation, goals for the course, and commitment to attend routinely.

In total, 54 enrolled students completed the class, along with a few non-enrolled auditors. Of these, data from the auditors were omitted, along with incomplete data from two students who did not take the assessments. This left a sample size of n=52 for the data used.

Curriculum

As described previously, Vajrayāna Buddhism (especially within traditions such as dzogchen and mahāmudrā) emphasizes direct experience of the open awareness at the core of one's own mind. It should be noted that very similar versions of this concept are expressed by many other esoteric traditions with different phrasings; I discuss the Vajrayāna at length simply because I have received instruction in it for many years and am more familiar with it than other paths. By teaching in line with this perspective, I aimed to produce increased recognition by students of the innate openness and clarity of their own minds, and of their potential for empathy and prosociality.

In the traditional view of the Vajrayāna, the development of this recognition through meditation is said to lead to the clearing-away of psychological distress and harmful habits, and to the increase of virtuous, prosocial tendencies along with contentment and peace. Developing this recognition is understood to be exactly the mechanism by which such positive changes unfold. Thus, all of the various techniques of meditation practice serve to support this single goal. I felt that these traditional instructions on coming to know the essence of one's own mind were not well represented in MBSR and other modern mindfulness protocols, and I wondered if those protocols could be expanded and improved in that way.

Interestingly, many of the commonly-described experiential features of recognizing one's own open awareness in Vajrayāna traditions happen to also be experiential features of the psychological construct of "mystical experience" as it appears in modern research. Because of the overlap in features between the two, I figured that teaching in such a way as to encourage this particular type of meditative development would also lead to higher scores on mystical experience assessments. Thus, I sought to use mystical experience scores as a rough proxy for measuring students' development in their recognition of their own 'open awareness.'

I began the class by introducing students to basic mindfulness techniques, such as mindfulness of the breath and bodily sensations. We moved through preliminary contemplations traditionally intended to instill dedication to the path of meditation, and then practiced concentration meditation and mindful walking. We worked with loving-kindness practices, both in meditation and through action. Next, after students had developed these foundations to a degree, we began an intensive investigation into the nature of mind and self. In these sessions, I guided contemplative practices in which students were taught to directly inspect their own minds and sense of identity. Centrally, I aimed to help encourage students' recognition of their innate wisdom and compassion. This process was supported by various reflections, readings, writing assignments, and discussion groups wherein students focused on unpacking their meditation experiences and deepening their understanding of their own consciousness.

Experimental Hypothesis

Mystical and transcendent experiences have been linked with profound subjective benefits, both in recent research and in traditional Buddhist theoretical frameworks. Thus, I hypothesized that teaching meditation in a way that encourages states of meditative awareness with qualities similar to mystical experience could lead to greater participant benefits. Further, I hypothesized that this type of instruction would produce substantial changes in well-being across a variety of dimensions, and that mystical experience scores would correlate with the degree of benefit reported by participants.

Data Collection

Students were informed that the class contained an optional research study before enrolling, and were given consent forms. Students were given the option to either: 1) allow for data collection via the self-report assessments, 2) allow for both self-report assessments and the use of their written assignments from the class, or 3) opt out of the study entirely. It was made clear to students that their choice of whether to participate in the study, as well as the content of their responses and writings, would have no bearing on their grade in the class. If students preferred not to participate in the assessments, then they were assigned a short alternate response and continued in the class without penalty.

Research collaborators distributed assessments to consenting students at the beginning and end of an eight-week period during the class. The Persisting Effects Questionnaire (PEQ), a measure of self-reported life changes across many dimensions, was used to assess the course's efficacy as perceived by participants at the end. Mystical-type experience was measured with the Revised 30-Item Mystical Experience Questionnaire (RMEQ30), also at the end of the course. The Perceived Stress Scale (PSS) and the Mental Health Continuum Short Form (MHC-SF) were administered pre- and post-intervention. Follow-up survey questions inquired about participants' average time spent practicing, in minutes per day and days per week. The follow-up survey also asked students to describe any other life changes resulting from the course, or life factors affecting their experience in the course.

Data Consolidation / Cleaning

First, participant responses to on-paper assessments were transcribed into Excel. All data were decoupled from names and identifying information, then labeled by random student codes. Subscales were totaled individually, and overall total scores calculated. Scores were then standardized either by percent of the total possible score, or by standard deviations from the mean, depending on the analysis method. As mentioned previously, incomplete data was omitted from four participants who audited the class without being officially enrolled. Where applicable, reverse-scored items were inverted.

Results

Quantitative Data:
Analysis, Discussion

As assessed by a question within the Persisting Effects Questionnaire ("Your experience has been valuable for your life"), 70% of participants in the meditation course said that the course was equal to or more significant, than anything else before in their lives in terms of overall value (see Figure 1). 74% of participants reported feelings of peace and tranquility as a result of the course that were equal in degree or greater than anything they had previously experienced (see Figure 2). 67% said that they had an increase in patience that was equal to or greater than anything before in their lives (see Figure 3).

In order to investigate the associations between the variables measured, a table of correlations was generated with the following dimensions: perceived stress and mental health levels, final grades in the class, attendance, reported average daily practice time, mystical experience scores, and total positive persisting effects scores (see Table 2). Some correlations were obvious and could have been guessed beforehand, such as those between grades and attendance, or between perceived stress and mental health. Yet, out of all the correlations, the strongest was between mystical experience scores and total positive persisting effects (Pearson coefficient=0.722; see Figure 5).

This is a fascinating result! In terms of the strength of association with increased total positive persisting effects (the desired dependent variable), degree of mystical experience stands out sharply from all other variables measured. Going into the experiment, I did expect the mystical experience scores to be the strongest predictor of subjective benefits, but I did not anticipate how little the other variables would correlate with those benefits. In fact, all of the other main variables assessed had weak correlations with the positive persisting effect scores, with Pearson coefficients below 0.3 in absolute value. Mystical experience alone showed quite a strong relationship with reported benefits.

Because there was no control group here for the pre- and post-intervention MHC-SF and PSS assessments, pre- vs. post-intervention comparisons of the data could not be used to make statistically significant claims. In future studies, a control group of university students outside of the meditation class will be included. For the present study, rather than making a pre- vs. post- comparison, the mental health and stress scores were analyzed as potential predictors of total positive persisting effects.

With that said, the pre-intervention assessments were completed at the beginning of the school semester, when students were not yet besieged with the workload of a notoriously challenging university. The post-intervention assessments were completed just before final exams on campus, and as a result, many students reported that they felt their post-intervention scores would reflect significantly increased stress and poorer mental health. In actuality, though, scores of Perceived Stress decreased slightly (from mean=19.31, mode=23, std. dev.=6.44; to mean=17.51, mode=16 std. dev=6.48). There, a lower score meant lower stress. As for the mental health assessment scores, where a higher score implied better mental health, there was a slight increase from pre-intervention to post-intervention (from mean=44.10, mode=39, std. dev.=13.93; to mean=47.11, mode=45, std. dev.=12.48).

Again, the comparison between pre- and post-intervention would require a non-intervention control group to be statistically meaningful. Still, at least we can see that despite students reporting the time surrounding the post-intervention assessments to be one of highly increased stress due to exams, their self-reported scores actually show that mental health and stress improved on average. The fact that students' scores did not reflect increased stress, despite the increase in stressful conditions, could point to increased resilience to stress and improved psychological coping mechanisms. A control group will be essential in future experiments to test the pre/post effect.

Graphs and Tables

(Figure 1: Overall perceived life value of the meditation course)
(Figure 2: Feelings of peace and tranquility as a result of the meditation course)
(Figure 3: Development of patience or tolerance as a result of the course)
(Figure 4: Overall feelings of joy as a result of participation in the course)
(Figure 5: Mystical experience scores vs. Positive persisting effects)
(Table 2: Correlation table, with Pearson coefficients)

Qualitative Data:
Reflection assignments

Each week, students were asked to complete either a written reflection assignment or a daily log of their meditation practice. Prompts for reflection included topics such as the vision for one's life, creating a place for practice, qualities developed through meditation, gratitude, and strategies for continuing meditation practice after the class. Many students described enjoying these reflections. One expressed the following:

> "The journaling was really something that I appreciated, and I hope that will be something I can keep up with. It is very liberating for me to be able to express myself in a writing form. I feel like it has helped me cope when I get stuck in my emotions, or after I have had strong emotions. I can reflect on what

> happened." (code 482)

Another student wrote:

> "I became more self aware by completing the meditation reflection assignments, which encouraged me to reflect on how each practice and each method made me feel both during and after I did it." (code 126)

These reflection assignments provided an additional space outside of the classroom for students to practice introspection, develop self-awareness, and further explore concepts introduced in class.

Practice Logs

As described previously, weekly assignments consisted of either written reflections or practice logs. For the practice log component, students were asked to record some simple notes from their daily meditation practice: the type of meditation technique they used, the amount of time they practiced for, and a short description of their experience (insights and/or difficulties).

Many students reported that the practice logs helped them to create a steady habit of meditation, and to understand which methods worked best for them. For example, one person wrote:

> "I believe practicing meditation almost every day for about 3 months has helped me in many aspects. It has pushed me to be more self-disciplined; it was pretty difficult at first, but having to keep a log held me accountable for my practice, which then became more of a habit….The practice-log has been one of the main reasons why I started writing about how I was feeling… For the past year, I've been thinking about writing down how I felt, but never actually tried." (code 393)

Students told us again and again that these logs were instrumental in encouraging regular practice and reaping the rewards of meditation.

Participant Case Reports:

On Meaning and Purpose

One result of the course repeatedly expressed by participants was an increased sense of meaning or purpose in life. One student expressed that idea concisely: "For the rest of my life, I will have a new source of personal meaning and purpose as a result of my experience with meditation" (code 319). Another wrote the following:

> "The way meditation opens up my mind, it makes me wise to the best way to live my life… This knowledge provides me with a great sense of wisdom, a belief that I know how to achieve the greatest level of happiness and fulfillment for my life. A feeling and a knowing like this makes you feel at peace, in control, and proud of your life and your path for the future. At this time in my life, where I am moving beyond my years of schooling, and stepping into my adult life, this feeling that meditation and mindfulness has blessed me with is deeply important." (code 608)

Students described similar feelings of confidence and stable peace in addition to renewed subjective meaningfulness. For example, this participant reported extremely profound increases in felt meaningfulness, psychological resilience, and well-being. They expressed deep gratitude:

> "Overall, taking this class this semester has been by far one of the most impactful classroom experiences I have had in my time at Berkeley… This life experience (seems more fitting a word than "class") has

> guided me back to my inner peace like nothing else has even come close to doing. I have the tools now to breathe through my anxiety, but more importantly, it has refocused my attention to the present. And when I live in the present, I am whole, I am loved, and I have everything to be appreciative for. When I live in the present, I am not my trauma, I am kind to my anxiety and my depression, and life is beautiful. I could not express adequately in words the gratitude that I have for this beautiful gift, and the lessons that I have taken out of this class will remain a part of my life, for the rest of my life." (code 811)

Many students wrote about discovering for themselves the benefits of meditation, and about their enthusiasm to continue the practice for the rest of their lives. For example, student 046 wrote:

> "Meditation is key to living a fulfilling life for me… Meditation gives me a taste of what it truly feels to simply be… I realized that it is truly about bringing the mindfulness of meditation into everyday life and truly seeing the beautiful world around you for what it is… I will carry out this practice… hopefully for the rest of my life."

On Resilience to Stress

Some students entered the class unsure about meditation, but curious. For example, this student expressed being initially skeptical, but then discovering the benefits of meditation and using it to help with the stresses of life and medical education:

> "When I first joined this class I was very skeptical about the whole idea of meditation. However, as I began to practice more and more throughout the semester I started to realize some of the reasons why people meditate. The most important skill I am learning to achieve with meditation is to be able to settle down when I am extremely stressed… My plan is medical school and having this technique as a way to relieve stress will help me every step of the way to achieving my goal to become a physician." (code 248)

Another student said that they had previously viewed meditation as a foreign, "daunting" enterprise. Through the class and their own exploration, they built confidence and developed a clear sense of how to practice:

> "This course has been incredibly beneficial for me… Before, meditation seemed like a daunting task. Now, I know the easy steps to practice… I know that it has changed my life… Nothing will ever be too much for me, because through meditation, I now have control of my mind, body, and soul. My life will change, but my meditation will stay constant... I am ready for my life of happiness, love, and success that I will build for myself through the mindfulness and awareness that I find in my meditation." (code 425)

One student, who had been experiencing intense anxiety due to PTSD, described feelings of increased inner resources as well as gratitude for discovering that they could use breathing meditation to self-regulate and prevent the onset of a panic attack. They wrote:

> "I struggle with severe anxiety stemming from PTSD and I often deal with anxiety that escalates to a range of mild to full blown panic attacks. Yesterday, I felt my anxiety being triggered while I was in class... Typically I'll try suppressing the anxiety (which never works)... I focused my attention on the breath instead. With each exhale I pictured a bit of anxiety physically leaving my body with my breath and then I pictured good energy entering the body with each inhale. After about maybe five or six cycles of deep breaths I found myself feeling more calm and grounded. This was a pretty significant moment for me to realize that I do have the ability to control my anxiety to some degree... Realizing and having

> experienced it for myself that I really can breathe my way through those moments and not let anxiety consume me and control my daily life was enough to bring me to tears once I got home." (code 437)

Given the widespread mental health challenges in the college student population, such effects are deeply encouraging.

On Compassion, Prosociality, & the Trikāya

In modern research, meditation has been repeatedly demonstrated to produce increased compassion, empathy, and prosocial tendencies. For example, 8 weeks of meditation training resulted in increased compassionate helping response, as measured by the percentage of participants who offered their chairs to a person appearing to be in pain and needing to sit.[50] Another similar study found that only 3 weeks of app-based meditation training lead to increases in compassionate responding, assessed in the same way.[51] In the study at hand, participants reported significant increases in compassion and kindness, often quite poetically. For instance, this student wrote:

> "In light of my meditation practice, I find acts of kindness more frequent. I am more aware of the needs of the people around me, and more aware of my own needs. I find myself more open and willing to give acts of kindness to others. I feel more at ease with myself, and in turn more at ease when I am with others. For this reason, I find the desire to be kind and spread kindness to be very strong." (code 137)

Such results were encouraging, given that one of the aims of the course was to promote emotional intelligence and prosocial tendencies. Another student described increased compassion, gratitude, and understanding of others. They also expressed a beautiful wish, namely to live in such a way as to benefit the lives of all those whom they will encounter.

> "In everyday settings, I feel much more conscious of the complexity of those around me, and the inherent connections between people… I have been much more aware of our mutual humanity. This, in turn, has led me to have more compassionate and thoughtful interactions… The class has helped me to find many more moments of awareness in my daily life, finding gratitude for the people and experiences of my life… I hope to seek out more ways to improve the lives of those around me." (code 209)

A brief conceptual interjection here from a traditional perspective: in Mahāyāna and Vajrayana Buddhist teachings it is expressed by way of the trikāya, or three bodies/dimensions, that the mind and body of enlightened beings can be described as consisting of three aspects. First, the dharmakāya, or "truth body"--traditionally described as the natural openness of mind, formless and empty. Secondly, emanating as the radiance of dharmakāya, there is the saṃbhogakāya, lit. "enjoyment body" — the dimension of subtle light and form. And third, radiating further into form, there is nirmāṇakāya or "emanation body" — enlightened, compassionate activity manifesting as form in time and space. These three aspects are considered to be continuous with each other and undivided; their union is sometimes referred to as the svābhāvikakāya.

From the perspective of dzogchen traditions, the trikāya can also describe three inseparable aspects of each living being's own mind.[52] From this perspective, dharmakāya is the open and empty aspect of mind. Saṃbhogakāya is the aware, luminous, and clear aspect of mind. The inseparability of these previous two and their unceasing capacity for manifesting experience and activity is called nirmāṇakāya. It is said that when one recognizes these three aspects in one's own mind, love and compassion naturally arise and manifest as skillful, wise activity for the benefit of others. In accordance with this traditional concept of compassionate activity arising spontaneously from one's recognition of their mind's natural openness and clarity, this student beautifully expressed a realization of the ongoing accessibility of meditative awareness and the resultant spontaneously-flowing kindness and love:

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[50] Condon et al., "Meditation Increases Compassionate Responses to Suffering."

[51] Lim, Condon, and DeSteno, "Mindfulness and Compassion."

[52] Tulku Urgyen, As it Is, Vol. II., trans. Erik Pema Kunsang (Boudhanath, Nepal: Rangjung Yeshe, 2000).

> "I have started making this transition this semester such that when looking into someone's eyes as we converse, walking down the sidewalk, looking at a tree, etc., I fall into this appreciation/expansiveness/awareness of my felt experience of this present moment… continuing practice allows for continuing extension of this state of being; a state of being where selfishness gives way to compassion, anger gives way to deep, true love for all of life, and the open, timeless nature of experience is felt… Nothing must be searched for beyond that." (code 162)

One participant (code 211) put it succinctly and eloquently: "Mindfulness reminds me of both the possibility and the urgency of kindness." In a world that urgently needs our caring attention, such results make a strong case for the importance of meditative instruction and contemplative practice in the educational system. Let us close this section with a quote which exemplifies the bodhisattva ideal discussed previously, that of living a life inspired by the collective good:

> "I will not simply extract from this world. I will create the conditions conducive to growth such that the world is better for me being born. Every day, this will be my lifelong pursuit. Actively engaged, I will cultivate this beautiful land and develop a bountiful internal garden." (code 184)

On Introspection

Another important theme frequently described by participants was the development of introspection and self-awareness through their meditation practice. This student wrote about their process of discovery in these regards:

> "To truly make my meditation practice my own…. Tailoring my meditation practice to my own needs has been not only incredibly freeing, but also a great mode of self-discovery and self-awareness for me. It encourages me to look inwardly and truly analyze what my needs are… This was by far one of the most useful classes that I've taken at Berkeley." (code 126)

In addition to introspection, another student described finding a greater capacity for considering and sensing others in their interactions:

> "I have also learned more about others in the class, and how to be a better observer and thinker. When I'm aware of my breath and conscious, listening to others speak becomes far more meaningful -- I take more time with my responses, and truly consider what other people are saying… it is really something I hope to cultivate throughout my life." (code 742)

On Gratitude, Patience, & Radical Non-Doing

Three last themes for our review of case studies. First, gratitude, as described in the previous literature review, has been demonstrated to have extensive benefits for psychological and physical well-being. The development of gratitude for one participant also led to equanimity, acceptance, and an increased ability to "let go." They wrote:

> "I think one of the most useful things I've learned is to be thankful for everything I have. I've learned to accept things better in my life, regardless of whether they are good things or bad things. Before meditation and this class, I had a hard time accepting my circumstances and I had a difficult time accepting my past and moving on from it. With meditation, I realized to just let everything go." (code

> 318)

Several students also described the development of patience, which was often said to lead to greater compassion and tolerance. In the words of one participant:

> “Patience is one important theme that I learned from the meditation practices throughout these past few months… When one has patience, one’s mind becomes more open and evolved. When one becomes open-minded, then love and forgiveness enter.” (code 513)

Finally, this student wrote about meditation as a radical act, one which produces inner riches rather than material wealth and promotes free thinking.

> “To me meditation is a radical act, where we take up space and time that is not productive in the capitalist terms of labor and money, but that works within its own economy entirely. It is also radical because it is a space for free thinking; usually during the day, between school and work and hobbies, our attention is required to be outside of ourselves, to accept the structures that surround us and navigate within them. However meditation seems to throw a wrench in this machine, slowing the world down and allowing you to listen to your own mind without the filter of society… I believe meditation has the unique power to reach everyone everywhere, and undeniably has the effect of increasing empathy and promoting intentional action.” (code 326)

Limitations

As stated previously (under Quantitative Data Analysis), the experiment lacked a control group that would have allowed for meaningful pre- and post-intervention comparisons of mental health and stress levels. This could be easily accomplished in future studies with a control group of students who are enrolled at UC Berkeley but not in the meditation class.

One possible (and fair) criticism of this study would be that the meditation program was delivered via a university class, thus carrying the potential for bias due to the student-teacher relationship. I attempted to mitigate this potential bias by making it exceedingly clear that the contents of students’ assessments, as well as their decision of whether to participate in the study, would not affect their grades, my attitudes towards them, nor their standing in the class. Additionally, I had research collaborators distribute and collect the assessments.

Another potential criticism concerns the bias that could have been introduced by sheer enthusiasm from students leading to falsely inflated self-reports of positive change. For instance, one could suggest that perhaps those who were enthusiastic about the class scored highly on mystical experience and total positive benefit, and that enthusiasm was the hidden mediator of both scores. Yet if this was true, one would expect the mystical experience and total positive benefit scores to be highly correlated with a variable such as attendance, which should also reflect enthusiasm. This was not the case. For this reason, I do believe that students’ self-reported results are likely fairly accurate here.

In the current university semester (following the semester that this study was conducted), due to the nationwide quarantines from COVID-19, I am limited in my ability to carry out the research and data collection in the same way. The university has ceased all in-person instruction and “non-essential research” because of the pandemic. Our outdoor meetings and nature-based meditation practices have all been interrupted. Despite all of this, we have been successfully continuing the class via online Zoom video meetings. Many students have been reporting finding a sense of refuge in the class and in their meditation practice during these strange times. We currently have a full class plus several auditors, both from the general university population and from the pool of previous students.

Future study directions

As the study at hand was limited by the lack of a non-intervention control group, future iterations of this line of research should include data collection from Berkeley undergraduate students not enrolled in the meditation course. This would allow us to explore whether the intervention does in fact produce increased resilience to stress and depression when compared to the general university population.

In addition to measures of mental health and stress, the control group should be assessed with measures of mystical experience and persisting effects before and after a semester of their regular classes, in simultaneity with the intervention group. With these measures, we could better understand the effects of normal university classes in these same dimensions, and compare our course in terms of its transformative power.

The next round of this study could also include lifetime mystical experience measures (Hood's M-Scale) at the beginning of the course, so as to more clearly reveal changes in that dimension. Simple Big 5 style personality assessments given pre- and post-intervention would be interesting as well, to reveal personality correlates of mystical experience and to assess potential personality changes as a result of the course.

Since the course has moved online in response to the COVID-19 pandemic, it would be interesting to assess differences in efficacy between online and in-person delivery, and also to investigate ways in which the class might offer support to students dealing with this particularly difficult time. Future developments of the curriculum, when it is possible again to meet in person, will feature more time spent practicing outdoors as a group.

Conclusion

In summary, I designed and taught a meditation-based course for the university setting, adapted from traditional Vajrayāna Buddhist meditation teachings, with the addition of more recent perspectives from neuroscience and psychology. The curriculum includes diverse elements supported by modern research, such as mindfulness, concentration, loving-kindness, and "open awareness" meditation practices; physical yogas of body and breath (from hatha yoga and Tibetan tsa-lung yoga); reflections on gratitude and kindness; artistic and writing activities; altruistic practices; outdoor meditations; and group discussions.

Rather than restricting the instruction to simple mindfulness methods, I offered broader teachings from the vast scope of Buddhist meditation traditions. The core intent emphasized throughout the explanation and practice of various methods was, in accordance with the traditional view, to assist each practitioner in coming to know their own intrinsic wisdom, inner resources, and potential for good, and to embody these qualities in their lives for the benefit of the world.

With the help of a small team, I taught the course at UC Berkeley to roughly sixty students. We administered assessments of mental health, perceived stress, mystical experience, and psychological effects due to the course. A correlation study among these elements, with the addition of grades, attendance, and students' reported average daily time spent practicing, revealed an interesting finding. Far beyond all other factors, the degree of mystical-type experience that participants reported from the course was positively correlated ($r=0.722$) with the amount of positive benefit they reported across many dimensions of life. This correlation, though impressive in its strength, was in line with the theoretical foundations of my teaching.

Participants described a wide range of benefits in assessments and written reflections, such as increased well-being, resilience to stress, confidence, and purpose; improvement of depression, anxiety, PTSD, and insomnia symptoms; and bolstered compassion, patience, focus, and empathy. In terms of the meditation course's perceived value in participants' lives, 70% of students said that the course was equal to, or more significant, than any previous experience. 74% of participants reported feelings of peace and tranquility as a result of the course that were equal to or greater than anything in their lives before.

These findings demonstrate the efficacy of this novel meditation protocol, and point to the potential accessibility of mystical or self-transcendent experience given proper meditation instruction. Further, these data reveal the central importance of the mystical experience in producing maximum participant benefit.

Table 1: Four Factors of the RMEQ30 and Longchen Rabjams's "Way of Abiding"

	Features of Mystical Experience (modern construction-- Stace 1960)	**Timeless Awareness in "The Way of Abiding" (as the essential nature of each living being's mind -- Rabjam 1998)**
Internal and External Unity	"The whole multiplicity of things which comprise the universe… constitute only one thing, a pure unity. The Unity, the One, we shall find, is the central experience and the central concept of all mysticism." (Stace p.66)	"All things that appear in light of awareness – the world of appearances and possibilities… even as they manifest are one… Since everything is of one basic space, primordially pure, there is no abiding as "two," for all is encompassed within the single sphere." (Rabjam p.51-53)
Positive Mood	"Feelings of blessedness, joy, peace, happiness, etc." (p.110)	"There is spontaneous presence in supremely blissful and natural rest." (p.11) "A blissful mind blends with the blissful ground of being." (p.31)
Transcendence of Time and Space	"… experience of the undifferentiated unity. It must necessarily be spaceless and timeless, because space and time are the very conditions and exemplars of multiplicity." (p.99)	"Its constant flow is without interruption or boundary and so has no beginning, middle, or end… linear time resolved in timelessness." (quoted from the Tantra of Heaped Jewels, in Rabjam p.77) "Self-knowing awareness, involving no perception of outer object and inner subject, has no time or place and is beyond phenomena that originate or cease." (p.109)
Ineffability	"We note that the experience is said to be 'beyond all expression,' that is, ineffable." (p.89)	"The nature of awakened mind, which perceives… is in essence ineffability, like that of space. Know this to be beyond description, imagination, or expression." (p.5) "The immensity of sublime basic space, which does not form and then disintegrate, is not within the range of finite experience that can be characterized by words." (p.13)

Table 2: Correlation table, with Pearson coefficients

	Perceived Stress (PSS)	Mental Health (MHC-SF)	Mystical Experience (RMEQ Total)	Final Grade	Attendance	Min/Day Practiced	Persisting Positive Effects (PEQ Pos.)
Perceived Stress (PSS)	1						
Mental Health (MHC-SF)	-0.5278395	1					
Mystical Experience (RMEQ Total)	-0.2449086	0.2008420	1				
Final Grade	-0.4295202	0.1976860	0.2600771	1			
Attendance	-0.3818593	0.2664469	0.3546233	0.6039152	1		
Min/Day Practiced	-0.1764206	0.0826186	0.3554636	0.2230855	0.1779509	1	
Persisting Positive Effects (PEQ Pos.)	-0.2845721	0.2764814	0.7218236	0.0435501	0.2790942	0.2171419	1

Figure 1. Overall perceived life value of the meditation course

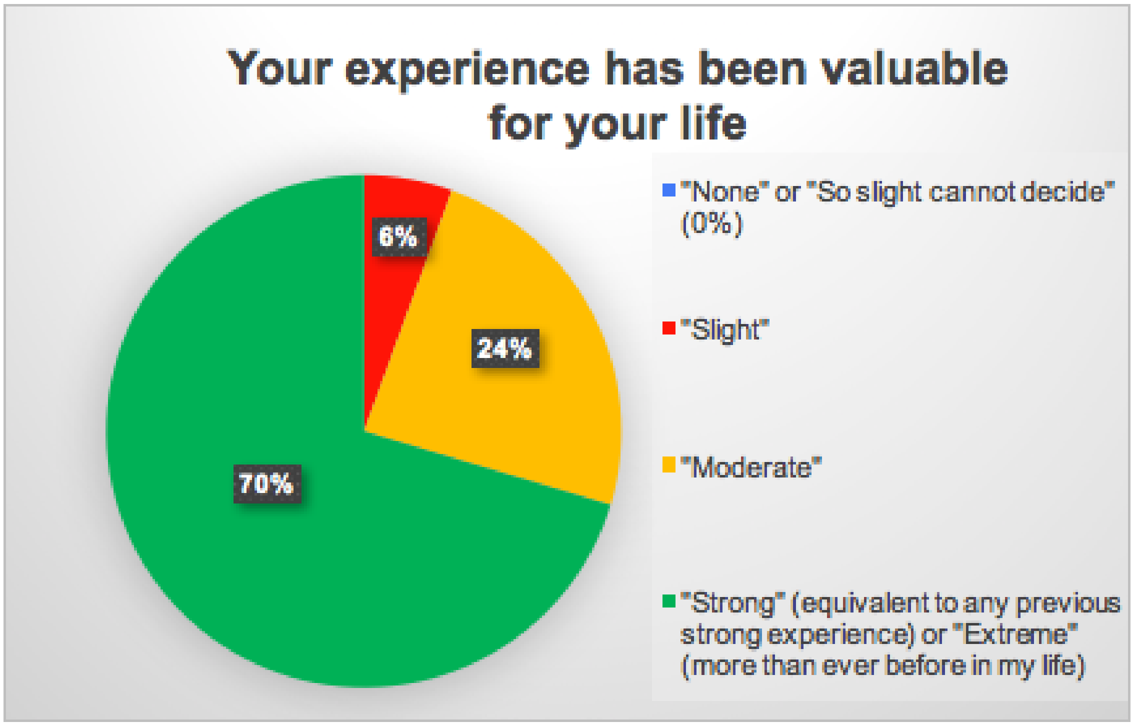


Figure 2. Feelings of peace and tranquility as a result of the meditation course

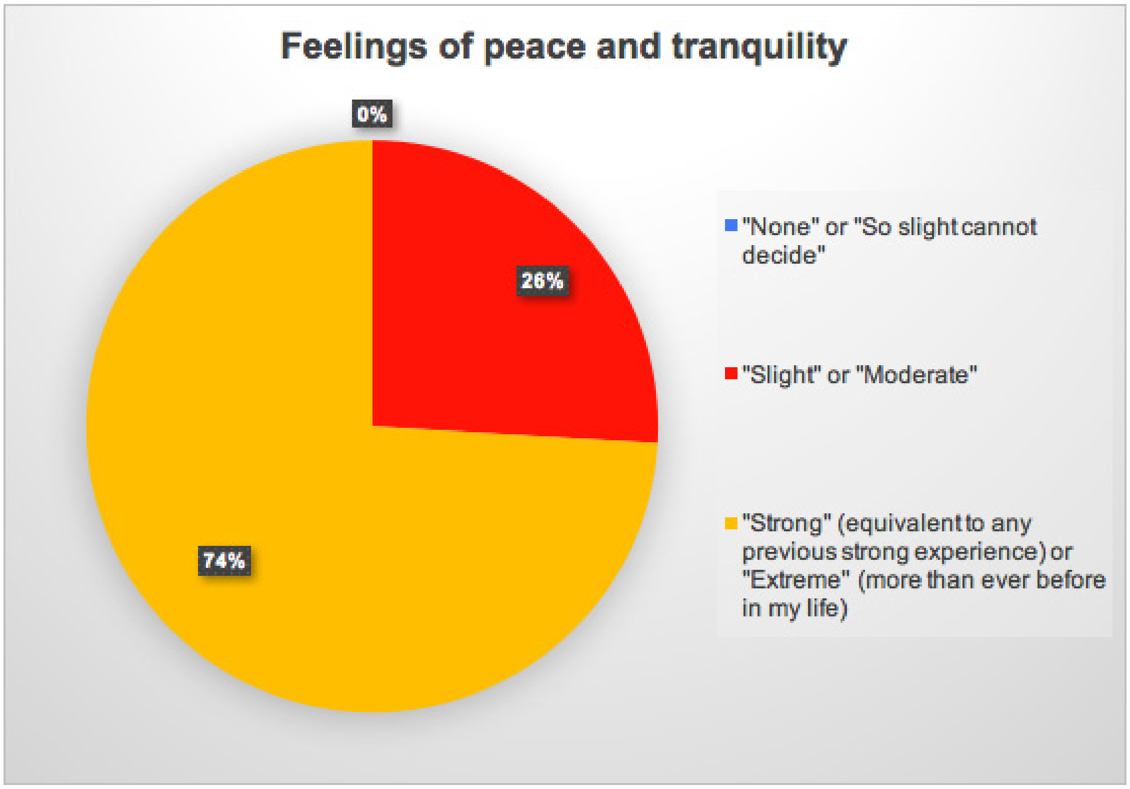


Figure 3. Development of patience or tolerance as a result of the course

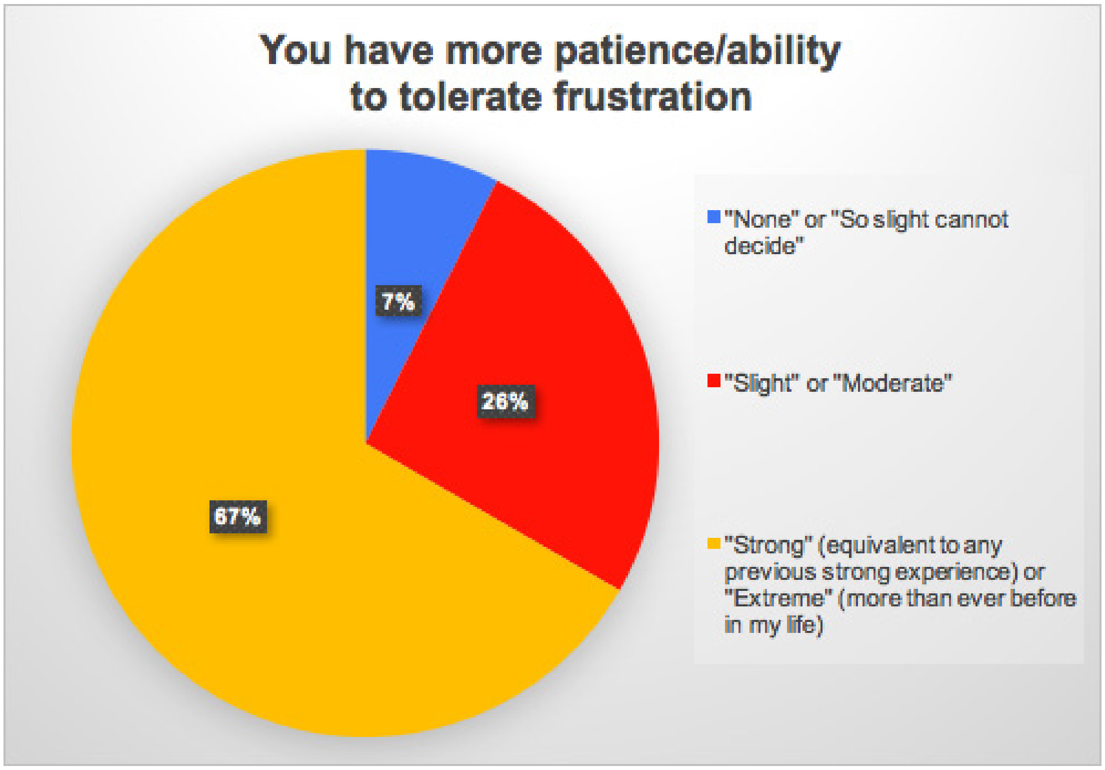


Figure 4. Overall feelings of joy as a result of participation in the course

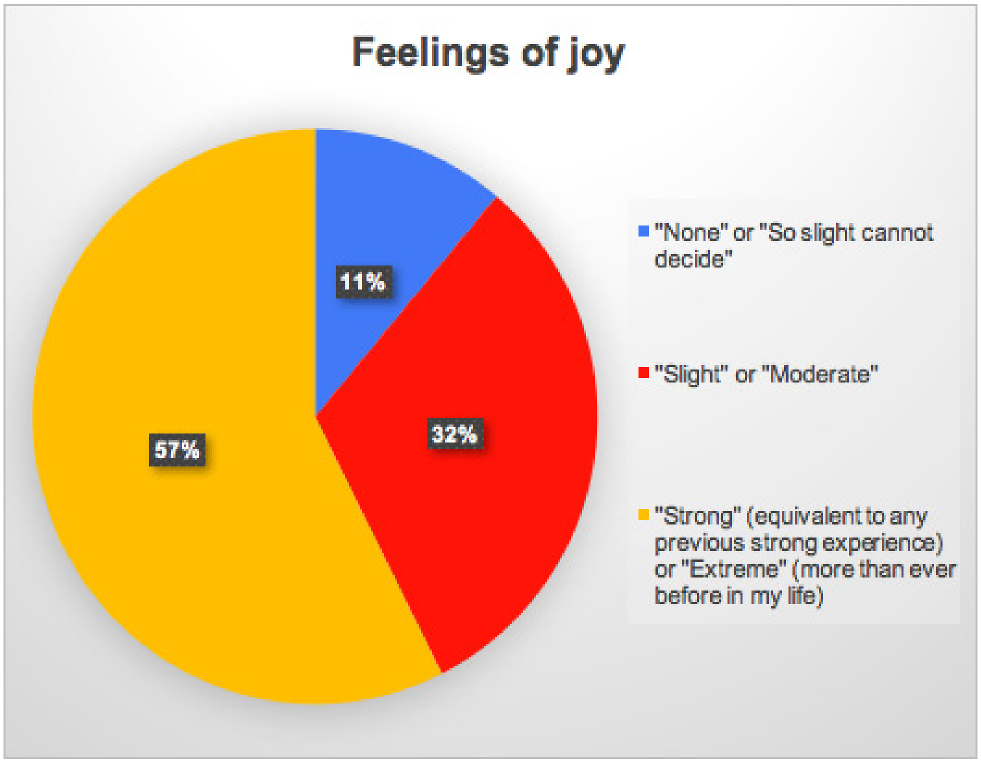
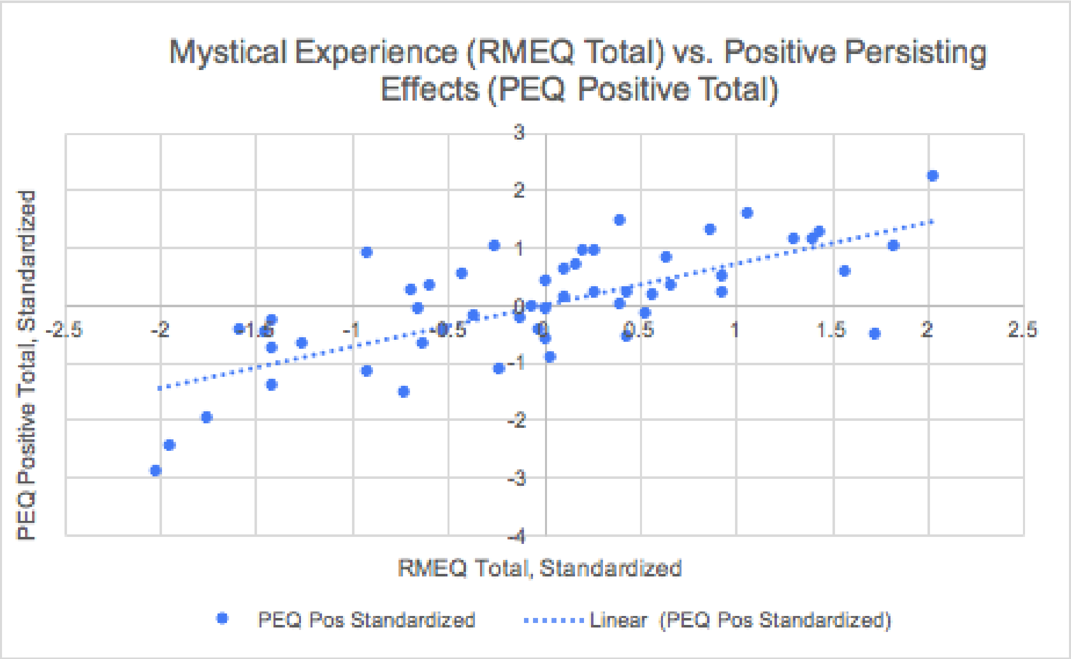


Figure 5: Mystical Experience Scores vs. Positive Persisting Effects



(Pearson coefficient = 0.7218236)

Acknowledgements

First, I give deep thanks to my wise teacher and friend, Dr. David Presti. His far-reaching vision, multidisciplinary academic prowess, and belief in the importance of this research have made the work possible. Gratitude also goes to Dr. Dacher Keltner for his advice on experimental design and data analysis, and for allowing me to develop this work through his Berkeley Social Interaction Lab. To my dear friend Khenpo Yeshi, the profoundly kind and erudite yogi-scholar, I give thanks and admiration. Finally, I thank my team of co-researchers and assistants for this study: Gabrielle Dimick, David Feder, Ý Lại Gallup, Jordan Schultz, and Akash Kulgod.

For the help and support of these wonderful friends, I am truly indebted. To the shining light of wisdom-lineages transmitted through time, and to my own immensely caring teachers, I bow in humble gratitude.

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