My Journey Through Meditation, Neuroscience and Psychology Over Half a Century

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In 1973, when I was 22 years old, I began studying and practicing Buddhist meditation at Kopan Monastery in Nepal. Toward the end of that year, following a month long meditation retreat, I had an interview with my first spiritual teacher, Lama Thupten Yeshe. I told Lama Yeshe about a dream the night following my retreat of standing in awe before a giant white elephant. It slowly reached out to me with its trunk and I gently extended my arm to give it a friendly touch. I thought to myself that this might represent something to do with wisdom, but Lama Yeshe chuckled and warned me to be careful in the presence of an animal as large as an elephant lest I be trampled. Then he told me that after returning to America, I should make the skills I had learned accessible to anyone seeking help, not just Buddhists. I replied that I would happily do so after returning to America, but that first, I wished to continue my studies in Dharamsala, India, where the Dalai Lama was in residence. He chuckled again and responded, "Of course."

So, I went to study with Geshe Ngawang Dhargyey at the Library of Tibetan Works and Archives in Dharamsala, and after a few years there, met with the Dalai Lama. I asked him what he thought of us Western students and he said that he was pleased with our genuine interest, earnest engagement and intelligence, but I pressed him further for more of a critique. At that he told me he had observed that we Westerners would come to study in Dharamsala and after a few years wonder why we had not yet attained greater achievements, while for Tibetans, on the other hand, the path of Awakening was a life's work.

After returning to the U.S. from India in 1976, for the next 17 years I continued my dedicated study and practice of Tibetan Buddhist philosophy and meditation as well as translation of Tibetan Buddhist meditation manuals under the direction of Sermey Khensur Lobsang Tharchin, a Lharampa Geshe (the Tibetan equivalent of "Doctor of Divinity") and abbot emeritus of Sera Mey, one of Tibet's great monastic universities. Geshe Tharchin had a favorite quip, that his students shouldn't "make thukpa" (a Tibetan stew comprising whatever ingredients might be at hand) out of the sacred teachings and, indeed, during that period of my life, I never consciously mixed my own ideas or modern perspectives with what I was taught by the Buddhist masters with whom I studied.

In my late 30s, I became interested in modern psychology and neuroscience. I began to read scientific literature written for the general public, then college textbooks on psychology, and then began to take college courses from continuing education departments at local colleges before eventually realizing that I needed to engage in graduate studies to find the level of understanding I sought. Thus, I applied for and, in 1993, was granted a fellowship which paid my tuition along

with a stipend for doctoral studies in the Psychology Department of the University of Pennsylvania. For me, it was an intellectual feast which I decided to consume without "making thukpa"; i.e., I wanted to learn what science might have to teach me on its own terms, and with scientific rigor. I had chosen UPenn because it was a renowned center for Cognitive Therapy, which I recognized to be a close analog of Buddhist analytical meditation, and I thought this might be a good place to start.

In the period that followed, my clinical training included a pre-doctoral fellowship in the Department of Psychiatry at the Hospital of the University of Pennsylvania (HUP) comprising externships in cognitive-behavioral therapy at the Center for Cognitive Therapy, neuropsychological assessment at the HUP Department of Neurology, psycho-diagnostic assessment at the HUP Outpatient Psychiatry Clinic, and insight-oriented therapy at the Institute of Pennsylvania Hospital. I served my pre-doctoral clinical internship at Friends Hospital in Philadelphia, PA. Following several years of training in clinical psychology and research in human brain electrophysiology, I wrote my doctoral dissertation on the neurophysiology of sustained selective attention. My post-doctoral clinical training included certification in neurofeedback therapy and advanced training in quantitative electroencephalographic (qEEG) evaluation.

During my years at the university, as I became engaged in neuroscience research, I began with experimentation on myself. For instance, a colleague of mine was attempting to perform an experiment to uncover subtle brainwave interactions in the motor cortex but couldn't find subjects willing to sit motionless for 45 minutes while continuously being mildly shocked at different frequencies on each hand simultaneously. I volunteered and asked him what mode of attention he wanted me to adopt. He told me that he didn't care since this was a "stimulus driven experiment." So I asked him to let me know each time 15 minutes had elapsed. After he analyzed the data, he asked me what I had done with my attention and I replied that I thought he didn't care. He said that he was asking because he had obtained some very strange results that differed with each 15 minute epoch, so I answered that in the first epoch, I had attempted to adopt what I thought would be "normal" attention (and, incidentally, had found that to be the most problematic). In the second epoch, I had been mindfully present to the sensations of shock I was receiving in each hand. In the third epoch, I had been attending to profound empty clarity.

"What were the results?" I asked him. In the first epoch (when my attentional state had been "normal"), as expected, he recorded stimulus driven brain waves in the primary motor cortex of each hemisphere of my brain at the frequency of shocks to the corresponding contralateral hand. In the second epoch (when I had adopted an attentional state of "mindfulness") he recorded the same signals in the primary motor cortices as well as, for the very first time, his hoped for interaction of those frequencies in a secondary area of my motor cortex. However, in the third epoch (when I had been intently focused on a mental state of "profound empty clarity"), no stimulus driven brain waves were present at all in any area of my brain. In my dissertation

research a few years later, I was able to rigorously demonstrate the disappearance of all stimulus driven brain wave activity due to sustained selective attention in subjects I had instructed who had no prior meditative training.

Here, I will briefly interrupt this narrative to answer the question, "Why does any of this matter?" It matters because when shocks to the hands can be acutely registered or disappear from brain activity in a highly trained subject depending on attention (see "Protocol-Free Meditation" in this archive for some of the methodology), and when a light flashing directly into the eyes can be precisely registered or disappear from brain activity in a subject with a modicum of training depending on attention (see my doctoral dissertation in this archive), then it becomes clear that attention can be an important agent in determining conscious experience as well as external stimulation. Moreover, the question then arises, "To what shall we pay attention?" The answer may be arrived at with contemplation aided by psychotherapy as well as other relevant sources of information (again, see "Protocol-Free Meditation" in this archive). After I became a licensed psychologist, many of my clients found that developing attentional and contemplative skills was extremely helpful in dealing with their issues. In future postings to this archive, I will discuss additional details of the mental training I provided to my clients, but for now we will return to my narrative.

In my first clinical position following graduate school, the director of the non-profit agency I worked for was aware of my background and asked if I could develop a neurofeedback program for the traumatized children with whom we were working. At that time, in New Jersey, emotionally disturbed children who were unable to be educated in a regular classroom were taught in a self-contained special education classroom. If that was insufficient, they would be sent to a public or even a private special education school. If that failed, they would be sent to a specialized program out of state, which was a drastic and exorbitantly expensive measure, so our agency was created with the mission of intervening with these children to provide them with a final opportunity for remaining in-state. I developed means of gamifying neurofeedback for these kids so that they really enjoyed it. For instance, therapists would typically counsel these children to take slow deep breaths in order to remain calm when something upset them, but most lacked the self-control (and/or motivation) to follow through. However, when they were playing a video game which paused whenever they became overly excited, as signaled by neurofeedback, they began to take pride in being able to self-regulate their nervous system reactions. Eventually, some of them even became mainstreamed in the public school system again.

After I left the agency to begin private practice as a licensed clinical psychologist, I continued to work with neurofeedback and other forms of biofeedback such as skin conductance, digital temperature, and heart rate variability for a while. With adults as clients, however, I found that I ended up coaching them on self-regulatory attentional skills in order to help them perform better with whatever biofeedback was being employed, and eventually discovered that the various forms of biofeedback I employed were unnecessary for adults, that self-regulatory training alone

was more expedient and effective since it required no equipment and could be more easily generalized to everyday life. Thus, I began to adapt the meditation techniques I had learned and practiced for decades to the specific capacities, sensibilities, and needs of my individual clients.

Because my clients had a wide variety of issues and motivations as well as differing capacities and perspectives, they required a wide variety of approaches. Many of my clients were experienced meditators familiar with traditional methods, while others were unfamiliar with meditation techniques. They were scientists, artists, engineers, musicians, blue collar workers, professors, health care professionals, and teachers. They were progressives, conservatives, libertarians, and apolitical. They were Christians, Jews, Muslims, Hindus, Buddhists, fundamentalists, agnostics and atheists. Some had disorders in the spectrum of attention, anxiety, mood, and/or schizophrenia. However, they all had something profoundly in common. They were all perfectly human. Thus, regardless of their backgrounds, training, professions, beliefs, problems, capabilities, or interests, their minds all operated with the same fundamental mechanisms which they also shared in common with me. So, I was able to translate traditional methods into techniques of mental training suited to each individual.

When clients of mine thought they could not meditate or self-regulate their emotions, I would identify what they found engaging and proceed from there, essentially as I had coached children and teens in self-regulatory skills using video games linked to biofeedback. For instance, when a client was interested in playing golf, baseball, skiing, or some other sport, we would review recent experiences when loss of focus from emotional and/or thought intrusions had impacted their performance. I would then coach them on the application of sustained selective attention to a specific focus of concentration we thought might be helpful to their performance while learning to avoid extraneous thoughts. In many cases, we used driving while commuting to and from work and other everyday activities as a means for developing concentrative and contemplative skills. When clients of mine were experienced meditators who felt stuck in their development despite applying traditional interventions to advance their practice, we would review the details of their meditative experiences with fresh eyes, folding in what worked for them while creatively exploring the application of techniques that went beyond what they were stuck in.

Throughout the latter part of my career, approximately half of my clients were experienced meditators, teachers of meditation and yoga, and/or other psychologists and therapists. Of the remaining half of my clients, many had tried meditation and either found it unengaging or believed that they couldn't practice it successfully. Rarely, however, did any of my clients fail to learn techniques they found helpful. Among those who were experienced in meditation, most were able to bring new vitality to their practices. Among those who were themselves teachers of meditation, most expanded their understanding and repertoire of skills. Among those who believed they could not meditate, including those diagnosed with attention deficit disorder, few if any remained unable to exercise improved self-regulatory attentional skills when the techniques were tailored to them.

Thus, after twenty years of traditional study and practice, for the thirty years that followed, I empirically developed the methods I am gradually making available in this archive. In 2023, I fully retired from professional work as a psychologist and, since then, have enjoyed resuming my studies of Buddhist canonical literature and writing about the insights and methods I continue to develop and enjoy practicing.