

ARTICLE

Contemplative Neuroscience:

Understanding Mindfulness in the Context of Health and Education

Gordon L. RATZLAFF

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Abstract

This paper is a follow-up to an hour-long Workshop presentation at the 37th Annual International Conference on Language and Learning, November 18-21, 2011, at the National Olympics Memorial Youth Center, Yoyogi, Tokyo, Japan. The conference's theme was *'Teaching, Learning, and Growing.'* The paper contains the workshop elements presented at the conference, clearly designated for the audience by the use of the first person. It also contains a discussion of other elements, which in the course of the workshop, could not be presented. How to incorporate mindfulness into the educational and health care system, from child to adult, requires swift and vigorous action in a systematic way. It carries an acute urgency for parents, health care providers and teachers. Mindfulness of breathing is central to all aspects of mindfulness; mindfulness of breathing is also central to this earnest message. Such a simple act as breathing mindfully can alleviate the inimical snowballing stress in our lives and impact solid ramifications in health and in education. A small case study is presented as evidence of being able to incorporate the formal practice of mindfulness into one's daily life, along with the necessary discipline carry it out, and reflects positive evidence of its effects.

The education of attention would be an education par excellence.

— William James

I. Introduction

To put mindfulness¹ into one's life, and to connect this to the field of education, is a daunting task. As a teacher, and a practitioner of mindfulness, I have confidence that my words here, although far from professional, are worth being made known to the general public. I also feel they carry enough insight into the field of Contemplative Neuroscience that educators, particularly those working as language teachers, including those interested in the workings of the brain, and along with all those associated with any kind of contemplative practice, can find inspiring.

Putting the informal practice of mindfulness into one's everyday life is the ultimate goal. As Kabat-Zinn tells us, this is the awareness that can hold our attention, and then bring that awareness into everyday life. "The true practice becomes how you live your life, not how well you sit on a cushion." "The various objects that we can pay attention to and be aware of are important, but most important is the attending itself, awareness itself, or mindfulness (Kabat-Zinn, 2011, *TMOP*, 39)."

Mindfulness: Workshop Explanation

How many of you are familiar with the word “mindfulness?” This afternoon, I would like to introduce it to those of you unfamiliar with mindfulness, explain briefly some points concerning stress and how mindfulness can aid in reducing it, followed by two mindfulness exercises.

By mindfulness, I am not talking exactly about the word “mindful” about which we are familiar with, in the words, “Be mindful of your actions.” I’m talking about the word “mindfulness” as it is defined within the medical field: a scientifically proven technique for reducing stress and improving health. MBSR (Mindfulness-Based Stress Reduction) is a simple scientifically proven technique for reducing stress, improving health, and aiding teacher’s concentrative power and creative potential. The first MBSR Program was introduced into the mainstream of integrative medicine in the United States by Jon Kabat-Zinn at the University of Massachusetts Medical Center in 1979. Since that first program, there are now “over 250 hospitals around the country (U.S.), and around the globe (Stahl, 3).”

We will also we will be discussing “mindfulness” in its spiritual definition, which emphasizes a non-judgmental awareness of bodily sensations, sights, sounds thoughts and emotions. This definition is also connected to psychotherapy models such as DBT (Dialectical Behavior Therapy), being one of the cornerstones of a behavior therapy called Acceptance and Commitment Therapy or ACT. We will also explain mindfulness in its relation to eastern spiritual traditions and how it can help treat certain anxiety disorders.

With mindfulness, we do not have to change our ideas or beliefs about anything. Mindfulness has to do with awareness, and it is the awareness and carefulness that arises by paying attention on purpose to the present moment, and non-judgmentally. In language teaching, the focus will be upon “growing” as an educator in the full meaning of developing one’s skills and potential.

As I stand on this stage, as I would be if I were on any stage, aware that I am dealing with a monumental subject, I feel a certain amount of trepidation. I’m not a mindfulness teacher and haven’t been trained in mindfulness. What we will discuss and work together with today is so important that I don’t want to err too much. If I can present the topic of mindfulness as clearly as I possibly can, and if you can have the patience to listen to me to the finish of this workshop, then I will be grateful.

It is no exaggeration to say that what I will be doing together with you is a matter of life and death. As I will explain a little later, the mindfulness stress reduction techniques, which we will be discussing, have the power to transform and to help us understand our own minds and bodies, our perceptions and feelings; and finally, have the power to give us a more authentic connection to life and being alive. These techniques are not simply about healing. In the end these simple techniques are about getting to know oneself better, and about the idea of really *being* oneself. We will be looking deeply inside the self, inside your body. You may feel some things this afternoon which

you've never felt before. It sounds so exciting. So, are you ready? But before we begin the exercises in mindfulness, I would like to provide you with some background to how the introduction of mindfulness into education all came about. To understand this, we need to have a brief look at the contemplative traditions and new insights on how to treat them in schools.

II. Contemplative Neuroscience

Contemplative Neuroscience Background

Tobin Hart gives us some insights on how to treat the contemplative within the field of education. "Opening the contemplative mind in schools is not a religious issue but a practical epistemic question... Inviting contemplative study simply includes the natural human capacity for knowing through silence, pondering deeply, beholding, witnessing the contents of consciousness and so forth." Hart goes on to say that "these approaches cultivate an inner technology of knowing and thereby a technology of learning and pedagogy without any imposition of religious doctrine whatsoever. If we knew a particular and readily available activity would increase concentration, learning, well-being and social emotional growth, and catalyze transformative learning, we would be cheating our students to exclude it (Hart)." Here, we can see how Hart's words give impetus to the 'contemplative' side of education which we are dealing with. "Long dormant in education, the natural capacity for contemplation balances and enriches the analytic. It has the potential to enhance performance, character and the depth of the student's experience (Hart)." The words, connecting them to mindfulness, are important for mainstream education: "Without any imposition of religious doctrine whatsoever..." We will be dealing with mindfulness in a non-religious and non-sectarian context.

When His Holiness the 14th Dalai Lama visited Osaka on October 30, 2011, he addressed a full house in the Maishima Arena about the healing potential of the human mind, and about the convergence of the wisdom of the ancient contemplative practices and modern medicine, psychology, and neuroscience. During the Q/A period, His Holiness told the audience that Japan is one of the most brilliant producers and sellers of high-quality cameras. But, he said, no one, as of yet, can take a picture of the mind.

"Mindfulness has been practiced for thousands of years as a way to reduce suffering and cultivate inner peace. Research shows that mindfulness also enhances learning and attention. There is growing interest in the possibility that this ancient meditative practice can support education and learning for both children and adults. Many educational institutions, including UCLA, Stanford, UCSF, and PENN have embraced mindfulness as an educational intervention by introducing it into their curricula and conducting research in the field (www.mindfuld.com)." A three-day conference will be held at Bryn Mawr College in Philadelphia, Pennsylvania, in March of 2012, to explore how

the contemplative and the scientific can be brought into the field of education (www.mindfuld.com).

Uniting the Contemplative and the Neuroscientific

Recent insights coming from the neurosciences are in profound agreement with the thousands of years of wisdom based on the contemplative traditions. How does this marriage of these two seemingly opposing ways of examining our short time on this earth, improve our health? We will soon point out some recent research, most of it having been completed in the past two to five years.

While exploring some of the latest evidence of brain science we are now able to see more in detail exactly where our centers of emotion are located. Finding those areas is important, but the Dalai Lama, cited earlier, implored us to have patience with what we cannot understand. We can center the areas in the brain, but we cannot fully understand them. In all of man's research on the brain and its functions, of what use is it if we know 'where' man is feeling, but we don't know 'how' he is feeling, and 'not where' happiness is being produced, but 'how' happiness can be invited into our lives. We need to know the 'how' to help us lead more integrated, healthy, and satisfying lives.

Since Jon Kabat-Zinn developed the MBSR (Mindfulness-Based Stress Reduction) program at the University of Massachusetts Medical School, this program has become widely accepted within mainstream medicine and psychiatry. And along with Johns Hopkins and Georgetown University Medical Center, the field of integrative medicine has taken root and has spread all over the world. Integrative medicine makes use of mindfulness as its core element, and is now putting the 'care' back into 'health care (Kabat-Zinn, *TMOP*, 43).' Mindfulness research in neuroscience has shown that systematic training in mindfulness of the breath may be associated with actual structural changes in the brain. Sarah Lazar in a Harvard study showed that people who undergo eight weeks of training in MBSR not only show differences in the activity in their brains in particular important regions for regulating emotions and the sense of well-being in the body, but also that the actual thickness of the cortex, the cerebral cortex in certain regions, gets thicker (Kabat-Zinn, *TMOP*, 212).

Neurological Rationale for Mindfulness

Can we say that nothing is more complicated than the brain? Is it not considered as the most complex, instrument, as we know it, in the universe? Developments in scanning technologies such as EEG's and *f* MRIs have been at the forefront of what science and medicine are learning, and these developments have led to real breakthroughs about the relationship of the mind to health and stress reduction, and overall well-being. This research has shown that mindfulness can boost the immune response, thicken the regions in the prefrontal cortex of the brain, have a positive impact on your day-to-day living, make up for some of the losses in the brain due to aging, as well as have

a positive influence on resilience, self-regulation, and well-being (Stahl, 31). We, as teachers, can benefit greatly from these insights, and all of the research that is recently being done, showing that mindfulness is responsible for healthy changes in the brain. For a brief background of the landmark research that has captured the imagination of those interested in contemplative neuroscience, please refer to the Epilogue in *The Mind's Own Physician*, edited by Jon Kabat-Zinn, insightfully summarizing the most recent clinical research of these past six years. The words cannot be more simply put than this: "When you change your brain, you change your life (Hanson, 3).

In classes, we often feel we should fill the heads of our students. Discussing the above neurological findings, we need to begin a discussion on the exact opposite of what we are doing to our students. Instead of filling their heads, we should propose to clear their heads. Not for such a long time, but somehow be able to give them adequate time to repose their minds, or teach them how to quiet their minds. Discussing how to do it is not easy and incorporating this into a curriculum is also not easy. Yet to explain its worth at this workshop is already a step in the right direction.

Hanson points out that our brain is a tofu-like tissue, weighing about three pounds, or 1.2 kilograms, with 100 billion neurons. At its receiving point when the neurons receive synapses from other neurons, the neuron gets signals, which tell the neuron to fire or not. These signals are called neurotransmitters and, when a neuron fires it sends signals to other neurons to fire or not (Hanson, 6). The time it takes for the neuron to fire is difficult for our minds to understand time-wise. What exactly does five to fifty times a second mean?

By the time you look up and see this finger in the air, and then as I pause, and the time it takes for you to wonder why it is up there, and in the time it takes you to have listened to those next few seconds of my voice, literally quadrillions of signals will have travelled in your head. This is all happening in your brain, right now, non-stop, each neuron containing a bit of information, and all moving around the brain like the heart moves blood around your body. All of this information we usually call the 'mind' (Hanson, 6-7). This information includes the signals of how to work your mobile phone, your personality tendencies, your dreams and aspirations, processing the words I'm saying to you now, and also the signals that regulate the stress response. Yes, the working of your brain is that complicated (Hanson, 6-7) !

The ANS: SNS Activation and PNS Arousal

Hanson tells us that, "Your body has a lot of major systems, including the endocrine, cardiovascular, immune, gastrointestinal, and nervous systems. If you want to use the body-mind connection to lower your stress, cool the fires, and improve your long-term health, what's the optimal point of entry into all these systems? It's the autonomic Nervous System (ANS) (Hanson, 80).

Let us examine the autonomic nervous system (ANS) a bit more. It's made up of the sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS) and the enteric nervous system, which regulates your gastrointestinal system. Let us focus on the parasympathetic nervous system (PNS) as it is what we are most concerned with this afternoon. It helps you to retain and conserve energy in your body and is "mainly" responsible for your feelings of relaxation and your sense of contentment, in contrast to the sympathetic nervous system (SNS), which is "mildly" responsible for your enthusiasm, your vitality, and your wholesome passions. We can think of the SNS as the gas pedal, and the PNS as the brakes. Of course we need both of them, working in harmony together (Hanson, 60). But if you press too hard on the gas pedal you can imagine what will happen. Perhaps you will have an accident or get a speeding ticket. However, we can really never have too much braking going on, that is, staying within our limits. In our present world, most of our bodies are running, sometimes accelerating over the speed limit.

We may think of it this way: When you breathe in, you are activating your SNS (like a "gasp" for instance), and when you breathe out, you are activating the PNS. Sometimes the SNS is called 'fight, or flight, (or freeze),' and the PNS the 'rest and digest' (Hanson, 58-60).

III. Age of Anxiety

Stress Awareness - Stress Consequences

An article in the *Japan Times* on July 3, 2011, began with the words, "What's ailing us? The list is long. In a nutshell: stress." "Sixty percent of Japan's work force suffers from it..." "That's astonishing. If 60 percent of the people in a given environment are miserable, the logical inference is that the environment is radically amiss, or our mode of life doesn't suit us." And this survey was taken "before the ongoing surge in 'earthquake stress,' 'tsunami stress,' and 'radiation stress.'"

"Stress has medical as well as psychiatric consequences: high blood pressure, high cholesterol, liver malfunction, diabetes, chronic insomnia," and the list goes on. "All of which begs the question: What are we doing to ourselves and why? Our work and what we produce by it are supposed to make us happy, and it turns out that they're making us wretched. Yet no one out there is saying, "Stop, this is crazy!" The real problem, it would seem to be, is this: "Instead of driving through life, we're being driven through it." "Freedom is slavery" is how it was in George Orwell's futuristic dystopia "1984." "It's how it is with us, too (Hoffman, 3)."

Stress in Education

If society is stressed out, then how about teachers? However, before examining teachers, let's look at the present situation within the language teaching environment. "The alarming rise of classroom stress in many areas of education fuels widespread problems, including poor academic

achievement, anxiety, depression, school violence, and teacher burnout (www.tm-ireland).”

Elaine Horwitz and Dolly Young, in their book *Language Anxiety*, explain the role of stress in foreign language learning, and also hint at the effects of anxiety which extend beyond the classroom: “Our findings suggest that significant foreign language anxiety is experienced by many students in response to at least some aspects of foreign language learning (Horwitz, 34).

Horwitz goes on to tell us that anxiety is the combination of tension, apprehension, nervousness, and worry. All of these are precisely connected to an arousal of the autonomic nervous system, as we have just seen in our discussion on the neurological background. Just like having an anxiety reaction to science or mathematics may prevent many people from performing successfully in science or mathematics; likewise, many people find foreign language learning, especially in classroom situations, particularly stressful (27). “Here, we can look upon language anxiety as a distinctive form of anxiety expressed in response to language learning. That is, something unique to the language-learning experience makes some individuals nervous (Horwitz, 1).”

To quote from another recent article in the *Japan Times*, also concerned with stress and targeting teachers, from Nov. 11, 2011: “In Japan, the number of first-year teachers who left their job for health reasons has increased twenty-fold over the past 10 years, with most citing emotional issues, an education ministry survey has found.” The article explains the reasons for teachers leaving schools: “Public school teachers voluntarily left within a year for ‘health’ reasons, mainly depression and stress.”

Kabat-Zinn tells us that stress is a natural part of our lives, and cannot be avoided. Yet he also says that we can adapt to the stressors of our experience, and perhaps avoid making ourselves sick or sicker (*FCL*, 337). “The stress in our lives is now so great and so insidious that more and more people are making the deliberate decision to understand it better and to bring it under personal control (*FCL*, 2).”

Coping with Stress

Then how to reduce stress in our increasingly digitalized society? In dealing with stress, we can take note of a metaphor of the sailor and the wind, in order to give us a handle on the way stress may be controlled. Kabat-Zinn tells us that, when we find ourselves in an array of good or difficult conditions, whether the wind is howling or sun is shining, our stressful situations can be better understood, and that these ‘weather conditions’ can be likened to the art of conscious living (*FCL*, 3):

There is an art to facing difficulties in ways that lead to effective solutions and to inner peace and harmony. When we are able to mobilize our inner resources to face our problems artfully, we find we are usually able to orient ourselves in such a way that we can use the

pressure of the problem itself to propel us through it, just as a sailor can position a sail to make the best use of the pressure of the wind to propel the boat. You can't sail straight into the wind, and if you only know how to sail with the wind at your back, you will only go where the wind blows you. But if you know how to use the wind's energy and are patient, you can sometimes get where you want to go. You can still be in control (Kabat-Zinn, *FCL*, 3).

There are many ways to deal with stress reduction directly connected with mindfulness, and what breathing exercises can accomplish is nothing more than miraculous: What we know now from a large amount of research in the last ten years is that the activation of the PNS (parasympathetic nervous system), as we have seen before, through breathing exercises, relaxes the circuitry of the PNS and strengthens it. When the PNS is strengthened, it can send calm and soothing ripples throughout the body, brain, and mind (Hanson, 80).

Kabat-Zinn tells us that the latest research on mindfulness breathing exercises during the body scan reflects increases in both parasympathetic and sympathetic cardiac activity. This is a particularly interesting and important finding, since the parasympathetic nervous system and sympathetic nervous system are usually inversely related, but mindfulness appears to activate both branches of the autonomic nervous system simultaneously (Kabat-Zinn, *TMOP*, 213).

Hanson again tells us that diaphragmatic breathing exercises and progressive relaxation using body scan-techniques, can increase the gray matter in the insula, hippocampus, and prefrontal cortex. It can stop cortical thinning due to aging in prefrontal regions and increase psychological functions associated with these regions, including attention, compassion, and empathy and lift one's mood. This has great consequences for the prevention and treatment of disease, as in the example of Alzheimer's. It can decrease stress-related cortisol, and strengthen the immune system. It can help a variety of medical conditions, including cardiovascular disease, asthma, type II diabetes, PMS, and chronic pain. It can help numerous psychological conditions, including insomnia, anxiety, phobias, and eating disorders (Hanson, 85-86).

IV. Mindful Eating and Breathing Exercises

Mindful Eating – Background

Please bear with me as we go through, step by step, an exercise in mindfulness, which is connected directly with your intake of food. Like breathing, which we will soon discover, eating is another realm of our bodies, which we take for granted most of the time. However, as we are all well aware, eating is fraught with many emotional issues. After the eating exercise, we will do another exercise, this time with breathing. Both exercises, eating and breathing, will take five minutes of your time. Because they are both so closely connected to our experience of living, we

can become aware of how we can learn to operate in a concrete way, managing our stress. Yes, bear with me for those valuable ten minutes, as we try to unravel the mystery and endeavor to experience first hand why mindfulness of eating and breathing are such key experiences. For us today, they will become key discoveries: If we pay attention, the world will open up. If the world opens up to our senses in new ways, it will light up totally new dimensions in our lives (Kabat-Zinn, *TMOP*, 39).

Mindful Eating – Workshop Directions

First, please pass this package of raisins around the room. Please take three raisins. Be mindful not to drop the package and spill all the raisins on the floor.

Do not eat the raisins yet. Please do not eat them until I tell you. Yes, we will eventually eat them, but I would like for you to please wait quietly until everyone gets the raisins. I would like you to imagine that you and only you are involved in this exercise.

Once you have the raisins in the palm of the your hand, please start to scan them, as if you were coming from another universe. You've never seen a raisin before, so direct your total attention to these three raisins. Examine the contours, you may squeeze one, you may check it to see if it makes a squishy noise when you put it to your ear, you may bring them slowly to the nose, taking a deep breath and feeling the deliciously sweet odor melt into your nostrils. Please examine the consistency, the light as it reflects on the surface and the crevices, as if they were small pebbles from the moon. Turn them over, and scan them for color, size. Are they moist or dry? If you ask yourself at any time: "Why am I doing this?" or "What is this all about," or any other question, please let that question go poof in your mind, and bring your full attention back to your raisin.

Now pick up one raisin in your left hand, and think about any associations you might have had with raisins. Then notice any anticipation you may have about eating it. Is your mouth watering? Are you rushed to eat it? Are you in a hurry? Try to notice anything that comes up in your mind about this small dried grape.

Now let's eat it, but please wait for directions. Closing your eyes, please bring the raisin slowly to your lips, and notice how the arm knows where to go naturally. Now, put the raisin on the front part of your tongue, and opening your eyes, if you want, keep it on your tongue and let your tongue bring it into your mouth. Where did it go? Is it in the middle of your tongue, to the side, which side? Is saliva coming to envelope it? Please chew it slowly, about 15 or 20 times, as conscientiously and meticulously as possible, but don't swallow it yet. Chew and pay attention. Notice how sweet it is. Notice how you want to swallow it, but just keep chewing. Notice how the saliva mixes with the raisin, and becomes raisin juice. Focus your attention like a light beam on the raisin, and become intently, intensely aware of it, feeling it directly on your teeth as you chew. Get the most out of it, chewing it totally, as if it were the only food you were eating all day long.

Now swallow it, imagining it going down your throat disappearing into your stomach, no longer being food. When you finish swallowing, just rest in the afterglow of this delicious experience.

In this way, we learn to mingle mindfulness and concentrated awareness with daily life. Please try to do the same with the other two raisins.

Did you notice if this practice in eating mindfully has any relevance to your past eating habits? It may not be necessary to eat each meal in this way, but having done this exercise, we can learn something about our own eating habits, and we can even try to begin each meal by taking the first bite mindfully and setting an intent to eat this way through the course of the meal. (This section: Das, 348-50; Kabat-Zinn, *FCL*, 27-28, Stahl, 18-19 ; www.fullcircledmed.org.)

Mindful Breathing – Background

Mindfulness of breathing is central to all aspects of mindfulness (Kabat-Zinn, *FCL*, 57).² Relaxation is central to all aspects of mindful breathing.

The breath is an incredibly powerful supporter of our bodies, along with the heart. The breath, because we can control it, can also be a good teacher if we allow it to be. It's like a first aid kit, which we can carry with us wherever we go. We can't leave our houses without it, and we'll always have it with us, no matter what we are doing, what we are experiencing, or what we are feeling. It is our "unsuspecting ally (Kabat-Zinn, *FCL*, 47). Let's discover a little more about the content of this first aid kit, and learn how to use it?

Thich Nhat Hahn, world-renowned mindfulness teacher and master, had this to say about breathing in a recent interview. One of the questions was, "If you could only choose one mindful activity a day, what would that be?" His answer was: "Mindful breathing. My breath is with me all the time as long as I am alive. I can breathe mindfully anywhere, any time and in any position. Even when I am sick, I can still lie in bed nurturing my body and mind, helping my body to heal with mindful breathing. It is very nourishing (www.oprah.com)."

If you have ever tried sitting and paying attention to your breathing, you have probably noticed that the mind tends to wander around a lot. You may say, "OK, I'm not going to let my mind take over. I'm going to concentrate on my breathing..." and sooner or later, you'll undoubtedly discover that your mind has gone somewhere else. It has forgotten the breath, and is somewhere far away (Kabat-Zinn, *FCL*, 65).

Mindful Breathing – Workshop Directions

Now, please, follow these instructions. We will do another five minute exercise, this time in "breathing." One of the reasons that we are doing this is so that you can become aware of how much your mind *may* wander away from your breathing. When it wanders away, try to remember what you were thinking at that moment. Then, recognize what you are thinking about, and then let

it go, bringing your mind ‘gently’ back to your breathing (Kabat-Zinn, *FCL*, 22).

I would like for you to sit comfortably now in your chair. If you want to just sit back and relax in your chair that is fine too. However, I would like for you to sit with your back reasonably straight, but not stiff. Find a posture that is both relaxed and alert. If possible you may fold your hands on your lap, or put them on your knees, or in any position that you feel you will be at ease. Place your feet flat on the floor. When you are comfortable, I would like you to please close your eyes. If you want to keep them open, that is also OK. You may be able to concentrate better with them closed or slightly closed. But don't close them just yet.

At some point if you feel that what you're doing is crazy, or like with the raisin, you feel that what you are doing could be foolish, then to make it interesting, just imagine that you are putting two fingers over your nose and closing it off to the outbreath and inbreath, and it won't be long until you realize how valuable this exercise is.

When we begin, I'll invite the sound of the bell to join us. At that time, take a big inbreath and relax, dropping all the questions you might have about doing this, or about the conference in general. You might want to imagine you have just put a big bag of books onto the floor before plopping into your chair. Listen until the bell sound fades away, and then give full attention to your breathing.

As you breathe, sense the air coming in through the nostrils, closing the mouth, and breathing out of your nostrils on the outbreath. Please watch me as I give a demonstration. Try breathing from your belly. In Japanese, this is called, “Fukushin kokyū.” Breathe in and your belly expands, and when you breathe out, relax the belly as it deflates. It's as easy as that. Diaphragmatic breathing is the way we all start out our lives as babies (Kabat-Zinn, 53).

Please do not think about your breathing, just focus on your breath and be aware of it and feel the sensations of the breath coming in and out, through the nostrils, if you want, or through the chest, or into the belly, if you want. You may want to say quietly in your mind the words “in” and “out” or “inbreath” or “outbreath.” You may softly count your breaths. You can also count to ten if you want. But no matter what you do, don't try to control the breath. Just breathe in and out naturally. It's quite normal for your mind to wander, and when it does, recognize where it went, and bring it back, gently, to your breath. This is usually a challenge at the beginning, but if your mind can settle down and relax a little, you may be surprised that you can let everything else go (Hanson, 86-87).

As I mentioned a moment ago, I will invite the sound of the bell at the start three times, and invite the sound of the bell back at the end of five minutes. Take it easy, relax, because it just may be the longest 5 minutes you've spent in your recent life. (This section: Kabat-Zinn, *FCL*, 22-23, and 64-65; Das, 342-45; Stahl, 45)

If you didn't feel particularly relaxed during these five minutes of breathing, please don't worry. Could you keep a rather high level of attention to your breathing? Did you experience being lost

out there in the chatter of the mind far out in space and time? If you cannot imagine doing this for twenty or thirty minutes, also do not worry. The relaxation that comes from mindfulness comes with continued practice. The point of this five-minute breathing exercise was simply to show what happens when you put serious effort in trying to pay attention to your breathing, and then what happens when you put that effort into awareness.

This practice, and all the breathing practices that are connected to it, if done regularly, will allow yourself to be 'where you already are.' It will allow yourself to become familiar with your own experience moment by moment. Mindfulness doesn't ask you to get anywhere, or feel anything special. It just allows you to feel the way you feel, and be the way you are at the present moment (Kabat-Zinn, *FCL*, 23).

Kabat-Zinn continues by stating that "just the attitude itself, along with the stillness, is healing. Allowing the world to be as it is beyond our personal fears and concerns, beyond the tendencies of the mind to want the world to be a certain way. And just seeing ourselves as complete right now, as we are, looking and experiencing deeply the fullness of our life, and the limitless qualities of life. Experiencing the fullness of our ability to love and to care (Kabat-Zinn, body scan)(www.mindfulnesscds.com)."

After having done the mindfulness breathing 'body scan,' where one's breathing is concentrated on the different parts of the body as you scan it, using the diaphragmatic breathing we have learned today, Kabat-Zinn finishes his audio version of the body scan with these words:

Allowing this calmness and this centeredness to remain with you as you move now and as you resume the activities of your life. And to remember that this state of relaxation and clarity is accessible to you by simply attending to the inbreath and to the outbreath in any moment, no matter what's happening, at any time of the day, and letting it be a source of constant strength and energy for you and for others with whom you share your world, and letting it provide a deep personal reservoir of balance and well-being, from which you may make conscious decisions and choices about how to live a more integrated, and healthy, and satisfying life (Stress Reduction Tapes and CDs) (www.mindfulnesscds.com).

V. Case Study

Description of the Presenting Problem

The inclusion of this case study was not to present a model of formal mindfulness practice, but to underline the importance of disciplined practice in mindfulness training, and to show how one person was able to increase the amount of HRV (heart rate variability) and stabilize the autonomic nervous system. HRV is a good indicator of parasympathetic arousal and overall well-being, and

it can be changed directly (Hanson, 84). During the study we can notice that the arrhythmia (abnormal heartbeat) the patient experienced before the practice began did not reoccur during the 2.8 years of the study, which is still ongoing.

Participant: Case Study “A” is a male, age 57 (at the beginning of the study), married, with a residence in Osaka, Japan. “A” has had a recent history of stress-work-related problems.

“A” first realized that there might be some problem with his heart when an electrocardiogram (ECG, EKG), was performed for a routine physical examination on December 9, 2003. It was found that there were some premature ventricular contractions (PVC). Patients with mild infrequent premature ventricular contractions are often unaware of them. After another examination on January 23, 2004, it was decided to send “A” to the National Cerebral and Cardio-Vascular Center (NCCVC) in Suita City, Osaka, Japan, where he was referred to a physician and diagnosed as suffering from severe work-related stress with PVC couplets (two consecutive premature ventricular contractions). The patient had two cardioversions on May 20, 2008, and March 19, 2009. Cardioversion is done to restore normal heart rhythm for patients who have certain types of arrhythmias, and is usually done by sending electric shocks to one’s heart through electrodes, which have been placed on the chest.

“A” first heard about “breathing” in June, 2009, after these cardioversions, and immediately began simple exercises in breathing (Cf. Appendix). The study was begun precisely because of chronic stressors, along with acute stressors, which caused alarm reactions over a long period of time, stimulating the sympathetic nervous system (SNS), and resulted in cardiac arrhythmia (irregular heart beat and PVC couplets), as well as psychological distress in the form of chronic anxiety caused by work stress.

Purpose and Method of the Case Study

The purpose of the case study was to show the clear intention of “A” to bring the heart back to its normal rhythm by attention to the breathing exercises. It was also to endeavor to bring credence to the possibility that spending the greater part of one’s lifetime in an unconscious pattern of reactivity to stress is likely to increase our risk of eventual serious illness and breakdown. In this case study, we can determine that the outward manifestation of this reactivity over the years was an irregular heartbeat. Lessening this arrhythmia (1), and (2) providing the occasion to show how a concerted effort to practice formal mindful breathing exercises each day can make a difference in one’s well-being, all the while underlining the medical effects of how breathing can change and aid the body, was “A’s” strong intention.

“A” wanted to keep track of his own formal practice because he thought that the enthusiasm he felt at the beginning would wane and to keep up the discipline would be difficult. To keep an accurate assessment of where and when the breathing exercises were being practiced, and to write

this information, along with feelings and thoughts, into a log each day was “A’s” solution.

In the Appendix we can find the record of the log that was started in June 2009 until the present publication (and is still going on). By displaying the results of this case study it is easy to follow how “A” spent a part of each day doing breathing exercises, keeping him completely engaged in the process.

Discipline in Practice

A certain discipline is necessary to enter into the practice and carry it through until one reaches a point when there is a realization of its positive effects. Then the discipline can continue on its own. The time spent is also not a model. Twenty minutes a day may be an easier target to spend doing breathing exercises. The time spent on the full body scan, which lasts for forty five minutes, during the first weeks of the MBSR course, should not be taken as an absolute must. Most teachers of mindfulness breathing exercises would most likely agree that whichever method works for you is enough. They will agree that there is no wrong way to do these breathing practices – the right way is what feels right for you. Sitting quietly, breathing slowly, deeply, that is enough.

Regular practice is not as hard as thought. This is where “conscious intentionality comes in, the intention to practice whether you feel like it or not on a particular day, whether it is convenient or not, with the determination of an athlete (Kabat-Zinn, *FCL*, 43).” Some practitioners feel that the extra ‘time’ in a day spent doing breathing exercises ‘frees up’ more time in one sense. One’s schedule becomes easier to manage due to the ‘clarity and perception’ gained by not wasting one’s time. At least many feel that the time spent ‘breathing’ is not lost, but can be efficiently regained in its entirety and can even ‘make more time.’

It is important to understand that the key to healing the body by oneself and putting integrative medicine to work, is to develop a personal commitment to a regular, daily practice, no matter how brief. C. J. Jung put it best: “The attainment of wholeness requires one to stake one’s whole being. Nothing less will do; there can be no easier conditions, no substitutes, no compromises (Kabat-Zinn, *FCL*, 46). This statement could be a good forerunner for the term, “Just do it!”

Implications of the Case Study

It may be too preliminary to say, but the 2.8 year study would seem to indicate that the breathing exercises have helped to physiologically regulate the body by lessening the effect of the SNS, and as stated in the reference above in the Workshop to the activation of the PNS, attempting to bring the heart back to a normal rhythm instead of being continually in a state of hyper-arousal. As Kabat-Zinn tells us, there is mounting evidence that chronic stimulation of the sympathetic nervous system can lead to long-term physiological deregulation. In “A’s” case, this change in stress reactivity seems to have had immediate and concrete results, and at least helped to prevent

a reoccurrence of arrhythmia.

“A” never said that he never had problems to stay awake. It might have been due to his nervous constitution from the beginning. Kabat-Zinn tells us this, when discussing the importance of ‘wakefulness’ in mindfulness: “I don’t want to practice in a daze. I want to be alert. This may seem somewhat extreme, but really it is just knowing the value of being awake before trying to practice. It helps to remember that mindfulness is about being fully awake (Kabat-Zinn, *FCL*, 45).”

As the practice became more routine and more enjoyable, we can notice that the time of the breathing exercises “A” was doing gradually increased, from less than one hour during the first three months, to between two and three hours on the average for more than the last two years. The time of the sitting-erect-mindfulness breathing exercises has also kept increasing from the ‘painful’ first fifteen minutes to the ‘easy’ one hour, after two years. The time spent breathing has been much more than what is usually recommended by teachers of mindfulness. The first MBSR clinic established at Massachusetts General Hospital began with the first weeks devoted to doing the ‘body scan’ each day. “A” stated that that the ‘body scan’ stimulus had provided the motivation to spend more time ‘breathing’ (Cf. Appendix).³

This case study shows that while arrhythmia may or not be able to be terminated, the study indicates that it can be contained, showing no sign of reoccurrence. In this case study, if “A” would have been more ‘stress-hardy,’ and able to cope with such stress, the results might have been different. As it is, “A” was only able to stop reacting to stress and start responding to it by adhering to a path of formal mindfulness practice in daily life. To begin on this path of healing and well-being, and then to complete the baton pass into integrating informal mindfulness practice to daily life, a disciplined start to formal breathing-exercises is necessary.

The key to healing the body by oneself and putting integrative medicine to work for our body, is to develop a personal commitment to a regular, daily practice, no matter how brief.⁴

VI. Applications for the Classroom

Teachers Helping Teachers

In this workshop and discussion, mindfulness has been explained in the context of language teaching, focusing on teachers who would like to reduce the challenges of stress in day-to-day events and difficult school situations. We have also defined mindfulness as a form of ‘quieting the mind’ practice, regulating how we, and our students, pay attention.

When you leave the room today you will have experienced practice in mindfulness, you will know what mindfulness is, and you will be able to explain it to your colleagues and eventually to your students. This workshop has been placed in the Conference Booklet under the heading, “Teachers helping teachers,” so we have focused on teachers, hoping that you can use the ‘take-away’ notes

you have collected in your mind to pass to your colleagues, family and friends.

After this workshop, most of you will go back to your usual life as a teacher or whatever profession you are engaged in. There are some of you in the audience who may want to begin to apply mindfulness to your daily life in different ways, enriching it to the point you never felt possible.

Perhaps someone in this room will find a way to include some of this into your curriculum, that is, if you can get permission to use it in your classes. As noted earlier, a Conference on Mindfulness will be held at Bryn Mawr College in Philadelphia, Pennsylvania, March 16-18, 2012, to remind us of the following: “Mindfulness can be an antidote to the growing stress, conflict and confusion in educational settings as well as an invaluable gift to give students. The practice of mindfulness offers an opportunity to reduce stress, increase concentration, enhance relationships, and find more peace and joy in one’s personal and academic life (www.mindfuled.com).” How can mindfulness be introduced into education? Some suggested topics at this conference are: “The use of the mindfulness bell, starting out a class period with a short session of focusing and centering, mindfulness training for teachers to reduce stress and burnout, mindfulness and well-being, a short period of calming the mind exercises before important tests to increase performance (www.mindfuled.com).”

Elaine Horwitz, referred to earlier, also approaches different ways in which teachers can reduce stress, which also can be included in mainstream education. These include “the use of specific techniques to allay students’ anxiety including relaxation exercises, advice on effective language learning strategies, etc. (35)” In all the available research we have, there are few concrete techniques that can be found about how to reconcile the “curious bifurcation of cultural evolution that led to widely divergent views of the human condition. On the one side are the spiritual techniques of self-exploration through meditation (in the East), a method that is entirely dominated by the first-person perspective.” Then from a western viewpoint, “We, in the West, with our scientific approach, opted for the third-person perspective, analyzing things from the outside (Kabat-Zinn, *TMOP*, Wolf Singer essay, 188). We seem to know the problem, but we don’t know exactly what to do with it. Perhaps, we will soon find a solution, creating courses in mindfulness and applied ethics for educators, designed to offer them a way to cultivate peace and well-being in their own lives, and contribute to creating a saner and more compassionate classroom environment (www.Mindfuledu.org).

How you as a teacher “grow” with mindfulness can have a great influence on your work and your students. Not only that, but it can reduce stress. This workshop has concentrated on understanding mindfulness and using it to maintain a more flexible, creative, concentrated, integrated, and above all, healthy mind-and-body lifestyle.

We can now understand that MBSR (Mindfulness-Based Stress Reduction) in education is

needed more than ever in this digital age. Kabat-Zinn tells us that “It’s not that mindfulness is the ‘answer’ to all life’s problems. Rather it is that all life’s problems can be seen more clearly through the lens of a clear mind (Kabat-Zinn, *FCL*, 26).” When our minds and bodies become calm and balanced, this relaxed awareness can help us in unimagined ways.

Finally, these words from a Kabat-Zinn Mindfulness breathing exercise, called "*When All Is Said and Done*," sum up the true purpose of mindfulness:

The real mindfulness practice is how we live our lives from moment to moment, the challenges we face, the choices we make, the places we go, and the work that we do; all become occasions for opening to the life we are actually living, and the life that is actually ours to live, if we show up fully, and pay attention. You could say life itself is the mindfulness teacher: the curriculum and the gift that comes to us for showing up for life at its fullness and meeting it with our fullness. Living mindfully is veritably the adventure of a lifetime (www.mindfulnesscds.com).

We can also read the poetic words of past sages to understand that this way of quieting the mind, and ‘resting’ the brain, is not new to our present ‘life with computers,’ and of course, will not be new to our life when we change to another ‘age’. These words will remain true for us in any age:

Just learn to
become quiet and still...
The world will freely offer itself to
you to be unmasked.
It has no choice;
it will roll in ecstasy at your feet.

~ Franz Kafka

VII. Conclusion

We can understand how the practice of mindfulness is closely related to physical and mental health in the study of contemplative neuroscience. We can see more clearly connections between the mind and health and the process of healing from a spiritual standpoint, and also from a scientific and medical point of view. Putting this juxtaposition into the context of thousands of years of contemplative traditions, coming out of all the world’s mosaic of religions and philosophies, we can determine that they are profoundly congruent.

Through this workshop and discussion, I hope that we will have demystified our simple breathing process and learned how to increase our level of attention and awareness, which is necessary to reduce stress and increase relaxation. This is the cornerstone for mindfulness and the heart of teachers', students', in fact, everyone's well-being.

What we have done here has great consequences for our lives. We have observed our body and mind intentionally, and in this process we have come to accept our thoughts just as they are at the present moment. We know that it takes a good deal of energy to regulate our attention to our breathing and what we are thinking. When we are able to do this, our mind is more stable and calm as we gradually become more relaxed. We can train ourselves to do this, just like we have done today. We know that the practice of mindfulness is simple to understand, and simple to practice, but we also know that it requires disciplined effort. Just by sitting and doing what comes natural, doing nothing, we are doing a prodigious amount.

The world gives itself up
to incessant activity
merely because it knows of nothing better.
The inspired man
works within its whirring wheels;
but he knows whither the wheels are going.
For he has found
the center
where all is stillness.

~ Paul Brunton ⁵

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Content and Appendix Notes

- 1 Mindfulness, as translated from the Pali 'sati,' and Sanskrit 'smṛti,' has been difficult to translate into English with one word. In English, we have the word 'awareness;' however, the original meaning evokes more than that. 'An attentive awareness to things just as they exist at the present moment, and non-judgmentally,' may come closer to the original. We might ask ourselves why the languages of the ancient sages have given us words, which defy decent translation, and with which our modern languages must fatigue themselves trying to compose, with a string of words, a comfortable equivalent?
- 2 Mindfulness and meditation are closely connected. The term 'meditation' has been avoided as much as possible, owing to its myriad of implications and complications connected to its translation into Japanese. "Mindfulness" and "Mindful Meditation" and "Mindful Breathing" are often overlapping.
- 3 Mindfulness breathing practice involves making a "specific time in which you stop all activity, assume a special posture, and dwell for some time in moment-to-moment awareness of the inbreath and the outbreath. By practicing this way regularly, no matter what technique you use, you naturally deepen your ability to keep your attention on the breath for a sustained period of time. You will improve your ability to concentrate in general as the mind becomes more focused and calmer, less reactive both to its own thoughts and to outside pressures (Kabat-Zinn, *FCL*, 57)."
- 4 All of the details of the data concerning this case study over the entire period of reference can be obtained by addressing the author directly, and any medical data can be accessed at the National Cerebral and Cardio-

Vascular Center (NCCVC) in Suita City, Osaka, Japan.

- 5 Thanking Charles Kowalski, who, at the ACLL (Asian Conference on Language Learning) in Osaka in June, 2011, introduced the author to this poem by Paul Brunton, writing it out by hand, *by heart*, after the author's presentation on Mindfulness.
- 6 In all the *formal* breathing exercises, i.e., the sitting, body scan, the yoga, lying, and walking exercises that are mentioned in "A's" case study data in the Appendix, breathing is central. And, of course, breathing is also central and the universal foundation for all the *informal* mindfulness breathing exercises practiced during the course of one's daily activities.
- 7 Appendix: cf. 7/24/09. Total breathing exercise time has always been rounded off to the nearest 5 minutes. The internalization of time, which occurs with the breathing exercises, is another topic for discussion. While sitting, or lying, one soon learns to judge one hour or to judge five minutes.
- 8 Appendix: cf. 7/24/09. Italicized parts: These sentences include '*for the first time*,' and are reminders of all the '*first time*' experiences.
- 9 Appendix: cf. 7/26/09. [Body scan] or [bs] = "body scan." Breathing in and out, one scans the body, from the toes on the left foot to the toes on the right, and then slowly up through the body until one reaches the cranium, focusing the breath on each area. This progressive relaxation, focusing only on body parts, is an integral part of mindfulness teaching. "Even something as simple as relaxation can be frustratingly elusive if you are unaware of your body (Kabat-Zinn, *FCL*, 26)."
- 10 Appendix: cf. 8/4/09. [#1~] [CD's] = are from Kabat-Zinn's 3 Series of 4 CDs (cf. References)
- 11 Appendix: cf. 10/21/11 [Bs i-phone] = Body Scan audio on the i-phone. Small technological change from the start of 2009 to 2011; at first "A" was listening to the CD and then began listening to the audio of the i-phone.

Appendix

Formal Mindfulness Breathing Practice Exercises⁶

From “A’s” Case Study Data:

On June 15, 2009, my sister, aware of my recent history of heart problems, suggested that I start doing a simple breathing exercise: I was to concentrate on my breathing for ten to twenty minutes. This was in the middle of June, 2009. I did what she said for two weeks, and began right after her phone call. I counted my breaths, trying to even out the inbreath and outbreath, and repeating in my mind, “breathing in 1, 2, 3, 4...sometimes 8, 9, 10, and then breathing out.” At this time, I didn’t know it was OK for the mind to wander, and then to ‘gently’ bring it back. I was trying so hard to stay focused but it wasn’t working well...

At the end of June I talked to my sister again, and said that I was trying my best. She said she would send my wife and I a book about how to do it. The book, “*Full Catastrophe Living*,” by Jon Kabat-Zinn, arrived on July 5, 2009, and that was the day we had planned on spending the night at another island on Honshu. So we took the book along. My wife read some at night, and I read a couple of passages during the day, but didn’t give it much heed. I just wanted to see if I was breathing the way I thought I should. Surprisingly, the book was 443 pages. I decided to read the Chapter 3 first: *The Power of Breathing: Your Unsuspecting Ally in the Healing Process*. I realized that the breathing I had been doing was not OK...sort of. It wasn’t necessary to be constantly aware of my breathing, as I was trying so hard to do. My mind had been wandering far, far away, and I thought that was bad. I learned that it was not bad at all, but that it was quite OK to digress. I just needed to bring my wandering mind back softly and harness it again to the breathing. This new breathing for me was surprising. I had never breathed consciously from the belly before, and now diaphragmatic breathing became fun to do. All the time that I had been swimming competitively in my life, I had never done breathing in this way.

7/24/09 Total breathing exercise time: ⁷ *Started the first sitting breathing exercises in my life for twenty minutes.* ⁸ Decided to keep track of the time spent doing these exercises.

7/26/09 Total breathing exercise time: *Did the body scan* ⁹ *for the first time in my life, for 45-50 minutes.*

7/27/09 Total breathing exercise time: Body scan: 50 minutes.

7/28/09 Trying to do all as prescribed. “Let it go” is important for me. Studying breathing: “energy in, stress out.” During the body scan I could feel the sensation of white “timelessness” yesterday and today for the first time. All is so interesting right now for me, lying and sitting on the beach towel. I can’t wait to start the yoga. (I wonder if I can do them all the same day, for example the sitting breathing exercises, then the body scan, then yoga...I would like to try that. At least that is my feeling now. But I should be careful not to judge, or plan or think of things to ‘do.’ Already the idea of non-judgemental awareness has planted its seed. I can’t explain my gratitude enough right now. And I cannot thank my sister enough. Total breathing exercise time: 45.

7/29/09 Body scan: I thought I had done 45 minutes, but it was more than an hour. Total breathing exercise time: 1:00.

[Letter from “A’s” sister:]

Two monks were walking through the countryside when they came to a stream. A lovely damsel was sitting on a nearby rock weeping. The first monk stopped, asked her why she was weeping. She replied that she couldn't swim, and must get to the other side. He told her to hop on his shoulders; he would carry her

across. She stopped crying; he carried her across and put her down on the other side.

The two resumed walking; but after some miles, the second monk turned to the first and angrily said, "You know we are not to associate with women. You not only talked to her, but you carried her across the stream!" The other monk calmly replied, "But I put her down. You are still carrying her."

I'm sure this is written somewhere in Buddhist thought, but this is the essence of it, and it is one of my favorite stories. I think it exemplifies one of the most important things in life: to let go.

Love, Sis

7/30/09 I wanted to do 20 min. of the sitting erect breathing exercise and saw that it was 30 minutes. My left foot fell completely asleep. I thought about 'letting go.' Total breathing exercise time: 30.

8/1/09 *I finished the first week of the body scan each day*, and of course, I want to continue to do it everyday from now on. This could be easy, that is, if I can make more time. Am going into the body regions now, and also specific body surfaces (elbow, knee, etc.). I have a sore back periodically, and a sore left knee, and go there, and then move out of the region, moving on, and 'letting go.'

Today I did my first breathing exercise outside, at the out-door municipal pool, and *tried the sounds breathing exercise for the first time, and also did it sitting cross-legged for the first time!* (*I didn't think I could do that ever!*). *I could more-or-less control the discomfort, but for 15 minutes only.* Total breathing exercise time: 1:00

8/2/09 I was able to do the body scan in such fine atmosphere; the hard rain at first, and then stopping, the first cicada decided to set forth with its call, soft sounds all around the still house.

8/3/09 15 minutes of sitting and breathing exercise. These were the few sounds: people walking outside, opening doors, keys, steps, the cleaning personnel moving something on a trolley with rollers, wall-cracking sounds, cicadas. I consciously became aware of some of those sounds for the first time. Then I did 50 minutes of body scan. Today it felt unusually good. My mind doesn't wander so much, but falls into nonsensical (almost dreamlike) states now and then. Total breathing exercise time: 1:05.

8/4/09 Total breathing exercise time: 55 minutes of body scan. I wasn't so pleased with it, but accepted it of course. Today my mind wandered all over, like a wild mustang, and really got lost in nonsense images, coming and going, fragmented, and trying hard to come back to body points and breathing. Yesterday I felt my head was heavier than normal, really heavy, but today it felt much lighter. Big breaths should come naturally...don't push them; let the breathing take over, be aware of it, mindful of it, and don't try to control it. In the afternoon *I did the Yoga for the first time in my life, from the CD #2 Mindful Yoga 1*,¹⁰ the first sequence of yoga postures in the book. I was lost some of the time, but I could understand it. It was fascinating for me, and seemed fantastic, as there was no pressure to hold the pose, etc. As my sister said in the conversation on the phone today, in real life it's often "no pain, no gain," but in mindfulness, it's just "no pain, and lots of gain." I had never 'breathed' so much as today: 55 minutes + 45 minutes = Total breathing exercise time: 1:40.

8/5/09 50 minutes of body scan in the a.m. and in the afternoon yoga. Total breathing exercise time: 1: 35.

8/6/09 *Did the Body Scan with CD#1 for the first time* at 6:30 a.m. for 45 minutes. I had been doing the body scan on my own for the past 12 days. Then at noon *I did CD #4 Mindful Yoga 2, for the first time, for 45 minutes.* Total breathing exercise time: 1:30.

[Letter from "A's" sister:]

Hi,

I've been thinking about what you said about having company and not enough time to meditate.

You are not in a stress-reduction class, and for me it's far more important to not worry, just go with the flow; try to remember mindfulness. If you have time for a few minutes to sit, fine, but don't worry (at least not now) about long sessions. It's more important to do what you can. Remember: "There is no good. And there is no bad. All that matters is that you try."

You have activated the process and I think it will continue.

Have a good week,

Sis

8/19/09 good body scan this a.m. alone on the beach towel and total stillness for an hour and five minutes. Thought for a few minutes about a dried out old dirty cactus in the desert beneath an overhanging rock, unable to get water for many years. The rock suddenly falls away. Freshly exposed, the cactus springs to life with the rays of the sun and soon the first of summer sprinkle comes bringing more energy and finally, a magnificent thunderstorm and the deluge of water stimulates a brilliant bloom. Did 15 minutes of sitting and breathing exercise. In the evening, late, did CD#2 yoga and was tired. *This was the first time to do any breathing exercise so late in the evening. It seemed to take forever.* Total breathing exercise time: 2:05.

8/20/09 Body scan 55 minutes early a.m. Then at 4 p.m. when I came back, I did the sitting and breathing exercise with the CD #3 for 40 minutes, and *for the first time sitting all 40 minutes in the sitting-erect style.* I would never have even thought or even had the idea that I could do it last year or for the last three years, since I had the torn ACL. Now, with the yoga I feel so much more able to stretch certain muscles. Thank you sister and thank you Dr. Kabat-Zinn. Did 10 minutes of lying and breathing exercise. Total breathing exercise time: 1:45.

8/27/09 I did the body scan (I had time this a.m. and wasn't pressed to go anywhere or 'do' anything.) I looked at the clock, and saw I was still for 1:10 and not moving, completely quiet for that time. Almost. I had a distraction when the sun came through the summer blind. I've always been in low light or no light, but the sudden light was easy to accept. Did CD #4 Yoga 2 after breakfast. I did 20 min. of sitting erect. Total breathing exercise time: 2:15.

8/28/09 I did the body scan a.m. Had a lot of difficulty to escape one reviving thought for about 20 minutes. Then the doorbell rang. Went back to the beach towel and could concentrate much better. Had a lot of 'white outs' where my breathing seemed to be on hold and at that time I fell into an idyllic state of blankness...then regrouped my breath and immediately went into the part of the body I just left. It's exciting, this new relaxation. Did Yoga 1 CD #2. Did sitting breathing exercise, sitting on the corner bench (fixed it to remain flat), and this time was the best. The intensity of the muscles and the stiffness are almost gone, and I felt more flexible, and relaxed. Great séance, and when I looked at the clock, I had been sitting for 30 minutes. Total breathing exercise time: 2:20.

8/29/09 I did the body scan from 6 to 6:30, and for ten minutes started the scan and then went into the 'clear transparent' state, and just stayed in it until I had to depart, so I had to leave it. But I didn't want to. It came as a surprise, as I thought this time the body scan would be short, as I was rushed. But this wasn't the case. *This was the first time I experienced this 'blank' state for so long* and it was easy to keep it. I was aware, but also lost into an emptiness. I can't describe it in adequate words yet. I did a sitting and breathing exercise for 15 minutes. Then later, did 40 minutes of sitting breathing exercise. Total breathing exercise time: 1:25.

8/30/09 Did a body scan lying in bed for 1:10 minutes from 5:30 to 5:45, and then before going to bed, did 20

minutes of sitting and breathing exercise. Total breathing exercise time: 1:30.

8/31/09 I woke up at 3:30 and started the body scan at 4:30, and just a few minutes before, finishing, looking at the clock...and it was almost six. I had done the body scan for one hour and 25 minutes or even a bit more. *This was the first time I had done it for so long, more than yesterday's.* My thoughts were just to go at it easily, as I had much time to spend on it. That was a luxury for me, as I was so busy for two days. But...it wasn't a good body scan. I was always going here and there, meandering, coming back, and after the outbreath, just stopping, and finally catching up on a big inbreath...I wonder if this is all good? But when I could concentrate it was the deepest I have gone so far. *For example, for the first time, I went inside my nose and up into the back of my eyes, and through the forehead into the brain, etc. It was all the entrances into the face and detailed, as never before, concrete scans on particular places.* Only in the last few minutes, maybe ten minutes or so, I could go into the 'clear mode.' Still, with time on my hands, I had nothing to do except relax and enjoy it this early morning. Later in the a.m. did the Yoga 2 CD #4 and then in the p.m. did the Yoga 1 CD #2. *Today I've done the longest breathing exercises in my life for the first time, because I have time and because it feels so good!* Did a 15 minute sitting breathing exercise. Total breathing exercise time: 3:10

The breathing exercises continued in the same manner after this date until the following date. All the entries are not possible to be included here. The breathing time became longer and there were more feelings of deep relaxation. There has not been one day missed since starting the mindfulness breathing exercises.

10/21/11 Friday Did 1:15 minutes of bs i-phone¹¹ + lying and breathing exercise. Then did 1:00 in the garden. Total breathing exercise time: 2:15.

10/22/11 Saturday Did 1:20 minutes of bs i-phone + lying and breathing exercise. *Maybe the first time to feel a deep relaxation-consciousness, and then to maintain it for a rather long time; not thinking about it, just enjoying it.* (How do I write these words modestly?) Did 25 minutes at the bath, and then did Mindful Yoga #1 and 20 minutes of #2 upon returning. Total breathing exercise time: 2:50.

10/23/11 Sunday Did 1:15 of bs i-phone + lying and breathing exercise. Then did 20 minutes of swimming breathing exercise at the pool in the p.m., followed by 15 minutes of sitting and breathing exercise. Total breathing exercise time: 1:50.

10/24/11 Monday Did 1:10 of bs i-phone + lying and breathing exercise. Then did 10 minutes of sitting and breathing exercise at the golf course and 5 minutes of standing breathing exercise on the course. After the round did 20 minutes in the bath, sitting erect on the wooden stool.' Did Mindful Yoga #1 twice, the first time alone, and the second time when my wife came back, and then the last twenty minutes of Yoga #2. Total breathing exercise time: 3:25.

10/25/11 Tuesday Did 1:50 of bs i-phone + lying and breathing exercise. Did 5 minutes of sitting and breathing exercise and then 15 minutes of sitting/lying and breathing exercise under the maple trees. Did 15 minutes of sitting erect breathing exercise in front of the window/door at home. Did 10 minutes of walking breathing exercise. Total breathing exercise time: 2:35.

10/26/11 Wednesday Did bs i-phone and then did Mindful Yoga #1 and 40 minutes of Mindful Yoga #2, and then

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finished the last five minutes later. Did 1:00 hour in the garden, and in the evening did 10 minutes of walking breathing exercise with my wife, trying to do 10 minutes of some kind of breathing exercise together each day. Total breathing exercise time: 2:40.

10/27/11 Thursday Did 1:55 of bs, and then did 10 minutes of sitting and breathing exercise. Did 15 minutes more and at the bath, sat for 25 minutes. In the evening, my wife and I did a breathing exercise together. Total breathing exercise time: 2:55.

10/28/11 Friday Did 1:15 of bs i-phone + lying and breathing exercise. Did 1:00 in the garden. Had done 5 minutes of sitting and breathing exercise. Then did 10 minutes of sitting and breathing exercise. Total breathing exercise time: 2:30.

10/29/11 Saturday Did 45 minutes of lying and breathing exercise during the night, and then bs i-phone after waking up. Did 10 minutes of sitting and breathing exercise with my wife in the park. Then did 25 minutes of lying and breathing exercise. Total breathing exercise time: 2:05.

Contemplative neuroscience is an emerging multidisciplinary field, more or less overlapping with the study of neural mechanisms of mindfulness meditation. Contemplative neuroscience looks into neurological, physiological, epigenetic, behavioral, social and cognitive manifestations or consequences of a state of mind which is at the same time meditative/mindful and compassionate/calm and selfless/altruistic although bodily-aware. Advances in cognitive neuroscience and greater understanding of positive psychology has given rise to the new field of contemplative neuroscience. This review is an attempt to present the state of the art understanding of spirituality and its application to health through the new science of contemplative neuroscience. Discover the world's research. 15+ million members. Contemplative Neuroscience & Integrative Medicine Laboratory. 1.4K likes. The mission of the CNIM research laboratory is to alleviate suffering and... See more of Contemplative Neuroscience & Integrative Medicine Laboratory on Facebook. Log In. or. Create New Account. See more of Contemplative Neuroscience & Integrative Medicine Laboratory on Facebook. Log In. Forgotten account?