Mindfulness and Contemplative Practice: Insights on Neuroplasticity for Pastoral Care and Counseling

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Abstract While we have much to learn about the inner workings and activity of the human brain, we are at least beginning to understand the importance of the neuroplastic principle: the brain, far from being fixed and unchanging at a certain point of development, has the capacity to change and transform its own functioning and structure across the entire lifespan. The discovery of neuroplasticity reveals that as we harness the power of mindful awareness, particularly in the context of contemplative-meditational practice, we can learn over time to use the mind to calm the fear and stress region of the brain, and to modify the brain’s distinct negativity bias. This has important implications for pastoral and clinical practitioners, as we find ourselves working more and more with anxious congregants and clients. In much the same way that Daniel Siegel has put forward a timely framework for the “mindful therapist” and the development of a mindfulness-based psychotherapy, it would be equally beneficial to begin formulating a similar framework for a mindfulness-based pastoral care and counseling.

Key words Anxiety, contemplative, meditation, mindfulness, negativity bias, neuroplasticity.

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Introduction

At the end of my recent book, *The Power Of Neuroplasticity for Pastoral and Spiritual Care* (Bingaman, 2014), I note that according to the film and television episodes of *Star Trek*, outer space is always described as the “final frontier.” Indeed, the deep-field images captured by the Hubble Telescope over the past twenty years have supported this observation, that the cosmos is a frontier of stunning proportion. But outer space, while it is indeed a remarkable area of exploration, is hardly the final frontier. For, as we are learning from contemporary studies of the human brain, there is another frontier that we are only beginning to understand, the equally remarkable and stunning frontier of inner space, the universe within. The White House has backed a long-term brain-initiative project, officially known as the Brain Activity Map Project, comparable in scope to the Human Genome Project, the future goal of which in coming years will be to build a more accurate and detailed map of human brain activity. So far, what we already know about the human brain can stagger the imagination: there are more than a hundred billion cells or neurons in the brain, and each neuron is connected to other neurons by synaptic linkages, ten thousand or more between any two given neurons. If we attempt to quantify what we already know about the human brain, we will discover that between its neural groupings there are hundreds of trillions of synaptic connections, an unfathomable calculation that is something like “ten to the millionth power – or ten times ten one million times” (Siegel, 2011, p.38). The number of synapses in the brain connecting neuron to neuron is believed to even exceed the number of atoms in the universe, which has led the neurobiologist, Daniel Siegel, to note that “even if we wanted to, we could not
live long enough to count each of these synaptic linkages,” nor “experience in one lifetime even a small percentage of these firing possibilities” (p.38).

It is therefore not surprising that what we are learning from contemporary neuroscience is that the brain, far from being fixed and unchanging after a particular stage of life, as earlier theories of human development have often suggested, is built for change across the entire lifespan. From birth to death, the human brain, even the aging brain, is “an extraordinarily plastic biological system that is in a state of dynamic equilibrium with the external world” (Ramachandran, 2011, p.37). The discovery of neuroplasticity, that across the entire lifespan the brain has the capacity to change not only its functioning but also its very structure, has important implications for those of us working in the fields of pastoral and spiritual care, pastoral counseling, and psychotherapy. Indeed, a growing body of controlled-outcome research (see Segal et al., 2010, Young, 2011, & Bostanov et al., 2012) is revealing that “third-wave” cognitive-behavioral therapies (CBT), for example mindfulness-based cognitive therapy (MBCT), dialectical behavior therapy (DBT), and acceptance and commitment therapy (ACT), are uniquely helpful in fostering long-term changes in the brain. These therapeutic modalities expand on the behavioral foundations of CBT, and very intentionally “take into account mindfulness and being present-in-the-moment, acceptance, distress tolerance, commitment, spirituality, and values” (Gerig, 2014, p.90). Whether the therapist is primarily an MBCT or DBT or ACT practitioner, or uses the mindfulness practices and techniques as a secondary resource, it is helping those in our care to be more mindful of their mental chatter, the anxious thoughts and feelings that inevitably fill the mind. In so doing, we as pastoral counselors can offer clients and congregants specific mindfulness
and contemplative practices that science is demonstrating will over time lower activity in the stress region of the brain. A key practical lesson of contemporary neuroscience is that “the power to direct our attention has within it the power to shape our brain’s firing patterns, as well as the power to shape the architecture of the brain itself” (Siegel, 2011, p.39). More specifically, what we are learning from neuroscience in general and contemplative neuroscience in particular is that the regular practice of mindfulness meditation (e.g., breathing meditation) and/or contemplative prayer (e.g., Centering Prayer) strengthens over time neural regions in the brain associated with health and well being while quieting others associated with stress and anxiety. This is the power of neuroplasticity, which again refers to the brain’s capacity to change both its functioning and structure. As Eric Kandel (2013), the renowned neuropsychiatrist and Nobel laureate points out, commenting on the findings of neuroimaging research, it is becoming more common to “evaluate the metabolic activity of discrete regions of the brain while people are engaged in specific tasks under controlled conditions.” He adds:

There is now considerable evidence for functional plasticity, at chemical synapses. Long-term changes (lasting days) can give rise to further physiological changes that lead to anatomical alterations, including pruning of preexisting synapses and even growth of new ones....Chemical synapses are functionally and anatomically modified through experience and learning as much as during early development. (p. 37)
Using the mind to re-wire the brain

In this paper, I will be building on the neuroplastic principle, noting along the way that while we can in fact use the mind to calm the anxious brain, it is equally important to remember that the “normal baseline” for the brain is anxious and vigilant awareness. This reflects a deeply ingrained negativity bias, which predisposes us to be on edge and alert, at times disproportionately so. That said, mindfulness and contemplative spiritual practices have the potential for helping us balance this hardwired anxious predisposition. The ability of the brain to modify its anxious functioning is an important finding for pastoral and spiritual care, particularly at a time when the stress and anxiety level for so many in our care is on the rise. In my own clinical and pastoral practice, for example, I am finding more and more that with any given client or congregant, it is not a matter of if the individual will be feeling anxious or not, but rather to what extent. This is not to suggest that I go about diagnosing this client or that congregant with an anxiety disorder, for oftentimes the anxiety that we are treating today is simply part and parcel of human development and experience situated in an age of constant flux and transition. On the one hand, there is nothing new under the sun, for anxiety has been part of human experience from time immemorial, even at times beneficial and necessary for those who have come before us and for those of us living today. However, on the other hand, what is new is something that I have noted in an earlier book (Bingaman, 2007), an excessive increase in stress and anxiety in response to the mass-marketing of fear by politicians, health officials, financial analysts, and of course the nightly “talking heads” on cable news channels.
In my own practice of pastoral counseling, I will sometimes work with clients to develop more mindfulness in the evening when at home, so that when they feel they are reaching the saturation point after watching hours of cable news (some clients have recounted watching cable news from the time they get home from work until they fall asleep!), when they feel their stress level on the rise, to turn off the television or at least change the channel to something less stressful. Frank Furedi (2006), the sociologist at University of Kent, has coined the useful term, “fear entrepreneurs,” to aptly describe those who sadly make it their ambition in life to keep the rest of us on edge, “quite happy to employ alarmist fiction to promote their cause” (p.viii). Anxiety is of course simply part of the human fabric and condition, even in its pronounced shape and form in today’s world, a reflection of being subjected to incessant fear mongering and alarmist fiction. As such, it is perfectly understandable that congregants and clients, even pastoral and clinical practitioners, will at times harbor higher than usual levels of anxiety. The excessive worry and fear, however, as we have learned from medical science, is not good for us and those in our care, not conducive to physical, psychological, and spiritual health and well-being. Perhaps this is where we must, as Jason Whitehead (2013) has put it, begin to redeem our anxiety and fear, “transforming the energy and passion created by publicly manipulated stories that engender the emotion of fear” (p.124). Ways of transforming fear include kindness, compassion, humility, and justice, and to his list I would add several other transformative if not subversive practices for today’s world: engaging in regular mindfulness meditation and contemplative spiritual practice.

While I refrain from necessarily diagnosing the client’s anxiety as a mental disorder, from pathologizing it as it were, I am still mindful of the central teaching of
Jesus from the Sermon on the Mount: “Do not be anxious about tomorrow” (Matthew 6:34). The spiritual life is characterized by the capacity to live more fully and mindfully in the present moment of our lived experience, rather than using so much of our mental energy and focus trying to anticipate what might come our way tomorrow, next week, a year from now. Put another way, in the language of spirituality, it is centering ourselves in the gift of “now,” cultivating a present-moment focus so that there is less mental energy remaining for worrying about the future. In the context of mindfulness-based counseling and therapy, “intentionally focusing undivided attention on thoughts, emotions, and sensations in this way uses much of the individual’s capacity for attentional processing, so that little capacity remains for rumination” (Coffman et al., 2006, p. 34). What I find particularly helpful in the application of neuroscientific research to mindfulness-based therapeutic modalities is a clear understanding of how practitioners and those in their care can literally calm the anxious mind and brain, how we can very practically put Jesus’ words into everyday practice. Most of us, including clergy and pastoral counselors, possess an intellectual grasp of the teaching, “Do not be anxious about tomorrow,” and yet understanding how to make the teaching more of a practical than a conceptual reality, how to live into it, is sometimes less clear. Methodologically, then, I do in fact embrace the correlational method of Paul Tillich (1999), whereby the resources of culture, in this case neuroscience, can inform and even reform the practice of pastoral care and counseling, as well as the integration method identified by Ian Barbour (1997), with religion and science moving beyond mere dialogue to a deeper collaborative and reciprocal engagement.
Despite sermonic exhortation and/or therapeutic encouragement not to worry about tomorrow or the future, the fact is that not being anxious is often easier said than done. As we will see shortly, the brain is hard-wired for anxious awareness; it comes with a built-in predisposition to worry and to be anxious about the future, and the present, too, for that matter. The normal baseline, in other words, or automatic pilot for the brain at rest is anxious and vigilant awareness, something that comes naturally for all of us. At the same time, we are also learning from neuroscientific studies that we can modulate and even modify to some degree this hardwired neural predisposition, by taking specific steps in our daily spiritual practice(s) to rewire or “re-sculpt” the neural pathways of the brain. Over time, the regular spiritual practice of mindfulness meditation and/or contemplative prayer creates the necessary space where neuroplasticity can occur. Neural and synaptic connections supporting a more centered, peaceful, and present-moment awareness can be enhanced, while those that are linked to the neurocircuitry of stress and fear can be quieted. The operative phrase, of course, is over time, for in fact learning to calm the anxious brain through contemplative-meditational practice will inevitably run counter to very powerful undercurrents deeply rooted in primitive neural regions, even as far down as the central nervous system. This serves as something of a reality check, lest our clients and congregants assume that the power of neuroplasticity is the latest quick-fix approach to hit the self-help bookshelf. In using the mind to rewire the brain, we are always going against the grain of an inherited evolutionary template that is very much geared toward anxious and negative awareness, specifically, to “emotional reactions that worked well on the Serengeti” and “beliefs that once helped us survive” (Hanson, 2009, p.46). And yet, each time we harness the power of mindful awareness in our daily spiritual practice, each
time we infuse our anxious memory patterns and limiting states of mind with more positive thoughts and feelings, we are building up a small though not insignificant amount of new neural structure. Incrementally and over time, “the accumulating impact of this positive material will literally, synapse by synapse, change your brain” (Hanson, 2009, p.71). Even for the client diagnosed with an anxiety disorder, he or she can benefit neurally from a regular contemplative-meditational practice, in combination with pastoral counseling or psychotherapy and in some cases with the use of medication.

Having attended not long ago a conference with Daniel Siegel in Milan, Italy, I recall him offering practitioners a simple yet profound rule of thumb: neurons that fire together, wire together, meaning that “neural firing can create new synapses, strengthen existing ones, alter the packets of neurotransmitters that are released or the receptors that receive their messages, and even stimulate the growth of new neurons” (Siegel, 2011, p.148). As we begin to harness the power of mindful awareness, we can direct our own neural firing patterns by carefully focusing our attention on, in the context of mindfulness meditation, the rhythm of the breath, or in the context of Centering Prayer, on a sacred word or mantra that brings us peace and comfort. This suggests that neuroplasticity, to some extent, can be self-directed, that as we intentionally create new synaptic connections and strengthen existing ones that support health and well-being, we can live more fully in the present moment and worry less about tomorrow and the future. We are therefore not a prisoner to the contents of the mind, whether they come in the form of an anxious thought, a depressive feeling, and/or a painful memory. We can help those in our care learn to observe the comings and goings of thoughts and feelings and memories as if they were clouds in the sky, here one moment and gone the next, if we do not get hooked.
or hijacked by them, *if* we learn not to feed them. Mindfulness-based therapeutic approaches, in particular, help clients to mindfully “pay attention in the present moment to whatever arises internally or externally, without becoming entangled or ‘hooked’ by judging or wishing things were otherwise” (Roemer & Orsillo, 2009, p. 2).

Neurologically, this keeps the biochemical “shelf life” of an anxious thought or feeling to roughly 90 seconds, as noted by Jill Bolte Taylor (2009) in her book, *My Stroke of Insight*. As a neuroanatomist recovering from a hemorrhagic stroke, she journeyed into the depths of her own brain, finding that the initial biochemical surge of any given thought or feeling lasts a mere minute and a half *unless* we let ourselves get hooked or hijacked by it. She uses the example of an upsurge of anger, which is certainly applicable to the wider range of internal experiences, including the experience of anxiety and fear:

Once triggered, the chemical released by my brain surges through my body and I have a physiological experience. Within 90 seconds from the initial trigger, the chemical component of my anger has completely dissipated from my blood and my automatic response is over. If, however, I remain angry after those 90 seconds have passed, then it is because I have *chosen* to let the circuit continue to run. Moment by moment, I make the choice to either hook into my neurocircuitry or move back into the present moment, allowing that reaction to melt away as fleeting physiology…. It is so easy to get caught up in the wiring of our pre-programmed reactivity (limbic system) that we live our lives cruising along on automatic pilot. I have learned that the more attention my higher cortical cells pay to what is going on inside my limbic system, the more say I have about what I am thinking and feeling. By paying attention to the choices my automatic circuitry is
making, I own my power and make more choices consciously. In the long run, I take responsibility for what I attract into my life. (pp.146-147)

A built-in negativity bias

The discovery of neuroplasticity, that the human brain is built for change across the entire lifespan and has the capacity to change its functioning as well as its anatomical structure, holds great promise for pastoral and spiritual practitioners. To be sure, we can help educate those in our care about mindfulness and contemplative spiritual practices that have been shown to foster the process of neuroplasticity, self-directed practices that use the mind to rewire and change the brain for the better. There is one important caveat, however, which I have already alluded to: the brain clearly predisposes us to be anxious and vigilant, ever on guard. Put more simply, the brain, as neuroscience is demonstrating, comes with a built-in negativity bias, leading some to conclude, metaphorically, that “the brain is like Velcro for negative experiences and Teflon for positive ones – even though most of our experiences are probably neutral or positive” (Hanson, 2009, p.41). Neuroimaging research has revealed that the brain reacts to negative stimuli and experiences, whether internal or external, with greater force and intensity than it does to positive and even joyful experiences. “There are some things,” notes the cognitive neuroscientist Michael Gazzaniga (2008), “that affect us in a positive manner, although there is no equivalent to the emergency status given to negative stimuli” (p.123). Once again, as we learned earlier, this anxious and vigilant predisposition is the normal baseline for the brain even at rest, preemptively alert to what might be lurking around the proverbial corner. We can detect the negativity bias all the time, as we listen to clients
and congregants, perhaps even as we listen to our own self-talk: “I’m waiting for the other shoe to drop;” “All good things must come to an end;” “Why bother even trying?” While the discovery of neuroplasticity has already begun to impact the field of pastoral care and counseling, necessitating as I am arguing a paradigm shift in the way we approach the clinical care of clients and even the general pastoral care of souls, it must be juxtaposed with the equally important finding that a negative experience will always, at least for the time being, register with greater force in the brain. For now, at least, in the history of brain evolution, negative stimuli and experiences have priority in the brain, while positive feelings and emotions take something of a backseat. “Messages of love, reassurance, courage, and hope can almost certainly influence the body as well but not with the same galvanic effect” (McEwen, 2002, pp.148-149).

Barbara Fredrickson (2009) has for some time been researching this neurological asymmetry, and has also discovered that at this particular moment of our collective development it is clearly not an even match between negativity and positivity in the brain. In fact, she has even quantified her research by putting forward the three-to-one ratio: for every negative thought or feeling that comes to mind, for every painful experience remembered in the past or lived through in the present, the individual, in order to maintain a certain neurological equilibrium, needs to balance the one negative with three positives, e.g., prayerful expressions of gratitude, thoughts of compassion, acts of loving-kindness extended to others and self, and so on. From Fredrickson’s research, we can conclude that in general it takes at least a three-to-one ratio of positivity to negativity to keep the brain in balance, given that negative emotional states resonate with greater force and energy. The finding now serves as something of a “tipping point” in recent
studies of human development, leading Fredrickson to the “bold prediction that only when positivity ratios are higher than three-to-one is positivity in sufficient supply to seed human flourishing” (p.129). Nor does the ratio extend only to individual human flourishing, for as Gottman and Silver (2000) have discovered through years of longitudinal study of couples, it requires an even higher ratio of five-to-one to keep a marriage in relational balance. For every negative interaction between spouses or partners, for every criticism, insensitive comment, or hurtful action, there will need to be at least five positive affirmations and/or acts of love and appreciation to ensure that there will be marital or relational flourishing.

Whether we are working with an individual client or a couple, it is important that we not lose sight of the neural predisposition toward negativity, a vestige of a much earlier brain in the history of brain evolution. Once necessary for human survival in the grimmest of circumstances, the ingrained bias can often be excessive for today’s world, resulting in negatively disproportionate assessments of life events and human relationships. The spouse’s tone of voice must mean divorce, the boss ignoring me is a sure sign that I will be fired, a drop in the stock market means I will never be able to retire, and on and on it goes. These are, according to Martin Seligman (1990), the “naggings of pessimism,” vestiges of an earlier Pleistocene brain. “But the brain that accurately mirrored the grim realities of the ice ages now lags behind the less grim realities of modern life” (p.114). With a practical slice-of-life example familiar to all of us, Gazzaniga (2008) illustrates quite well how we can take a relatively minor negative experience, in the grand scheme of things, and exaggerate it so disproportionately that it can completely ruin an otherwise pleasant evening out at dinner:
Your quick emotional response of fear or disgust or anger to the threatening (negative) incoming information will color how you process further information. It concentrates your attention on the negative stimulus. You are not thinking the mozzarella looks fresh, the basil is fragrant, the tomatoes are red and juicy; you are thinking, *Yuck, there is a greasy hair on my plate, and I am not going to eat this. In fact, I am never eating here again.* This is our negativity bias. (p.123)

At this point, it is worth asking, what structure(s) or region(s) of the brain accounts for this disproportionate negativity and heightened awareness? Jill Bolte Taylor’s (2009) earlier comments give us an important clue, when she refers to the pre-programmed reactivity of the limbic region. The brain has, so to speak, evolved from the bottom up, along what is known as the neuroaxis, so that the limbic region of the brain sits atop the brainstem, and above the limbic area is the more recently evolved cerebral cortex, containing the prefrontal network that performs executive or higher-order functions associated with complex thinking, problem solving, self-regulation, and social behavior. It is within the limbic region that we find the neural structures that keep us alert and on edge, what researchers consider to be the vestiges of an older brain. While many of us living today do not need the same level of vigilance that our prehistoric ancestors needed to survive the dire realities of an ice age, the limbic structures continue to tell us otherwise. Who knows what threat or danger might be lurking around the next corner: illness, unemployment, financial difficulties. The brain is continually scanning for any hint of threat or danger, real or imagined, in both the external world as well as within the internal world of thoughts, feelings, perceptions, and sensations. This is the process of neuroception, a term coined by the neuroscientist Stephen Porges (2011), which reflects
our evolved heritage as a species and as such it “takes place in primitive parts of the brain, without our conscious awareness” (p.11). These “primitive parts” or structures are limbic in nature, and are invested in our physical and psychological survival first and foremost, to keeping us alive and well at all costs. Each of us, in other words, bears the vestiges of a much earlier ice-age brain, manifested in defensive patterns of emotion and behavior. Before we ever become conscious of these deeply ingrained patterns of reactivity, “our body has already started a sequence of neural processes that would facilitate adaptive defensive behaviors such as fight, flight, or freeze” (p.11). This is all well and good as long as the situation warrants these defensive behaviors, which is sometimes the case. Other times, however, as we all know from clinical and pastoral practice, the behaviors can be out of proportion, excessive for the current situation. As Joseph LeDoux (2002) has noted, in *Synaptic Self*, “this state of affairs is part of the price we pay for having newly evolved cognitive capacities that are not yet fully integrated into our brains” (p.322).

More specifically, the structure most involved in the triggering of pre-programmed fight-flight-freeze reactivity is the *amygdala*, an almond-shaped cluster of neurons located in the limbic region. A very old neural structure indeed, the amygdala is the “ancient limbic watchdog” (Newberg *et al.*, 2002, p.67), perhaps most responsible for keeping the human race alive in the most challenging of circumstances: prolonged cold, drought and famine, starvation, deadly plagues, and so on. Its principle function is constant surveillance, sounding the alarm loud and clear in the brain when there is any hint of threat or danger, again, either external or internal. In moments of crisis, real or imagined, the amygdala sounds the warning bell, to the extent that emotional arousal
takes over the brain, powerfully influencing the higher levels of cortical function. LeDoux (2002) refers to this neural conversion process as “the hostile takeover of consciousness by emotion” (p.226), which sets in motion an alteration of consciousness from higher-order thinking to more primitive states of emotional arousal. In a split second, the amygdala, in response to the slightest negative stimuli, can trigger an immediate downshifting in the brain, allowing the neurocircuitry invested in self-preservation to take over. Put another way, “emotion comes to monopolize consciousness, at least in the domain of fear, when the amygdala comes to dominate working memory” (p. 226). For those who find themselves in harm’s way, this “takeover of consciousness” can of course be necessary at times for survival, as with members of the military engaged in mortal combat, witnesses to drive-by shootings in their neighborhood, victims of domestic abuse and violence in their homes. Still, even for those who carry the effects of post-traumatic stress prompted by the neural memory clusters of painful experiences in the past, there is need to begin coming to terms with and working through the disproportionate vigilance and reactivity associated with more benign experiences in the present (Bingaman, 2014, p.38).

In sounding the alarm, the amygdala sets off a chain reaction that activates another limbic structure, namely, the hippocampus, a center of memory consolidation in the brain. A spouse’s impatient tone, a disagreement with the boss, a body ache or pain, prayers to God going unanswered, all trigger an alarm set off by the amygdala: “Uh-oh, what does it mean?” And, in a split second, the brain initiates the process of memory retrieval, rapidly scouring familiar memory banks of information located in the hippocampus. Vast quantities of memory data are sorted and cross-referenced in virtually
no time at all, until a determination is made, swayed of course by the brain’s negativity bias: He or she does not love me anymore; I am going to lose my job; maybe it is the beginning of a terminal illness; God is punishing me. “When the amygdala detects a threat, it triggers consequences that ultimately place working memory in a vigilant processing state, causing it to continue to attend to whatever it is occupied with at the moment, biasing thoughts, decisions, and actions” (LeDoux, 2002, p.289). As Newberg et al. (2002) have observed,

The computational task is staggering, but in an instant, all the brain’s memory files have been consulted, all irrelevant data has been ignored….This process is automatic: uncertainty causes anxiety, and anxiety must be resolved. Sometimes resolutions are obvious and causes are easy to spot. When they are not, the cognitive imperative compels us to find plausible resolutions in the form of a story….These stories are especially important when the mind confronts our existential fears. We suffer. We die. We feel small and vulnerable in a dangerous and confusing world. There is no simple way to resolve these enormous uncertainties. In such situations, the explanatory stories that the mind creates take the shape of religious myth. (pp. 67 & 70)

As neuroscience begins to inform the practice of pastoral care and counseling, it becomes necessary for practitioners to pay very close attention to our explanatory stories, in particular to the theological frames of reference that we readily apply with those in our care. In previous writings (Bingaman, 2012, 2014), I have argued that the indiscriminate application of a theology of original sin has the potential, if we are not careful, of reinforcing the negativity bias of the brain. As we have discussed, negative stimuli
resonate with greater force and intensity in the brain, as if like Velcro, whereas stimuli that are more positive have a lesser neurological resonance, more like Teflon. Thus, while we encourage clients and congregants to live more fully in the present moment of their experience, to worry and ruminate less about tomorrow and the future, it becomes something of a catch-22 situation if all the while we are applying a theological frame of reference having to do with their, and ours too for that matter, innate and original sinfulness. The theological view that there is something originally wrong with us, when viewed from the standpoint of neuroscience, becomes an obstacle to living more joyfully and peacefully in our present-moment lived experience. Rather than calming the anxious limbic structures of the brain, this theology can trigger an increase of fearful amygdala-hippocampus reactions, until in circular fashion we locate a familiar narrative or explanatory story that aligns itself with the negativity bias of the brain: something is wrong with us!

Additionally, the psychological frames of reference that we apply in the practice of pastoral care and counseling also stand in need of immediate reassessment, in light of what we are learning from neuroscience. For example, a therapeutic approach that focuses primarily on the treatment of mental disorders, and is therefore informed by the mental-illness model of psychiatry and counseling, similarly has the potential to reinforce the negativity bias of the brain. Recalling that neurons that fire together will wire together with greater force and strength, it becomes a matter of utmost importance that we periodically evaluate our theological and psychological constructs, making sure that we are not inadvertently stoking the firing of neurons that increase limbic activity. This is not at all to suggest an “I’m OK, you’re OK” psychological or theological naiveté, a
Pollyannaish denial of the difficult realities, painful circumstances, and injustices of human existence. At the same time, “if the doctrine or theological view of original sin is to have any relevance at all in an age of neuroscience, it will need to be reframed in a way that what we as human beings are confessing is no longer a deep remorse for any innate flaw or defect but rather a mindful and realistic awareness of our collective development at this particular stage of human history” (Bingaman, 2014, pp. 51-52). This evolutionary reframing of the theology of original sin has the advantage of taking human finitude and limitation quite seriously while at the same time not reinforcing the negativity bias of the brain, thus giving those in our care more therapeutic space to increase their positivity-to-negativity ratio.

**Calming the anxious brain**

We have noted the revolutionary finding of neuroplasticity, that the brain is built for change across the entire lifespan, even the aging brain, and while this is good news the other discovery is that the brain is still very much hardwired to be on high alert for any hint of negative stimuli coming from either the external environment and/or the inner world of the individual. With this in mind, we must now ask ourselves, what do the neuroscientific findings mean for the practice of pastoral care and counseling, and more specifically, how do we help those in our care foster neuroplasticity in a way that calms the stress and fear region of the brain? What we are learning is that a regular if not daily practice of mindfulness meditation and/or contemplative prayer has the capacity to change the brain for the better, calming anxious limbic structures while at the same time strengthening higher-order cortical structures. This is a remarkable finding, for while
those of us in religious faith communities have long known contemplative-meditational practice is spiritually beneficial, the bigger picture emerging reveals that it “helps a variety of medical conditions, strengthens the immune system, and improves psychological functioning” (Hanson, 2009, p.96). Contemplative prayer and meditation, in other words, is good for us; while there are of course spiritual benefits, the psychophysiological benefits are becoming increasingly more evident. Again, this has motivated me to suggest a paradigm shift for religious faith communities, where, informed by the findings of neuroscience, we begin to elevate contemplative-meditational practice to a position of comparable importance with right or correct belief, doctrine, and theology. Historically, and even in the present, contemplative practice has often been considered the domain of the mystics, the Desert Fathers and Mothers, those immersed in monastic communities and religious orders. Going forward, however, particularly in the context of pastoral ministry and pastoral counseling, we will need to shift gears paradigmatically, approaching our work in a way that reflects a clear understanding of the effect of contemplative prayer and meditation on the human brain.

Sometimes when I share this research with colleagues, either formally with talks and presentations and/or informally over coffee, there is pushback vis-à-vis making contemplative prayer and meditation an integral and regular part of one’s life and daily spiritual practice. Some with limited experience of meditational practice have on occasion made the argument that it can be a temporary “escape” into self-indulgence, away from “real life.” Perhaps at times meditation can be a self-indulgent escape from the realities and exigencies of life, but more often than not those who engage in regular contemplative-meditational practice come to a very different conclusion: rather than
becoming more detached from life, the cultivation of a daily spiritual practice fosters a deeper engagement with and investment in the fullness of life. As Thomas Merton (2007) has suggested, contemplative practice is the highest expression of human life, both intellectually and spiritually: “It is that life itself, fully awake, fully active, fully aware that it is alive” (p.1). Moreover, the gospel accounts of the life of Jesus highlight, again and again, how he “goes away” for awhile, to a solitary place where he can meditate, pray, and re-center himself for the demands of the coming day, e.g., preaching, teaching, healing the sick, caring for the poor. What this conveys is that regular contemplative practice will enhance our capacity for self-care, interpersonal care, and the professional care of clients and congregants. We become, in other words, more relationally engaged with the fullness of life, due in large measure to the calming of limbic structures associated with stress, fear, and mistrust, in a word, with negativity. Jon Kabat-Zinn (2011), the founder of the mindfulness-based stress reduction (MBSR) program, foundational for the later development of mindfulness-based cognitive therapy (MBCT), points out that

Meditation is not merely a relaxation technique. It is not a technique at all, but a way of being and of seeing, resting on a foundation of deep inquiry into the nature of self, and offering the potential for liberation from the small-mindedness of self-preoccupation. Often people will say…. “Wait a minute! This isn’t stress reduction; this is my whole life!” It is a moment of revelation. (p.43)

Additionally, I will sometimes hear colleagues and clients comment that it is difficult to find time to meditate regularly, as life is busy and getting busier all the time. While this is certainly true for all of us, it also ignores a central finding of brain science:

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meditation practiced over time changes the brain, increasing higher-order and executive functioning while lowering limbic activity associated with amygdala-driven activity. It is fundamentally about the regular or daily spiritual practice, whatever our belief system or theology, which again is the rationale for elevating it in faith communities to a place of comparable importance with right belief or correct doctrine. As Andrew Newburg (2009) found in his neuroimaging study of Franciscan nuns practicing the Centering Prayer for over fifteen years simultaneous with Buddhist monks practicing daily mindfulness meditation, the neurological changes were indeed significant and “very different from how the human brain normally works,” in fact nearly identical for practitioners of both groups (p.48). Below is a mindfulness-based clinical vignette, which illustrates quite well how an MBCT practitioner, for example, might intervene with clients reluctant to develop a daily meditational practice. It can also be of use to the reluctant practitioner, offering a way forward as we at least initially suspend any judgment:

Client: I just couldn’t set aside any time for the practice this week. I have too much else going on.

Therapist: I know how challenging it can be to find extra time. Can you give me an example of a particular day and what happened when you tried to practice [the meditation]?

Client: I thought I would wake up in the morning and do the breathing for a few minutes….But then I started thinking about everything I had to do that day, and I just didn’t see how sitting and doing nothing would help at all….
Therapist: I really understand that reaction…. In a way, I’m asking you if you can take a leap of faith and just do these practices, even if they feel like a waste of time, for a couple of weeks…. What about trying to practice for only five minutes a day this coming week?

Client: Really? Is that enough time?

Therapist: It’s much better to practice for five minutes regularly than to set your goals so high that you don’t do it at all….

Client: I can definitely do five minutes.

Therapist: OK, remember you’re still probably going to feel it’s a waste of time. And you might still feel that after you practice. It might be boring or anxiety-provoking, or you might feel bad at it and think, “Why did she tell me to do this?” Do you think you can stick with it even if all of those things happen?

Client: Yeah, I can do anything for five minutes…. (Roemer & Orsillo, 2009, pp. 134-135)

As contemplative-meditational practice becomes a way of life, we build up in the mind what Siegel (2011) calls a “window of tolerance,” the increasing capacity to “maintain equilibrium in the face of stresses that would once have thrown us off kilter” (p. 137). Our sitting or walking or guided meditation gives us the opportunity to harness more of the power of mindful awareness, to focus our attention undividedly on the breath, the sacred word or mantra, a focal image that brings peace and comfort, and in so doing to direct our attention in a way that little remains for any anxious rumination. In expanding our window of tolerance in the context of meditational practice, we learn to
tolerate or even “accept” any distracting mental chatter, such as anxious thoughts and feelings, mindful of the 90-second biochemical rule. Over time, this “way of being” fostered in contemplative practice becomes applicable to one’s life in general, at home, at work, standing in the grocery line, cut off by a reckless driver on the highway. This is in fact more than mere speculation, for what we are learning from neuroimaging studies of meditators is that engaging in regular mindfulness meditation and/or contemplative prayer can and will change the brain, not only during one’s spiritual practice but increasingly in the broader context of one’s “whole life.” Neuroimaging, as Kandel pointed out earlier, helps the researcher to evaluate the metabolic activity of discrete regions of the brain while people are engaged in specific tasks under controlled conditions, and the consistency of that neural activity while engaged in other tasks in a variety of different settings.

In her extensive study of the neurobiology of meditation, Sara Lazar (2013), a researcher at Massachusetts General Hospital and Harvard Medical School, has found by way of neuroimaging that “regular meditation practice literally reshapes one’s brain, leading to long-lasting changes in neural function” (p.291). It becomes, in other words, a way of being that informs our daily living, above and beyond the fifteen or twenty minutes of meditational practice. Similarly, Richard Davidson (2012), a pioneer in the emerging field of contemplative neuroscience, has discovered that the regular practice of contemplative prayer and meditation “not only produces distinct patterns of brain activity in real time but also leaves enduring changes in that activity – so that the brain of a meditator is different from that of a nonmeditator even when she is not meditating” (p. 196). Recent findings in the field of cognitive and contemplative neuroscience offer us as
pastoral and spiritual practitioners an important framework for understanding how to most effectively help anxious clients and congregants develop a “window of tolerance” in the present moment of their lived experience. For example, the accumulating data from brain-imaging studies, such as that gathered by Lazar (2013), “lend considerable neural evidence to the claims of meditators that practice improves their mood, their emotional regulation, and, in particular, their ability to handle stressful situations when not meditating” (p. 291).

My own contemplative-meditational practice, for twenty minutes early in the day, is the Centering Prayer put forward by Fr. Thomas Keating (2006), the same practiced by the Franciscan nuns in Newberg’s study. It consists of a very straightforward four-step method: 1) find a quiet place to sit comfortably, 2) choose a word or mantra that becomes the sacred object of our attention, 3) the sacred word or mantra symbolizes our intention to be fully present with God, and 4) when distracting thoughts or feelings intrude, as they will, we “return ever so gently to the sacred word as the gift of your whole being to God present within you” (pp.121-122). As I am reminded of the multiplicity of meanings for the Hebrew word, ruach, it so often becomes my sacred word. For the twenty minutes of meditation, in rhythmic measure to my breath, I will breathe in “Breath” while breathing out “Spirit.” Over time, as Kabat-Zinn found with his MBSR clients, it becomes a way of life, so that anytime during the day when I feel a rush of amygdala-driven reactivity coming on, either at home or work or driving on the highways during rush hour, I find myself returning to the sacred word as a spiritual and emotional anchor, quieting the neurological turbulence. The Centering Prayer works for me, meditatively and throughout the day, helping me mindfully re-center in the gratitude for the sacred gifts of Breath and
Spirit. For others, including colleagues, clients, and congregants, other contemplative-meditational forms of practice offer greater resonance, both spiritually and physiologically, such as breathing meditation, mindfulness meditation, walking or guided meditation, music as meditation (e.g., Taizé), as well as many other contemplative practices. It is finding a meditational practice that works for you, and making sure to practice it, on a regular if not daily basis. From the standpoint of neuroscience, this has the capacity to foster neuroplasticity, to rewire the neurocircuitry of the brain in a way that neural pathways connected to higher-order cortical functioning are strengthened while those supporting pre-programmed limbic activity are quieted. Meditation, in other words, is “a top-down approach, beginning with the images in the brain which then influence brain and body responses through the limbic system and ultimately the brain stem” (Hogue, 2003, p.150). Whether they knew it or not, the Franciscan nuns practicing the Centering Prayer and the Buddhist monks practicing mindfulness meditation on a daily basis were rewiring their brains in much the same way, calming anxious limbic structures while strengthening the neural connections and synaptic linkages located in the pre-frontal cortex.

As we engage in daily spiritual practice, it is important to remember that it will not take too long before the mind leaps into action, with its steady flow of intrusive contents and distracting chatter. In virtually no time at all, even within the first minute, anxious thoughts can and will begin to enter our awareness: What will I make for dinner tonight? Do I have anything for dinner? Am I ready for today’s meeting and presentation? Did I make the car payment? Who is getting the kids after school? Sometimes I will hear clients and congregants remark that when this happens they give
themselves a pep talk or a talking-to, aligning with the inner-critic voice to say, in one form or another, “Stop getting distracted! This is supposed to be meditation time! Just FOCUS!” But this internal “battle” we have with ourselves ultimately defeats the purpose of meditational practice, whether it be for the spiritual purpose of centering ourselves in the peace and joy of God’s loving presence and/or for the physiological purpose of calming the limbic structures of the brain. Either way, it is counterproductive, as “our effort to combat our actual experience creates internal tension, a kind of self-inflicted distress” (Siegel, 2011, p.97). Thomas Keating’s (2006) rule of thumb for the practice of Centering Prayer is simple, yet profound, and lends itself to lowering limbic-system reactivity. By remembering to simply return ever so gently to the sacred word, mantra, or breath, anytime there is distracting mental chatter, we learn to “resist no thought, retain no thought, and react emotionally to no thought” (p.127).

A useful metaphor to keep in mind as we meditate, something noted earlier, is to think of our anxious thoughts and feelings as clouds in the sky. The contents of the mind, just like clouds in the sky, will come and go all the time as long as we do not get hooked by them and feed them with distracted attention beyond their initial biochemical surge. Another useful metaphor is to think of anxious mental contents as waves on the beach, ebbing and flowing all the time. As we would just observe the clouds in the sky and the waves on the beach, so, too, we learn to mindfully observe our anxious thoughts and feelings “from the perspective of a nonjudgmental third-party” (Davidson, 2012, p.173). The meditative process of resisting no thought, retaining no thought, and not reacting to any thought or feeling, simply returning ever so gently to our sacred anchor, eventually becomes a way of life. Practiced over time, mindfulness meditation and contemplative
spiritual practice has the capacity to change the functioning and structure of the brain, “tapping into the plasticity of the brain’s connections, creating new ones, strengthening some old ones, and weakening others” (Davidson, p.205). In particular, it can weaken the neural connections that trigger self-criticism and judgment:

The worst thing you can do in meditation is to critically judge your performance - and yet you will find that there is a critical voice inside of all of us that is constantly judging every little thing we do. Meditation practice teaches us how to be accepting of who we are, of our weaknesses as well as strengths. Remember: Self-criticism stimulates the amygdala, which releases myriad stress-provoking neurochemicals and hormones. (Newberg, 2009, p.195)

Mindfulness in the context of pastoral care and counseling

Pastoral counselors and psychotherapists can begin making use of contemplative-meditational practices when working with clients, not only to support a client’s spiritual growth and development but also as foundational for the therapeutic work. More specifically, by encouraging those in our care to engage in regular mindfulness practices, whether meditational and/or contemplative, we are offering tangible and evidence-based methods that have the potential for reducing one’s level of stress and anxiety. What we are learning from neuroscience is that the harnessing of mindful awareness, the intentional focusing of our undivided attention on a specific focal object, whether in the form of our breath, a sacred word or mantra, or thoughts of gratitude and loving-kindness, fosters neuroplastic change in the brain. The findings could not come at a better time, as pastoral and clinical practitioners look for specific therapeutic methods and
spiritual practices that can help clients and congregants feel less anxious about tomorrow. And, while there is certainly no shortage of therapeutic and spiritual techniques available to us, what is becoming clear from the research is that some of these methods and practices correlate with a reduction in limbic activity more than others. In the coming years, observes Eric Kandel, we will be able to evaluate, by way of neuroimaging studies, the therapeutic outcomes of different counseling approaches, revealing with greater clarity that “different forms of psychotherapy lead to different structural changes in the brain, just as other forms of learning do” (2006, p.370). Already, we know that mindfulness-based approaches to counseling, which integrate meditational practice into the therapy session and also require that clients be practicing regular mindfulness meditation outside the sessions, pay close attention to the findings of neuroscience in order to “find guidance in the general technique principles derived from research evidence” (Siegel, 2010, p.78).

Practitioners of mindfulness-based cognitive therapy (MBCT), for example, encourage clients in their meditational practice to develop a welcoming or allowing attitude toward the full range of internal experience, including thoughts and feelings and sensations that are easy to sit with and, even more importantly, those that are not. “As we explore what happens when we step outside the struggle that arises out of ‘not wanting,’ little by little we are learning acceptance, how to relate differently to mental pain and anguish” (Segal et al., 2013, p.291). This does not mean liking or wanting every single content of the mind, e.g., an anxious thought or painful feeling; we are simply cultivating a mindful awareness of the totality of our experience in the present moment, as it is rather than as it should be. MBCT therefore represents something of a departure from traditional
cognitive behavioral therapy (CBT), in that the focus is more on how a client relates to the full range of internal experience, including any negative thoughts and painful feelings. “This involves moving from a focus on content to a focus on process – away from cognitive therapy’s emphasis on changing the content of negative thinking toward attending to the way all experience is processed” (Segal et al., 2013, p.74). Rather than feel any need to do anything to or with our negative thinking, or, in CBT terms, to focus on changing our irrational thoughts and attitudes, we step outside of the internal struggle that comes from not wanting and from perpetually judging the contents of the mind as good or bad, healthy or pathological, spiritual or sinful. This has the distinct advantage of quieting the limbic area of the brain, preempting the firing of amygdala neurons and the release of stress-provoking neurochemicals that would otherwise be produced in response to an internal struggle. In the context of MBCT practice, this welcoming or allowing perspective “leads individuals to see their thoughts and feelings as mental events that come and go, that do not necessarily reflect important truths about their worth or adequacy as human beings, and that do not necessitate specific reactions or behaviors” (Coffman et al., 2006, p.34). For clients and congregants frustrated that they cannot seem to rid their minds of unwanted negative thoughts and feelings, it can be helpful to reframe or normalize the process: Given that the human brain, yours, mine, and everyone else’s, has a built-in negativity bias, the hardwired vestige of a more primitive ice-age brain, it is a wonder that negative thoughts and anxious feelings do not come to mind more often.

While the human brain is still largely a mystery, another frontier of sorts in the scientific world, we are already learning that there are specific ways to increase and lower activity in discrete regions. The finding has important implications for the work of
pastoral care and counseling, as practitioners, guided by technique principles derived from research evidence, help clients and congregants to live more fully in the present moment of their lived experience, worrying and ruminating less about tomorrow and the future. In clinical practice, the pastoral counselor, guided by mindfulness-based methods and techniques, can encourage clients to give up the internal struggle or battle with unwanted “parts,” including any negative thoughts, anxious feelings, and painful memories. Rather than fighting with these unwanted parts, which is ultimately a struggle we are having with ourselves, clients are encouraged to be more mindful and accepting of the totality of their internal experience, to be curious about the “parts” without getting hijacked by any of them. Siegel (2010) puts forward the helpful acronym of COAL, to help clients move from, in mindfulness-based terms, experiential avoidance to experiential acceptance. COAL stands for curiosity, openness, acceptance, and love, and offers clients a fundamentally different way to relate to themselves and the full range of internal experience that is correlative with a reduction in limbic activity. He points out that “when we have a COAL state with ourselves, we can call this self-compassion,” which reflects a neurally integrative state where “we have the observing and experiencing self in resonance” (p.55).

In developing a core observational self, with the capacity to monitor and modulate the comings and goings of the mind with curiosity, openness, and compassion, we can foster neuroplastic change that stimulates growth in higher-order prefrontal circuits while calming fearful limbic structures. And, as we have been learning, growth in observational or mindful awareness occurs quintessentially in the context of regular contemplative-meditational practice. Siegel (2010) observes that in finding “a mindfulness practice that
you can do every day – even if just for five or ten minutes a day, perhaps building up to twenty minutes a day,” the tangible hope is that “you will discover like so many people that you can develop a new capacity to both monitor and modify your internal world.” He goes on to say that

The breath in mindfulness meditation, your postures in yoga, your movements in tai chi, the sense of motion of energy in qigong, your words in Centering Prayer, your feet in walking meditation, the body in a body-scan, images in a single-pointed imagery of a peaceful place….Such mindfulness practice is akin to keeping your brain healthy and fit. We keep the health of our bodies well by keeping physically active with regular exercise. Mindfulness exercises are daily brain fitness practices that study after study suggest keep our brain healthy and our mind resilient. (pp.29-30)

The paradigm shift that I am suggesting for pastoral care and counseling, in light of neuroscientific research, is to elevate in our religious faith communities contemplative-meditational practice to a place of comparable importance with right or correct belief, doctrine, and theology. This paradigmatic shift will also have important therapeutic implications for pastoral counselors, as we become increasingly informed by counseling techniques and principles derived from research evidence, e.g., calming the limbic region of the brain through mindfulness-based practices. In much the same way as Siegel has developed a clinical framework for the “mindful therapist” and for the continued development of a mindfulness-based psychotherapy, my hope is that those of us working in the field of pastoral care and counseling can begin to put forward a framework that reflects a similar in-depth engagement with contemporary neuroscience, in order to help

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guide the mindful pastoral caregiver and the mindful pastoral counselor. Neurologically speaking, our anxious clients and congregants will learn to more effectively calm the stress region of the brain, with our help during counseling sessions and self-directed between sessions. Over time, those in our care can and will experience more fully and tangibly the spiritual and psychophysiological benefits of a regular contemplative-meditational practice, as it becomes the foundation for a more mindful way of life.

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